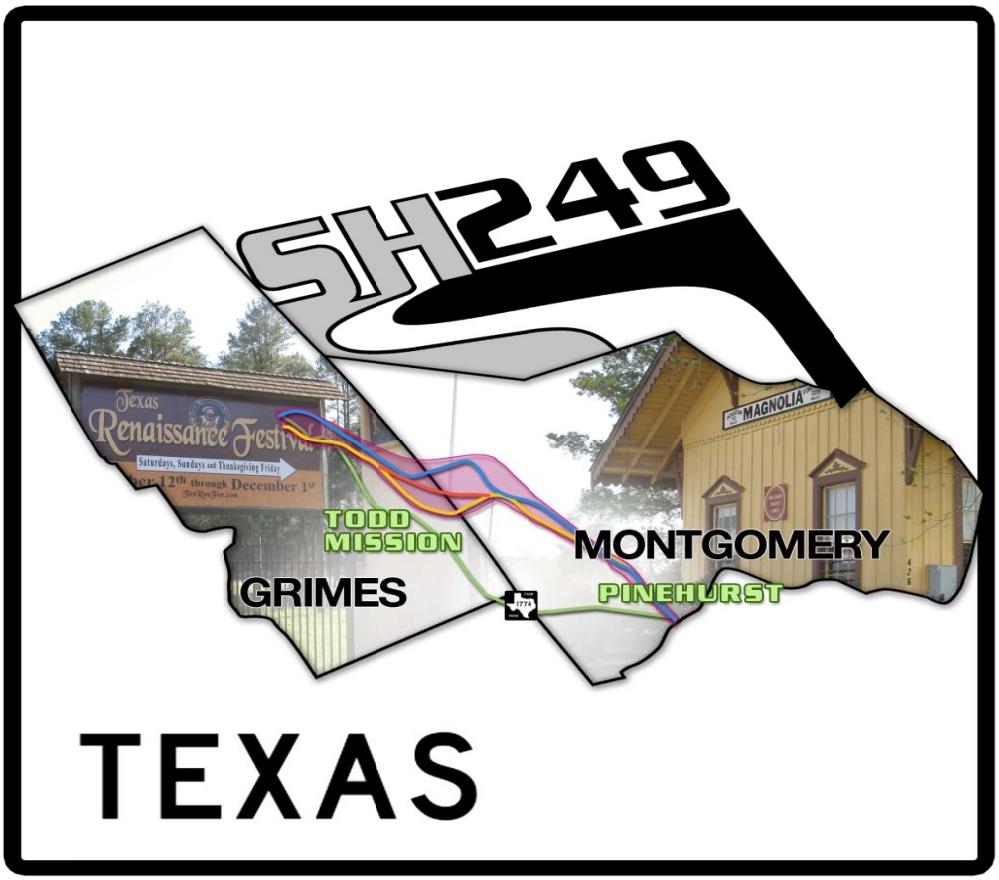
SH 249 Extension

From FM 1774 in Pinehurst
To FM 1774 North of Todd Mission
Montgomery and Grimes Counties, Texas
CSJ: 0720-02-072 and 0720-02-073

Draft
Environmental Impact Statement



Texas Department of Transportation
Houston District
January 2015

The environmental review, consultation, and other actions required by applicable Federal environmental laws for this project are being, or have been, carried-out by TxDOT pursuant to 23 U.S.C. 327 and a Memorandum of Understanding dated December 16, 2014, and executed by FHWA and TxDOT.

FHWA-TX-EIS-06-01-D

STATE HIGHWAY (SH) 249
FROM FM 1774 IN PINEHURST
TO FM 1774 NORTH OF TODD MISSION

CSJs 0720-02-072 and 0720-02-073

MONTGOMERY AND GRIMES COUNTIES, TEXAS

DRAFT ENVIRONMENTAL IMPACT STATEMENT

Submitted Pursuant to 42 U.S.C. 4332 920 (c)
and 49 U.S.C. 303 by the

U.S. Department of Transportation
Federal Highway Administration
Texas Department of Transportation

Cooperating Agencies
U.S. Army Corps of Engineers
U.S. Department of the Interior
U.S. Environmental Protection Agency

1/5/15
Date of Approval

Texas Department of Transportation

The environmental review, consultation, and other actions required by applicable Federal environmental laws for this project are being, or have been, carried-out by TxDOT pursuant to 23 U.S.C. 327 and a Memorandum of Understanding dated December 16, 2014, and executed by FHWA and TxDOT.

TxDOT will issue a single Final Environmental Impact Statement (Final EIS) and Record of Decision document pursuant to Pub. L. 112-141, 126 Stat. 405, Section 1319(b) unless TxDOT determines statutory criteria or practicability considerations preclude issuance of the combined document pursuant to Section 1319.

Comments on the Draft Environmental Impact Statement (Draft EIS) (due 45 days from the date the Notice of Availability is published in the Federal Register) should be sent to the Texas Department of Transportation, Attention: Director of Project Development, 7721 Washington Avenue (or P.O. Box 1386), Houston, Texas 77251-1386.

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January 2015

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ABSTRACT: The proposed SH 249 Controlled-Access Tollway Extension project (proposed SH 249 Extension) would extend from just south of the State Highway (SH) 249/Farm-to-Market (FM) 1774/FM 149 interchange in the City of Pinehurst to a new SH 249/FM 1774 interchange north of the City of Todd Mission. The proposed SH 249 Extension would be developed on a new location and would be approximately 14 to 15 miles in length. In crossing the southwest portion of Montgomery County and extending into the southeast portion of Grimes County, the proposed SH 249 Extension would be constructed as a four-mainlane, controlled-access tollway with intermittent frontage roads within a typical 400-foot-wide right-of-way (ROW). The Draft EIS evaluates the social, economic, and environmental effects of the proposed tollway and includes an assessment of resources such as land use, farmlands, social, economics, air quality, noise, wetlands, floodplains, water quality, biological resources, cultural resources, hazardous/regulated materials, and visual aesthetics.

Comments on the Draft EIS are due by March 4, 2015, and should be sent to the Texas Department of Transportation – Director of Project Development, Texas Department of Transportation, P.O. Box 1386, Houston, TX 77251-1386

Notice

The environmental review, consultation, and other actions required by applicable Federal environmental laws for this project are being, or have been, carried-out by TxDOT pursuant to 23 U.S.C. 327 and a Memorandum of Understanding dated December 16, 2014, and executed by FHWA and TxDOT. Under the Memorandum of Understanding, FHWA has assigned to TxDOT its responsibilities under the National Environmental Policy Act and a wide range of other environmental laws. TxDOT, therefore, has assumed FHWA's role in the environmental review and approval process. TxDOT also has assumed FHWA's legal responsibilities for complying with the laws and regulations assigned to TxDOT by FHWA.

EXECUTIVE SUMMARY

The existing and proposed State Highway (SH) 249 would ultimately connect portions of the Greater Houston area, northwest Harris County, and Montgomery County to SH 105 in Grimes County via a controlled-access tollway. The development of SH 249 currently involves three planning segments.

The proposed SH 249 Controlled-Access Tollway Extension project (proposed SH 249 Extension) would be the second of the three segments, extending from just south of the SH 249/Farm-to-Market (FM) 1774 interchange in the City of Pinehurst (Pinehurst) to a new SH 249/FM 1774 interchange north of the City of Todd Mission (Todd Mission). The proposed tollway would be constructed on a new location and would be approximately 14 to 15 miles in length, depending on the proposed SH 249 Extension's alternative alignment. In crossing the southwest portion of Montgomery County and extending into the southeast portion of Grimes County, the proposed SH 249 Extension would be constructed as a four-mainlane, controlled-access tollway with auxiliary lanes, on-ramps and off-ramps (where appropriate), and intermittent frontage roads within a typical 400-foot-wide right-of-way (ROW).

ES 1 PROJECT NEED AND PURPOSE

Three significant transportation improvement needs affect the proposed SH 249 Extension study area. First, inefficient connections exist between suburban communities and major and minor radial and circumferential arterials. Second, projected population and employment growth in the area would likely increase demand on the current transportation infrastructure. Third, there are growing safety concerns around the impacts of increased congestion and emergency evacuation (hurricane).

The purpose of the proposed SH 249 Extension is to efficiently link the suburban communities and major roadways, enhance mobility and safety, and respond to population growth and residential development in the area. The goal of the proposed tollway is to improve system linkage, address current and future transportation demand through expanded capacity, improve safety, and accommodate population growth and economic development.

ES 2 ALTERNATIVES ANALYSIS

The alternative analysis approach developed for the Draft Environmental Impact Statement (Draft EIS) allowed for a full comparison and evaluation of alternatives through an iterative series of phases. The process led to the selection of a single Preferred Alternative that would best serve the need and purpose of the proposed SH 249 Extension and would best avoid or minimize environmental impacts.

ES 2.1 Previous Studies and Reports

There have been a number of directly and indirectly related studies on the proposed SH 249 Extension study area, and many of the studies have identified needs that correlate with the proposed transportation improvements documented in the Draft EIS. The three most significant studies were the Feasibility Study between Bryan/College Station and Pinehurst, the 1998 route study, and the SH 249 Major Investment Study (MIS).

The most influential study on the developmental process was the SH 249 MIS. Conducted by the Texas Department of Transportation (TxDOT) in February 2002, the MIS evaluated 11 alternative corridors that were all 1,000 feet wide, and the Most Feasible Alternative Corridor became the starting point for developing the alternative alignments evaluated for the Draft EIS. The MIS also analyzed the feasibility of the Transportation System Management/Travel Demand Management (TSM/TDM) alternatives and the No-Build Alternative.

ES 2.2 Transportation System Management/Travel Demand Management Alternatives

The TSM/TDM alternatives analyzed in the MIS were deemed low-cost traffic management programs. The programs were designed to improve mobility within the proposed SH 249 Extension study area, while curtailing any major capital investment. The considered TSM/TDM alternatives included improving the intersections along FM 1774, FM 149, FM 1488, and other roadways; providing a continuous left-turn lane in Magnolia on FM 1774/1488; adding park-and-pool facilities; providing bus service from Magnolia to large traffic generators; coordinating trip reduction plans with area employers; and identifying land use opportunities for facilities that are within walking distance of residences and businesses.

When analyzed, the TSM/TDM alternatives would not relieve the serious and severe levels of future congestion predicted in and around the proposed SH 249 Extension study area. While TSM/TDM measures would still be evaluated and implemented where feasible, additional transportation improvements in the area are needed to address congestion and mobility. As such, the TSM/TDM alternatives were eliminated from further screening in the MIS then and the Draft EIS now.

ES 2.3 No-Build Alternative

The No-Build Alternative would include all existing conditions and the construction of all projects in the *2035 Regional Transportation Plan (RTP) Update* except for the proposed SH 249 Extension or any of the TSM/TDM alternatives. The No-Build Alternative was the baseline alternative considered throughout the MIS and within the Draft EIS for comparison purposes.

ES 2.4 Moving from the Most Feasible Alternative Corridor to the Most Reasonable Alternative Alignments

The four alternative alignments under consideration for the Draft EIS originated, in part, from the Most Feasible Alternative Corridor (i.e., Alternative Corridor E3) analyzed and refined by public

and agency comment on the MIS. Included with the selection of Alternative Corridor E3 was the recommendation to widen FM 1774 to a four-lane, divided roadway between Pinehurst and FM 1488.

The 1,000-foot-wide Alternative Corridor E3 boundary was never intended to be rigid. As such, potential alternative alignments could extend beyond the corridor to minimize or avoid impacts, if needed. Within the adjusted corridor limits, five preliminary alternative alignments (i.e., Alternative Alignment A, B, C, D, and E) were developed and analyzed to determine the Most Reasonable Alternative Alignments that would be carried forward for further study alongside the No-Build Alternative.

ES 2.4.1 Screening the Preliminary Alternative Alignments for the Draft EIS

The Draft EIS determined the Most Reasonable Alternative Alignments by applying a series of established engineering and environmental/socioeconomic screening criteria. The five major engineering criteria were the length of the alignment, estimated ROW needs, pipeline crossings, floodplain crossings, and stream crossings. The three socioeconomic/environmental criteria were residential and commercial displacements, community cohesion, and potential wetland impacts.

After review of the screening results, Alternative Alignment A and D were eliminated from further consideration. Through continued public involvement and coordination with the public, stakeholders, and adjacent property owners, Alternative Alignment B was adjusted, and an additional alternative alignment was developed as a hybrid between Alternative Alignment B and C. Labeled as Alternative Alignment B/C, the hybrid alignment further avoided engineering and environmental impacts and provided property owners an alternative that may better achieve the proposed SH 249 Extension's purpose.

As such, the Draft EIS Reasonable Alternative Alignments carried forward for further study in the Draft EIS are Alternative Alignment B, B/C, C, E, and the No-Build Alternative. On October 3, 2013, a public meeting was held to show the public the new Recommended Alternative Alignment B/C. The Recommended Alternative Alignment B/C was adjusted to address comments received from the public meeting held on October 3, 2013, to become the Preferred Alternative.

ES 3 ENVIRONMENTAL ISSUES

ES 3.1 Land Use

The proposed SH 249 Extension study area consists primarily of vacant and developable land, much of which is farmland, ranchland, and vacant land. The forested areas within the study area are predominately pine-hardwood forest. Some residential land use exists in the study area, and retail, commercial, high-density residential, and other land uses are primarily concentrated around the City of Magnolia (Magnolia), Pinehurst, and the major roadways of FM 1774, FM

1488, FM 1486, and FM 149 within in the study area. There are 12 residential communities/subdivisions located within the study area, and several master planned communities are under development and have pre-platted properties within or nearby the study area. The proposed SH 249 Extension would convert existing land uses to a transportation use through the acquisition of ROW. Alternative Alignment B, B/C, C, and E would also cross existing transportation land uses that range from an active Union Pacific Railroad (UPRR) railway to several major roadways.

A majority of the proposed SH 249 Extension (12.18 miles) is included in Appendix F (Unfunded Improvements) of the *2035 RTP Update*. However, as an unfunded project, the proposed SH 249 Extension is not in conformity. Additionally, the *2035 RTP Update* does not list the northern 2.6 miles of the proposed tollway located within Grimes County. The Federal Highway Administration (FHWA) will not take final action on the EIS until the proposed SH 249 Extension is consistent with a fiscally constrained and conforming RTP and Transportation Improvement Program (TIP).

The No-Build Alternative would not result in the conversion of existing land uses. Land use changes would continue to occur based on market conditions and as parcels are platted for development.

ES 3.2 Geology, Farmlands, and Soils

All four alternative alignments would cross similar topography that is moderately well to somewhat poorly drained and that has moderate shrink-swell potential. Impacts to the proposed tollway from the natural environment would be limited to land-surface subsidence and fault reactivation, particularly in response to heavy withdrawal of groundwater. Surface faults are common to the region, but the low seismic activity rating of the faults does not appear to pose an imminent threat or need for concern to the proposed SH 249 Extension.

While impacts to geology and soils would be unavoidable under Alternative Alignment B, B/C, C, and E, engineering and design considerations would offset impacts. In areas of present or projected subsidence, special attention would be given to problems caused by loss of ground elevation. Impacts would be mitigated through final roadway design features that have not been completed at the time of the Draft EIS.

Prime farmland soils exist within the study area but would be avoided where practicable. Project-related impacts to prime farmland in Montgomery and Grimes counties were determined to be minimal according to the land evaluation and site assessment scoring used by the Natural Resources Conservation Service (NRCS). The total score for Alternative Alignment B, B/C, C, and E ranged from 107 to 111. Therefore, further coordination with the NRCS would not be required. Farmlands of statewide importance exist within the study area and would be impacted by all four alternative alignments. Alternative Alignment B/C would have the least impact on

farmlands of statewide importance, and Alternative Alignment B and E would have comparably the largest impact on farmlands of statewide importance.

Under the No-Build Alternative, there would be no anticipated impact to the proposed SH 249 Extension study area's topography or geological resources. There would also be no immediate or direct impact to prime farmland or soils However, general development pressure could eventually result in the conversion of prime farmland to non-farmland uses, and other types of development may occur that could impact or be impacted by the soils in the area.

ES 3.3 Social Characteristics

ES 3.3.1 Population

The proposed SH 249 Extension study area is forecasted to experience growth because of predicted use and available land primarily located in the northwest section of the study area. The direction of growth would be consistent with the goals and objectives of Montgomery and Grimes counties and the surrounding communities.

Alternative Alignment B, B/C, C, and E were proposed in response to present and anticipated growth. Forecasts predict that most of the growth would occur near Magnolia and Pinehurst, but all existing communities, as well as future residents and commercial businesses near the proposed SH 249 Extension, would benefit from a new commuter route, traffic congestion relief, and adequate capacity for future traffic.

Under the No-Build Alternative, forecasted population increases in the study area could lead to increased traffic congestion, increased traffic noise levels, and decreased property values within the study area's communities and neighborhoods.

ES 3.3.2 Housing, Neighborhoods, and Community Cohesion

The four alternative alignments have the potential to affect housing, neighborhoods, and community cohesion by displacing residences, businesses, and community facilities and, in some instances, creating a barrier that would divide neighborhoods.

Residential properties could be displaced in the Hazy Hollow East, High Chaparral, and Magnolia East neighborhoods, all of which would reduce the housing stock in the neighborhoods. Alternative Alignment B/C and C would displace two residential properties in the Hazy Hollow East neighborhood. Alternative Alignment B would displace 17 residential properties in the High Chaparral neighborhood, and Alternative Alignment E would displace 16 residential properties in the Magnolia East neighborhood. However, sufficient residential development would still exist in the neighborhoods. While the displacements would alter the immediately adjacent area, the long-term impacts on available housing stock would not be adverse.

While no community facilities are located within High Chaparral and Magnolia East (e.g., community center, park/play area, or pool), Alternative Alignment B and E would divide the community and isolate five and three residences, respectively. Because access cannot be denied, TxDOT would provide access to or displace and relocate each resident. Even if it is determined that access can be provided to the displaced residences, High Chaparral and Magnolia East would still be divided and, therefore, impacted by the proposed SH 249 Extension.

Access ramps would potentially exist between the proposed SH 249 Extension and FM 1486 that could result in new development in the immediate area. The development may increase population density, utility and social service responsibilities, and the conversion of forest, pasture, and croplands into additional residential areas or other urban forms of land use.

Under the No-Build Alternative, there would be no housing or community cohesion impact to residents within the study area's communities and neighborhoods.

ES 3.3.3 Community Facilities, Services, and Resources

Although Alternative Alignment B, B/C, C, and E were selected to avoid and minimize impacts to sensitive community facilities, services, and resources to the extent practical, there still would be potential impacts within the study area. The Believers Fellowship Baptist Church is the one church and school that would be impacted by the proposed SH 249 Extension. The church and preschool would be considered a displacement/relocation under Alternative Alignment B/C and C.

No police stations, fire departments, emergency medical services, cemeteries, parks, Section 4(f) resources, Section 6(f) resources, or any other community services/facilities are located within the study area.

Under the No-Build Alternative, travel patterns within the proposed SH 249 Extension study area would remain relatively the same, with the exception of maintenance and repair along the existing SH 249 as needed. However, future traffic volumes on surrounding roadways would increase from the projected population growth. Traffic, coupled with travel patterns to and from work inside and outside the study area, would contribute to travel delays and access constraints from congestion. As a result, residents would experience mobility constraints when trying to access community services and facilities. Congestion would also likely lead to an increase in response times for police, fire, and medical services under the No-Build Alternative.

ES 3.3.4 Displacements and Relocations

Alternative Alignment B would displace 26 structures, including three businesses. Alternative Alignment B/C and C would displace seven structures, including one church/preschool. Alternative Alignment E would displace 18 residential structures.

If the three displaced/relocated businesses under Alternative Alignment B decide not to re-open or relocate within the study area, impacts to residents and local communities would be minor because the businesses are not major employers and do not provide essential services. Comparable businesses are also available nearby (with the exception of the paintball course). Additionally, sufficient residential development would still exist in the impacted neighborhoods. While the displacements would alter the immediately adjacent area, the long-term impacts on available housing stock would not be adverse.

Under the No-Build Alternative, there would be no impacts from displacements/relocations to residences, businesses, churches/schools, and/or ancillary buildings in and around the proposed SH 249 Extension study area.

ES 3.3.5 Environmental Justice

2010 Census demographic data were analyzed at the most appropriate level to accurately identify where minority and/or low-income populations reside in the proposed SH 249 Extension study area. Of the 485 Census blocks located within the study area, 48 have a minority population that accounts for greater than 50 percent of the total population. No block groups in the study area meet the definition of low-income based on household sizes and median household incomes. While individual minority and low-income populations may be impacted by tolling, displacements, noise, and construction of the proposed SH 249 Extension, implementation of the proposed tollway would not cause disproportionately high and adverse impacts to minority or low-income populations.

The No-Build Alternative would not result in disproportionately high or adverse impacts, as all people would be similarly impacted. Under the No-Build Alternative, the entire community, including minority and low-income populations, would not experience potential impacts from the proposed SH 249 Extension, such as displacements, noise, and construction. However, the community would also not experience the benefits of decreased traffic congestion, improved mobility, creation of short and long-term jobs, and improved safety conditions resulting from the proposed tollway.

ES 3.4 Economics

ES 3.4.1 Property Tax Revenue

Each of the four alternative alignments would pass through several taxing jurisdictions and would remove property from the tax rolls through the acquisition of ROW and because of displacements. However, the transportation improvements from the proposed tollway have the potential to spur economic development activities within the study area, and some of the potential loss in property tax revenue could be offset by an increase in overall property values.

ES 3.4.2 Employment and Income during Construction

The construction of the proposed SH 249 Extension would potentially generate local, regional, and state economic benefits from construction spending. The benefits would be direct employment and income for the construction industry, indirect effects for industries that supply equipment and materials, and induced impacts based on the spending of the new employees.

ES 3.4.3 Long-term Employment Growth

The long-term economic impacts of the proposed SH 249 Extension would be an increase in regional economic activity because the proposed tollway would improve connections and mobility throughout the region. The types of long-term growth associated with improved mobility would be expanded customer or supplier markets, expanded labor markets, reduced business operating cost through lower direct costs or increased economies of scale, and/or increased volume, visibility, and access for companies that rely on pass-by traffic.

Under the No-Build Alternative, there would be no impact to property tax revenue or the removal of property from the tax rolls through the acquisition of ROW or because of displacements. However, the community would not experience the benefits of short-term employment, income during construction, and potential long-term growth. The increased traffic congestion and deteriorating mobility resulting from the No-Build Alternative could also limit short and long-term economic growth in the study area and larger region.

ES 3.5 Pedestrians and Bicyclists

Alternative Alignment B, B/C, C, and E would not adversely affect any existing bicycle or pedestrian network. While no new bicycle or pedestrian facilities would be proposed for the controlled-access portion of the proposed SH 249 Extension, design would consider sidewalks for the non-tolled portions of the proposed tollway. The proposed SH 249 Extension would also accommodate all existing and future crossings for both pedestrians and bicyclists at intersections, bridges, and over/underpasses by providing crosswalks, walk signals, and appropriate signage at grade-separated intersections (e.g., on-ramp access points).

Under the No-Build Alternative, there would be an indirect impact to bicycle and pedestrian facilities because of increased congestion on existing local roadways, which may cause a decrease in safety and bicyclist/pedestrian mobility along existing roadways.

ES 3.6 Air Quality

Both Houston-Galveston Area Council's (H-GAC's) *2035 RTP Update* and the *2013-2016 TIP*, as amended, were initially found to conform to the State Implementation Plan (SIP) by FHWA and the Federal Transit Administration (FTA) on January 25, 2011, and November 1, 2012, respectively. However, the proposed SH 249 Extension is not consistent with the conformity determination because the proposed tollway is currently unfunded and is not included in the financially constrained plan. FHWA/TxDOT will not take final action on the environmental

document until the proposed SH 249 Extension is consistent with the currently conforming *2035 RTP Update* and the *2013-2016 TIP*.

Current design year 2035 traffic is estimated to be 83,780 Vehicles Per Day (VPD) in Pinehurst to 13,166 VPD in Todd Mission. A prior TxDOT modeling study demonstrated that it is unlikely that a carbon monoxide standard would ever be exceeded as a result of any project with an Average Annual Daily Traffic (AADT) below 140,000 vehicles per day. The AADT projections for the proposed project do not exceed 140,000 vehicles per day; therefore, a Traffic Air Quality Analysis would not be required. It should be noted that since the proposed project is listed as unfunded on the 2035 RTP Update, traffic volumes were modeled for the proposed project in H-GAC's most current traffic model network in September 2013.

Under Alternative Alignment B, B/C, C, and E in the design year, it is expected that there would be slightly higher mobile source air toxic (MSAT) emissions in the proposed SH 249 Extension study area relative to the No-Build Alternative. However, the U.S. Environmental Protection Agency's (EPA's) vehicle and fuel regulations would bring about significantly lower MSAT levels for the area in the future than today.

In an effort to reduce congestion and the need for single occupancy vehicle (SOV) lanes in the region, TxDOT and H-GAC would continue to promote appropriate congestion reduction strategies through the Congestion Mitigation and Air Quality program, the congestion management process (CMP), and the *2035 RTP Update*. The congestion reduction strategies considered for the proposed SH 249 Extension study area would help alleviate congestion in the SOV study area boundary, but would not eliminate congestion.

The construction activity phase of the proposed SH 249 Extension may generate a temporary increase in MSAT emissions from construction activities, equipment, and related vehicles. However, considering the temporary and transient nature of construction-related emissions, as well as the mitigation actions to be utilized, it is not anticipated that emissions from construction of the proposed SH 249 Extension would have any significant impact on air quality in the area.

Under the No-Build Alternative, additional air emissions may be associated with the increased congestion on existing local roadways.

ES 3.7 Noise

All four alternative alignments would result in noise impacts, and abatement measures were considered for the Draft EIS traffic noise analysis. Noise barriers would only be feasible and reasonable for 66 impacted receivers under Alternative Alignment B/C. As such, a noise barrier is proposed for incorporation with Alternative Alignment B/C. Any subsequent design changes may require a reevaluation of the preliminary noise barrier proposal. The final decision to construct the proposed noise barrier will not be made until completion of the proposed SH 249 Extension's design, utility evaluation, and polling of adjacent property owners.

Noise associated with the construction of the proposed SH 249 Extension is difficult to predict, but typically, construction-related noise would occur during daylight hours when occasional loud noises are more tolerable. None of the receivers are expected to be exposed to construction noise for a long duration. Provisions would be included in the plans and specifications that require the contractor to make every reasonable effort to minimize construction noise through abatement measures.

Under the No-Build Alternative, there would be no short-term impact to noise in or around the proposed SH 249 Extension study area. However, congestion would continue to increase on the existing SH 249 and local arterial roadways, which would cause an increase in traffic noise levels in the area.

ES 3.8 Water Quality

ES 3.8.1 Surface Water

Alternative Alignment B, B/C, C, and E would all result in short-term (construction-related) and long-term water quality impacts. An increase in impermeable surface area resulting from additional pavement would cause direct water quality impacts by increasing stormwater runoff. Construction of the proposed SH 249 Extension would also result in soil disturbances that would cause a short-term water quality impact by temporarily increasing the level of suspended particles in stormwater runoff. All four alternative alignments also have the potential to impact surface water quality at stream crossings. Alternative Alignment E would construct the least amount of impermeable surface area and have the fewest number of stream crossings.

The proposed SH 249 Extension will comply with the Texas Pollutant Discharge Elimination System (TPDES) Construction General Permit (CGP) requirements because the proposed tollway would disturb more than 5 acres of land. Coordination with the Texas Commission on Environmental Quality (TCEQ) would be required per the TxDOT Memorandum of Understanding (MOU) with TCEQ.

ES 3.8.2 Groundwater

Construction and operation of the proposed SH 249 Extension would have a nominal impact to regional groundwater resources. However, groundwater pollution prevention measures may be required for the public wells included under the Stormwater Pollution Prevention Plan (SW3P) for which capture zones, defined by the TCEQ, are overlapped by the alternative alignments.

According to data reviewed from the Public Water Supply Section of the TCEQ, none of the adjacent wells to the proposed tollway are enrolled in the Wellhead Protection Program. However, because of close proximity, any wells found in or adjacent to the Preferred Alternative would be identified and plugged prior to construction.

ES 3.8.3 Public Drinking Water Systems

Construction and operation of the proposed SH 249 Extension would also have a nominal impact to public drinking water resources. A review of well records and published groundwater reports of the Texas Water Development Board indicated that a total of three public water-supply wells, eight private/domestic water wells, and two unknown water wells are located within the study area. Two of the public water-supply wells are directly within the ROW of all four alternative alignments, and each would be plugged according to TCEQ regulations at the appropriate time.

Under the No-Build Alternative, there would be no increase in impermeable surface area and no additional stream crossings. Therefore, there would be no impact to surface water, groundwater, or the public water supply.

ES 3.9 Wetlands and Other Waters of the U.S.

ES 3.9.1 Navigable Waters of the U.S.

No navigable waterways or waters subject to the ebb and flow of a tide occur in areas traversed by Alternative Alignment B, B/C, C, and E. Therefore, a Section 9 permit from the U.S. Coast Guard or a Section 10 permit from the USACE would not be required for the proposed SH 249 Extension.

ES 3.9.2 Waters of the U.S., Including Wetlands

Preliminary information based on National Wetland Inventory (NWI) maps indicates numerous small wetlands areas scattered throughout the proposed SH 249 Extension study area. Most of the wetlands are Palustrine Open Water Permanently Flooded, diked/impounded or excavated wetlands. Under current U.S. Army Corps of Engineers (USACE) guidelines, the wetlands would be considered isolated wetlands. Currently, isolated wetlands are not jurisdictional and are not regulated by the USACE.

Based on limited field surveys, the greatest potential to encounter waters of the U.S., including wetlands, is in and around Mill Creek and its tributaries. Primarily non-forested and some forested wetlands are the two general types of wetlands that occur within the proposed SH 249 Extension study area. According to NWI mapping, five major subclasses of wetlands are within areas traversed by the proposed SH 249 Extension: Palustrine Unconsolidated Bottom, Palustrine Emergent, Palustrine Forested, Palustrine Scrub-Shrub, and Lacustrine Limnetic.

Most impacts to wetlands would occur along Alternative Alignment B and E. Alternative Alignment C would have the least impact on wetlands, and Alternative Alignment B/C would have a comparably moderate impact on wetlands. Alternative Alignment B would require the most stream crossings. Table ES-1 lists all impacts associated with wetlands.

Under the No-Build Alternative, there would be no impact to waters of the U.S., including wetlands.

ES 3.10 Permits

Section 404 of the CWA authorizes the USACE to regulate discharges of dredged or fill material into waters of the U.S., including wetlands. Additionally, the discharge of dredged or fill material into jurisdictional waters of the U.S. requires a Section 401 Water Quality Certification by the TCEQ. A water/wetland determination/delineation (if necessary) would be performed for the next phase of the environmental clearance process. At that time, the USACE would be requested to verify the determinations/delineations.

ES 3.11 Vegetation and Wildlife

ES 3.11.1 Vegetation

The primary impact to vegetation would be the removal of existing vegetation to accommodate ROW, site preparation, and construction of the proposed SH 249 Extension. Loblolly pine-oak forest, mixed hardwoods within the floodplain, upland pasture, and residential/urban areas would potentially be impacted by all four alternative alignments. Alternative Alignment C would affect the most acreage of unmaintained vegetation, and Alternative Alignment E would have the least impact to unmaintained vegetation. Table ES-1 lists all impacts associated with vegetation.

The direct impacts of construction, operation, and maintenance of the new ROW would add an element of disturbance to the ecosystem, and the impacts would potentially alter vegetation, soils, and hydrology. Field surveys would be performed for the Preferred Alternative to identify and quantify potential impacts to special habitat features, including bottomland hardwoods and riparian areas. As required under the current TxDOT/Texas Parks and Wildlife Department (TPWD) MOU, TPWD coordination for the proposed SH 249 Extension would be conducted.

Under the No-Build Alternative, there would be no impact to any vegetation type or habitat within the proposed SH 249 Extension study area.

ES 3.11.2 Wildlife

Potential impacts to wildlife can be attributed to the interaction/avoidance of wildlife with construction machinery, the loss of wildlife habitat, habitat fragmentation, and wildlife/vehicle collision mortalities. The impacts would occur during the construction and operation of the proposed tollway and would potentially result in direct impacts to fish and wildlife resources in the proposed SH 249 Extension study area.

Under the No-Build Alternative, there would be no impact to wildlife species.

ES 3.12 Threatened and Endangered Species

Numerous state and federally threatened and endangered species could occur in or near the proposed SH 249 Extension study area. Limited field investigations/surveys were conducted to determine if the listed species would occur within the study area. Although no threatened or endangered species were identified during the field surveys or through coordination with regulatory agencies, a more thorough study would be conducted during the next phase of the environmental clearance process for the Preferred Alternative. Continued coordination with TPWD would be completed as needed in compliance with the recent MOU for any impacts to threatened and endangered species or loss of habitat. If necessary, coordination would also be completed with the U.S. Fish and Wildlife Service (USFWS).

Under the No-Build Alternative, there would be no impact to threatened or endangered species or their respective habitat.

ES 3.13 Floodplains

The proposed SH 249 Extension would increase water runoff rates because of increased impermeable pavement surface area. However, the increase is not considered significant because drainage facilities (e.g., detention facilities) would be designed and constructed in compliance with guidelines of the impacted cities and flood control districts. The Preferred Alternative would be designed such that potential flooding would be avoided or minimized through applicable mitigation measures.

Additionally, the proposed tollway design would not increase the base flood elevation to a level that would violate applicable floodplain regulations and ordinances. The hydraulic design would be in accordance with current TxDOT and FHWA policies and standards. The proposed SH 249 Extension would permit the conveyance of the 100-year flood (inundation of the tollway being acceptable) without causing substantial damage to the proposed tollway or other property.

Under the No-Build Alternative, there would be no new encroachment on the 100-year floodplain. As such, the No-Build Alternative would not directly or indirectly affect floodplains in the study area. However, growth in the surrounding areas would continue, and potential indirect impacts to the floodplain could result from growth and development. Potential floodplain impacts would need to be regulated by floodplain policy.

ES 3.14 Wild and Scenic Rivers

No river or river segments listed in the national inventory of the National Wild and Scenic Rivers System are located within the proposed SH 249 Extension study area. Therefore, impacts to wild and scenic rivers are not anticipated under the four alternative alignments or the No-Build Alternative.

ES 3.15 Coastal Barriers

The SH 249 Extension study area is not mapped as part of the nation's Coastal Barrier Resource System. Therefore, impacts to coastal barrier resources are not anticipated under the four alternative alignments or the No-Build Alternative.

ES 3.16 Coastal Zone Management Plan and Essential Fish Habitat

The proposed SH 249 Extension study area is not within the boundaries of the coastal management zone. Therefore, impacts to the coastal management zone are not anticipated under the four alternative alignments or the No-Build Alternative.

There are no tidally influenced waters in the proposed SH 249 Extension study area. Therefore, the requirements of the Magnuson-Stevens Fishery Conversation and Management Act do not apply, and impacts to essential fish habitat are not anticipated under the four alternative alignments or the No-Build Alternative.

ES 3.17 Cultural Resources

ES 3.17.1 Archeological Resources

Alternative Alignment B, B/C, C, and E would have a moderate to high potential for Native American archeological sites. As the longest alternative alignment, Alternative Alignment B would require the most survey and mechanical trenching, and Alternative Alignment B/C and C would require the least survey and mechanical trenching.

ES 3.17.2 Historical Non-Archeological Properties

Historical resource studies conducted for the MIS and throughout the Draft EIS environmental process were used to determine the selection of potential alignments that would have the least negative impact on historic properties. Previously identified historic-age resources and cemeteries are all located south of the study area, near Magnolia and Pinehurst. One exception is a church and cemetery at Piney Grove. The two resources would likely fall within the historical resources study area for the Preferred Alternative, but would still be outside the probable Area of Potential Effects. Another possible exception would be potential sawmill locations along Mill Creek. However, based on current aerial photographs, the locations would only be evident as historic archeological sites and, if discovered, would be documented as part of the archeological resources study.

At this time, no related Section 4(f) or Section 6(f) impacts would be anticipated for any of the alternative alignments. A reconnaissance survey would be conducted for the Preferred Alternative during the next phase of the environmental process to determine the presence of historic properties and the potential effects to such properties, if found. The results of the survey would be reported in accordance with the National Historic Preservation Act and the Antiquities Code of Texas to provide sufficient documentation for determining the presence of and impacts

to the historical properties and for consultation with the Texas Historical Commission (THC) and the State Historic Preservation Office (SHPO).

Under the No-Build Alternative, there would be no impact to archeological or historical archeological sites.

ES 3.18 Hazardous Materials

The proposed SH 249 Extension would pose very little risk of hazardous waste impacts. Instead, impacts would more likely be associated with currently operating sites/facilities or historical sites/facilities that have already impacted or have the potential to impact the existing environment. Facilities of concern located within the Preferred Alternative's ROW would be acquired through acquisition. Prior to acquisition, it is recommended that a more thorough review and/or subsurface investigation be conducted to evaluate the potential for hazardous material impacts to the existing environment and on the proposed SH 249 Extension.

Four facilities have petroleum storage tanks (PSTs) that may be acquired for ROW purposes. All PSTs identified within the proposed ROW would need to be removed from the ground per TxDOT specifications prior to construction.

Oil and gas transmission lines would cross Alternative Alignment B, B/C, C, and E at various locations, and aboveground valve and gauging facilities are in proximity to the four alternative alignments. A more detailed study of the pipelines and oil and gas installations would be conducted after the selection of the Preferred Alternative and in the next phase of the environmental clearance process.

Impacts from hazardous material use and handling during construction would pose a minimal risk of impact.

The proposed SH 249 Extension would include the demolition/or relocation of structures that may have asbestos containing materials. Asbestos inspections, specification, notification, license, accreditation, abatement, and disposal (as applicable) would be in compliance with state and federal regulations. Asbestos issues will be addressed during ROW acquisition prior to construction.

Under the No-Build Alternative, there would be no additional hazardous materials impact in or around the study area. Hazardous waste impacts would likely still be associated with currently operating sites/facilities or historical sites/facilities that have already impacted or have the potential to impact the existing environment.

ES 3.19 Visual and Aesthetic Qualities

Certain tollway characteristics (e.g., toll plaza areas, elevated structures/bridges, signs, and lights) could have a visual/aesthetic impact on the surrounding area. Alternative Alignment B,

B/C, C, and E would alter the appearance of the forested and rural/suburban setting of the study area. On an individual scale, visual intrusion would be most obvious on sections were the alternative alignments would be completely on a new location and/or within proximity to existing residences or sensitive community facilities. Overall, the proposed SH 249 Extension would be as aesthetically pleasing as possible to minimize any perceived visual intrusion. Design and construction of the Preferred Alternative would be consistent with TxDOT design standards, including TxDOT Houston District's Green Ribbon Project.

Under the No-Build Alternative, there would be no visual or aesthetic impact within the study area because the No-Build Alternative would not directly alter any visual or aesthetic resource. However, increased traffic congestion associated with the No-Build Alternative and the current development pressures in the region could lead to short and long-term impacts on the visual and aesthetic quality of the local and regional roadway network.

ES 3.20 Energy

The energy needed to construct the proposed SH 249 Extension would increase proportionally with respect to the length of each alternative alignment. However, completion of the proposed SH 249 Extension would compensate for the energy used during construction by increasing the efficiency of vehicles that would use the new tollway and would divert from current travel routes located a distant from the new extension.

Under the No-Build Alternative, the proposed SH 249 Extension would not be built, which would not result in any associated energy consumption in or around the study area. However, congestion would continue to increase on existing SH 249 and local arterial roadways, and travelers would not have any additional roadway options to accommodate travel within the study area and larger region. The lack of travel options would lead to increased travel times and energy consumption in and around the study area.

ES 3.21 Construction Impacts

ES 3.21.1 Utilities

Alternative Alignment B, B/C, C, or E may affect utilities (i.e., water, sewer, electric, and natural gas line) during construction. The contractor would contact the appropriate local officials to identify and locate all utility lines within the ROW and construction staging areas. The contractor would also coordinate a work schedule that would avoid and minimize any disruption to utility services during construction.

ES 3.21.2 Maintenance and Control of Traffic

Although the proposed SH 249 Extension would be constructed on a new location, traffic and emergency service on area roadways would still be disrupted. Maintenance of the current traffic flow on the existing roadway network would be planned and scheduled to minimize impacts to

the traveling public and emergency service providers. Traffic control during construction would be in accordance with Part VI (Traffic Controls for Street and Highway Construction and Maintenance Operations) of the Texas Manual on Uniform Traffic Control Devices.

ES 3.21.3 Pollution Control

TxDOT would require the contractor to take appropriate measures to prevent, minimize, and control accidental spills that may occur during construction. All construction equipment and materials would be removed as soon as the schedule permits.

A potential for construction-related impacts to existing and unreported hazardous waste sites may occur during excavation or grading activities. Further investigation would assist in identifying sites that could be affected because of proximity to the Preferred Alternative. If an unreported or unknown site is discovered during construction activities, TCEQ regulatory procedures would be followed to eliminate or minimize any adverse environmental consequences.

Under the No-Build Alternative, there would be no construction-related impacts and no need for subsequent mitigation because the proposed SH 249 Extension would not be constructed.

ES 3.22 The Relationship between Local Short-term Uses versus Long-term Productivity

Alternative Alignment B, B/C, C, and E are consistent with state and local plans, programs, and policies to improve overall long-term access. The most evident and long-term benefits under each of the four alternative alignments would be improved local and regional system linkage, decreased congestion, and increased safety.

The short-term uses of the environment associated with the four alternative alignments would be typical of roadway construction and may include disturbances to local businesses and residences, detours, changes in access, minor air quality impacts, construction-related noise impacts, temporary erosion, sedimentation, turbidity, potential displacement of aquatic flora and fauna, and visual impacts related to construction.

Under the No-Build Alternative, there would be no short-term, construction-related impacts, but the No-Build Alternative would not maintain and/or advance long-term productivity or the recognized benefits of the proposed SH 249 Extension.

ES 3.23 Irreversible and Irretrievable Commitments of Resources

The implementation of Alternative Alignment B, B/C, C, or E would involve the commitment of natural, physical, human, and fiscal resources. The commitment of resources is based on the concept that residents in the immediate area, region, and state would benefit by the improved quality of the transportation system. The benefits would provide improved accessibility and

safety, time savings, and a greater availability of quality services. The benefits are anticipated to outweigh the commitment of resources.

The No-Build Alternative would involve no irreversible or irretrievable commitment of human and/or natural resources.

Table ES-1 summarizes the impacts discussed throughout the Draft EIS for the four alternative alignments.

Table ES-1: Summary of Impacts by Alternative Alignment

Criteria	Unit	Alignment B	Alignment B/C	Alignment C	Alignment E
Length of proposed SH 249 Extension	Miles	15.3	15.0	15.3	14.2
Estimated ROW needed	Acres	741	727	741	688
Pipeline crossings	Number of crossings	9	8	8	8
Potential displacements/ relocations of residences and businesses	Number of displacements	26	7	7	18
Community cohesion[a]	High/Medium/ Low	Medium	Low	Low	High
NWI (potential wetlands)	Acres	11.0	5.0	2.8	11.5
Floodplain crossings	Linear feet	18,259	9,001	10,965	12,695
Stream crossing (USGS topographic map)	Number of crossings	27	21	22	19
Vegetation	Acres	711	724	730	691
Previous public involvement[b]	High/Medium/ Low	Low	High	Medium	Medium

Source: The Proposed SH 249 Extension Study Team.

[a] Impacts to community cohesion involve the bisecting, separating, or isolating of neighborhoods.

[b] The concept is determined by the public's preference of alternative alignments.

Notes: NWI = National Wetland Inventory; ROW = Right of Way; USGS = United States Geological Survey.

ES 4 INDIRECT AND CUMULATIVE IMPACTS

Indirect effects associated with the proposed SH 249 Extension would be encroachment-alteration effects to vegetation, threatened and endangered species, water resources, and socioeconomics. Similar to past actions constructed on new locations, the proposed SH 249 Extension may also induce growth by removing an obstacle for further development in the Area of Influence (AOI).

The various projects occurring in the general vicinity of the proposed tollway are part of the continued urbanization of the overall region. The potential cumulative impacts would affect land use, vegetation, threatened and endangered species, and water resources. However, existing

governmental regulations, in conjunction with the goals and coordination of community planning efforts, would address the varied issues that influence the local and ecosystem-level conditions. The vision, goals, and coordination of stakeholder groups, coupled with the regulatory powers of state and federal programs and regulations (e.g., the Clean Water Act [CWA]), would serve to safeguard area resources and prevent or minimize negative impacts that would threaten the general health and sustainability of the region.

ES 5 PREFERRED ALTERNATIVE RECOMMENDATION

The need for and purpose of the proposed SH 249 Extension is to improve the mobility, safety, and effectiveness of existing SH 249 and the surrounding transportation network.

The No-Build Alternative would neither safely nor adequately accommodate existing and future traffic volumes on roadways within the proposed SH 249 Extension study area. The No-Build Alternative would result in higher traffic volumes on existing roadways, which would lead to increased congestion and longer travel times in and around the study area. While construction costs for the No-Build Alternative would be substantially lower than for any of the four alternative alignments, the No-Build Alternative would result in higher maintenance costs for the area's existing roadways because of increased traffic volumes and roadway use. The No-Build Alternative would also require additional short-term restoration and safety improvements to enhance operations of the existing transportation network. When compared to all four alternative alignments, maintenance improvements for the No-Build Alternative would cause more traffic disruptions along the existing roadways. Under the No-Build Alternative, traffic conditions would remain essentially unchanged with a high likelihood of increased current and future traffic congestion. In all, the No-Build Alternative would not offer a complete solution for improving mobility, safety, and the transportation network effectiveness. Therefore, the No-Build Alternative does not meet the need for and purpose of the proposed SH 249 Extension.

When evaluating the four alternative alignments, Alternative Alignment B/C would exhibit the most desirable characteristics (see *Table ES-1*). At approximately 15 miles in length, Alternative Alignment B/C would require the second fewest acres of additional ROW. Alternative Alignment B/C would have fewer impacts on wetlands than Alternative Alignment B and E and would have the lowest impact on floodplains. The alternative alignment would have a low potential to impact existing residential/commercial development and, subsequently, would have a limited impact on community cohesion. Based on the findings and public's input, Alternative Alignment B/C is the most desirable of the four alternative alignments.

For the above noted reasons, Alternative Alignment B/C was selected as the Preferred Alternative.

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List of Acronyms and Abbreviations

AADT	Average Annual Daily Traffic
AOI	Area of Influence
ATL	average trip length
BMPs	best management practices
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CGP	Construction General Permit
CMP	congestion management process
CMSA	Consolidated Metropolitan Statistical Area
CO	carbon monoxide
CSJ	control-section-job
CWA	Clean Water Act
dB(A)	a-weighted decibel
e.g.	exempli gratia ("for example")
EIS	Environmental Impact Statement
EJ	environmental justice
EPA	U.S. Environmental Protection Agency
et al.	et alii (“and others”)
etc.	et cetera (“and other things”)
ETJ	extra-territorial jurisdiction
FEMA	Federal Emergency Management Agency
FM	Farm-to-Market Road
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Map
FTA	Federal Transit Administration
GCAD	Grimes County Appraisal District
HBNW	home based non-work trips
HBW	home based work trips
HCTRA	Harris County Toll Road Authority
HEI	Health Effects Institute
H-GAC	Houston-Galveston Area Council
HOT	high occupancy tolled
HOV	high occupancy vehicle
i.e.	id est ("that is" or "in other words")

IH	Interstate Highway
IRIS	Integrated Risk Information System
ISD	independent school district
L_{eq}	average or equivalent sound level
LOS	level of service
LPST	leaking petroleum storage tank
MAP-21	Moving Ahead for Progress in the 21st Century Act
MBTA	Migratory Bird Treaty Act
MCAD	Montgomery Central Appraisal District
MCTRA	Montgomery County Toll Road Authority
MIS	Major Investment Study
MOU	Memorandum of Understanding
MOVES	Motor Vehicle Emission Simulator
mph	miles per hour
MPO	Metropolitan Planning Organization
MS4	Municipal Separate Storm Sewer System
MSAT	mobile source air toxic
NAAQS	National Ambient Air Quality Standards
NAC	Noise Abatement Criteria
NCHRP	National Cooperative Highway Research Program
NEPA	National Environmental Policy Act
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
NPL	National Priority List
NRCS	Natural Resources Conservation Service
NWI	National Wetland Inventory
PALM	Potential Archeological Liability Map
PM	particulate matter
PST	petroleum storage tank
R	receiver
ROW	right-of-way
RSA	Resource Study Area
RTP	Regional Transportation Plan
SGCN	Species of Greatest Conservation Need
SH	State Highway

SIP	State Implementation Plan
SOV	single occupancy vehicle
SW3P	Stormwater Pollution Prevention Plan
TAZ	traffic analysis zone
TCEQ	Texas Commission on Environmental Quality
TDM	Travel Demand Management
TERP	Texas Emissions Reduction Plan
THC	Texas Historical Commission
TIER II	Texas Tier II Chemical Reporting Program
TIP	Transportation Improvement Program
TPDES	Texas Pollutant Discharge Elimination System
TPWD	Texas Parks and Wildlife Department
TSM	Transportation System Management
TxDOT	Texas Department of Transportation
TxNDD	Texas Natural Diversity Database
TWC	Texas Workforce Commission
UPRR	Union Pacific Railroad
U.S.	United States
US	United States Highway
USACE	U.S. Army Corps of Engineers
U.S.C.	United States Code
USDOT	U.S. Department of Transportation
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VHT	Vehicle Hours Traveled
VMT	Vehicle Miles Traveled
VPD	Vehicles Per Day

Glossary

Alternative: A general term that refers to possible approaches to meeting the need for and purpose of the proposed SH 249 Extension.

Alternative alignment: A proposed routing of the proposed SH 249 Extension. Four alternative alignments are under consideration within the Draft Environmental Impact Statement (EIS): Alternative Alignment B, B/C, C, and E.

Aquatic resources: For the purpose of the Draft EIS, aquatic resources are defined as wetlands.

Aquifer: A water-bearing geologic unit of permeable rock, sand, or gravel that yields considerable quantities of water to springs and wells.

Area of Influence (AOI): The geographic boundary within which possible indirect development and potential indirect impacts could occur.

Arterial: A roadway that provides intra-community service and connects roadways to the urban highway system.

At-grade: A section of a roadway or the proposed tollway that would be relatively close to the existing ground elevation and not elevated on a bridge structure.

At-grade intersection: A point where two roadways meet and traffic is controlled by a traffic signal or stop sign.

Attainment: Status of the various pollutants described in the National Ambient Air Quality Standards (NAAQS). A condition where a pollutant meets NAAQS.

Average daily traffic: Average traffic volume in a 24-hour period on a particular roadway.

Bottomland hardwoods: Deciduous, wetland forested areas dominated by mesic hardwood tree species that occur primarily within the 100-year floodplain. Bottomland hardwoods are commonly found wherever streams or rivers (at least occasionally) cause flooding beyond their channel confines.

Build Alternative: See alternative alignment.

Carbon monoxide (CO): A colorless, odorless, poisonous gas that is formed as a product of the incomplete combustion of carbon and is emitted directly by automobiles and trucks.

Community cohesion: The connections between and within communities that are essential for serving the needs of local residents.

Controlled-access tollway: A limited-access facility that has no at-grade intersections and only allows access at specific locations (e.g., on-ramps and off-ramps).

Corridor: A broad geographical band with no predefined size or scale that follows a general directional flow connecting major sources of trips. A corridor involves a nominally linear transportation service area that may contain a number of streets, highways, and transit route alignments.

Cultural resources: Patterned physical remains of human activity distributed over the landscape through time.

Cumulative effect/impact: An impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (federal or non-federal) or person undertakes such other actions.

Direct impact: Caused by the action (the proposed SH 249 Extension) and occurs at the same time and place (40 Code of Federal Regulations [CFR] 1508.8).

Endangered species: A species that is in danger of extinction throughout all or a significant portion of its range.

Environmental Impact Statement (EIS): A full disclosure document that details the process by which a transportation project was developed. An EIS includes consideration of a range of reasonable alternatives (i.e., alternative alignments), analyzes the potential impacts resulting from the alternatives, and demonstrates compliance with other applicable environmental laws and executive orders.

Environmental justice (EJ): The avoidance of actions that cause disproportionately high and adverse impacts on minority and low-income populations with respect to human health and the environment in accordance with Executive Order 12898.

Floodplain: The portion of a river or stream valley, adjacent to the channel, which is covered with water when the river or stream overflows its banks at flood stage. It is also defined as lowland and relatively flat areas adjoining inland and coastal waters, including, at a minimum, the area subject to a 1 percent or greater chance of flooding in any given year (i.e., the 100-year floodplain).

Greater Houston area: The metropolitan area of Houston-The Woodlands-Sugar Land as defined by the Office of Management and Budget. The area encompasses nine counties: Harris, Fort Bend, Montgomery, Brazoria, Galveston, Liberty, Waller, Chambers, and Austin counties.

Groundwater: Subsurface water that occurs beneath the water table in soils and geologic formations that are fully saturated.

Historic archeological site: Any subsurface cultural manifestation dated post-European contact.

Houston-Galveston Area Council (H-GAC): A region-wide voluntary association of 133 local governments and local elected officials in the 13-county Gulf Coast Planning Region of Texas. The Gulf Coast Planning Region consists of Austin, Brazoria, Chambers, Colorado, Fort Bend, Galveston, Harris, Liberty, Matagorda, Montgomery, Walker, Waller, and Wharton counties. Organized in 1966, H-GAC provides a forum for the discussion of area-wide concerns, while promoting regional cooperation through comprehensive planning and services to local governments.

Houston-Galveston-Brazoria Consolidated Metropolitan Statistical Area (CMSA): An area consisting of eight counties: Brazoria, Chambers, Fort Bend, Galveston, Harris, Liberty, Montgomery and Waller counties.

Impact/effect: Used in the environment analyses to express the extent or severity of an environmental problem. As indicated in Council of Environmental Quality (CEQ) 1500 (Section 1508.8), impacts and effects are considered to be synonymous. Impacts or effects may be ecological, aesthetic, historic, cultural, economic, social, or health related, and each may be direct, indirect, or cumulative.

Indirect effect/impact: An impact that is caused by an action and is later in time or farther in distance but is still reasonably foreseeable.

Level of Service (LOS): The operating conditions within a stream of traffic describing safety, traffic interruptions, speed, freedom to maneuver, comfort, and convenience. Six LOSs are defined, designated A through F, with A representing the best conditions and F the worst.

Logical termini: The rational end points for a transportation improvement and the rational end points for a review of environmental impacts.

Low-income population: A population whose household income is below the U.S. Department of Health and Human Services poverty guidelines.

Mitigation: A measure that 1) avoids an impact altogether by not taking a certain action or parts of an action; 2) minimizes an impact by limiting the degree or magnitude of the action and its implementation; 3) rectifies the impact by repairing, rehabilitating, or restoring the affected environment; 4) reduces or eliminates the impact over time by preservation and maintenance operations during the life of the action; or 5) compensates for the impact by replacing or providing substitute resources or environments.

Mobile Source Air Toxic (MSAT): A category of substances in the air that are known or suspected of causing cancer or other health problems in humans, and for which a NAAQS does not exist (i.e., excluding ozone, CO, particulate matter [PM], sulfur dioxide, and nitrogen oxide).

Most Reasonable Alternative Alignments: Alignments that are carried forward for further study alongside the No-Build Alternative in the Draft EIS.

National Environmental Policy Act (NEPA) document: Any document or report prepared by or on behalf of a federal agency pursuant to the NEPA for a proposed project, including, but not necessarily limited to, any Environmental Assessment (EA), Finding of No Significant Impact, Draft EIS, Final EIS, or Record of Decision, but not including any pre-decisional, deliberative, or privileged materials.

No-Build Alternative: A continuation of the existing transportation facilities, which incorporates the execution of planned and/or committed roadway improvements; Transportation System Management (TSM), Transportation Demand Management (TDM), and modal transportation improvements; new planned roadway construction; and Smart Streets. (The No-Build Alternative does not include the construction of the proposed SH 249 Extension.)

Non-attainment: An area that does not meet (or that contributes to ambient air quality in a nearby area that does not meet) the NAAQS for the established criteria pollutants.

Notice of Intent (NOI): A notice published in the Federal Register to notify the public that an agency is preparing an EIS.

Ozone: Unstable blue gas with a pungent odor formed principally in indirect reactions involving volatile organic compounds, nitrogen oxides, and sunlight.

Palustrine wetland: Wetlands occurring in the Palustrine System. Palustrine wetlands include all non-tidal wetlands dominated by trees, shrubs, persistent emergent plants, or emergent mosses or lichens, as well as small, shallow open water ponds or potholes. Palustrine wetlands are often called swamps, marshes, potholes, bogs, or fens. Palustrine wetlands documented in the Draft EIS include Palustrine Unconsolidated Bottom, Palustrine Emergent, Palustrine Forested, and Palustrine Scrub Shrub.

Preferred Alternative: The alternative alignment that the proponent (FHWA/ the Texas Department of Transportation [TxDOT]) believes would best fulfill its statutory mission and responsibilities and is consistent with the need for and purpose of the proposed SH 249 Extension. The Preferred Alternative considers economic, environmental, technical, and other factors, including public and agency comments received in response to the Draft EIS. The Preferred Alternative may or may not be the same as the Recommended Alternative identified in the Draft EIS.

Prime farmland: Land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops. Prime farmland is suitable for cropland, pastureland, rangeland, or forestland. It is not suited to urban or water use. It has the soil quality, growing season, and moisture supply needed to economically produce sustained high yields of crops when treated and managed, including water management, according to acceptable farming methods.

Proposed project (the proposed SH 249 Extension or the proposed tollway): The whole of an action that has a potential to result in a physical change in the environment, directly or ultimately, and that is any of the following:

(1) An activity directly undertaken by any public agency, including public works construction and related activities, clearing or grading of land, improvements to existing public structures, enactment and amendment of zoning ordinances, and the adoption and amendment of local general plans or elements thereof pursuant to Government Code sections 65100-65700.

(2) An activity undertaken by a person, which is supported in whole or in part through public agency contracts, grants, subsidies, loans, or other forms of assistance from one or more public agencies.

(3) An activity involving the issuance to a person of a lease, permit, license, certificate, or other entitlement for use by one or more public agencies.

Proposed SH 249 Extension Study Team: The consultant team consisting of Jacobs Engineering, Inc. and Prewitt and Associates, Inc.

Recommended Alternative: The recommended routing of the alternative alignments at the time of Draft EIS publication. Selection of the Recommended Alternative is based on public and agency outreach results and an analysis and comparison of the potential effects on the physical, biological, and human environment of each alternative alignment.

Regional Transportation Plan (RTP): The long-range transportation vision and plan for the Houston-Galveston-Brazoria CMSA that serves as the blueprint guiding the development of the area's transportation system through the next 30 years. H-GAC's current long-range transportation plan is the *2035 RTP Update*.

Right-of-way (ROW): Land, property, or interest therein acquired for and devoted to transportation purposes, including construction, maintenance, operations, and protection of the proposed tollway.

Riparian: Pertaining to anything connected with or immediately adjacent to the banks of a stream.

Section 4(f): Pertains to the protection of a Section 4(f) resource as defined in Section 4(f) of the Department of Transportation Act of 1966, 49 United States Code (U.S.C.) 303(c).

Section 4(f) resource: Any publicly owned park, recreation area, wildlife, or waterfowl refuge or historic site that is protected under Section 4(f).

State Implementation Plan: A state plan that is administered by the U.S. Environmental Protection Agency (EPA) in compliance with the federal Clean Air Act for the establishment, regulation, and enforcement of air pollution standards for the state.

Study area: The area in which the development of the four alternative alignments was studied to address the need for and purpose of the proposed SH 249 Extension.

Surface water: Water that is on the earth's surface, such as in a stream, river, lake, or reservoir.

System linkage: The connection of major facilities within a highway system.

Threatened species: A species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

Topography: Configuration (relief) of the land surface. Topography includes the graphic delineation or portrayal of that configuration in map form, as by contour lines.

Traffic analysis zone (TAZ): A unit of geography most commonly used in conventional transportation planning models. The size of a TAZ varies, but for typical metropolitan planning software, a zone of under 3,000 people is common. The spatial extent of a TAZ typically varies in models, ranging from very large areas in the exurbs to as small as city blocks or buildings in central business districts.

Transportation Demand Management (TDM) Alternative: Behavioral changes to commuters' travel habits that result in fewer vehicles during peak hours. Examples of TDM alternatives would be carpooling/ vanpooling, employee trip reduction programs, compressed work weeks, telecommuting, flex-time, and employer incentives.

Transportation Improvement Program (TIP): A comprehensive listing of transportation projects approved for funding and implementation within a four-year period. H-GAC, as the Metropolitan Planning Organization (MPO) for the eight-county CMSA, develops the TIP in a collaborative effort with local governments, transit and transportation agencies, and TxDOT.

Transportation System Management (TSM) Alternative: Management techniques to make the existing transportation system as efficient as possible. Examples of TSM alternatives would be park-and-ride lots, ridesharing, high occupancy vehicle (HOV) facilities, traffic signal coordination, and intersection improvements.

TxDOT Houston District Potential Archeological Liability Map (PALM): A geo-archeological model designed as a decision-support tool for use by TxDOT in the compliance process. The PALM allows a priority assessment of geo-archeological potential and the potential impact on archeological resources by transportation activities without requiring a field visit.

Upland pastureland: Land that has sufficient dry conditions for hydrophytic vegetation, hydric soils, and/or wetland hydrology to be lacking. Any area that is not a wetland, deepwater aquatic habitat, or other special aquatic site is considered upland habitat.

Viewshed: All land seen from one static point.

Wetlands (adjacent and isolated): Areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal conditions do support, a prevalence of vegetation typically adapted for life in saturated conditions. Adjacent wetlands are within the 100-year floodplain and/or have a hydrologic connection to navigable waters. Isolated wetlands are not within the 100-year floodplain or have a hydrologic connection to navigable waters.

Note: For additional reference, please consult the TxDOT website at: http://onlinemanuals.txdot.gov/txdotmanuals/glo/index.htm.

SECTION 1: PROJECT NEED AND PURPOSE

The existing and proposed State Highway (SH) 249 would ultimately connect portions of the Greater Houston area, northwest Harris County, and Montgomery County to SH 105 in Grimes County via a controlled-access tollway.

The development of SH 249 currently involves three planning segments. Segment one, labeled as the Tomball Parkway, is a two-phase construction project from north of Spring-Cypress Road to Farm-to-Market Road (FM) 1774 in the City of Pinehurst (Pinehurst) being developed by the Harris County Toll Road Authority (HCTRA) and Montgomery County Toll Road Authority (MCTRA). Phase One is under construction from north of Spring-Cypress Road to Brown Road in the City of Tomball (Tomball). Phase Two is anticipated to begin in 2016 from Brown Road in Tomball to FM 1774 in Pinehurst. Tomball Parkway will include three to four toll lanes in each direction of travel, with the existing lanes remaining in place as frontage roads.

The proposed SH 249 Controlled-Access Tollway Extension project (proposed SH 249 Extension) would be the second segment, extending from just south of the SH 249/FM 1774 interchange in Pinehurst to a new SH 249/FM 1774 interchange north of the City of Todd Mission (Todd Mission). *Exhibit 1-1 and Exhibit 1-2* detail the proposed SH 249 Extension study area and the surrounding region. As the second segment, the proposed tollway would be constructed on a new location and would be approximately 14 to 15 miles in length, depending on the proposed SH 249 Extension's alternative alignment.

The third segment, or the SH 249 Grimes County Study, would extend from the new SH 249/FM 1774 interchange north of Todd Mission to SH 105 near the City of Navasota (Navasota) in Grimes County. The northern segment would be roughly 20 miles in length, and the total length of all three segments would be approximately 43.5 miles.

In crossing the southwest portion of Montgomery County and extending into the southeast portion of Grimes County, the proposed SH 249 Extension would be constructed as a four-mainlane, controlled-access tollway with auxiliary lanes, on-ramps and off-ramps (where appropriate), and intermittent frontage roads within a typical 400-foot-wide right-of-way (ROW).

Studies conducted for the proposed SH 249 Extension involved substantial interaction with project stakeholders (including the public); local businesses, landowners, public officials, and community leaders; regulatory agencies; the Federal Highway Administration (FHWA); and the Texas Department of Transportation (TxDOT).

1.1 NEED FOR AND PURPOSE OF THE PROPOSED PROJECT

1.1.1 Need

Three substantial transportation improvement needs affect the proposed SH 249 Extension study area. First, inefficient connections exist between suburban communities and major and minor radial and circumferential arterials. Second, projected population and employment growth in the area would likely increase demand on the current transportation infrastructure. Third, there are growing safety concerns around the impacts of increased congestion and emergency evacuation (hurricane). The transportation improvement needs are further detailed below.

- System linkage: The current transportation system does not allow for efficient radial and circumferential traffic movement. The system neglects to provide efficient connections, or linkage, between major suburban communities and major roadways within the region, such as Beltway 8 (Sam Houston Toll Road), proposed SH 99 (Grand Parkway Toll Road), FM 2920, FM 1774, FM 149, FM 1488, FM 1486, SH 105, and SH 6.
    - The existing SH 249's southern segment terminates at FM 1774 in Pinehurst. The only roadway that continues northwest is FM 1774 in Montgomery and Grimes counties. As a two-lane, undivided rural road, FM 1774 often experiences severe congestion, especially during peak travel times and special events.
- Expanded capacity: Transportation demand exceeds the current and future capacity of the existing transportation infrastructure.
    - The average daily traffic within the proposed SH 249 Extension study area is expected to increase by an average of 135 percent from 2012 to 2035. Related, some collector facilities are expected to have over a 250 percent increase in average daily traffic in that same period.
    - The level of service (LOS) on area roadways is expected to worsen between 2012 and 2035.
    - Roadway congestion on FM 1774 causes reduced mobility and undesirable operational LOS, which leads to unsafe driving conditions.
    - Existing area roadways that serve the communities within the proposed SH 249 Extension study area do not provide adequate capacity for future traffic demands.
- Safety: Roadways are often characterized by conditions that result in higher accident rates. Traffic movement on many roadways in the proposed SH 249 Extension study area (e.g., FM 1774, FM 149, FM 1488, and FM 1486) are controlled by intersections, traffic signals and/or stop signs, and multiple access points, all of which contribute to

stop-and-go conditions and congestion during peak travel times and emergency events.

- A solution is needed to relieve local congestion that has resulted from high population growth, increased residential development, and increased commercial development within and adjacent to the study area as well as within the Greater Houston area.
- Because radial (United States [U.S.] Highway [US] 290 and Interstate Highway [IH] 45) and circumferential (Beltway 8 and SH6/FM 1960) facilities would be congested during an evacuation, there is a need for additional radial capacity in the region to more efficiently move traffic during evacuation events. For example, when as many as 2 million people fled the Greater Houston area before Hurricane Rita on September 22, 2005, evacuees followed roadways leading to Austin, San Antonio, College Station, Waco, and Dallas. Severe congestion ensued to the point where contra-flow lanes were eventually opened. The evacuation prompted the creation of a task force to study evacuation from coastal areas in the state (Little 2006). One of the suggestions from the study was for TxDOT to prioritize the evacuation route infrastructure. The proposed SH 249 Extension would serve as a radial roadway between US 290 and IH 45, both of which are designated hurricane evacuation routes. Therefore, upon construction, the proposed SH 249 Extension could be considered as an additional radial hurricane evacuation route.

- Economic development: The expected growth in and around the study area would continue to strain existing transportation infrastructure and create a barrier to businesses, commuters, and economic development. The Houston-Galveston Area Council (H-GAC) predicts a 54.2 percent growth in population and a 60 percent growth in employment from the years 2005 to 2035 for the eight-county Houston-Galveston-Brazoria Consolidated Metropolitan Statistical Area (CMSA) (H-GAC 2013a).

1.1.2 Purpose

The purpose of the proposed SH 249 Extension is to efficiently link the suburban communities and major roadways, enhance mobility and safety, and respond to population growth and residential development in the area. The goal of the proposed tollway is to improve system linkage, address current and future transportation demand through expanded capacity, improve safety, and accommodate population growth and economic development.

- System linkage: The proposed SH 249 Extension would improve system linkage and connectivity within the existing transportation network. The proposed tollway would provide radial linkage between northern Harris County and Montgomery and Grimes

counties, and linkage would specifically occur among FM 1774, FM 149, FM 1488, FM 1486, and SH 105.

- Expanded capacity: The proposed SH 249 Extension would address transportation demand, improve the LOS, reduce traffic congestion, and provide additional travel options.
- Safety: The proposed tollway would improve regional and local safety for the traveling public by minimizing conditions that contribute to stop-and-go conditions, increased crash rates, and congestion during peak travel times and emergency events.
- Economic development: The proposed SH 249 Extension would accommodate population and economic growth by improving the movement of persons and goods, which would minimize barriers among businesses, consumers, and transportation infrastructure.

1.2 DETAILED TRANSPORTATION NEEDS ANALYSIS

According to H-GAC's 2035 Regional Growth Forecast, area population is projected to increase to approximately 8.7 million people and support over 4 million jobs (H-GAC 2013c). By 2035, the population in Montgomery County is expected to grow by over 400,000 people (H-GAC 2013c). According to the 2010 Census, Montgomery County had a 55 percent growth rate from 2000 to 2010, making it the 10th fastest growing county in Texas. The trend is expected to continue into 2035 with much of Montgomery County's growth concentrated within the proposed SH 249 Extension study area. It is expected that development would progress in a manner consistent with suburban growth trends nationally, as jobs follow population growth to the extent that suburban areas become self-contained with their own residential, retail, and employment centers. Census data, H-GAC, and the HCTRA all forecast that area growth is underway and expected to continue within the Greater Houston area and Montgomery County. The following sections document the existing and future transportation conditions within the proposed SH 249 Extension study area.

1.2.1 System Linkage

As depicted on *Exhibit 1-1* and *Exhibit 1-2*, major public infrastructure and utilities are located throughout the proposed SH 249 Extension study area. The infrastructure and utilities are roadways, railways, electrical transmission lines, and petroleum pipelines. Prominent roadways in and around the study area are FM 1774, FM 149, FM 1486, and FM 1488. A Union Pacific Railroad (UPRR) railway runs adjacent to the proposed SH 249 Extension, paralleling FM 1774 and intersecting with FM 149 and the proposed SH 249 Extension.

- FM 1774 is a northwest-southeast, two-lane, undivided rural roadway with a southern terminus at FM 149 in Pinehurst and a northern terminus at SH 90 in the City of Anderson. FM 1774 crosses FM 1488 in the City of Magnolia (Magnolia) and SH 105

in the community of Plantersville (Plantersville). FM 1774's ROW varies from a 60-foot minimum width to a 100-foot maximum width.

- FM 1488 is an east-west, two-lane, undivided rural roadway extending from IH 45 just south of the City of Conroe (Conroe) to US 290 in the City of Hempstead. The roadway traverses the proposed SH 249 Extension study area, passing northeast to southwest through Magnolia and intersecting FM 1774. The ROW varies from a 100-foot minimum width to a typical 190-foot maximum width.
- FM 1486 is a north-south, two-lane, undivided rural roadway with a southern terminus at FM 1774, approximately 1.2 miles west of Magnolia, to an intersection with SH 105 in the community of Dobbin (Dobbin). The route provides an alternative to FM 1774 and FM 149. The ROW varies from a 60-foot minimum width to a typical 100-foot maximum width.
- FM 149 is a north-south, two-lane, undivided rural roadway with a southern terminus at FM 1774 in Pinehurst. The roadway crosses SH 105 in Montgomery County and eventually turns west before terminating at SH 90 in the City of Anderson. The ROW varies from 50 feet to 70 feet with a typical width of 60 feet. However, the ROW width for the segment extending south from SH 105 for 5 miles is 120 feet.

1.2.2 Expanded Capacity

1.2.2.1 Existing Traffic Volumes

Table 1-1 and *Table 1-2* list the generalized Average Annual Daily Traffic (AADT) volumes along FM 1774 and other roadways within or adjacent to the proposed SH 249 Extension study area. The 24-hour AADT volumes were extracted from the 2012 TxDOT Houston District traffic map.

Table 1-1: 2012 Daily Traffic Volumes on FM 1774

Location	VPD
FM 1774/Grimes County Line	7,000
FM 1774/FM 1486	11,500
FM 1774/FM 1488	16,300
FM 1774 west of FM 149	17,400
FM 1774/FM 149	19,200

Source: RTG 2014.
Note: VPD = Vehicles Per Day.

Table 1-2: 2012 Daily Traffic on Roadways Intersecting FM 1774 within Montgomery, Grimes, and Waller Counties

Location	VPD
FM 1488/Waller County Line	7,400
FM 1488/FM 1774	10,600
FM 1488/FM 149	13,300
FM 1488/FM 2978	22,000
FM 1486 north of FM 1774	4,600
FM 149 north of FM 1774	9,800
FM 149 south of FM 1488	5,800
FM 149 north of FM 1488	7,800

Source: RTG 2014.
Note: VPD = Vehicles Per Day.

Relevant issues along the FM 1774 corridor include a narrow ROW, the proximity of railway tracks paralleling and crossing the roadway, expanding commercial and residential development, and impacts to sensitive community resources (e.g., churches, schools, and cemeteries). The 2012 AADT on FM 1774 ranges from a high of 19,200 Vehicles Per Day (VPD) near FM 149 to a low of 7,400 VPD at FM 1488. Notably, the drop in traffic volumes further northwest on FM 1774 reflects the rural setting of the area and the lower level of residential development away from Magnolia and Pinehurst.

1.2.2.2 Level of Service

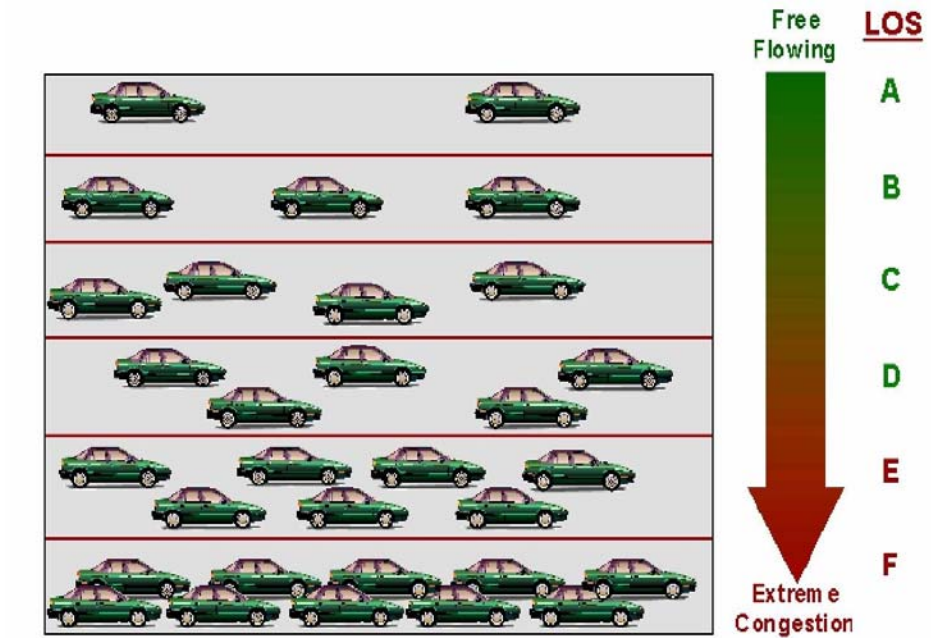
LOS is a qualitative measure related to the volume/capacity ratio of a roadway's particular section. LOS categories range from ratings of A through F, and the range describes a progressive deterioration of operating conditions from A (which indicates very good operating conditions) through F (which essentially represents the functional failure of the roadway in terms of traffic movement). *Table 1-3* describes the characteristics of LOS, and *Figure 1-1* depicts LOS in relation to congestion.

Table 1-3: LOS Characteristics

LOS Rating	Description
A	Free flow with low volumes and high speeds
B	Reasonably free flow, but speeds beginning to be restricted by traffic conditions
C	In stable flow zone, but most drivers are restricted in the freedom to select their own speeds
D	Approaching unstable flow where drivers have little freedom to select their own speeds
E	Unstable flow and may require short stoppages
F	Unacceptable congestion, stop-and-go, and forced flow

Source: The Proposed SH 249 Extension Study Team.

Figure 1-1: LOS and Congestion



Source: The Proposed SH 249 Extension Study Team.

Related to LOS ratings, low volume/capacity ratios depict relatively free-flowing conditions. High volume/capacity ratios depict more congested conditions. Freeways are considered severely congested when a volume/capacity ratio is greater than 1.0. For relatively short periods, roadways can handle more traffic than their rated capacities.

LOS analyses were conducted along FM 1774 on a 24-hour basis. The AADT volumes were compared with estimated 24-hour capacities to determine LOS ranges. *Table 1-4* lists the volume/capacity ratio in relation to the LOS on FM 1774.

Table 1-4: Estimated 2012 Volume/Capacity Ratios and LOS within Montgomery, Grimes, and Waller Counties

Location on FM 1774	Volume/Capacity Ratio	LOS
Grimes County Line	0.49	E
FM 1486 to FM 1486	0.80	E
FM 1488 to Nichols Sawmill Road	-	F
Nichols Sawmill Rd. to Misty Meadow Drive	1.08	F
Misty Meadow Dr. to High Meadow Ranch Drive	1.34	F
High Meadow Ranch Drive to FM 149	1.34	F

Source: RTG 2014.

The volume/capacity ratios along the northern end of FM 1774 indicate operating conditions below capacity. Between Magnolia and Pinehurst, the majority of FM 1774 operates at volume/capacity ratios between 0.80 and 1.34, which reflect conditions exceeding the roadway capacity. The segment of FM 1774 in Magnolia from FM 1488 to Nichols Sawmill Road was analyzed as an urban arterial with signals. No volume/capacity ratio is calculated for the analysis. The segment operates at an average speed of 9.3 miles per hour (mph) corresponding to LOS F.

1.2.2.3 Special Event Traffic Generator

Located just south of the proposed SH 249 Extension study area in Todd Mission, the Texas Renaissance Festival, a special event traffic generator, is annually held from the first week in October to Thanksgiving weekend in November. In 2012, 606,761 attended the festival during its eight-week run (TRF Beefeaters 2013). During the time of the festival, vehicles traveling throughout the area from both the north and south produce extreme congestion along FM 1774. By noon on weekends, traffic is often queued well south of Magnolia in the northbound direction.

1.2.2.4 Projected Traffic

Future traffic projections for the years 2018 and 2035 were based on H-GAC's 2035 Traffic Model Network. The Statewide Analysis Model for 2025 was used for the portion of the proposed SH 249 Extension located in Grimes County to provide external link volumes for the H-GAC modeling effort. The proposed SH 249 Extension is currently listed as unfunded in H-GAC's *2035 Regional Transportation Plan (RTP) Update* (H-GAC 2013a). For that reason, H-GAC had to run a separate model that incorporated the proposed SH 249 Extension. Once the proposed tollway receives funding, changes in the modeled parameters (e.g., traffic volumes, population, employment, number of households, and Vehicle Miles Traveled [VMT]) would be evaluated to determine if any additional analysis is warranted before FHWA takes final

environmental action. *Table 1-5* provides 2035 projected daily traffic volumes in and around the proposed SH 249 Extension study area.

Table 1-5: Projected 2035 Daily Toll Traffic Volumes for the Proposed SH 249 Extension

Location	VPD
South of FM 1774 in Pinehurst	83,780
FM 149 to FM 1774 in Pinehurst	54,499
FM 1488 to FM 149	37,566
FM 1486 to FM 1488	22,988
FM 1774 in Todd Mission to FM 1486	13,166

Source: RTG 2014.
Note: VPD = Vehicles Per Day.

As shown, the projected volumes on the proposed SH 249 Extension would range from high volumes south of FM 1774 in Pinehurst to lower volumes from FM 1774 in Todd Mission to FM 1486.

1.2.2.5 Population and Employment Growth

Annually, the Texas A&M Transportation Institute ranks major metropolitan areas with respect to the level of traffic congestion occurring on area highways. The ranking is reflected in the Travel Time Index, which is a ratio of travel time in the peak period compared to travel time at free-flow conditions. The Travel Time Index for the Greater Houston area was 1.26, ranking 10th in the nation. On average, City of Houston (Houston) drivers spend more than two days a year in traffic congestion, costing about $1,090 in lost time and fuel. (Texas A&M 2012)

Population (as indicated by an increase in the number of households) and total employment growth are primary demographic and economic indicators for travel demand, which is defined as the number, purpose, and type of trips. Between 2010 and 2035, it is estimated that population and employment within the Montgomery County portion of the proposed SH 249 Extension study area will increase by 173,441 new households (H-GAC 2013a). The population within Grimes County is expected to grow from 26,604 to 29,651 by 2035 (Texas State Data Center 2012). The statistics are indicative of the need for transportation improvements within the proposed SH 249 Extension study area to accommodate growth. Furthermore, existing SH 249 is one of only two major highways (the other being US 290) serving the northwest region of the Houston-Galveston-Brazoria CMSA.

1.2.3 Safety (Accidents and Hurricane Evacuation Route)

1.2.3.1 Accidents/Safety Issues

Information on roadway accident history was extracted from the Department of Public Safety records, which was provided by TxDOT. Data were provided for two control sections identified as FM 1774 at Pinehurst to the Waller/Montgomery County Line and the Waller/Montgomery County Line to the Waller/Grimes County Line. Accident rates were acquired for a three-year period from 2008 to 2012 and are summarized in *Table 1-6*. The figures were calculated based upon the number of accidents per 100 million VMT. In addition, average statewide accident rate data were collected for rural FMs. The data are the most recent certified data, meaning that the accident information has been verified as accurate.

Table 1-6: Accident Rates along FM 1774 within Montgomery, Grimes, and Waller Counties[a]

Locations on FM 1774	2008	2009	2010	2011	2012
FM 149 to Misty Meadow Drive (Rural)	298.7	284.74	208.52	277.18	203.31
Misty Meadow Drive to Nichols Sawmill Road (Urban)	147.96	144.38	81.97	173.65	118.25
Nichols Sawmill Road to FM 1488 (Urban)	438.36	1432.25	844.81	1192.23	422.60
FM 1488 to FM 1486 (Rural)	331.67	322.27	76.54	200.10	177.48
FM 1486 to Waller/Grimes County Line (Rural)	216.09	259.31	277.83	182.61	166.70
Statewide Average FM Accident Rate (Rural)	119.28	118.28	126.10	116.40	118.27
Statewide Average FM Accident Rate (Urban)	232.9	226.98	219.27	197.44	204.12

Source: The Proposed SH 249 Extension Study Team, TxDOT, and H-GAC.

[a] The accident rate is defined as accidents per 100 million VMT.

Note: FM = Farm-to-Market Road.

The results indicate that the accident rate is typically higher along the rural sections of FM 1774 than the Statewide Average FM Accident Rate, while the urban roadways were split. Misty Meadow Drive to Nichols Sawmill Road had lower accident rates than the Statewide Average FM Accident Rate for an urban roadway, but the Nichols Sawmill Road to FM 1488 accident rates were much higher than the statewide average.

1.2.3.2 Hurricane Evacuation

The proposed SH 249 Extension would also provide an additional hurricane and emergency evacuation route. Radial facilities are often congested during an evacuation event as experienced when nearly 2 million people fled the Greater Houston area before Hurricane Rita made landfall. As noted, severe congestion ensued on major radial roadways leading to Austin, San Antonio, College Station, Waco, and Dallas to the point that contra-flow lanes needed to be

used. The proposed SH 249 Extension would facilitate larger traffic volumes exiting the Greater Houston area as compared to the existing FMs within the study area, which would, in turn, alleviate a portion of the congestion and create safer and more efficient evacuation conditions.

1.2.4 Economic Development

H-GAC forecasts continued population and employment growth for Montgomery County, which is already one of the fastest growing counties in the Houston-Galveston-Brazoria CMSA (H-GAC 2013c). Large amounts of residential development are planned within and adjacent to the proposed SH 249 Extension study area. Residential communities of up to 4,200 acres are planned south of FM 1774, and at least two subdivisions are planned to the north of FM 1774, just beyond the limits of the study area. According to county and local officials, other areas within the study area are in the process of being planned/platted for predominately residential and some commercial development.

Increased population combined with increased traffic and congestion could make it more difficult for businesses to function efficiently. The rate and distribution of population and employment growth would influence travel demand and create a need for transportation improvements and alternative solutions. H-GAC predicts that because of increased traffic, existing plans for transportation and traffic management options would not relieve future congestion. The proposed SH 249 Extension would provide necessary additional roadway capacity to help alleviate any problems caused by increasing transportation efficiency for commuters, and the proposed tollway would offer relief for the local existing roadways and would connect local communities, which would accommodate existing and future growth.

SECTION 2: ALTERNATIVES ANALYSIS

Section 2 documents the development of alternatives, the decision-making process used during the project-planning phase, and the alternative selection criteria and interdisciplinary approach that was applied when analyzing the environment, traffic operations, and engineering for each of the proposed SH 249 Extension alternative alignments. Input and comments from members of the public and local, state, and federal agencies were considered and implemented throughout the evaluation process.

The following analysis provides a thorough and systematic account of resource and constraint mapping, environmental issues, traffic, engineering, and public involvement. The approach allowed for a full comparison and evaluation of alternatives through an iterative series of phases. As presented in Section 4.23 of the Draft Environmental Impact Statement (Draft EIS), the process led to the selection of a single Preferred Alternative that would best serve the need and purpose of the proposed SH 249 Extension and would best avoid or minimize environmental impacts.

2.1 PREVIOUS STUDIES AND REPORTS

There have been a number of directly and indirectly related studies on the proposed SH 249 Extension study area, and many of the studies have identified needs that correlate with the proposed transportation improvements documented in the Draft EIS.

2.1.1 Feasibility Study between Bryan/College Station and Pinehurst

A feasibility study of the general corridor between Bryan/College Station and the intersection of FM 1774 and FM 149 was conducted in June 1988. The two FMs intersect in Pinehurst about 19 miles northwest of Beltway 8. In its conclusions, the study recommended to proceed with the planning process, environmental studies, ROW acquisition, design, and construction of a four-lane freeway on a new alignment between Navasota and Pinehurst.

2.1.2 1998 Route Study

In 1998, the TxDOT Bryan District initiated a route study in Grimes County from Navasota to Todd Mission. Following two public meetings, a preferred corridor was selected that would utilize SH 105 at the SH 6 Bypass intersection in Navasota. The corridor would continue along SH 105 to 1 mile west of Plantersville, where a new facility would connect with existing FM 1774 south of Plantersville and north of Mill Creek.

2.1.3 SH 249 Major Investment Study

While the two previous studies laid some groundwork for developing the alternative alignments evaluated in the Draft EIS, the most influential study on the developmental process was the SH 249 Major Investment Study (MIS). Conducted by TxDOT in February 2002 and on file at the TxDOT Houston District office, the MIS evaluated future transportation needs and identified the

most reasonable solution(s) to improve mobility and safety conditions in the proposed SH 249 Extension study area. In summary, the MIS provided:

- An assessment of traffic/mobility, hydrological, social, economic, and environmental impacts;
- Travel demand modeling/forecasting; and
- A public involvement/outreach program (which is described alongside the Draft EIS public involvement process in Section 7 of the Draft EIS).

The MIS evaluated 11 alternative corridors that were all 1,000 feet wide, and the Most Feasible Alternative Corridor became the starting point for developing the alternative alignments evaluated for the Draft EIS. The MIS also analyzed the feasibility of the Transportation System Management/Travel Demand Management (TSM/TDM) alternatives and the No-Build Alternative, all of which have particular relevance to the Draft EIS.

2.2 TRANSPORTATION SYSTEM MANAGEMENT/TRAVEL DEMAND MANAGEMENT ALTERNATIVES

The TSM/TDM alternatives analyzed in the MIS were deemed low-cost traffic management programs. The programs were designed to improve mobility within the proposed SH 249 Extension study area, while curtailing any major capital investment. The considered TSM/TDM alternatives included:

- Improving the at-grade intersection geometry and traffic signals along FM 1774, FM 149, FM 1488, and other roadways by adding left and right-turn lanes, improving signing and striping, and synchronizing traffic signals;
- Providing a continuous left-turn lane in Magnolia on FM 1774/1488;
- Adding park-and-pool facilities along FM 1774, FM 1488, and FM 149 to promote carpooling by offering motorists a convenient location to meet and park their vehicles near existing SHs;
- Providing bus service from Magnolia to large traffic generators (e.g., the Woodlands Town Center [The Woodlands] and the City of Tomball [Tomball]);
- Coordinating trip reduction plans with area employers (e.g., providing four-day work weeks, encouraging carpooling, and promoting telecommuting); and
- Identifying land use opportunities for facilities that are within walking distance of residences and businesses.

As small-scale projects targeting improvement of the existing roadway system efficiency, TSM alternatives would improve traffic operations, but the alternatives are not capable of providing the long-range capacity required to reduce congestion and improve regional mobility.

Additionally, the TSM alternatives would not provide sufficient mobility improvements for additional emergency evacuation routes.

TDM alternatives would also be small-scale projects and programs designed to improve the efficiency of existing traffic systems. However, the low-density rural character of a large portion of the study area, coupled with limited accessibility to transit and other alternatives to driving, limit the application of many TDM options. The TDM alternatives would not address the need for additional capacity to accommodate predicted future growth in traffic and the corresponding decline in roadway LOS. The TDM alternatives would also not materially contribute to congestion relief, improvement of regional mobility, or emergency evacuation.

In all, the TSM/TDM alternatives would not relieve the serious and severe levels of future congestion predicted in and around the proposed SH 249 Extension study area (H-GAC 2013a). While TSM/TDM measures would still be evaluated and implemented where feasible, additional transportation improvements in the area are needed to address congestion and mobility. As such, the TSM/TDM alternatives were eliminated from further screening in the MIS then and the Draft EIS now.

2.3 NO-BUILD ALTERNATIVE

Each alternative alignment would be evaluated against a baseline condition that is referred to as the No-Build Alternative. The No-Build Alternative would include all existing conditions and the construction of all projects in the *2035 RTP Update* except for the proposed SH 249 Extension or any of the TSM/TDM alternatives.

Based on conditions presented in Section 1 of the Draft EIS, the No-Build Alternative would not safely and adequately accommodate existing and future traffic volumes on roadways in or around the proposed SH 249 Extension study area. Furthermore, the No-Build Alternative would not reduce congestion or improve mobility on the existing roadways within the study area. However, the No-Build Alternative was the baseline alternative considered throughout the MIS and within the Draft EIS for comparison purposes.

2.4 MOVING FROM THE MOST FEASIBLE ALTERNATIVE CORRIDOR TO THE MOST REASONABLE ALTERNATIVE ALIGNMENTS

Noted above, the alternative alignments under consideration for the Draft EIS originated, in part, from the Most Feasible Alternative Corridor analyzed and refined by public and agency comment on the MIS (which is available for review at TxDOT). Labeled as Alternative Corridor E3, the corridor was selected because it had considerably fewer commercial and residential displacements and had the lowest total project cost. The corridor also limited community disruption to Todd Mission, Magnolia, and Pinehurst, while simultaneously providing a new northwest-southeast highway within the proposed SH 249 Extension study area. The corridor promoted economic development, provided better access control, was anticipated to have the

least amount of construction and traffic control impacts, and best met the purpose and need of the MIS.

Included with the selection of Alternative Corridor E3 was the recommendation to widen FM 1774 to a four-lane, divided roadway between Pinehurst and FM 1488 in order to eliminate the unacceptable LOS E/F on that section of the roadway. Additionally, public comment received at that time indicated the strong desire and need to improve FM 1774 as soon as possible.

The 1000-foot-wide Alternative Corridor E3 boundary was never intended to be rigid. As such, potential alternative alignments could extend beyond the corridor to minimize or avoid impacts, if needed. Because of land development within the corridor and the need for ROW widths of 400 feet for each alternative alignment, it was not reasonable to force several alternative alignments to remain within the 1000-foot-wide corridor. Therefore, the corridor was expanded to obtain a maximum of viable alternative alignments.

Within the adjusted corridor limits, five preliminary alternative alignments were developed and analyzed to determine the Most Reasonable Alternative Alignments that would be carried forward for further study alongside the No-Build Alternative. *Exhibit 2-1* and the following sections describe the five preliminary alternative alignments.

2.4.1 Development of the Preliminary Alternative Alignments for the Draft EIS

2.4.1.1 Alternative Alignment A

Located almost entirely on a new alignment, Alternative Alignment A would be 14.4 miles long and would be a mid-eastern bypass alternative around Magnolia. It would begin on existing SH 249 approximately 1.0 mile southeast of the intersection of FM 1774 and FM 149 and continue in a north-northwest direction, where it would intersect FM 149 approximately 0.75 mile north of FM 1774. The alignment would then turn northwest and parallel the north side of the Hazy Hollow East neighborhood near Pinehurst, intersecting FM 1488 approximately 1.75 miles east of FM 1774. The alignment would then proceed northwest and bypass Magnolia before intersecting with FM 1486 at Mill Creek, approximately 2.0 miles north of FM 1774. Then it would continue northwest (crossing Mill Creek twice) and terminate at FM 1774, approximately 0.66 mile south of the Mill Creek Bridge.

2.4.1.2 Alternative Alignment B

Alternative Alignment B would be 15.3 miles long and would follow Alternative Alignment A until intersecting FM 149, approximately 0.75 mile north of FM 1774. The alignment would turn northwest and parallel the north side of the Hazy Hollow East neighborhood near Pinehurst. The alignment would then intersect FM 1488 approximately 1.75 miles east of FM 1774. It would then proceed northwest just north of Magnolia, turning west/northwest for approximately 1.75 miles before extending north and intersecting FM 1486 approximately 2.0 miles north of FM

1774. It would continue northwest (crossing Mill Creek twice) and terminate at FM 1774, approximately 0.66 mile south of the Mill Creek Bridge.

2.4.1.3 Alternative Alignment C

Alternative Alignment C would be 15.3 miles long and would follow Alternative Alignment A until just south of FM 1488. Proceeding northwest, the alignment would cross Mill Creek and turn in a northerly direction around residential development centered around Friar Tuck and Sandy Hill. It would then traverse west to parallel Sandy Hill and intersect FM 1486 approximately 2.25 miles north of FM 1774. It would continue northwest (crossing Mill Creek for the second time) and terminate at FM 1774, approximately 0.10 mile south of the Mill Creek Bridge.

2.4.1.4 Alternative Alignment D

Alternative Alignment D would be 14.8 miles long and would follow Alternative Alignment A and C until just south of FM 1488. At FM 1488, the alignment would split off in a northerly direction for approximately 2.33 miles, clipping the western portion of one subdivision (Ravens Wood). The alignment would cross Mill Creek and bisect another subdivision centered around Mill Creek Road. It would then make a western turn and continue west/northwest for an additional 1.75 miles to intersect with FM 1486, approximately 3.0 miles north of FM 1774. It would continue northwest an additional 1.0 mile and join with Alternative Alignment C to a terminus at FM 1774, which is approximately 0.10 mile south of the Mill Creek Bridge.

2.4.1.5 Alternative Alignment E

Alternative Alignment E would be 14.2 miles long and would follow Alternative Alignment A, C, and D until just south of FM 1488. Continuing northwest for approximately 1.0 mile west of FM 1488, the alignment would still follow Alternative Alignment C, but it would be offset north of Alternative Alignment C, approximately 300 feet at its maximum distance. Alternative Alignment C would then split off in a northerly direction, while Alternative Alignment E would continue northwest crossing Mill Creek and a subdivision centered around Friar Tuck. The alignment would intersect with FM 1486, approximately 2.5 miles north of FM 1774. It would continue northwest and cross Mill Creek for a second time. It would then join with Alternative Alignment B approximately 3.25 miles southeast of its terminus at FM 1774, approximately 0.66 mile south of the Mill Creek Bridge.

2.4.2 Screening the Preliminary Alternative Alignments for the Draft EIS

The Draft EIS determined the Most Reasonable Alternative Alignments by applying a series of established engineering and environmental/socioeconomic screening criteria. An overview of each criterion is discussed below, with the results of the analysis summarized in *Table 2-1*. *Exhibit 2-2* presents the constraints of the process.

2.4.2.1 Engineering Criteria

The five major engineering criteria used to evaluate each preliminary alternative alignment were the length of the alignment, estimated ROW needs, pipeline crossings, floodplain crossings, and stream crossings. In addition, major roadway crossings and the number of railroad crossings were also considered; however, initial analysis of the alignments did not uncover any measurable differences with regard to the two criteria. As such, both criteria were not used further to establish alignment rankings.

Alignment Length

Detailed in the previous sections, each preliminary alternative alignment would begin where existing SH 249 terminates, which would be approximately 1.0 mile southeast of the FM 1774/FM 149 intersection, south of Pinehurst. Each alignment's ending point would be approximately 0.75 mile south of the Mill Creek Bridge on FM 1774, north of Todd Mission. In general, shorter routes would be more favorable because of lower design costs, lower construction costs, fewer pavement requirements, less ROW, and consequently fewer engineering impacts.

Estimated ROW Acquisition

Because a majority of the proposed tollway would be located on a new alignment, it was important to evaluate the potential need for additional ROW to accommodate each alignment. The less amount of ROW would lead to a more favorable ranking of the alignment.

Pipeline Crossings

Because pipelines are often buried deeper or encased at roadway crossings, the pipeline-crossing criterion helps to assess construction costs, construction complexities, and interagency coordination. Identified through U.S. Geological Survey (USGS) topographic mapping, existing aerial photography, and field verification, the number of pipeline crossings was determined for each preliminary alternative alignment. The fewer number of crossings would lead to a more favorable ranking of the alignment.

Floodplain Crossings

There are numerous streams and other water bodies in the proposed SH 249 Extension study area, which could lead to impacts on floodplain crossings associated with each preliminary alternative alignment. Determined by data obtained from the Federal Emergency Management Agency's (FEMA's) Flood Insurance Rate Maps (FIRMs), the number of floodplain crossings was established by the number of times each alignment would intersect an identified 100-year floodplain (FEMA 2013). To analyze impacts, each alignment was assessed by how many linear feet of floodplain were crossed. The more favorably ranked alignments affect the least number of linear feet.

Stream Crossings

Related in concept to pipeline and floodplain crossings, the stream crossing criterion helps when evaluating construction costs, construction complexities, and interagency coordination. During the evaluation, sufficiently detailed data were not developed to specify the level of impacts related to each stream crossing. As such, all crossings were considered as having an equal impact, and each alignment crossing was counted as one crossing. The fewer number of crossings would lead to a more favorable ranking of the alignment.

2.4.2.2 Environmental/Socioeconomic Criteria

The three socioeconomic/environmental criteria used to evaluate each preliminary alternative alignment were residential and commercial displacements, community cohesion, and potential wetland impacts. Additionally, potential impacts to threatened and endangered species, recorded cemeteries, Section 4(f) properties, archeological and historical properties, and hazardous materials sites were also considered. However, initial analysis of the alignments did not uncover any measurable differences with regard to the five criteria. As such, the criteria were not applied further to establish the rankings of each alignment.

Residential and Commercial Displacements

Because of the considerable amount of existing and planned residential and commercial development in and around Magnolia, the number of residential and/or commercial displacements was considered a critical criterion for determining alignment rankings. The preliminary alternative alignment with fewer displacements was ranked more favorably in comparison to the other alignments.

Community Cohesion

Community cohesion was also a crucial criterion for the proposed SH 249 Extension study area. Each preliminary alternative alignment was scored based on its potential to bisect, separate, or isolate neighborhoods from the surrounding community. The results were ranked according to high, medium, and low impacts, with low impacts being the most favorable.

Wetland Impacts

Impacts to wetlands are defined as the potential for one of the preliminary alternative alignments to require the conversion of wetland acreage to transportation use. During the evaluation, sufficiently detailed data were not developed to specify the level of impacts related to each impacted wetland. As such, evaluation was based on proximity to floodplains and stream crossings as well as a review of the U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) maps. The results were ranked according to high, medium, and low impacts, with low impacts being the most favorable.

2.4.2.3 Screening Results

As summarized in *Table 2-1*, an evaluation matrix was used in selecting the Most Reasonable Alternative Alignments. Because the five preliminary alternative alignments were evaluated on different criteria, scoring was determined by comparing results, and then comparing the number of potential impacts associated with each alignment.

Table 2-1: Screening Summary of the Preliminary Alternative Alignments

Component	Unit	Preliminary Alternative Alignments				
		A	B	C	D	E
Alignment Length	Miles	14.4	13.9	14.3	14.8	13.5
Estimated ROW Acquisition	Acres	698	672	692	717	652
Major roadway Crossings (FM 149, FM 1488, FM 1486, and FM 1774)	Number of crossings	All preliminary alternative alignments ranked the same. As such, the components were not used in scoring the alignments.				
Railroad Crossings	Number of crossings					
Pipeline Crossings	Number of crossings	8	9	8	8	8
Potential for Displacements/ Relocations	High/Med/Low	Low	Medium	Low	High	Low
Community Cohesion	High/Medium/ Low	Low	Medium	Low	High	High
Potential T/E Species Habitat	High/Medium/ Low	All preliminary alternative alignments ranked the same. As such, the component was not used in scoring the alignments.				
Potential for Wetland Impacts	High/Medium/ Low	High	Medium	Low	Low	Low
Floodplain Crossings	Linear feet	19,972	13,705	11,363	8,692	10,786
Stream Crossings	Number of crossings	23	27	22	18	19
Recorded Cemeteries	Number	0	0	0	0	0
Known Section 4 (f) Properties	Number	0	0	0	0	0
Recorded Archeological Sites	Number of sites	0	0	0	0	0
Recorded Historic Structures	Number of sites	0	0	0	0	0
Recorded Hazardous Materials	Number of sites	0	0	0	0	0

Source: The Proposed SH 249 Extension Study Team.

Notes: FM = Farm-to-Market Road; T/E = threatened and endangered.

When analyzed, Alternative Alignment A and D were eliminated from further consideration. Alternative Alignment A was eliminated because of the high potential for crossing the 100-year floodplain, the subsequent impacts to wetlands, and the associated construction costs related to floodplain/water crossings. Alternative Alignment D was eliminated based on the high potential for displacements and relocations and the high potential for impacts to community cohesion.

Through continued public involvement and coordination with the public, stakeholders, and adjacent property owners, Alternative Alignment B was adjusted to reduce the number of displacements, and an additional alternative alignment was developed as a hybrid between Alternative Alignment B and C. Labeled as Alternative Alignment B/C, the hybrid alignment further avoided engineering and environmental impacts and provided property owners an alignment that may better achieve the proposed SH 249 Extension's purpose by limiting impacts to property owners' plans for their tracts.

As such, the Draft EIS Reasonable Alternative Alignments carried forward for further study in the subsequent sections of the Draft EIS are Alternative Alignment B, B/C, C, E, and the No-Build Alternative. As illustrated on *Exhibit 2-3*, *Table 2-2* summarizes the modified results of the analysis, which now includes the Recommended Alternative Alignment B/C.

Table 2-2: Screening Summary of the Draft EIS Reasonable Alternative Alignments

Component	Unit	Draft EIS Reasonable Alternative Alignments			
		B	B/C	C	E
Engineering Criteria					
Alignment Length	Miles	15.3	15.0	15.3	14.2
Estimated ROW Acquisition	Acres	741	727	741	688
Pipeline Crossings	Number of crossings	9	8	8	8
Floodplain Crossings	Linear Feet	18,259	9,001	10,965	12,695
Stream Crossings	Number of crossings	27	21	22	19
Environmental/Socioeconomic Criteria					
Residential and Commercial Displacements	Number of displacements	26	7	7	18
Community Cohesion	High/Medium/ Low	Medium	Low	Low	High
Wetland Impacts	High/Medium/ Low	Medium	Low	Low	Low

Source: The Proposed SH 249 Extension Study Team.

On October 3, 2013, a public meeting was held to show the public the new Recommended Alternative Alignment B/C. The Recommended Alternative Alignment B/C was adjusted to

address comments received from the public meeting held on October 3, 2013, to become the Preferred Alternative (see *Exhibit 2-4*). A summary of the Public Meeting Summary Report can be found on TxDOT's website at: https://www.txdot.gov/inside-txdot/projects/studies/houston/sh249-extension.html.

The Preferred Alternative was evaluated along with the other three alternative alignments in the Draft EIS.

SECTION 3: AFFECTED ENVIRONMENT

Section 3 discusses the existing conditions of the proposed SH 249 Extension study area. The section also further describes the Draft EIS Reasonable Alternative Alignments from Section 2 of the Draft EIS. Technical and scientific information is presented throughout the section as a means to define the existing physical, biological, and socioeconomic environments that may be impacted by construction of the proposed SH 249 Extension.

3.1 LAND USE AND TRANSPORTATION PLANNING

In Texas, municipal governments have the authority to regulate land use within their jurisdictions. Their authority allows flexibility in the adoption of zoning and subdivision ordinances, land use plans, and transportation plans. Existing land use within the proposed SH 249 Extension study area was identified from aerial photography, TxDOT county maps, and USGS topographic maps. Additional information was obtained from municipal planning documents from local and state agencies. The existing land use was verified through a number of field reconnaissance efforts conducted between March and April 2013. *Appendix A* of the Draft EIS includes photographs of the proposed SH 249 Extension study area.

3.1.1 Historical and Projected Socioeconomic Patterns

Development patterns and land use change occur in response to trends in population and employment growth. Data from H-GAC's 2035 Regional Growth Forecast, the Montgomery Central Appraisal District (MCAD), the Grimes County Appraisal District (GCAD), the U.S. Census Bureau, the Texas Workforce Commission (TWC), and the Texas State Data Center were referenced when analyzing the historical and projected population and employment growth in the proposed SH 249 Extension study area.

The majority of the proposed SH 249 Extension study area would be located in the southwestern portion of Montgomery County, with a smaller portion located in southeast Grimes County. While the study area would be adjacent to three local communities, it does not include Todd Mission, Magnolia, or Pinehurst (*Exhibit 3-1*). The study area would be influenced by the regional socioeconomic conditions of the Houston-Galveston-Brazoria CMSA. (Grimes County is a not located in a CMSA.) Listed in order of 2010 population, the CMSA includes Harris, Fort Bend, Montgomery, Brazoria, Galveston, Liberty, Waller, and Chambers counties (U.S. Census 2010). The seven most populated communities in the CMSA are Houston, The Woodlands (a census-designated place), League City, the City of Sugar Land, the City of Baytown, Conroe, and the City of Galveston (U.S. Census 2010).

As quantified in *Table 3-1*, population grew from 2000 to 2010 in Montgomery and Grimes counties. However, the smaller communities of Todd Mission and Pinehurst decreased in population within the same timeframe. H-GAC forecasts that the county-level growth trend

between 2000 and 2010 will continue through 2035, and they predict substantial population growth would occur in Magnolia and Pinehurst.

Table 3-1: Area Historical Population

County/City	2000	2010	2000 to 2010 Percent Change	2035	2010 to 2035 Percent Change
Montgomery County	293,768	455,746	55.13	857,637	88.2
Grimes County	23,552	26,604	12.95	29,651	11.45
Todd Mission	146	107	-26.71	172	60.74
Magnolia	1,111	1,393	25.38	6,406	359.87
Pinehurst	2,274	2,097	-7.78	12,746	507.82

Source: U.S. Census 2000; U.S. Census 2010; Texas State Data Center 2012; H-GAC 2013c.

[a] Because Montgomery County is part of the H-GAC planning area, the population forecast above is sourced from H-GAC to be consistent with the *2035 RTP Update* (H-GAC 2013a).

Table 3-2 identifies historical and forecasted employment for the counties in the Houston-Galveston-Brazoria CMSA. From 2000 to 2035, employment is predicted to grow almost 80 percent. H-GAC forecasted employment growth using 2005 as its base year, and actual 2010 employment numbers have outpaced predicted 2035 employment numbers in Fort Bend, Brazoria, and Chambers counties. The data suggest that the economy in some areas of the CMSA is growing faster than predicted.

Table 3-2: Area 2000 to 2035 Employment Growth

County	Employment			
	2000[a]	2010[b]	2035[c]	2000 to 2035 Percent Change
Harris	1,653,892	2,110,358	3,144,992	90.2
Fort Bend	174,803	298,113	297,728	70.3
Montgomery	143,259	231,976	239,692	67.3
Brazoria	112,904	154,727	147,719	30.8
Galveston	122,894	151,735	169,492	37.9
Liberty	28,548	33,009	33,778	18.3
Waller	15,896	20,715	23,250	46.3
Chambers	12,353	16,798	12,779	3.4
CMSA Total	**2,264,549**	**3,017,431**	**4,069,430**	**79.7**

Source: [a] U.S Census 2000; [b] U.S. Census 2013 (2007-2011 American Community Survey); [c] H-GAC 2013c.

Much of the forecasted growth in proposed SH 249 Extension study area is a function of economic growth in the region, the availability of land for future development in the study area, and the planning goals and objective of Montgomery and Grimes counties and the surrounding communities.

3.1.2 Existing Land Uses

As listed in *Table 3-3*, the proposed SH 249 Extension study area consists primarily of vacant and developable land, much of which is farmland, ranchland, and vacant land. According to the Texas Parks and Wildlife Department (TPWD), the forested areas within the study area are predominately pine-hardwood forest. Some residential land use exists in the study area, and retail, commercial, high-density residential, and other land uses are primarily concentrated around Magnolia, Pinehurst, and the major roadways of FM 1774, FM 1488, FM 1486, and FM 149 within the study area. The study area has experienced elements of new residential growth as the Greater Houston area expands, but much of the study area is still characterized by sparse commercial and residential development, with a majority of land use being undeveloped.

Table 3-3: Existing (2013) Land Use in the Study Area

Land Use	Acres	Percent Share of Total
Commercial	4.18	0.06
Industrial	0.82	0.01
Residential	553.03	7.49
Undevelopable	707.50	9.58
Undeveloped (farmland, ranchland, and vacant land)	6,117.64	82.86
Total	**7,383.17**	**100.0**

Source: H-GAC 2013a; GCAD 2013.

3.1.2.1 Urban Development

The most intensive development is located in the southern half of the proposed SH 249 Extension study area. Along existing FM 1774 and FM 1488, commercial, retail, industrial, public, institutional, and recreational land uses exist in and around Magnolia and Pinehurst. There are 12 residential communities/subdivisions located within the study area (MCAD 2013; Key Map 2010). *Exhibit 3-1* identifies and the following list details the 12 residential communities/subdivisions.

- Community/subdivision 1 through 4: Woodtrace, Oakcrest, Oak Hill Acres, and Cripple Creek Farms West are just south of FM 1774 and west of existing SH 249 near the southern portion of the study area.

- Community/subdivision 5 and 6: Greentree Forest Estates and Hazy Hollow East subdivisions are along the western boundary of the study area and north of FM 1774. Both are located in the southeastern portion of the study area, west of FM 149.
- Community/subdivision 7: The Vintage is a small subdivision north of FM 1488 and west of the study area.
- Community/subdivision 8: Pine Vista Village is along the eastern boundary of the study area, north of FM 1488, west of FM 149, and east of FM 1486.
- Community/subdivision 9: High Chaparral is just east of FM 1486, north of FM 1774, and northwest of Magnolia in the center of the study area.
- Community/subdivision 10: Mill Creek Landing is in the north-central portion of the study area, north of FM 1488, east of FM 1486, and west of FM 149.
- Community/subdivision 11: Magnolia Hills is in the north-central portion of the study area, east of FM 149.
- Community/subdivision 12: Magnolia East is in the center of the study area just east of FM 1486. It is also situated west of Mill Creek Landing, north of FM 1774, and south of Convenient County Estates subdivision, which is outside of the study area.

3.1.2.2 Undeveloped Forest and Pastureland

The remaining land uses within the northern half of the proposed SH 249 Extension study area (northwest of FM 1486) are primarily forest and pastureland, with some scattered residential uses near the terminus along FM 1774 (just south of the Mill Creek Bridge).

Continuing west through the study area, land is dominated by forested/undeveloped use until the proposed SH 249 Extension would meet FM 1488 (just north of Magnolia) and continue to bypass Magnolia to FM 1486. The area north of the Magnolia is predominantly forested with mixed pasture and undeveloped lands. Immediately west of Magnolia is a mix of forest, pasture, and undeveloped lands.

3.1.2.3 Transportation Land Use

The proposed SH 249 Extension study area falls between two major thoroughfares, both of which serve as spokes in the wheel of highways connecting Houston to its suburbs. On the eastern edge is IH 45, which runs north and south. On the western edge is US 290, which runs northwest and southeast. The primary roadway through the area is FM 1774, which is south of the study area. The remainder of the area consists of a network of sparsely developed FMs and county roads. Major public infrastructure and utilities are found throughout the study area, including roadways, railways, electrical transmission lines, and petroleum pipelines. Other prominent roadways within the study area include FM 1774, FM 1488, FM 1486, and FM 149.

A UPRR railway extends through the entire study area parallel to FM 1774, intersecting FM 1774 and FM 1488 in Magnolia. The railway provides service for the Greater Houston area. There is no passenger rail service within the study area.

3.1.3 Land Use Planning

As shown on *Exhibit 3-1*, a number of cities and smaller incorporated areas or communities exist within, or extend into, the proposed SH 249 Extension study area. The smaller cities include Todd Mission, Magnolia, and Pinehurst. Additionally, several planned residential developments have been platted and approved for construction around Magnolia. The developments would be located primarily south, southeast, and west of Magnolia. According to county and local officials, additional areas within the study area are in the process of being planned and platted for residential and commercial development.

Described from south to north, several master planned communities are under development and have pre-platted properties within the proposed SH 249 Extension study area.

- Primewood Investments owns several tracts of land located along the southeast side of the study area, just east of FM 149 and north of where the UPRR and the Burlington Northern Santa Fe railways cross south of Hardin Store Road. The property totals 2,394 acres, and development planning is currently underway.
- Devon Oil and Gas owns an 833-acre tract that is along the east side of the study area. It is west of FM 149 and south of FM 1488. Details about the property's development are not currently available.
- Axe EM Investments owns a 25-acre tract located north of the Greentree Forest Estates subdivision, south of FM 1488, and on the west side of the study area. Details about the property's development are not currently available.
- The Schoessow tract is approximately 80 acres and is adjacent to the Axe EM Investments property to the north. Details about the property's development are not currently available.
- The Magnolia Legacy Trust tract is a 1,121-acre master planned community and commercial development project along the east side of the study area and is both north and south of FM 1488 and west of FM 149.
- Mill Ridge is a 123-acre tract of land north of the Magnolia Legacy Trust property and completely within the study area. Details about the property's development are not currently available.
- The Rhodes tract is 209 acres and almost completely in the study area between the Magnolia East and Mill Creek Landing subdivisions. Details about the property's development are not currently available.

- Timbers at Mills Creek is a 5,934-acre master planned, mixed-use community located northeast of the FM 1486/FM 1774 intersection. The community would include single-family ranch and multi-family housing, commercial and business/light industrial uses, and community amenities (e.g., schools, churches, a town center, and a golf course). The proposed SH 249 Extension would transect the development, as reflected in the master plan of development. The plans include grade-separated cross streets to maintain community cohesion and the placement of commercial and business uses at the intersection and along the proposed SH 249 Extension.
- Crown Ranch is a gated, master-planned residential acreage community located on Crown Ranch Boulevard in Montgomery. The community would ultimately be north and west of FM 1486, and Phase I of the 2,220-acre development is complete with two additional phases of construction underway. The community would have large-lot residential homes and a network of trails and parks and recreational amenities. The study area crosses the western portion of the development. (Gilbert 2008; Crown Ranch 2013)

There are also several master planned communities located nearby but outside of the proposed SH 249 Extension study area. Because of recent fires and other factors, the communities are still in the early planning process.

- Magnolia Ridge is a 1,223-acre master planned community that consists of home sites surrounded by a forest of trees. Some amenities planned for future development would include lake retreats, pocket parks, and a community recreational center. Magnolia Ridge would be located south of FM 1488 and just east of FM 1774. All lots have been sold, and construction is underway.
- Magnolia Woods is located on the northeast side of FM 1774 (less than 3 miles northwest of Magnolia). FM 1486 bisects the tract with 4,287 acres on the west side of FM 1486 and 1,445 acres of the east side of FM 1486. The master planned community is not yet under construction.
- Magnolia Ranch is located on the northeast side of FM 1774, less than 2 miles northwest of Magnolia. The community totals approximately 1,133 acres, and it is platted as a master planned community, but construction has not yet started.
- Magnolia Oaks is located less than 2 miles north of the FM 1488/FM149 intersection. The community totals approximately 873 acres and is not yet under construction.

In addition, numerous other individual acre tracts are planned for development outside of the proposed SH 249 Extension study area but within the surrounding area.

H-GAC's 2035 Regional Growth Forecast, adopted by the H-GAC Board of Directors in February 2006, predicts growth patterns for the Houston-Galveston-Brazoria CMSA, which

includes Brazoria, Chambers, Fort Bend, Galveston, Harris, Liberty, Montgomery, and Waller counties (H-GAC 2013c). According to the forecast, Harris County, which is primarily the urban core of the region, would remain a major attractor and likely be home to 5.8 million people by 2035. However, the two prominent suburban counties, Fort Bend and Montgomery, are projected to experience very strong growth with a total population of almost 1 million people each (H-GAC 2013c). Listed in *Table 3-4*, the major land use change anticipated in the proposed SH 249 Extension study area between 2013 and 2040 would be the conversion of more than 150 acres (approximately 2 percent of the study area) of vacant and developable land to residential land. Many more acres of undeveloped land are planned for development within and just outside the study area as evidenced by the projects listed above.

Table 3-4: Projected (2040) Land Use in the Study Area

Land Use	Acres	Percent Share of Total
Commercial	4.18	0.06
Industrial	0.82	0.01
Residential	706.12	9.56
Undevelopable	707.50	9.58
Undeveloped (farmland, ranchland, and vacant land)	5,964.55	80.79
Total	**7,383.17**	**100.0**

Source: H-GAC 2013a; GCAD 2013.

3.1.4 Transportation Planning

In 1988, TxDOT began developing a long-range highway plan in response to concerns about the possibility of fragmented development from four-lane highways within the state. The plan was written in addition to the implementation of a federal highway program that included a network of multi-lane highways. The long-range plan is called the Texas Trunk System. The primary goal of the system is to upgrade the designated highways to four-lane, divided (or greater) highway sections. The existing SH 249 is part of the system that will ultimately connect Houston to Waco. In its current form, the Texas Trunk System has been included in regional planning studies since the late 1980s.

H-GAC is the local agency responsible for developing the Houston region's long-range plan, the *2035 RTP*, which identifies the need for transportation improvement projects. The plan is designed to identify the need for transportation improvement projects (including mass transit and other non-road projects) that satisfy future transportation demand and bring the Greater Houston area into conformance with regulatory emission limits and air quality standards.

Any proposed project is required to be consistent with both H-GAC's *2035 RTP Update* and the *2013-2016 Transportation Improvement Program (TIP)* prior to approval (H-GAC 2013a,

2013b). (Appendix B provides the relevant excerpts from the *2035 RTP Update* and *2013-1016 TIP*.) All projects in H-GAC's *2013-2016* TIP, as amended that are proposed for federal or state funds were initiated in a manner consistent with federal guidelines in Section 450, of Title 23 of the Code of Federal Regulations (CFR) and Section 613.200 (Subpart B) of Title 49 of the CFR. Energy, environment, air quality, cost, and mobility considerations are addressed in the programming section of the TIP (H-GAC 2013b).

A majority of the proposed SH 249 Extension (12.18 miles) is included in Appendix F (Unfunded Improvements) of the *2035 RTP Update*. However, as an unfunded project, the proposed SH 249 Extension is not in conformity. Additionally, the *2035 RTP Update* does not list the northern 2.6 miles of the proposed tollway located within Grimes County, which is outside the H-GAC RTP Houston-Galveston-Brazoria CMSA. The *2035 RTP Update* was adopted by H-GAC's Transportation Policy Council on October 29, 2010. FHWA and the Federal Transit Administration (FTA) found the *2035 RTP Update* and *2013-2016 TIP*, as amended to conform to the Texas Commission on Environmental Quality (TCEQ) State Implementation Plan (SIP) on January 25, 2011, and November 1, 2012, respectively. FHWA will not take final action on the EIS until the proposed SH 249 Extension is consistent with a fiscally constrained and conforming RTP and TIP.

The proposed SH 249 Extension is in conformance with H-GAC's *Montgomery County Mobility Study* and *Montgomery County Mobility Plan* (H-GAC 1998). The plan recognizes the need for the proposed SH 249 Extension because of the current unacceptable level-of-mobility on FM 1774. While a new mobility plan is currently being developed, existing SH 249 and the proposed SH 249 Extension continue to be a key corridor within the study area (as identified through working group meetings with local officials and TxDOT).

3.2 GEOLOGY, FARMLANDS, AND SOILS

The subsequent section provides a description of the existing geology, farmlands, and soils within the proposed SH 249 Extension study area.

3.2.1 Geology

According to the USGS, 12 geologic provinces are within the contiguous U.S., and each province has characteristic geologic structures, rock/soil types, vegetation, and climate (USGS 2011). The proposed SH 249 Extension study area is located in the Gulf Coastal Plain physiographic province of Texas (UT 1996).

Characterized as a smooth, nearly featureless depositional plain, the land surface within the proposed SH 249 Extension study area is nearly level to gently sloping with natural drainage features and numerous manmade depressions or ponds. The natural features include Mill Creek and several unnamed tributaries of Mill Creek. The natural ground surface of the study area slopes eastward and ranges in elevation from 340 feet above mean sea level near the

northwestern portion of the study area to about 190 feet above mean sea level near the southeastern portion of the study area. (USGS 2011)

The study area consists of the Willis Formation geologic unit (BEG 1992). Generally, the unit is composed of clay, silt, sand, siliceous granule to pebble gravel, some petrified wood, sand coarser than younger units, and non-calcareous and deeply weathered, locally cemented by iron oxide (BEG 1992).

Faulting is common in the Gulf Coastal Plain province, and the faults are "attributed to regional, late Cenozoic, gravitational collapse of the thick…water-saturated sediments of the Coastal zone, locally greatly accelerated by subsidence that is induced by pumping of oil, gas, and water. Historical subsidence and surface normal faulting are particularly pronounced in and around Houston" (Wheeler 1999). The SH 249 Extension study area is within the gulf-margin normal fault area with low seismic activity. It is not known if the faults have the ability to generate significant or damaging ground movement (Wheeler 1999).

Land-surface subsidence is another natural geologic process that is a function of the depositional environment of the Gulf Coastal Plain province. The natural rate of subsidence has been accelerated from the increased utilization of groundwater resources. Excessive groundwater withdrawal is the primary cause of land-surface subsidence (HGSD 2013a).

The Lone Star Groundwater Conservation District was established in 2001 to regulate groundwater withdrawals in Montgomery County, and the district includes the proposed SH 249 Extension study area. The Jasper aquifer water level below the study area has subsided from 40 to 140 feet between 2000 and 2010, and subsidence data reflecting how far the surface elevation has decreased within the study area shows elevation reductions as much as 1 foot (USGS 2010; HGSD 2013b).

3.2.2 Farmlands

The Farmland Protection Policy Act (Subtitle I of Title XV of the Agricultural and Food Act of 1981) provides protection to prime and unique farmlands, all of which are classified into four distinct types, as defined by FHWA's Technical Advisory T6640.8A. The four types are prime, unique, other than prime or unique and of statewide importance, and other than prime or unique that is of local importance (FHWA 1987). Of note, according to the Natural Resources Conservation Service (NRCS), there are no unique farmlands or farmlands of local importance in Texas.

The purpose of the Farmland Protection Policy Act is to minimize the extent to which federal projects contribute to the unnecessary and irreversible conversion of prime, unique, and other farmlands of statewide or local importance to non-agricultural uses.

3.2.2.1 Prime Farmland

As defined by the U.S. Department of Agriculture, prime farmland is best suited to produce food, feed, forage, and oilseed crops. Such soils have properties that are favorable for the production of sustained high yields. Prime farmland typically produces the highest yields with a minimum of energy and economic consumption, and farming the soils often has minimal environmental damage. Prime farmland is often considered cropland, pasture, or woodland, but prime farmland may also be used for other uses that produce food or fiber.

Urban or built-up land, public land, and water areas cannot be considered prime farmland. Urban or built-up land is considered any contiguous unit of land 10 acres or more in size that is used for such purposes as housing, industrial, and commercial sites, and would include sites for institutions or public buildings, small parks, golf courses, cemeteries, railway yards, airports, sanitary landfills, sewage treatment plants, and water control structures. Public land is land not available for farming in national forests, national parks, military reservations, and state parks.

3.2.2.2 Farmlands of Statewide Importance

The following is a list of soils that are considered farmlands of statewide importance found within the proposed SH 249 Extension study area (NRCS 2012a, 2012b).

For Montgomery County, soils include:

- Bibb soils (Bb),
- Sorter (So),
- Conroe (Ss),
- Woodville (SuD),
- Aris (Tk), and
- Waller (Wa).

For Grimes County, soils include:

- Annona (AnC),
- Conroe (CpC),
- Natache (Na), and
- Waller (Wa).

3.2.3 Soils and Soil Associations

A soil association is a landscape that has a distinctive proportional pattern of soils. It normally consists of one or more major soils and at least one minor soil. (The association is named for the major soil[s].) The soils in one association may occur in another, but would occur in a

different proportion and pattern. The two soil associations located within the proposed SH 249 Extension study area are Conroe located in Montgomery County and Conroe-Depcor located in Grimes County (NRCS 2002, 2004).

Within the two soil associations, the soil series is generally sandy loams to clayey loams to clays and is gently sloping to nearly level. The soils in the study area are moderately well to somewhat poorly drained, with moderate shrink-swell potential and moderate to slow permeability. *Table 3-5* lists and *Exhibit 3-2* depicts the soils within the proposed SH 249 Extension study area.

Table 3-5: Soils within the Study Area

Mapped Soil Unit Name	Drainage Classification	County	Percent Slope	Hydric	Prime Farmland
Landman fine sand (Ab)	Moderately well drained	Montgomery	0 to 3	No	No
Annona fine sandy loam, 1 to 5 percent slopes (AnC)	Moderately well drained	Grimes	1 to 5	No	No
Bibb soils, frequently flooded (Bb)	Poorly drained	Montgomery	0 to 1	Yes	No
Betis fine sand, 0 to 5 percent slopes (BIC)	Somewhat excessively drained	Montgomery	0 to 5	No	No
Boy fine sand, 1 to 8 percent slopes (BgD)	Somewhat poorly drained	Grimes	1 to 8	Yes	No
Boy fine sand (Bo)	Somewhat poorly drained	Montgomery	0 to 5	No	No
Conroe gravelly loamy fine sand, 0 to 5 percent slopes (CnC)	Moderately well drained	Montgomery	0 to 5	No	No
Conroe loamy fine sand, 0 to 5 percent slopes (CoC)	Moderately well drained	Montgomery	0 to 5	No	No
Conroe loamy fine sand, 1 to 5 percent slopes (CoC)	Moderately well drained	Grimes	1 to 5	No	No
Conroe gravelly loamy fine sand, graded, 1 to 5 percent slopes (CpC)	Moderately well drained	Grimes	1 to 5	No	No
Crowley fine sandy loam (Cw)	Somewhat poorly drained	Montgomery	0 to 1	Yes	No
Depcor loamy fine sand, 1 to 5 percent slopes (DeC)	Moderately well drained	Grimes	1 to 5	No	No
Fetzer loamy fine sand, 1 to 5 percent slopes (FeC)	Somewhat poorly drained	Grimes	1 to 5	No	No
Libert loamy fine sand (Fs)	Well drained	Montgomery	1 to 3	No	No

Table 3-5: Soils within the Study Area

Mapped Soil Unit Name	Drainage Classification	County	Percent Slope	Hydric	Prime Farmland
Hockley fine sandy loam (Ho)	Well drained	Montgomery	1 to 3	No	Yes
Landman loamy fine sand, 1 to 5 percent slopes (LaC)	Moderately well drained	Grimes	1 to 5	No	No
Nahatche clay loam, frequently flooded (Na)	Somewhat poorly drained	Grimes	0 to 1	Yes	No
Kirbyville fine sandy loam (Ro)	Moderately well drained	Montgomery	0 to 1	No	Yes
Sorter silt loam (So)	Poorly drained	Montgomery	0 to 1	Yes	No
Splendora fine sandy loam (Sp)	Somewhat poorly drained	Montgomery	0 to 1	Yes	Yes
Splendora fine sandy loam, 0 to 3 percent slopes (SpB)	Somewhat poorly drained	Grimes	0 to 3	No	Yes
Conroe soils (Ss)	Moderately well drained	Montgomery	2 to 5	No	No
Woodville fine sandy loam, 5 to 12 percent slopes (SuD)	Somewhat poorly drained	Montgomery	5 to 12	No	No
Aris loam, heavy substratum (Tk)	Poorly drained	Montgomery	0 to 1	Yes	No
Waller loam (Wa)	Poorly drained	Montgomery	0 to 1	Yes	Yes, if drained
Waller loam, 0 to 1 percent slopes (Wa)	Poorly drained	Grimes	0 to 1	Yes	Yes, if drained
Waller soils, ponded (We)	Poorly drained	Montgomery	0 to 1	Yes	Yes, if drained
Fetzer loamy fine sand, 1 to 5 percent slopes (WkC)	Somewhat poorly drained	Montgomery	1 to 5	No	No

Source: NRCS 2002 (Grimes County); NRCS 2004 (Montgomery County).

3.3 SOCIAL CHARACTERISTICS

3.3.1 Population and Demographic Characteristics

As noted, the proposed SH 249 Extension study area is located within Grimes and Montgomery counties. The *2035 RTP Update* documents the transportation needs of the Houston-Galveston-Brazoria CMSA, of which Montgomery County is part. The eight-county geographic area covered by the *2035 RTP Update* includes a region of more than 7,000 square miles and 5.9 million residents in 2010.

Grimes County is located northwest of Montgomery County and is outside of the Houston-Galveston-Brazoria CMSA.

3.3.1.1 Population

According to the 2010 Census, the population within the Houston-Galveston-Brazoria CMSA increased from approximately 4.7 million people in 2000 to 5.9 million people in 2010 (a 25.5 percent increase) (U.S. Census 2010). Based on the H-GAC's 2035 Regional Growth Forecast and as listed in *Table 3-6,* the region and counties around the proposed SH 249 Extension study area are forecasted to continue to grow.

Table 3-6: Projected Population Growth in areas around the Study Area

Geographic Area	Population		Population Growth (Annual Average Growth)
	2010	2035	
Houston-Galveston-Brazoria CMSA	5,891,999	8,683,752	2.51
Montgomery County	455,746	857,637	4.38
Grimes County[a]	26,604	29,651	0.93

Source: H-GAC 2013c; Texas State Data Center 2012.

[a] Because Grimes County is not part of the H-GAC planning area, the population forecast is sourced from the Texas State Data Center.

It is expected that future population growth within the Houston-Galveston-Brazoria CMSA and Grimes County would increase in a manner consistent with national suburban growth trends, where jobs follow population growth to the extent that suburban areas become self-contained with local residential, retail, and employment centers. With growth rising more rapidly than both the U.S. and Texas, area population and economic growth would place increased pressure on existing infrastructure.

3.3.1.2 Demographics

Area demographics are best represented through defining the area's population, race, and ethnicity at the broadest (i.e., the Houston-Galveston-Brazoria CMSA) and most specific (i.e., 2010 Census blocks) levels of statistical significance. There are nine Census block groups (seven in Montgomery County and two in Grimes County) and 485 Census blocks within 500 feet of the proposed SH 249 Extension study area (*Exhibit 3-3*). Census block level data are included in *Appendix C* of the Draft EIS.

In addition to listing the 2010 area population statistics, *Table 3-7* provides the racial/ethnic distribution for the larger Houston-Galveston-Brazoria CMSA, for Montgomery and Grimes counties, for the proposed SH 249 Extension study area, and for the nine Census block groups in the study area.

Table 3-7: Area Population, Race, and Ethnicity

Geography	Total Population	Total Minority	Non-Hispanic/Non-Latino							Hispanic/Latino						
			White	Black/ African American	Native American/ Alaska Native	Asian	Native Hawaiian or Other Pacific Islander	Some Other Race	Two or More Races	White	Black/ African American	Native American/ Alaska Native	Asian	Native Hawaiian or Other Pacific Islander	Some Other Race	Two or More Races
Houston-Galveston-Brazoria CMSA	5,891,999 100.0%	3,570,388 60.6%	2,321,611 39.4%	993,599 16.9%	13,745 0.2%	384,366 6.5%	2,906 0.0%	10,987 0.2%	74,894 1.3%	1,215,251 20.6%	26,798 0.5%	24,189 0.4%	4,400 0.1%	944 0.0%	714,839 12.1%	103,470 1.8%
Montgomery County	455,746 100.0%	131,135 28.8%	324,611 71.2%	18,537 4.1%	1,807 0.4%	9,347 2.1%	241 0.1%	635 0.1%	5,870 1.3%	55,982 12.3%	864 0.2%	1,541 0.3%	199 0.0%	70 0.0%	31,219 6.9%	4,823 1.1%
Grimes County	26,604 100.0%	10,471 39.4%	16,133 60.6%	4,348 16.3%	82 0.3%	61 0.2%	7 0.0%	16 0.1%	305 1.1%	3,276 12.3%	42 0.2%	57 0.2%	2 0.0%	0 0.0%	2,004 7.5%	271 1.0%
Proposed SH 249 Extension Study Area	16,475 100.0%	4,488 27.2%	11,987 72.8%	598 3.6%	72 0.4%	48 0.3%	4 0.0%	11 0.1%	178 1.1%	1,790 10.9%	14 0.1%	73 0.4%	4 0.0%	2 0.0%	1,498 9.1%	196 1.2%
Tract 1801.02 Block Group 2	1,562 100.0%	340 21.8%	1,222 78.2%	66 4.2%	7 0.4%	2 0.1%	1 0.1%	1 0.1%	30 1.9%	91 5.8%	3 0.2%	5 0.3%	0 0.0%	0 0.0%	122 7.8%	12 0.8%
Tract 1801.02 Block Group 3	895 100.0%	185 20.7%	710 79.3%	59 6.6%	1 0.1%	0 0.0%	2 0.2%	0 0.0%	16 1.8%	73 8.2%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	18 2.0%	16 1.8%
Tract 6902.02 Block Group 4	1,183 100.0%	416 35.2%	767 64.8%	8 0.7%	3 0.3%	1 0.1%	0 0.0%	5 0.4%	3 0.3%	183 15.5%	0 0.0%	2 0.2%	0 0.0%	0 0.0%	207 17.5%	4 0.3%
Tract 6903 Block Group 1	2,109 100.0%	809 38.4%	1,300 61.6%	33 1.6%	13 0.6%	0 0.0%	0 0.0%	0 0.0%	17 0.8%	369 17.5%	4 0.2%	29 1.4%	0 0.0%	1 0.0%	293 13.9%	50 2.4%
Tract 6903 Block Group 2	1,383 100.0%	322 23.3%	1,061 76.7%	113 8.2%	4 0.3%	3 0.2%	0 0.0%	0 0.0%	11 0.8%	103 7.4%	0 0.0%	6 0.4%	0 0.0%	0 0.0%	75 5.4%	7 0.5%
Tract 6903 Block Group 3	1,189 100.0%	288 24.2%	901 75.8%	95 8.0%	3 0.3%	9 0.8%	0 0.0%	1 0.1%	17 1.4%	78 6.6%	0 0.0%	10 0.8%	0 0.0%	0 0.0%	62 5.2%	13 1.1%
Tract 6904.02 Block Group 1	2,369 100.0%	647 27.3%	1,722 72.7%	48 2.0%	11 0.5%	18 0.8%	1 0.0%	3 0.1%	34 1.4%	232 9.8%	3 0.1%	0 0.0%	4 0.2%	0 0.0%	253 10.7%	40 1.7%
Tract 6904.02 Block Group 2	2,719 100.0%	887 32.6%	1,832 67.4%	28 1.0%	7 0.3%	6 0.2%	0 0.0%	1 0.0%	28 1.0%	420 15.4%	3 0.1%	18 0.7%	0 0.0%	1 0.0%	348 12.8%	27 1.0%
Tract 6946 Block Group 2	3,066 100.0%	594 19.4%	2,472 80.6%	148 4.8%	23 0.8%	9 0.3%	0 0.0%	0 0.0%	22 0.7%	241 7.9%	1 0.0%	3 0.1%	0 0.0%	0 0.0%	120 3.9%	27 0.9%

Source: U.S. Census 2010.

Notes: The 2010 Census asked respondent to identify their race and ethnicity based on their own perception of their racial and ethnic identity. Ethnicity is defined as a population that shares common characteristics such as religion, traditions, culture, language, and/or tribal or national origin. As such, people who identify themselves as Hispanic can be of any race.

CMSA = Consolidated Metropolitan Statistical Area; % = percent.

As listed, the study area has a smaller share of minority population when compared to both the Houston-Galveston-Brazoria CMSA and Montgomery and Grimes counties. The largest minority group in the study area is ethnically Latino or Hispanic, accounting for a little over one out of every five people in the study area.

3.3.2 Housing, Neighborhoods, and Community Cohesion

3.3.2.1 Housing

Between 2000 and 2010, the total number of area housing units increased. Within the Houston-Galveston-Brazoria CMSA, the total number of housing units grew 26.4 percent. In Montgomery County, Grimes County, and the proposed SH 249 Extension study area, housing units increased by 14.2 percent, 53.8 percent, and 16.5 percent, respectively. *Table 3-8* provides an overview of the 2010 area housing market. A majority of the housing units in the study area are occupied, which is a higher occupancy share compared to the Houston-Galveston-Brazoria CMSA and Montgomery and Grimes counties.

Table 3-8: 2010 Area Housing Characteristics

Geographic Area	Total Housing Units	Occupied Housing Units	Vacant Housing Units
Houston-Galveston-Brazoria CMSA	2,260,004 (100.0%)	1,994,495 (88%)	265,549 (12%)
Montgomery County	173,447 (100.0%)	155,712 (90.0%)	17,735 (10.0%)
Grimes County	10,833 (100.0%)	8,433 (78%)	2,400 (22%)
Proposed SH 249 Extension Study Area	6,337 (100.0%)	5,741 (90.6%)	596 (9.4%)
Tract 1801.02 Block Group 2	757 (100.0%)	623 (82.3%)	134 (17.7%)
Tract 1801.02 Block Group 3	408 (100.0%)	353 (86.5%)	55 (13.5%)
Tract 6902.02 Block Group 4	461 (100.0%)	427 (92.6%)	34 (7.4%)
Tract 6903 Block Group 1	745 (100.0%)	679 (91.1%)	66 (8.9%)
Tract 6903 Block Group 2	523 (100.0%)	484 (92.5%)	39 (7.5%)
Tract 6903 Block Group 3	474 (100.0%)	433 (91.4%)	41 (8.6%)
Tract 6904.02 Block Group 1	838 (100.0%)	790 (94.3%)	48 (5.7%)

Table 3-8: 2010 Area Housing Characteristics

Geographic Area	Total Housing Units	Occupied Housing Units	Vacant Housing Units
Tract 6904.02 Block Group 2	960 (100.0%)	877 (91.4%)	83 (8.6%)
Tract 6946 Block Group 2	1,171 (100.0%)	1,075 (91.8%)	96 (8.2%)

Source: U.S. Census 2010.

Notes: CMSA = Consolidated Metropolitan Statistical Area; % = percent.

3.3.2.2 Neighborhoods and Community Cohesion

The proposed SH 249 Extension study area largely exists within rural areas that do not contain dense residential, commercial, retail, or industrial development. However, there are 12 existing neighborhoods/subdivisions in the study area as depicted on *Exhibit 3-1* and listed in Section 3.1.2.1 of the Draft EIS.

3.3.3 Community Facilities, Services, and Resources

Community facilities, services, and resources (i.e., schools, police, fire protection, medical services, churches, cemeteries, parks, and recreational areas) were identified by compiling existing mapping sources, aerial photography, limited field reconnaissance surveys, and information provided by local and state agencies and organizations. *Exhibit 3-1* depicts the community facilities, services, and resources in and around the proposed SH 249 Extension study area.

3.3.3.1 Schools

The study area touches three independent school districts (ISDs), the Tomball, Magnolia, and Navasota ISDs. In conjunction with the Believers Fellowship Baptist Church, one preschool, located at 36255 FM 149 Road in Pinehurst, is within the study area. The preschool operates for children ages two to four, and is open for two-year old classes on Tuesdays and Thursdays from 9:00 am to 2:00 pm and for three and four-year old classes on Tuesdays, Wednesdays, and Thursdays from 9:00 am to 2:00 pm.

3.3.3.2 Police Protection

The study area exists within rural areas outside of incorporated city limits. Entities serving as police protection for the study area include the Montgomery County Sheriff's Department (located at 31350 Friendship Lane in Magnolia), the Grimes County Sheriff's Department (located at 382 FM 149 Road in Anderson), and the Magnolia Police Department (located at 18111 Buddy Riley Boulevard in Magnolia). None of the entities are within the study area.

The Grimes County Sheriff's Department is located north of the proposed SH 249 Extension study area and east of Navasota in Anderson. The Montgomery County Sherriff's Department is

located south of FM 1774 (approximately 1.56 miles south of the study area and approximately 1.67 miles south of Alternative Alignment B). The Magnolia Police Department is located north of FM 1774 (approximately 1.10 miles south of the study area and approximately 1.25 miles south of Alternative Alignment B).

3.3.3.3 Fire Protection

The study area is served by two volunteer fire departments, the Magnolia volunteer fire department at Station 181 (located at 18215 Buddy Riley Boulevard in Magnolia) and the Magnolia volunteer fire department at Station 185 (located at 11515 FM 1488 in Magnolia). Neither volunteer fire department is within or directly adjacent to the study area. Station 181 is north of FM 1774 (approximately 1.25 miles south of the study area and approximately 1.45 miles south of Alternative Alignment B). Station 185 is north of FM 1774 (approximately 3.00 miles north of the study area and approximately 3.12 miles north of Alternative Alignment E).

3.3.3.4 Medical Services

No emergency medical service facilities are within the study area. However, the Montgomery County Hospital District has two emergency medical service facilities near the study area. The first facility is south of the study area and south of FM 1774 at 35421 SH 249 in Pinehurst (approximately 916 feet south of the study area and 1,583 feet south of Alternative Alignment C). The second facility is on the east side of FM 1488 adjacent to the Piney Grove Missionary Baptist Church (see below) in temporary buildings (approximately 1.39 miles north of the FM 1774/FM 1488 intersection and 1,083 feet south of Alternative Alignment B). Both facilities are the closest emergency care centers to the study area.

The closest full service hospital is Tomball Regional Medical Center at 605 Holderrieth Boulevard in Tomball. Ambulance service is provided by Montgomery County Emergency Assistance (located on 31355 Industrial Park Drive in Pinehurst) and is approximately 2.50 miles south of the study area in Pinehurst and the above noted Montgomery County Hospital District facilities.

3.3.3.5 Churches and Cemeteries

In rural areas, local churches often serve as focal points for community interaction. Two churches are within the study area. Bethel Baptist Church (located on 34603 Wright Road in Magnolia) runs parallel to the west side of existing SH 249. Believers Fellowship Baptist Church (located on 36259 FM 149 Road in Pinehurst) is approximately 1.00 mile northwest of the FM 1774/FM 149 intersection. Adjacent to all four alternative alignments, Bethel Baptist Church conducts services on Wednesday nights at 7:30 pm and services and classes on Sundays at 9:30 am, 10:30 am, and 6:00 pm. Believers Fellowship Baptist Church conducts services on Wednesday nights at 7:00 pm and Sunday mornings at 9:00 am.

Adjacent to, but not within, the study area, the Piney Grove Missionary Baptist Church (located at 16851 FM 1488 in Magnolia) is on the south side of FM 1488 and is approximately 1.44 miles east of the FM 1774/FM 1488 intersection. While not directly next to the proposed SH 249 Extension, the church is located approximately 917 feet south of Alternative Alignment B.

No cemeteries are located within the study area. However, two cemeteries are adjacent to the study area, a cemetery that has been known as the Piney Grove Cemetery, Missionary Church Cemetery, and unnamed cemetery #5 and the Todd Mission Cemetery. The Piney Grove Cemetery is within Piney Grove Missionary Baptist Church property at the location mentioned above, and the Todd Mission Cemetery is east of FM 1774 and north of Mill Creek Drive in Todd Mission. While the Todd Mission Cemetery is not directly next to the proposed SH 249 Extension, the cemetery is approximately 5.00 miles south of the FM 1774 termini of Alternative Alignment B and E.

3.3.3.6 Parks and Recreational Areas

Parks and recreational areas range in size from small golf courses to large state parks and are owned and managed by a variety of entities, including local development corporations, state and federal agencies, and private and non-profit groups. No parks or recreational areas exist within the study area. However, one recreational area is outside of the study area, the Texas Renaissance Festival located at 21778 FM 1774 in Plantersville. The recreational area is approximately 2.25 miles southeast of the FM 1774 southern study area boundary.

No National Park System or National Trails System lands are within the study area (National Park Service 2013).

3.3.3.7 Other Community Resources

Other community resources located within the study area include a U.S. Postal Service building (located at 34635 Wright Rd in Pinehurst) adjacent to all four alternative alignments.

3.4 ECONOMICS

As shown in *Table 3-9*, a majority of the current workforce within the Houston-Galveston-Brazoria CMSA and Montgomery County is employed in trade, transportation, and utilities or education and health services, whereas most people in Grimes County are employed in the manufacturing and trade, transportation, and utilities industries.

Table 3-9: Area Employment by Industry

Industry Sector	Number of Employees		
	Houston-Galveston-Brazoria CMSA	Montgomery County	Grimes County
Public Administration	69,863 (2.6%)	3,114 (2.1%)	902 (11.0%)
Trade, Transportation, and Utilities	571,996 (21.0%)	30,075 (20.2%)	1,701 (20.7%)
Manufacturing	249,257 (9.1%)	12,504 (8.4%)	2,388 (29.0%)
Construction	193,770 (7.1%)	9,477 (6.4%)	423 (5.1%)
Leisure and Hospitality	276,662 (10.2%)	20,263 (13.6%)	399 (4.8%)
Education and Health Services	574,636 (21.1%)	35,210 (23.6%)	1,267 (15.4%)
Professional and Business Services	427,295 (15.7%)	18,885 (12.7%)	293 (3.6%)
Financial Activities	140,643 (5.2%)	7,519 (5.0%)	342 (4.2%)
Other Services	79,041 (2.9%)	5,339 (3.6%)	113 (1.4%)
Natural Resources and Mining	108,548 (4.0%)	5,336 (3.6%)	375 (4.6%)
Information	33,953 (1.2%)	1,209 (0.8%)	34 (0.4%)
All Industries	**2,725,664 (100.0%)**	**148,931 (100.0%)**	**8,237 (100.0%)**

Source: TWC 2013.

Notes: CMSA = Consolidated Metropolitan Statistical Area; % = percent.

According to H-GAC, regional employment forecasts predict an increase of almost 1.1 million new jobs in the CMSA between 2010 and 2035, which is an increase of 35 percent (H-GAC 2013c). Employment levels inside Loop 610 are expected to remain stable, with a labor force of nearly 1 million. Faster growth would happen outside Loop 610, as regional employment continues to decentralize. The strongest employment growth rates are projected to occur in the urbanizing areas between Loop 610 and Beltway 8, particularly in the northwest, west, and southwest.

Between 2010 and 2020, the TWC predicts that the fastest growing occupations in the Gulf Coast workforce development area (i.e., Austin, Brazoria, Chambers, Colorado, Fort Bend, Galveston, Harris, Liberty, Matagorda, Montgomery, Walker, Waller, and Wharton counties)

would be education, training, and library services (40 percent growth); healthcare support (33.7 percent growth); and healthcare practitioners and technical (33.1 percent growth). In the Brazos Valley workforce development area (i.e., Brazos, Burleson, Grimes, Leon, Madison, Robertson, and Washington counties), the fastest growing occupations would be food preparation and serving-related industries (29.8 percent growth); healthcare support (28.4 percent growth); and education, training, and library services (26.1 percent growth).

Compared to 20 years ago, people in the region are currently driving longer distances. As a result, the growth of daily VMT in the region has increased at a substantially faster rate than either the population or employment. In 2007, there were 139 million daily VMT in the Houston-Galveston region. The number is expected to increase to about 266 million daily VMT by 2035 (an increase of 91 percent).

Table 3-10 notes that almost four out of five of the working population in the CMSA is employed in the same county as they live, whereas approximately half of the Montgomery Grimes County workforce works within their home counties.

Table 3-10: Area Commute to Work Characteristics

Total Workers and Work Location	Houston-Galveston-Brazoria CMSA	Montgomery County	Grimes County
Total Workers 16 Years and Over	2,688,149	204,173	9,933
Work in Same County as Residence	2,127,349 (79.1%)	112,908 (55.3%)	5,125 (51.6%)
Work in Different County as Residence	539,647 (20.1%)	88,815 (43.5%)	4,629 (46.6%)
Worked Outside of State of Residence	21,012 (0.8%)	2,450 (1.2%)	169 (1.7%)
Mean Travel Time to Work (Minutes)	29.9	31.7	28.5

Source: U.S. Census 2013 (2007-2011 American Community Survey).
Notes: CMSA = Consolidated Metropolitan Statistical Area; % = percent.

3.4.1 Employment

Between 2000 and 2013, Texas has added more than 2.2 million people to the labor force, but over the same period, the unemployment rate has grown by 2.7 percent. As seen in *Table 3-11*, in comparison to the state, the CMSA and Montgomery and Grimes counties have witnessed a greater share of labor force and employment growth and smaller change in the unemployment rate.

Table 3-11: Area Civilian Labor Force, Total Employment, and Unemployment Rate

Location	Labor Force			Employment			Unemployment Rate		
	2000	2013	Change	2000	2013	Change	2000	2013	Change
Texas	10,401,557 (100.0%)	12,665,050 (100.0%)	21.7%	9,960,436 (95.8%)	11,782,494 (93.1%)	18.3%	4.2%	6.9%	2.7%
Houston-Galveston-Brazoria CMSA	2,365,231 (100.0%)	3,040,613 (100.0%)	28.6%	2,263,164 (95.7%)	2,836,256 (93.3%)	25.3%	4.3%	6.7	2.4%
Montgomery County	152,401 (100.0%)	240,838 (100.0%)	36.7%	146,796 (96.3%)	226,745 (94.1%)	35.3%	3.7%	5.9%	2.2%
Grimes County	9,947 (100.0%)	12,530 (100.0%)	26.0%	9,408 (94.6%)	11,708 (93.4%)	24.4%	5.4%	6.6%	1.2%

Source: TWC 2013.

Notes: CMSA = Consolidated Metropolitan Statistical Area; % = percent.

3.4.2 Income

The 2013 national poverty level for a family of four is $23,550. The 2011 median household income in the proposed SH 249 Extension study area ranged from $31,927 to $79,413. However, more than one-third of the households earned an income of $75,000 or greater. The household income statistics for the study area are generally the same throughout the region, although Grimes County has a larger share of households that earned an income less than $25,000 per year. *Table 3-12* lists the total number of households, the household income ranges, and the median household income for the area.

Table 3-12: Area Household Income and Percent Distribution

Geographic Area	Total Number of Households	Income $24,999 and less	Income $25,000 to $49,999	Income $50,000 to $74,999	Income $75,000 and more	Median Household Income
Houston-Galveston-Brazoria CMSA	1,986,062 (100.0%)	415,864 (20.9%)	464,245 (23.4%)	346,331 (17.4%)	759,622 (38.2%)	$47,460 to $82,571
Montgomery County	155,712 (100.0%)	26,098 (16.8%)	33,473 (21.5%)	26,587 (17.1%)	69,554 (44.7%)	$66,657
Grimes County	8,433 (100.0%)	2,601 (30.8%)	2,260 (26.8%)	1,435 (17.0%)	2,137 (25.3%)	$40,509
Proposed SH 249 Extension Study Area	5,422 (100.0%)	1,048 (19.3%)	1,427 (26.3%)	1,045 (19.3%)	1,902 (35.1%)	$31,927 to $79,413
Tract 1801.02 Block Group 2	497 (100.0%)	201 (40.4%)	137 (27.6%)	72 (14.5%)	87 (17.5%)	$31,927
Tract 1801.02 Block Group 3	392 (100.0%)	167 (42.6%)	72 (18.4%)	27 (6.9%)	126 (32.1%)	$39,063

Table 3-12: Area Household Income and Percent Distribution

Geographic Area	Total Number of Households	Income $24,999 and less	Income $25,000 to $49,999	Income $50,000 to $74,999	Income $75,000 and more	Median Household Income
Tract 6902.02 Block Group 4	283 (100.0%)	104 (36.7%)	44 (15.5%)	63 (22.3%)	72 (25.4%)	$32,131
Tract 6903 Block Group 1	598 (100.0%)	130 (21.7%)	259 (43.3%)	34 (5.7%)	175 (29.3%)	$45,319
Tract 6903 Block Group 2	529 (100.0%)	127 (24.0%)	134 (25.3%)	117 (22.1%)	151 (28.5%)	$50,673
Tract 6903 Block Group 3	500 (100.0%)	54 (10.8%)	97 (19.4%)	89 (17.8%)	260 (52.0%)	$76,667
Tract 6904.02 Block Group 1	891 (100.0%	39 (4.4%)	160 (18.0%)	209 (23.5%)	483 (54.2%)	$79,413
Tract 6904.02 Block Group 2	750 (100.0%)	99 (13.2%)	259 (34.5%)	215 (28.7%)	177 (23.6%)	$50,394
Tract 6946 Block Group 2	982 (100.0%)	127 (12.9%)	265 (27.0%)	219 (22.3%)	371 (37.8%)	$57,300

Source: U.S. Census 2013 (2007-2011 American Community Survey).
Notes: CMSA = Consolidated Metropolitan Statistical Area; % = percent.

3.5 PEDESTRIANS AND BICYCLISTS

H-GAC has evaluated every pedestrian and bicycle facility within the proposed SH 249 Extension study area for consistency with regional planning goals. Regional planning goals are based on H-GAC's *2035 Regional Bikeway Plan*, which was created to provide facilities designed for safe use by bicyclists on longer trips (4 miles or more), to identify existing and planned bikeways, and to encourage the development of safer, more convenient, and better connected bikeways (H-GAC 2013a). The *2035 Regional Bikeway Plan* is a framework for identifying investments that enhance the reach and connectivity of the bikeway system, while offering transportation engineers and planners information about existing and proposed bikeways. According to the plan, FM 1488 has an existing signed shoulder bike route along the northern boundary of Pinehurst and through Magnolia, which, along with FM 1774 through Magnolia and Pinehurst, are both identified as having bikeway needs. The plan also proposes "Share the Road" signs for both FM 1774 and FM 1488.

Currently, no pedestrian or bicyclist improvements are planned for the proposed SH 249 Extension (H-GAC 2013a). In addition, the proposed tollway is not designed to accommodate pedestrian or bicycle facilities on the mainlanes or on the intermittent frontage roads at on-ramp and off-ramps because of limited access points, safety concerns with vehicles running at highway speeds, and the inability of bicyclists to pay tolls on an electronically tolled roadway. In the future, should the *2035 RTP Update* or TxDOT include a bikeway corridor along the proposed SH 249 Extension, appropriate supplemental studies would be conducted.

3.6 AIR QUALITY

3.6.1 National Ambient Air Quality Standards

The U.S. Environmental Protection Agency (EPA) sets National Ambient Air Quality Standards (NAAQS) for seven air pollutants to protect public health and the environment, with an adequate margin of safety. NAAQS exist for seven pollutants: carbon monoxide (CO), ozone, nitrogen dioxide, sulfur dioxide, particulate matter for both 10 and 2.5 microns and less (PM_{10} and $PM_{2.5}$), and lead. The Clean Air Act Amendments of 1990 establish specific milestones toward attaining the NAAQS, depending on the severity of the air pollution problem in the region. The EPA designates the status of a county's ambient air with respect to compliance to the NAAQS. The designations are as follows:

Designation	Definition
Attainment	Meets or is better than requirements
Nonattainment	Did not meet requirements
Unclassifiable	Cannot be classified

The proposed SH 249 Extension is located within both Montgomery and Grimes County. Montgomery County is part of the Greater Houston area that has recently been designated by the EPA as a marginal non-attainment area for the 2008 ozone standard. Therefore, transportation conformity rules would apply for the project.

The primary pollutants from motor vehicles are VOCs, CO, and nitrogen oxides. Volatile organic compounds and nitrogen oxides can combine under the right conditions in a series of photochemical reactions to form ozone. Since these reactions take place over a period of several hours, maximum concentrations of ozone are often found far downwind of the precursor sources. Thus, ozone is a regional problem and not a localized condition.

3.6.2 Mobile Source Air Toxics

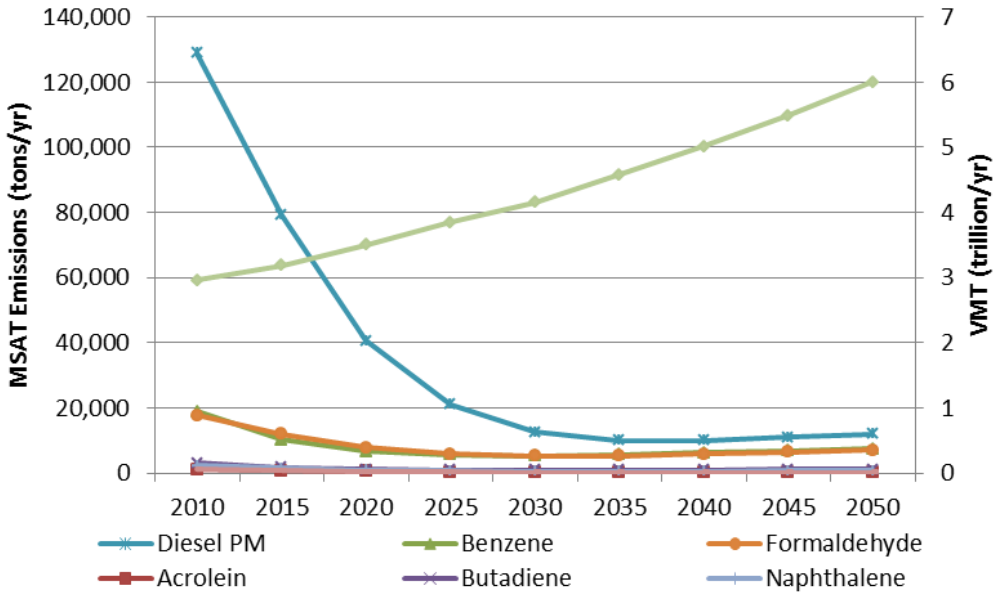
3.6.2.1 Qualitative Mobile Source Air Toxic Assessment

Controlling air toxic emissions became a national priority with the passage of the Clean Air Act Amendments of 1990, whereby Congress mandated that the EPA regulate 188 air toxics, also known as hazardous air pollutants. The EPA has assessed the expansive list in their latest rule on the *Control of Hazardous Air Pollutants from Mobile Sources* and identified a group of 93 compounds emitted from mobile sources that are listed in their Integrated Risk Information System (IRIS) (EPA 2007; EPA 2013a). In addition, the EPA identified seven compounds with significant contributions from mobile sources that are among the national and regional-scale cancer risk drivers from their 1999 National Air Toxics Assessment (EPA 2010). The compounds are acrolein, benzene, 1,3-butidiene, diesel particulate matter plus diesel exhaust organic gases (diesel PM), formaldehyde, naphthalene, and polycyclic organic matter. While

FHWA considers the priority MSATs, the list is subject to change and may be adjusted in consideration of future EPA rules.

The 2007 EPA MSAT rule mentioned above requires controls that will dramatically decrease MSAT emissions through cleaner fuels and cleaner engines. Based on an FHWA analysis using EPA's MOVES2010b model, as shown on *Figure 3-1* and in *Table 3-13*, even if VMT increases by 102 percent as assumed from 2010 to 2050, a combined reduction of 83 percent in the total annual emissions for the priority MSATs is projected for the same time period.

Figure 3-1: Projected National MSAT Emission Trends 2010 to 2050 for Vehicles Operating on Roadways using EPA's MOVES2010b Model



Source: EPA MOVES2010b and *Table 3-13* of the Draft EIS.

Note: Trends for specific locations may be different depending on locally derived information representing VMT, vehicle speeds, vehicle mix, fuels, emission control programs, meteorology, and other factors.

Table 3-13: Projected National MSAT Emission Trends (2010 through 2050) for Vehicles Operating on Roadways using the EPA's Moves2010b Model

Pollutant / VMT	Pollutant Emissions (in tons) and VMT by Calendar Year									Change
	2010	2015	2020	2025	2030	2035	2040	2045	2050	2010 to 2050
Acrolein	1,244	805	476	318	258	247	264	292	322	-74%
Benzene	18,995	10,195	6,765	5,669	5,386	5,696	6,216	6,840	7,525	-60%
Butadiene	3,157	1,783	1,163	951	890	934	1,017	1,119	1,231	-61%
Diesel PM	128,847	79,158	40,694	21,155	12,667	10,027	9,978	10,942	11,992	-91%
Formaldehyde	17,848	11,943	7,778	5,938	5,329	5,407	5,847	6,463	7,141	-60%
Naphthalene	2,366	1,502	939	693	607	611	659	727	802	-66%
Polycyclics	1,102	705	414	274	218	207	219	240	262	-76%
VMT (trillions)	2.96	3.19	3.5	3.85	4.16	4.58	5.01	5.49	6	102%

Source: EPA MOVES2010b.

Notes: Model runs conducted from May through June 2012 by FHWA. % = percent; PM = particulate matter; VMT = vehicle miles traveled.

Air toxic analysis is a continuing area of research. While much work has been done to assess the overall health risk of air toxics, many questions remain unanswered. In particular, the tools and techniques for assessing project-specific health outcomes as a result of lifetime MSAT exposure remain limited. The limitations impede the ability to evaluate how the potential health risks posed by MSAT exposure are to be factored into project-level decision making within the context of National Environmental Policy Act (NEPA). FHWA, the EPA, the Health Effects Institute (HEI), and others have funded and conducted research studies to try to more clearly define potential risks from MSAT emissions associated with highway projects, and FHWA continues to monitor the developing research in the emerging field.

3.7 NOISE

3.7.1 Characteristics of Noise

Sound from highway traffic is generated primarily from a vehicle's tires, engine, and exhaust. It is commonly measured in decibels and is expressed as "dB."

Sound occurs over a wide range of frequencies. However, not all frequencies are detectable by the human ear; therefore, an adjustment is made to the high and low frequencies to approximate the way an average person hears traffic sounds. The adjustment is called A-weighting and is expressed as "dB(A)."

Also, because traffic sound levels are never constant due to the changing number, type, and speed of vehicles, a single value is used to represent the average or equivalent sound level and is expressed as "L_{eq}."

3.7.2 Existing Noise Levels

Dominant noise sources within the proposed SH 249 Extension study area included traffic on existing roadways, various local activities, and sounds created by animals. On-site, short-term noise level measurements were conducted at 21 sites within the study area during March 2013. The sites were selected to be representative of noise-sensitive land uses that are most likely to be affected by noise produced by the proposed SH 249 Extension. *Table 3-14* provides an overview by number, location, description, and actual noise level readings of the representative noise-sensitive sites in the study area. *Exhibit 3-4* depicts the same locations.

Table 3-14: Noise Measurement Data

Site No.	Location	Description	Noise Level[a]
1	Mill Creek Way in new subdivision (Oakcrest)	Single-family residence	50
2	The west side of existing SH 249 at Wildwood Baptist Church Daycare	Church	63
3	The west side of existing SH 249 at the U.S. Postal Service building	Business	58
4	Back of a mobile home subdivision on the east side of existing SH 249 north of Goodson Loop	Single-family residence	60
5	The west side of FM 149 at Believers Fellowship Church Daycare	Church	63
6	The east side of the proposed FM 149	Single-family residence	68
7	At dead end of Mildred and west of the proposed SH 249 Extension	Single-family residence	44
8	Dead end of Hazy Meadow and Little Thorn (southwest of the proposed SH 249 Extension)	Single-family residence	53
9	Dead end of Little Thorn and Primrose (southwest of the proposed SH 249 Extension)	Single-family residence	57
10	Dead end of Green Tree Road	Single-family residence	51
11	South Ravenswood Drive	Single-family residence	47
12	Dead end of Mill Creek Road (east of the proposed SH 249 Extension)	Single-family residence	45
13	North Mill Road (east of the proposed SH 249 Extension)	Single-family residence	45
14	“L” intersection of Sandy Hill Lane (west of Alternative Alignment B/C and C)	Single-family residence	44

Table 3-14: Noise Measurement Data

Site No.	Location	Description	Noise Level[a]
15	Dead end of Will Scarlet (northeast of Alternative Alignment E)	Single-family residence	43
16	Woodway Road (northeast of Alternative Alignment B)	Single-family residence	47
17	FM 1486 at Woodway (east of FM 1486)	Single-family residence	68
18	FM 1486 at Friartuck (east of FM 1486)	Single-family residence	67
19	FM 1486 at Sandy Hill Lane (east of FM 1486)	Single-family residence	70
20	FM 1774 at the terminus of Alternative Alignment B and E	Single-family residence	74
21	Windmill Lane east of FM 1774 (north of Alternative Alignment B/C and C)	Single-family residence	49

Note: All noise levels are represented in dB(A) L_{eq}.

3.8 WATER QUALITY

3.8.1 Surface Water

The TCEQ's Chapter 307, Texas Surface Water Quality Standards (TSWQS) effective July 22, 2010, presents surface water quality standards that apply to all surface waters in Texas. The standards water quality standards are rules designed to establish goals for water quality throughout the state and provide a basis on which TCEQ regulatory programs can establish reasonable methods to implement and attain those goals for water quality. In compliance with Section 303(d) of the federal Clean Water Act (CWA), the TCEQ identifies water bodies in the state that do not meet the TSWQS. The compilation of the water bodies is called the 303(d) List (TCEQ 2013). The major surface waters are classified in the TSWQS as "segments" for the purposes of water quality management and designation of site-specific standards.

The proposed SH 249 Extension study area is located in Basin 10, which is also known as the San Jacinto River Basin. The proposed alternative alignments cross Mill Creek and its tributaries, which flow into Spring Creek (Segment 1008). Spring Creek is on TCEQ's 2012 303d list because it does not meet the criteria for dissolved oxygen. Because Spring Creek is within 5 miles of the proposed SH 249 Extension and is on the 303d list, the proposed tollway will be coordinated with TCEQ per the 2013 Memorandum of Understanding (MOU).

The Texas Pollutant Discharge Elimination System (TPDES) program is the implementing program for the federal National Pollutant Discharge Elimination System (NPDES) program. The

TCEQ administers Phase I stormwater permits for construction projects disturbing at least 5 acres within the state. Because the proposed SH 249 Extension would disturb more than 5 acres of land, a TPDES Construction General Permit (CGP) and a Notice of Intent (NOI) would be required. In accordance with TxDOT policies, a Stormwater Pollution Prevention Plan (SW3P) would be developed for the proposed tollway, and measures would be taken to prevent or correct erosion that may develop during construction. Guidance documents, such as TxDOT's *Storm Water Management Guidelines for Construction Activities*, provide discussion of temporary erosion control measures to be implemented to minimize impacts to water quality during construction (TxDOT 2002).

3.8.2 Groundwater

A review of regulatory agency maps and publications identified the average water table depths, recharge zones, and aquifer locations within the proposed SH 249 Extension study area. Recharge zones in the study area are primarily associated with outcrops of Willis sand, which is a relatively flat, moderately sandy stratigraphic unit found in northern Waller County and adjacent areas. Most recharge occurs as precipitation infiltration, although there is minor infiltration from surface reservoirs, such as ponds, lakes, irrigated fields, and streams.

Four major water-bearing zones and a confining system are located within the study area. In order of subsurface altitude, the stratigraphic units are labeled as the Chicot Aquifer, the Evangeline Aquifer, the Burkeville Confining System, and the Jasper Aquifer. (USGS 2005)

The Chicot Aquifer and the Evangeline Aquifer are composed of lenticular deposits of sand and compressible clay, and each aquifer is distinguished by their respective hydraulic conductivities. The Chicot Aquifer has been divided into two subunits: the upper Chicot and lower Chicot. The upper Montgomery Formation and the Beaumont Formation together comprise the upper Chicot, and the Willis, Bently, and lower Montgomery formations form the lower Chicot. The lower Chicot Aquifer ends approximately 200 feet below the ground surface, and the Evangeline Aquifer ends approximately 375 feet below the ground surface. The Burkeville Confining System is a stratified rock unit that acts as a water-confining system from its relatively high composition of silt and clay when compared to the Evangeline and Jasper aquifers. The Burkeville Confining System ends approximately 975 feet below the ground surface. Composed of sand, the Jasper Aquifer is approximately 1,525 feet below the ground surface. The top of the Jasper Aquifer is within the Fleming Formation, and the base lies in the Catahoula Sandstone. (USGS 2005)

The water-bearing zones consist predominantly of sand saturated with water. Water in the proposed SH 249 Extension study area is supplied by both municipal and private wells, and the first occurrence of groundwater near the proposed tollway is typically between 5 and 35 feet below the ground surface. (USGS 2005)

3.8.3 Public Drinking Water Systems

Well records and published groundwater reports from the Texas Water Development Board were reviewed for information on water wells in the proposed SH 249 Extension study area. The well records were obtained from the Texas Water Development Board Groundwater database, which is the most comprehensive and accurate listing of water wells available. However, the database only includes wells that have been reported to the TCEQ and the Texas Water Development Board, and does not include all water wells in Texas.

The Public Water Supply Section of the TCEQ verified the locations of reported public water-supply wells within the proposed SH 249 Extension study area. The results of the water well review indicate that 15 public water supply wells exist within the study area. *Exhibit 3-5* identifies the location of the 15 public water supply wells. The total depth of the wells ranges from 50 to 1,644 feet below the ground surface.

Used for domestic, livestock, industrial, or irrigation purposes, approximately nine private water wells were reported within the proposed SH 249 Extension study area. The majority of the wells are in the Evangeline Aquifer, with total depths ranging from 200 to 685 feet below the ground surface.

3.9 WETLANDS AND OTHER WATERS OF THE U.S.

As marked on *Exhibit 3-6*, potential wetlands were identified using maps from the NWI, in addition to referencing the Cowardin classification system of wetlands and deep-water habitats (Cowardin 1979). Additionally, field investigations were conducted as part of a preliminary determination. Other information reviewed included aerial infrared photographs, Digital Ortho Quarter Quadrangles, and USGS topographic survey maps of the study area.

According to NWI mapping, five major subclasses of wetlands are within areas traversed by the proposed SH 249 Extension.

3.9.1 Palustrine Unconsolidated Bottom

Palustrine Unconsolidated Bottom wetlands are non-tidal and are most likely natural or man-made ponds. Wetland vegetation occurs in shallow waters near the shoreline of the wetland systems, and little emergent vegetation is generally present. Examples of hydrophytic vegetation types that might occur in Palustrine Unconsolidated Bottom wetlands include sand spikerush (*Eleocharis montevidensis*), floating seedbox (*Ludwigia peploides*), soft rush (*Juncus effusus*), short-bristle beakrush (*Rhynchospora corniculata*), and swamp smartweed (*Polygonum hydropiperoides*).

3.9.2 Palustrine Emergent

Palustrine Emergent wetlands are non-tidal, and vegetation is usually dominated by perennial plants that are present for most of the growing season (Cowardin 1979). According to the NWI,

the majority of the Palustrine Emergent wetlands within the proposed SH 249 Extension study area are persistent in nature. Persistent wetlands are dominated by plant species that normally remain standing until the next growing season. Examples of hydrophytic vegetation commonly found in the wetland systems include sand spikerush, soft rush, short-bristle beakrush, swamp smartweed, Cherokee sedge (*Carex cherokeensis*), marsh flatsedge (*Cyperus pseudovegetus*), green flatsedge (*Cyperus virens*), and jointed flatsedge (*Cyperus articulatus*).

Numerous Palustrine Emergent wetlands associated with the study area have been farmed. With farmed wetlands, the soil surface has been mechanically or physically altered for the production of crops. However, hydrophytic vegetation would likely colonize the areas once farming practices have stopped.

3.9.3 Palustrine Forested

Palustrine Forested wetlands are characterized by woody vegetation at least 20 feet tall and are usually hydrologically influenced by flood events. Forested wetlands in and around the proposed SH 249 Extension study area are dominated mostly by broad-leaved deciduous trees (Cowardin 1979). The wetlands

Examples of woody vegetation within the wetlands include willow oak (*Quercus phellos*), overcup oak (*Q.lyrata*), black willow (*Salix nigra*), green ash (*Fraxinus pennsylvanica*), sweetgum (*Liquidambar styraciflua*), and American elm (*Ulmus americana*). Woody vines found in the areas include greenbriars (*Smilax spp*.), trumpet creeper (*Campsis radicans*), and Alabama supplejack (*Berchemia scandens*). Louisiana blackberry (*Rubus louisianus*) and deciduous holly (*Ilex decidua*) are common shrubs within the wetlands. Common herbaceous species include Cherokee sedge, other sedges (*Carex spp*.), rushes (*Juncus spp*.), and slender spikegrass (*Chasmanthium laxum*).

3.9.4 Palustrine Scrub-Shrub

Palustrine Scrub-Shrub wetlands are dominated by woody vegetation less than 20 feet tall. Dominant species include true shrubs, saplings, and stunted trees or shrubs (Cowardin 1979). The wetlands occur in depressed areas on the landscape, which are hydrologically driven by rainwater or groundwater. Shrubs and saplings common to the wetland include Drummond's rattlebox (*Sesbania drummondii*), eastern baccharis (*Baccharis halimifolia*), and common buttonbush (*Cephalanthus occidentalis*).

3.10 PERMITS

3.10.1 Water of the U.S., including Wetlands

Section 404 of the CWA authorizes the USACE to regulate discharges of dredged or fill material into waters of the U.S., including wetlands. Additionally, the discharge of dredged or fill material into jurisdictional waters of the U.S. requires a Section 401 Water Quality Certification by the

TCEQ. Executive Order 11990, *Protection of Wetlands*, directs federal agencies to minimize the destruction, loss, or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands on federal lands wherever there is a practicable alternative.

The proposed SH 249 Extension traverses areas that are mostly uplands (non-jurisdictional). However, several potential jurisdictional waters of the U.S. are within the study area as depicted on *Exhibit 3-6*. Waters of the U.S. are interspersed throughout the study area, and any water bodies that are determined by the USACE to be jurisdictional would be subject to Section 404 of the CWA.

Section 4.9 of the Draft EIS discusses the potential impacts to wetlands from the proposed tollway, all of which is based on NWI mapping and limited field observations. A water/wetland determination/delineation (if necessary) would be performed for the next phase of the environmental clearance process. At that time, the USACE would be requested to verify the determinations/delineations, which are typically valid for five years.

3.10.2 Section 401 Water Quality

One of the requirements for obtaining a USACE Section 404 permit is to receive certification from the TCEQ that the discharge to be permitted would comply with the TSWQS. The action is under the authority of Section 401 of the CWA and is referred to as a Section 401 Water Quality Certification.

3.10.3 Navigable Waters of the U.S.

The General Bridge Act of 1946 and Section 9 and 10 of the Rivers and Harbors Act of 1899 prohibit the unauthorized obstruction (including bridge construction) or alteration of any navigable waters of the U.S., unless the work has been authorized by permit from the U.S. Coast Guard and the USACE. No navigable waterways or waters subject to the ebb and flow of the tide occur in areas traversed by the proposed SH 249 Extension.

3.11 VEGETATION AND WILDLIFE

3.11.1 Vegetation

The proposed SH 249 Extension study area is located in east Texas within a forested vegetation zone. The study area was historically home to extensive timber harvesting activities in the late 1800s and early 1900s, and timber companies still own and operate large tracts of land adjacent to and near the study area. According to the TPWD Vegetation Types of Texas, the study area is situated within the pine-hardwood forest and young forest/grassland regions of Texas (TPWD 1984). Other than urbanized areas, the study area is consistent with the regional description, where habitats are categorized as pine-hardwood forest, young forest/grassland, and other.

Discussed in Section 3.9 of the Draft EIS, waters of the U.S., including wetlands, are present in the proposed SH 249 Extension study area. The forested vegetation within the study area could be further categorized using the Plant Communities of Texas (Series Level) guidelines prepared by the TPWD Texas Natural Heritage Program. The program ranks plant communities from one to five, with one being the least common and five being the most common. The program includes a global (G) rank as well as a state (S) rank. As an example, communities listed as S1 or S2 would be classified as rare or unique habitat types in Texas.

Plant communities within the study area are loblolly pine-oak series (G4S4) and water oak/willow oak series (G4S3). A large portion of the study area is, or has recently been, managed for timber harvesting, resulting in areas typically dominated by loblolly pine (*Pinus teada*) and a mixture of oaks (*Quercus sp*.). However, none of the habitat types identified would be considered rare or unique. While a detailed survey of vegetation types could not be made along the entire length of the proposed SH 249 Extension, vegetation types discussed below were characterized in areas where there was accessibility adjacent to existing roadways within the study area and through the use of aerial photography.

3.11.1.1 Pine-Hardwood Forest and Young Forest

The majority of the proposed SH 249 Extension study area is characterized as pine-hardwood forest and young forest. The vegetation type is classified as the loblolly pine-oak series (G4S4). The dominant vegetation type is comprised of a mixture of loblolly pine (*Pinus taeda*) and various species of oaks (*Quercus sp*.). The most prevalent oak species are post oak (*Q. stellata*), southern red oak (*Q. falcata*), white oak (*Q. alba*), and water oak (*Q. nigra*). Understory species include flowering dogwood (*Cornus florida*), yaupon (*Ilex vomitoria*), wax myrtle (*Myrica cerifera*), and American beautyberry (*Callicarpa americana*). The community type is wide-ranging and often occurs as second growth or disturbance type growth after logging. Therefore, tree heights and diameter at breast height vary greatly. In older forested areas, typically found within higher areas of the floodplain, tree heights range from 40 to 80 feet, and the diameter at breast height ranges between 12 to 30 inches. Percent canopy cover is typically 65 percent. Tree heights found within the secondary growth areas range from 25 to 35 feet, and the diameter at breast height ranges between 8 to 16 inches. The younger areas also have a lower percent canopy cover of approximately 40 percent. The component is approximately 82 percent of the study area.

Along Mill Creek and its tributaries, within the floodplains, the vegetation becomes characteristic of the water oak/willow oak series (G4S3). Dominant overstory vegetation includes sweetgum (*Liquidambar styraciflua*), water oak, cherry bark oak (*Q. falcata*), and ash (*Fraxinus sp*.). Dominant understory vegetation includes ironwood (*Carinas Carolinian*), eastern hop hornbeam (*Astray Virginian*), deciduous holly (*Ilex decidua*), Florida maple (*Acer saccharum var. floridanum*), and palmetto (*Sable minor*). Tree heights range from 30 to 80 feet, and the

diameter at breast height ranges between 18 to 36 inches. Percent canopy cover is approximately 65 percent, and the component is approximately 4 percent of the study area.

3.11.1.2 Upland Pastureland/Grassland

Upland pastureland usually results from the clearing of woody vegetation with the intent of growing a mixture of native and/or introduced grasses and forbs. Typical vegetation associated with the early successional community includes little blue stem (*Schizachyruim scoparium*), big bluestem (*Andropogon gerardii*), Indiangrass (*Sorghastrum nutans*), Johnsongrass (*Sorghum halepense*), ragweed (*Ambrosia spp*.), and paspalum species (*Paspaum spp*.). The component is approximately 1 percent of the study area.

3.11.1.3 Other

Some grassland communities within the proposed SH 249 Extension study area are heavily disturbed by residential/urban development. Grasses within the areas tend to include perennial ryegrass (*Lolium perene*), Bermudagrass (*Cynodon dactylon*), and dallisgrass (*Paspalum dilatatum*). The component is approximately 13 percent of the study area.

3.11.1.4 TxDOT/TPWD MOU and TPWD Coordination

The purpose of the TxDOT/TPWD MOU is to provide a formal mechanism by which the TPWD may review TxDOT transportation projects, including the projects that have the potential to affect natural resources within areas owned or managed by TPWD. Upon completion of a preliminary review, a copy of environmental documentation is furnished to TPWD for all projects meeting the criteria for coordination. Coordination would be required with TPWD for the proposed SH 249 Extension based on the following criteria.

- The proposed tollway would have more than 1 acre of new ROW within the floodplain or creek drainage in a rural or undeveloped urban area. The finalized total acreage of new ROW within floodplain or creek drainage would be determined and included in the next phase of the environmental clearance process.
- The proposed tollway may require channel modifications involving the creation of new drainage ways or the excavation of more than 1 acre of mature woody vegetation. The proposed SH 249 Extension crosses several streams and may require channel modifications. A final determination as to the need of channel modifications and the total acres of mature woody vegetation to be impacted would be established in the next phase of the environmental clearance process.
- The proposed tollway may require excavation (e.g., scraping, clearing, or other surface disturbance) of existing channel outside of TxDOT's existing ROW or of the channel inside TxDOT's existing ROW, which is not routinely maintained and exhibits native vegetation. A final determination as to the need of excavation of existing channels

within and outside of TxDOT's existing ROW would be established in the next phase of the environmental clearance process.

- The proposed tollway would affect mature woody vegetation, dense mature brush, and even remnant native vegetation, as most of the proposed SH 249 Extension would be on a new location. The finalized total acreage and type of mature woody vegetation affected would be determined and included in the next phase of the environmental clearance process.
- The proposed tollway may involve mitigation plans, or otherwise involve proposals to redress impacts on fish, wildlife, or plant resources. A final determination as for the need of mitigation plans and the extent of impacts on fish, wildlife, and/or plant resources would be made in the next phase of the environmental clearance process.
- The proposed tollway could be within the range of suitable habitat of state or federal-listed threatened or endangered species. A final determination as to which state or federal-listed threatened or endangered species (or the associated suitable habitat) would be affected by the proposed SH 249 Extension would be documented during the next phase of the environmental clearance process.

Furthermore, the TxDOT/TPWD MOU requires that the vegetation and habitat for the proposed SH 249 Extension be characterized, and the impact to vegetation be fully described. As such, vegetation within the proposed SH 249 Extension study area is as follows.

- Unmaintained wooded vegetation exists and comprises approximately 86 percent of the study area.
- Trees and shrubs are present along fence lines. However, the trees and shrubs are not considered fence line vegetation. Beyond the fence, the vegetation is typically forested with similar species compared to what exists along the fence line.
- Riparian vegetation, which is defined as woodland vegetation found along watercourses passing through typically non-wooded areas, could be present within the study area.
- Large trees exist within the study area, but the trees are not unusually larger than trees outside of the study area.
- Unusual stands or islands of vegetation are not present based on the investigations performed.

The following describes special habitat features, as defined by the TxDOT/TPWD MOU, considered during the evaluation.

- Bottomland hardwoods are within the floodplain of Mill Creek and its tributaries. However, the habitat feature only accounts for 4 percent of the study area. In addition,

the habitat is associated with potential wetland impacts, which, if mitigated, would be addressed under Section 404.

- Caves, cliffs, and bluffs are not present within the study area.
- Native prairies are not present in the study area, as the area has been disturbed by agricultural practices.
- Ponds exist within the study area, all of which appear to be manmade for rangeland use to water livestock or for ornamental aesthetics.
- Evidence of seeps or springs is not present within the study area.
- Evidence of snags does not exist within the study area.
- The proposed SH 249 Extension crosses Mill Creek and several of its tributaries. Flow characteristics within the waterways appear to range from perennial to intermittent.
- Bridges with known or observed bird or bat colonies are not present within the study area.

The next phase of the environmental clearance process for the SH 249 Extension would discuss required TPWD coordination and mitigation for the proposed SH 249 Extension, as defined under the current TxDOT/TPWD MOU.

3.11.1.5 Beneficial Landscape Practices

In accordance with the Executive Memorandum of August 10, 1995, all agencies are to comply with NEPA as it relates to vegetation management and landscape practices for all federally assisted projects. The memorandum directs that, where cost-effective and to the extent practicable, agencies will:

- Use regionally native plants for landscaping;
- Design, use, or promote construction practices that minimize adverse impacts on the natural habitat;
- Seed to prevent pollution by, among other things, reducing fertilizer and pesticide use;
- Implement water-efficient and runoff reduction practices; and
- Create outdoor demonstration projects employing the above measures and practices.

Landscaping related to the proposed SH 249 Extension would be in compliance with the memorandum and the guidelines for environmentally and economically beneficial landscape practices.

3.11.1.6 Invasive Species

On February 3, 1999, Executive Order 13112 on Invasive Species was issued to prevent the introduction, to provide control, and to minimize the economic, ecological, and human health impacts of invasive species. In accordance with the order, native plant species would be used in the landscaping and seed mixes (where practicable) for the proposed SH 249 Extension.

3.11.2 Wildlife

3.11.2.1 Terrestrial

Within the proposed SH 249 Extension study area, Montgomery and Grimes counties exhibit a variety of upland, wetland, and bottomland hardwood habitats that support numerous species of terrestrial wildlife (e.g., a variety of mammals, birds, reptiles, and amphibians). The diversity of species has been negatively impacted by years of extensive conversion of natural habitat to livestock grazing, crop production, foresting, and urban development.

Mammals most likely to occur near the study area would include the Virginia opossum (*Didelphis virginiana*), nine-banded armadillo (*Dasypus novemcinctus mexicanus*), raccoon (*Procyon lotor*), eastern cottontail (*Sylvilagus floridanus*), swamp rabbit (*Sylvilagus aqauiticus*), striped skunk (*Mephitis mephitis*), white-tailed deer (*Odocoileus virginianus*), least shrew (*Cryptotis parva*), eastern mole (*Scalopus aquaticus*), eastern gray squirrel (*Sciurus carolinensis*), eastern flying squirrel (*Glaucomys volans*), Attwater's pocket gopher (*Geomys attwaterii*), Baird's pocket gopher (Geomys breviceps), and several species of bats, rats, and mice.

Various types of birds, both migratory and non-migratory, would either nest within areas of suitable habitat or temporarily use agricultural fields for forage during their migration.

Reptiles and amphibians indigenous to the area would include several species of snakes, frogs, toads, and turtles. Reptiles and amphibians are relatively rare within cultivated tracts, open grasslands without cover, and areas recently disturbed by human contact.

Common domesticated mammals found within the more urbanized segments would include cats (*Felis domesticus*), dogs (*Canis familiaris*), cattle (*Bos taurus*), and horses (*Equus equine*).

3.11.2.2 Aquatic

The proposed SH 249 Extension study area does not support an extensive aquatic ecosystem, which thereby limits the potential to support diverse aquatic biota. No tidally influenced waters are within the study area. Natural watercourses occur near the study area, as do isolated depressional (sometimes seasonal) wetlands. Many of the seasonal wetlands within the study area have been negatively impacted by years of agricultural production and livestock grazing. However, manmade reservoirs and ponds, irrigation canals, and drainage ditches associated

with agricultural and urban development provide aquatic habitats in addition to the habitats that occur naturally.

3.11.2.3 Floral

Relatively undisturbed ecosystems provide common floral species to pine-hardwood young forest habitats and upland pastureland/grassland. The common species are the most frequently occurring native species near the proposed SH 249 Extension study area. The Piney Woods Region is characterized by pine and pine-hardwood forests interspersed with cropland, planted pastures, and native pastures. Upland vegetation and wildlife habitat consists of loblolly pine and pine-oak woodlands. Lowland habitat is comprised of hardwood forests of sweetgum, magnolia, tupelo, elm, and ash. Swamps are common in the southern part of the lowland pine-oak forest. The southeastern part of the Piney Woods once supported longleaf pine woodlands with widely spaced mature pine trees, but because of continued agricultural and urban development, much of the habit has been fragmented with native vegetation disturbed or removed.

3.12 THREATENED AND ENDANGERED SPECIES

As part of initial scoping activities, coordination letters requesting information on the status of threatened and endangered species were sent to state and federal resource agencies, which included the TPWD and the USFWS. Responses were initially received in letters dated January 17, 2006, and March 20, 2006. The letters are included as *Appendix D* of the Draft EIS. Additional coordination letters were sent to TPWD on November 12, 2013, to coordinate the additional Alternative Alignment B/C. All letters and responses are found in *Appendix D* of the Draft EIS.

Coordination was initiated with the TPWD on November 4, 2013, for information from the Texas Natural Diversity Database (TXNDD), which indexes the natural communities in Texas and records the occurrences of endangered/threatened species within the communities alongside the respective rarity of the communities. Information was requested from the Magnolia East, Keenan, Magnolia West, and Plantersville USGS 7.5-minute topographical quadrangle maps.

Based on the November 10, 2013, response from the TPWD, one species, the red-cockaded woodpecker (*Picoides borealis*) (a state and federal-listed species), and one special feature, a blue heron (*Ardea herodias*) rookery are listed approximately 4 to 5 miles away from the proposed SH 249 Extension. The red-cockaded woodpecker could occur in the study area when suitable habitat is present. Additionally, the study area is located within the reported range of the bald eagle, a state-designated threatened species that was federally delisted in August 2007.

Table 3-15 and *Table 3-16* list the current TPWD and USFWS listing of threatened or endangered species in Montgomery and Grimes counties.

Table 3-15: State and Federal-listed Threatened and Endangered Species (Montgomery County)

Common Name	Scientific Name	State Status	Federal Status	Habitat Description	Habitat Present?
Birds					
American peregrine falcon	*Falco peregrines anatum*	T	DL	Potential migrant and nests in west Texas	Yes (transient)
Arctic peregrine falcon	*Falco peregrines tundrius*	--	DL	Potential migrant	Yes (transient)
Bald eagle (nesting- wintering)	*Haliaeetus leucocephalus*	T	DL	Near water areas and in tall trees	Yes (wintering)
Henslow's sparrow (wintering)	*Ammodramus henslowii*	--		Weedy fields, fields with bunch grass, vines, and brambles; needs bare ground	Yes (wintering)
Peregrine falcon	*Falco peregrinus*	T	DL	Potential migrant	Yes (transient)
Piping plover	*Charadrius melodus*	T	LT	Beaches, bayside mud, or salt flats	No
Red-cockaded woodpecker	*Picoides borealis*	E	LE	Nests in 60+ year pine and forages in 30+ year pine	Yes
Sprague's pipit	*Anthus spragueii*	--	C	Migrant, native upland prairie and coastal grasslands	Yes (transient)
White-faced Ibis	*Plegadis chihi*	T		Freshwater marshes but some brackish or salt marshes	Yes (transient)
Whooping crane	*Grus americana*	E	LE	Winters in Aransas National Wildlife Refuge	Yes (transient)
Wood stork	*Mycteria americana*	T		Prairie ponds and flooded pastures	Yes (transient)
Fishes					
Creek chubsucker	*Erimyzon oblongus*	T		A variety of small rivers and creeks; prefers headwaters	Yes
Paddlefish	*Polyodon spathula*	T		Large, free flowing rivers	No
Insects					
A mayfly	*Tricorythodes curvatus*	--		Aquatic larval phase, adults in bankside vegetation	Yes
A mayfly	*Plauditus gloveri*	--		Aquatic larval phase, adults in bankside vegetation	Yes
Gulf Coast clubtail	*Gomphus odestus*	--		Medium river, moderate gradient, and streams; silty sand or rock bottoms	Yes

Table 3-15: State and Federal-listed Threatened and Endangered Species (Montgomery County)

Common Name	Scientific Name	State Status	Federal Status	Habitat Description	Habitat Present?
Texas emerald dragonfly	*Somatochlora margarita*	--		Spring-fed creeks and bogs; small sandy forested streams with moderate current	Yes
Mammals					
Louisiana black bear	*Ursus americanus luteolus*	T	LT	Bottomland hardwoods and large, undisturbed forested areas	No
Plains spotted skunk	*Spilogale putorias interrupta*	--		Open fields, prairies, croplands, fence rows, farm yards, brushy areas, and tall grass prairies	Yes
Rafinesque's big-eared bat	*Corynorhinus rafinesquii*	T		Cavity trees in hardwood forest, concrete culverts, and abandon buildings	Yes
Red wolf	*Canis rugus*	E	LE	Extirpated, brushy, forested areas and coastal prairies	Yes
Southeastern myotis bat	*Myotis austroriparius*	--		Roosts in cavity trees of bottomland hardwoods, concrete culverts, and abandoned man-made structures	Yes
Mollusks					
Creeper (squawfoot)	*Strophitus undulatus*	--		Small to large streams, gravel to gravel and mud bottoms, and silt and cobble	No
Fawnsfoot	*Truncilla donaciformis*	--		Small to large rivers, sand, mud, rocky mud, sand and mud, and silt and cobble	Yes
Little spectaclecase	*Villosa lienosa*	--		Creeks, rivers, and reservoirs; sandy substrates; and slight to moderate flows along banks in slower currents	Yes
Louisiana pigtoe	*Pleurobema riddellii*	T		Streams and moderate-sized rivers, mud, sand, and gravel	No
Sandbank pocketbook	*Lampsilis satura*	T		Rivers with moderate to swift flows, gravel-sand, and sand	Yes
Texas pigtoe	*Fusconaia askewi*	T		Rivers with mixed mud, sand, and fine gravel in protected areas	Yes

Table 3-15: State and Federal-listed Threatened and Endangered Species (Montgomery County)

Common Name	Scientific Name	State Status	Federal Status	Habitat Description	Habitat Present?
Wabash pigtoe	*Fusconaia flava*	--		Creeks to rivers, mud, sand, and gravel; moderate to swift currents	Yes
Reptiles					
Alligator snapping turtle	*Macrochelys temminckii*	T		Deep water of rivers and canals	No
Louisiana pine snake	*Pituophis ruthveni*	T	C	Sandy, longleaf piney woods	No
Texas horned lizard	*Phrynosoma cornutum*	T		Open, semi-arid regions with bunch grass	No
Timber/canebrake rattlesnake	*Crotalus horridus*	T		Swamps/floodplains of hardwood/upland pine	Yes
Plants					
Bristle nailwort	*Paronychia setacea*	--		Flowering vascular plant endemic to eastern, south-central Texas that occurs in sandy soils	Yes
Correll's false dragonhead	*Physostegia correllii*	--		Wet, silty clay on stream sides, creek beds, irrigation ditches, and roadside ditches	Yes

Source: TPWD 2013a, 2013b; USFWS 2013.

Notes: The following federal and state status codes are presented in the table above. A "blank cell" indicates a rare species that does not have a federal regulatory listing status.

Federal codes: LE, LT = Federal Listed Endangered/Threatened; PE, PT = Federal Proposed Endangered/Threatened; SAE, SAT = Federal Listed Endangered/Threatened by Similarity of Appearance; C = Federal Candidate for Listing (formerly Category 1 Candidate); DL, PDL = Federally Delisted/Proposed for Delisting; NL = Not Federally Listed.

State codes: E, T = State-Listed Endangered/Threatened; NT = Not tracked or no longer tracked by the state; -- = Species of Greatest Conservation Need (SGCN).

Table 3-16: State and Federal-listed Threatened and Endangered Species (Grimes County)

Common Name	Scientific Name	State Status	Federal Status	Habitat Description	Habitat Present?
Birds					
American peregrine falcon	*Falco peregrines anatum*	T	DL	Potential migrant and nests in west Texas	Yes (transient)
Arctic peregrine falcon	*Falco peregrines tundrius*	--	DL	Potential migrant	Yes (transient)
Bald eagle (nesting- wintering)	*Haliaeetus leucocephalus*	T	DL	Near water areas and in tall trees	Yes (wintering)

Table 3-16: State and Federal-listed Threatened and Endangered Species (Grimes County)

Common Name	Scientific Name	State Status	Federal Status	Habitat Description	Habitat Present?
Henslow's sparrow (Wintering)	*Ammodramus henslowii*	--		Weedy fields, fields with bunch grass, vines, and brambles; needs bare ground	Yes (wintering)
Interior least tern	*Sterna antillarum athalassos*	E	LE	Nests on sand and gravel bars in braided streams and rivers	No
Peregrine falcon	*Falco peregrinus*	T	DL	Potential migrant	Yes (transient)
Red-cockaded woodpecker	*Picoides borealis*	E	LE	Nests in 60+ year pine and forages in 30+ year pine	Yes
Sprague's pipit	*Anthus spragueii*	--	C	Migrant, native upland prairie and coastal grasslands	Yes (transient)
White-faced ibis	*Plegadis chihi*	T		Freshwater marshes but some brackish or salt marshes	Yes (transient)
Whooping crane	*Grus americana*	E	LE	Winters in Aransas National Wildlife Refuge	Yes (transient)
Wood stork	*Mycteria americana*	T		Prairie ponds and flooded pastures	Yes (transient)
Fishes					
Blue sucker	*Cycleptus elongatus*	T		Moderate to swift flowing channels with bedrock or gravel bottom	No
Sharpnose shiner	*Notropis oxyrhynchus*	--	C	Large turbid river, sand, gravel, and clay-mud bottom	No
Mammals					
Louisiana black bear	*Ursus americanus luteolus*	T	LT	Bottomland hardwoods and large, undisturbed forested areas	No
Plains spotted skunk	*Spilogale putorias interrupta*	--		Open fields, prairies, croplands, fence rows, farm yards, brushy areas, and tall grass prairies	Yes
Red wolf	*Canis rugus*	E	LE	Extirpated, brushy, forested areas and coastal prairies	Yes
Southeastern myotis bat	*Myotis austroriparius*	--		Roosts in cavity trees of bottomland hardwoods, concrete culverts, and abandoned man-made structures	Yes

Table 3-16: State and Federal-listed Threatened and Endangered Species (Grimes County)

Common Name	Scientific Name	State Status	Federal Status	Habitat Description	Habitat Present?
Mollusks					
False spike mussel	*Quadrula mitchelli*	T		Cobble and mud substrate with water lilies present	No
Smooth pimpleback	*Quadrula houstonensis*	T	C	Mixed mud, sand, and fine gravel; tolerates slow to moderate flow rates	No
Texas fawnsfoot	*Truncilla macrodon*	T	C	Creeks, rivers, and reservoirs; sandy substrates; and slight to moderate flows along banks in slower currents	No
Reptiles					
Alligator snapping turtle	*Macrochelys temminckii*	T		Deep water of rivers and canals.	No
Louisiana pine snake	*Pituophis ruthveni*	T	C	Sandy, longleaf piney woods	No
Texas horned lizard	*Phrynosoma cornutum*	T		Open, semi-arid regions with bunch grass	No
Timber/canebrake rattlesnake	*Crotalus horridus*	T		Swamps/floodplains of hardwood/upland pine	Yes
Plants					
Branched gay-feather	*Liatris cymosa*	--		Barren grassland openings in post oak woodlands, as well as tight clayey, chalky, or gravelly soils	No
Navasota false foxglove	*Agalinis navasotensis*	--		Sparsely vegetated, shallow sandy soil on calcareous sandstone	No
Navasota ladies'-tresses	*Spiranthes parksii*	E	LE	Post oak savannah along the upper stream banks of intermittent streams	No
Texas meadow-rue	*Thalictrum texanum*	--		Woodlands and woodland margins on sandy loam, pimple mounds, and clay pan savannah	No

Source: TPWD 2013a, 2013b; USFWS 2013.

Notes: The following federal and state status codes are presented in the table above. A "blank cell" indicates a rare species that does not have a federal regulatory listing status.

Federal codes: LE, LT = Federal Listed Endangered/Threatened; PE, PT = Federal Proposed Endangered/Threatened; SAE, SAT = Federal Listed Endangered/Threatened by Similarity of Appearance; C = Federal Candidate for Listing (formerly Category 1 Candidate); DL, PDL = Federally Delisted/Proposed for Delisting; NL = Not Federally Listed.

State codes: E, T = State-Listed Endangered/Threatened; NT = Not tracked or no longer tracked by the state; -- = Species of Greatest Conservation Need (SGCN).

3.12.1 Birds

3.12.1.1 Peregrine Falcon

Two subspecies of the peregrine falcon occur in Texas. The American peregrine falcon is a state-listed threatened species for both Montgomery and Grimes counties. The bird is a known resident in the Chisos and Guadalupe mountains in west Texas. The American peregrine falcon is listed as a state Species of Greatest Conservation Need (SGCN) for Montgomery and Grimes counties. The Arctic peregrine falcon winters along the entire Gulf Coast and occurs statewide during migration. Either of the birds may occur in the proposed SH 249 Extension study area as transients during spring and fall migrations.

3.12.1.2 Bald Eagle

The bald eagle is a state-listed threatened species but was federally delisted on August 8, 2007. However, the eagle is protected by the Bald and Golden Eagle Protection Act of 1940 and by the Migratory Bird Treaty Act (MBTA). The bird is generally found around large bodies of water, such as reservoirs, lakes, and rivers. Nesting in Texas is largely restricted to the eastern third of the state and the coastal region. Wintering and migrating bald eagles frequently stop over along water bodies, which provide the birds with the majority of their dietary requirements. The bald eagle has not been documented within the study area, and while there are no large bodies of water (e.g., reservoirs and rivers), there are small lakes within the study area that may attract an eagle in the winter.

3.12.1.3 Henslow's Sparrow (wintering individuals)

Henslow's sparrow is listed as a rare species with no federal regulatory listings for both Montgomery and Grimes counties, but is a state SGCN for Montgomery and Grimes counties. Individuals, as opposed to flocks, prefer weedy fields with patches of bare ground, as well as vines and brambles in the eastern third of the state. The bird could occur within the proposed SH 249 Extension study area as a winter transient.

3.12.1.4 Interior Least Tern

The interior least tern is a state and federal-listed endangered species in Grimes County. The bird is a subspecies listed only when inland more than 50 miles from a coastline. The birds nest along sand and gravel bars within braided streams, rivers, or on man-made structures (e.g., inland beaches, wastewater treatment plants, and gravel mines). Natural nesting habitat is not expected to occur within the study area.

3.12.1.5 Piping Plover

The piping plover is a state and federal-listed threatened species in Montgomery County. The bird is a wintering migrant along the Texas Gulf Coast, which may include beaches and bayside

mud or salt flats. Natural habitat is not expected to occur within the proposed SH 249 Extension study area.

3.12.1.6 Red-cockaded Woodpecker

The red-cockaded woodpecker is a state and federal-listed endangered species in both Montgomery and Grimes counties. The bird has a strong preference for open, park-like stands of living, mature pines with few hardwoods, particularly in the midstory. The red-cockaded woodpecker could occur within the study area.

3.12.1.7 Sprague's Pipit

The Sprague's pipit is a federal-listed candidate species and a state SGCN in both Montgomery and Grimes counties. Typically, the bird is only in Texas during migration and winter (from mid-September to early April) and is strongly tied to the native upland prairie. The bird is locally common in coastal grasslands but uncommon to rare when moving further west. A transient occurrence of the Sprague's pipit could occur within the proposed SH 249 Extension study area.

3.12.1.8 White-faced Ibis

The white-faced ibis, a state-listed threatened species in both Montgomery and Grimes counties, occurs along the Texas Gulf Coast and within the western U.S. The bird can occur year-round in Texas and inhabits wetlands surrounded by low bushes and emergent vegetation. A transient occurrence of the white-faced ibis could occur within the study area.

3.12.1.9 Whooping Crane

The whooping crane is a state and federal-listed endangered species in both Montgomery and Grimes counties that winters in the prairies, salt marshes, and bays along the coast. The whooping crane could occur within the proposed SH 249 Extension study area as a transient migratory species.

3.12.1.10 Wood Stork

The wood stork is a state-listed threatened species in both Montgomery and Grimes counties. The bird is an uncommon to common post-breeding visitor to the central and upper coastal prairies and is a regular visitor of lakes and reservoirs in central and east Texas. The wood stork could be an infrequent visitor to the study area.

3.12.2 Fishes

3.12.2.1 Blue Sucker

The blue sucker, a state-listed threatened species in Grimes County, occurs in large rivers with strong currents and high turbidity. The fish can survive in reservoirs as long as nearby tributary streams provide spawning habitat. The fish prefers smooth substrates of fine gravel and rocks. The blue sucker is not expected to occur within the proposed SH 249 Extension study area.

3.12.2.2 Creek Chubsucker

The creek chubsucker, a state-listed threatened species in Montgomery County, occurs in small rivers and creeks of various types. The fish prefers headwaters and seldom occurs in springs. The creek chubsucker spawns in river mouths, pools, riffles, or lake outlets. The fish could occur within the tributaries located within the study area.

3.12.2.3 Paddlefish

The paddlefish is a state-listed threatened species in Montgomery County that prefers large, free-flowing rivers, but the fish could frequent impoundments with access to spawning sites. The fish spawns in fast, shallow water over gravel bars. The paddlefish is not expected to occur within the proposed SH 249 Extension study area.

3.12.2.4 Sharpnose Shiner

The sharpnose shiner, a federal-listed candidate species and state SGCN in Grimes County, occurs in shallow, open, sandy channels with moderate current within the Brazos River basin. The fish is not expected to occur within the study area.

3.12.3 Insects

3.12.3.1 A Mayfly

The *Tricorythodes curvatus* is a state SGCN in Montgomery County. The mayfly has an aquatic larval phase in streams, and adults are found in bankside vegetation. The *Tricorythodes curvatus* could be present in the creeks within the proposed SH 249 Extension study area.

The *Plauditus gloveri* is a state SGCN in Montgomery County. The mayfly has an aquatic larval phase in streams, and adults are found in bankside vegetation. The *Plauditus gloveri* could be present in the creeks within the study area.

3.12.3.2 Gulf Coast Clubtail

The Gulf Coast clubtail is a state SGCN in Montgomery County. The insect can be found in medium rivers with moderate gradient, in addition to streams with silty sand or rock bottoms. The Gulf Coast clubtail could be present in the creeks within the proposed SH 249 Extension study area.

3.12.3.3 Texas Emerald Dragonfly

The Texas emerald dragonfly is a state SGCN in Montgomery County. The insect can be found in spring-fed creeks and bogs, as well as small sandy-forested streams with moderate current. The Texas emerald dragonfly could be present in the creeks within the study area.

3.12.4 Mammals

3.12.4.1 Louisiana Black Bear

The Louisiana black bear is a state and federal-listed threatened species in both Montgomery and Grimes counties. The bear lives primarily in bottomland hardwood and floodplain forests. The bear also could live in upland hardwoods, mixed pine/hardwoods, coastal flat woods, and marshes. The Louisiana black bear is now restricted primarily to the Tensas and Atchafalaya River basins in Louisiana and is not expected to occur within the proposed SH 249 Extension study area.

3.12.4.2 Plains Spotted Skunk

The plains spotted skunk is listed as a state SGCN for Montgomery and Grimes counties. The skunk uses a wide range of habitats, including open fields, fence rows, farmyards, forest edges, and woodlands. Because preferred habitat includes woody and brushy areas or tall grass prairies, the plains spotted skunk could be present within the study area.

3.12.4.3 Rafinesque's Big-eared Bat

The Rafinesque's big-eared bat is a state-listed threatened species in Montgomery County. The bat occurs throughout the southeastern U.S., with east Texas being the western limit of its range. The Rafinesque's big-eared bat roosts most frequently in buildings, wells, and hollow trees, and the bat could occur within the proposed SH 249 Extension study area.

3.12.4.4 Red Wolf

The red wolf is a state and federal-listed endangered species in Montgomery and Grimes counties. The wolf is known to inhabit brushy and forested areas and coastal prairies throughout the eastern half of Texas. The red wolf typically inhabits large tracts of undeveloped forested areas, and while the study area and surrounding areas consist of large tracts of undeveloped forested areas, the urban development in the area (roadways and scattered residential development) makes the setting non-conducive for habitat. It should also be noted that the red wolf is considered by USFWS to be extirpated from Texas.

3.12.4.5 Southeastern Myotis Bat

The southeastern myotis bat is a state SGCN for both Montgomery and Grimes counties. The bat roosts in cavity trees of bottomland hardwoods, concrete culverts, and abandoned man-made structures, and the bat could occur within the proposed SH 249 Extension study area.

3.12.5 Mollusks

3.12.5.1 Creeper (Squawfoot)

The creeper is a state SGCN for Montgomery County. The creeper is found in small to large streams with gravel or gravel and mud substrates in flowing water within the Colorado,

Guadalupe, San Antonio, Neches (historic), and Trinity (historic) River basins. The proposed SH 249 Extension study area is within the San Jacinto River Basin. Per the TPWD database search, the creeper is not found in the basin. Therefore, the creeper is not expected to be present within the study area.

3.12.5.2 False Spike Mussel

The false spike mussel is a state-listed threatened species in Grimes County. The mussel prefers a habitat containing water lilies for food and shelter. The species is found in substrates of cobble and mud in the Rio Grande, Brazos, Colorado, and Guadalupe River basins. Per the TPWD database search, the false spike mussel is not found in the San Jacinto River Basin, where the proposed SH 249 Extension study area is located. Therefore, the false spike mussel is not expected to be present within the in study area.

3.12.5.3 Fawnsfoot

The fawnsfoot is a state SGCN for Montgomery County. The mollusk is found in small to large streams with sand, mud, rocky mud and sand, and gravel substrates in still to swiftly flowing waters within the Red (historic), Cypress (historic), Sabine (historic), Neches, Trinity, and San Jacinto River basins. Because the study area is within the San Jacinto River Basin, the fawnsfoot has potential to occur within the proposed SH 249 Extension study area.

3.12.5.4 Little Spectaclecase

The little spectaclecase is a state SGCN for Montgomery County. The mollusk is found in creeks, rivers, and reservoirs with sandy substrates. The mollusk is often found in slight to moderate currents, usually along the banks in slower currents within the Cypress through San Jacinto River basins. Because the study area is within the San Jacinto River Basin, the little spectaclecase has potential to occur within the proposed SH 249 Extension study area.

3.12.5.5 Louisiana Pigtoe

The Louisiana pigtoe is a state-listed threatened species in Montgomery County. The mollusk prefers flowing steams and moderate-sized rivers with substrates of mud, sand, and gravel within the Sabine, Neches, and Trinity (historic) River basins. Per the TPWD database search, the Louisiana pigtoe is not found in the San Jacinto River Basin, where the proposed SH 249 Extension study area is located. Therefore, the Louisiana pigtoe is not expected to be present within the study area.

3.12.5.6 Sandbank Pocketbook

The sandbank pocketbook is a state-listed threatened species in Montgomery County. The mollusk prefers small to large rivers with moderate flows and swift currents on substrates of gravel, gravel-sand, and sand bottoms within the Sulfur South through San Jacinto and Neches

River basins. Because the study area is within the San Jacinto River Basin, the sandbank pocketbook has potential to occur within the proposed SH 249 Extension study area.

3.12.5.7 Smooth Pimpleback

The smooth pimpleback is a state-listed threatened species and a federal candidate species in Grimes County. The mollusk prefers small to medium streams and rivers in mixed substrates of sand, mud, and gravel. The smooth pimpleback tolerates very slow to medium flow rates and does not appear to prefer dramatic water level fluctuations. Per the TPWD database search, the smooth pimpleback is not found in the San Jacinto River Basin, where the proposed SH 249 Extension study area is located. Therefore, the smooth pimpleback is not expected to be present within the study area.

3.12.5.8 Texas Fawnsfoot

The Texas fawnsfoot is a state-listed threatened species and a federal candidate species in Grimes County. Little is known about the mollusk, although the species apparently prefers rivers and larger streams with a mixed substrate of sand, mud, and gravel. However, the mollusk also has been found in flowing rice irrigation canals. The species is found only within the Brazos and Colorado River drainages. Per the TPWD database search, the Texas fawnsfoot is not found in the San Jacinto River Basin, where the proposed SH 249 Extension study area is located. Therefore, the Texas fawnsfoot is not expected to be present within the study area.

3.12.5.9 Texas Pigtoe

The Texas pigtoe is a state-listed threatened species in Montgomery County. The mollusk prefers rivers with a mixed substrate of mud, sand, and fine gravel in protected areas associated with fallen trees or other structures. The pigtoe is found within the Sabine through Trinity River basins as well as the San Jacinto River Basin, where the proposed SH 249 Extension study area is located. Therefore, the Texas pigtoe has potential to occur within the study area.

3.12.5.10 Wabash Pigtoe

The Wabash pigtoe is a state SGCN for Montgomery County. The mollusk is found from creeks to large rivers on mud, sand, and gravel from all habitats except deep shifting sands. The species is also found in moderate to swift currents of the Red through San Jacinto River basins or in reservoirs and lakes with no flow. The Wabash pigtoe is known to occur within the San Jacinto River Basin, where the proposed SH 249 Extension study area is located. Therefore, the Wabash pigtoe has potential to occur within the study area.

3.12.6 Reptiles

3.12.6.1 Alligator Snapping Turtle

The alligator snapping turtle is a state-listed threatened species in both Montgomery and Grimes counties. The turtle is an inhabitant of deep rivers, lakes, and large streams with muddy bottoms. Other habitats include oxbows, bayous, and even tidally influenced waters. The alligator snapping turtle is not expected to occur within the proposed SH 249 Extension study area.

3.12.6.2 Louisiana Pine Snake

The Louisiana pine snake is a state-listed threatened species and a federal candidate species in both Montgomery and Grimes counties. The snake historically occurred in portions of west-central Louisiana and extreme east-central Texas. However, there are no known records of the Louisiana pine snake in Montgomery or Grimes counties. The remaining known populations are in Angelina, Jasper, Sabine, and Newton counties. Therefore, this species is not expected occur within the study area.

3.12.6.3 Texas Horned Lizard

The Texas horned lizard, a state-listed threatened species in both Montgomery and Grimes counties, was historically found throughout Texas in areas with flat and open terrain, scattered vegetation, and sandy or loamy soils. Over the past 20 years, the lizard has almost vanished from the eastern half of the state, disappearing east of a line from Fort Worth to Austin to Corpus Christi. The Texas horned lizard is not expected to occur within the proposed SH 249 Extension study area.

3.12.6.4 Timber/Canebrake Rattlesnake

The timber/canebrake rattlesnake is a state-listed threatened species in both Montgomery and Grimes counties. The snake occurs throughout most of the southeastern U.S. In Texas, the reptile's range includes the eastern third of the state, where it is considered widely distributed but generally uncommon. The snake prefers dense thickets and brush areas along floodplains of creeks and rivers. Occasionally, the snake has been encountered in old-pasture regrowth areas in unused farmlands. The timber/canebrake rattlesnake could occur within study area.

3.12.7 Vascular Plants

3.12.7.1 Branched Gay-feather

The branched gay-feather is a state SGCN for Grimes County. The plant species is a Texas endemic found on somewhat barren grassland openings in post-oak woodlands on tight clayey, chalky, or gravelly soils (often over Catahoula formation). The branched gay-feather is not expected to occur within the proposed SH 249 Extension study area.

3.12.7.2 Bristle Nailwort

The bristle nailwort is a state SGCN for Montgomery County. The flowering vascular plant is endemic to eastern south central Texas and occurs in sandy soils. The plant species could occur within the sandy soils of the study area.

3.12.7.3 Correll's False Dragonhead

Correll's false dragonhead is a state SGCN for Montgomery County. The plant species has been documented in scattered counties in the eastern and southern portions of Texas. The dragonhead prefers wet soils, including riverbanks, stream sides, creek beds, roadside ditches, and irrigation canals. The Cornell's false dragonhead could occur within the proposed SH 249 Extension study area.

3.12.7.4 Navasota False Foxglove

The Navasota false foxglove is listed as a state SGCN for Grimes County. The foxglove has been documented in sparsely vegetated, shallow sandy soil on calcareous sandstone. Because the applicable portion of the proposed SH 249 Extension study area in Grimes County does not contain shallow sandy soil, the plant species is not expected to occur within the study area.

3.12.7.5 Navasota Ladies'-tresses

The Navasota ladies'-tresses is a state and federal-listed endangered species in Grimes County. The plant's habitat is along margins of post-oak woodlands in sandy loams along intermittent tributaries of the Brazos and Navasota rivers. The plant species is often in areas where hydrologic factors limit competing vegetation in the herbaceous layer, and the Navasota ladies'-tresses is not likely to occur within the proposed SH 249 Extension study area.

3.12.7.6 Texas Meadow-rue

The Texas meadow-rue is listed as a state SGCN for Grimes County. The plant species is endemic to portions of east Texas. The Texas meadow-rue prefers mesic woodlands or forests, including partially shaded roadside ditches. Because of the lack of that type of forests and woodlands within the study area, the plant species is not expected to be present.

3.13 FLOODPLAINS

Executive Order 11988, *Floodplain Management*, requires that federal agencies avoid activities that directly or indirectly result in the development of a floodplain area. Proposed roadways are impermeable surfaces that deflect, rather than absorb or store, water. As such, the presence of floodplains near the proposed SH 249 Extension would be an important construction consideration. Building the proposed tollway would likely increase the potential for flooding impacts because of the additional impermeable surface area. Additionally, roadway construction could alter the extent of the 100-year floodplain by acting as a levee or barrier to the natural ebb and flow of stormwater.

FIRMs published by FEMA were obtained for the proposed SH 249 Extension study area to determine the locations of 100-year floodplains. The floodplains encountered are all Zone A, which signifies a special flood hazard area that would be inundated by 100-year floods. *Exhibit 3-6* depicts the floodplains in the study area.

FEMA has examined in detail the majority of the rivers, bayous, and streams within the study area, and flood hazard areas have been established. The process delineated Zone A, 100-year floodplains with no base flood elevation, and Zone AE, 100-year floodplains that exhibit base flood elevations that are annotated on the FIRMs. Both zones were digitized by FEMA as Quality Level 3 Digital FIRM (Q3). The Q3 flood data are controlled to the USGS mapping at 1:24,000 scale. The FEMA flood insurance studies contain water surface profiles for 10, 50, 100, and 500-year floods.

As illustrated on *Exhibit 3-6*, the majority of the floodway and 100-year floodplain acreage within the proposed SH 249 Extension study area is located along Mill Creek and its tributaries. The linear feet of floodplain crossings were determined for the proposed SH 249 Extension and are presented in Section 4.12 of the Draft EIS.

Additionally, FEMA administers the National Flood Insurance Program that all counties in the study area participate in as members.

3.14 WILD AND SCENIC RIVERS

The Wild and Scenic Rivers Act was enacted into law on October 2, 1968. Section 1(b) of the act defines Congressional policy regarding the protection and preservation of certain rivers of the U.S. The act states that if a selected river's immediate environment possesses outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values, the river is to be preserved in free-flowing condition. Related, the river's immediate environment is also to be protected for the benefit and enjoyment of present and future generations (National Park Service 2005). No river or river segments listed in the national inventory of the National Wild and Scenic Rivers System are located within the proposed SH 249 Extension study area.

3.15 COASTAL BARRIERS

The Coastal Barrier Resource Act of 1982 addresses potential impacts to coastal barriers caused by development and transportation projects. The proposed SH 249 Extension study area is not mapped as part of the Coastal Barrier Resource System.

3.16 COASTAL ZONE MANAGEMENT PLAN AND ESSENTIAL FISH HABITAT

The Coastal Zone Management Act of 1972 (as amended in 1996) provides for the preservation, protection, development (where feasible), and restoration and enhancement of coastal zone resources in the U.S. In Texas, the General Land Office is designated as the lead

agency that coordinates the development and implementation of the Texas Coastal Management Plan. The Coastal Coordination Council administers the program and is in charge of adopting uniform goals and policies to guide decision making by all entities that regulate or manage the use of natural resources within the Texas coastal area.

3.16.1 Coastal Management Zone

The boundary of the Texas Coastal Management Zone was delineated in accordance with the requirements of the Coastal Zone Management Act, federal program development and approval regulations, and the Texas Coastal Coordination Act. Requirements dictate that a state's coastal zone boundaries include four elements: inland boundary, seaward boundary, interstate boundaries, and federal land excluded from the boundary. The proposed SH 249 Extension would not traverse the Texas Coastal Management Zone.

3.16.2 Essential Fish Habitat

The Magnuson-Stevens Fishery Conservation and Management Act (as amended on October 11, 1996) directs that all federal agencies who propose actions that would impact essential fish habitat consult with the National Marine Fisheries Service regarding potential adverse impacts. Although the proposed SH 249 Extension would cross Mill Creek and its associated tributaries, the watercourses are not tidally influenced at the crossing points.

The Fish and Wildlife Coordination Act would require coordination if the proposed SH 249 Extension involves impounding, diverting, or deepening a stream channel or other body of water. Currently, design plans would only span Mill Creek and its associated tributaries.

3.17 CULTURAL RESOURCES

Cultural resources are buildings, structures, objects, sites, and districts. Both state and federal laws mandate the consideration and protection of cultural resources during the project planning stage. At the federal level, NEPA and the National Historic Preservation Act of 1966 (among others) would apply to transportation projects such as the proposed SH 249 Extension. At the state level, state laws (e.g., the Antiquities Code of Texas) would apply to transportation projects.

Compliance with all laws often requires consultation with the Texas Historical Commission (THC), the Texas State Historic Preservation Office, and/or federally recognized tribes to determine the proposed tollway's impacts on cultural resources. Review and coordination of the proposed SH 249 Extension would follow approved procedures for compliance with state and federal laws. *Appendix E* of the Draft EIS provides a constraints analysis on cultural resources for the proposed SH 249 Extension.

3.17.1 Archeological Resources

According to the Houston Potential Archeological Liability Map (PALM) database compiled by TxDOT, the proposed SH 249 Extension study area would traverse Map Unit 1, 2, 3, and 4. For Map Unit 1, both a surface survey and deep reconnaissance would be recommended (if deep impacts are anticipated). For Map Unit 2, a surface survey would be recommended, but deep reconnaissance would not be recommended. For Map Unit 3, a surface survey would not be recommended, but deep reconnaissance would be recommended (if deep impacts are anticipated). For Map Unit 4, no surveys would be recommended. PALM data are limited to only the portions of the study area that fall within Montgomery County and are not available for Grimes County.

Review of the THC's *Archeological Sites Atlas* on April 22, 2013, revealed no recorded archeological sites and only three previous archeological investigations within 0.6 mile of the proposed SH 249 Extension study area. The closest recorded sites would be 41MQ214 and 41MQ219, southwest of Alternative Alignment B.

Three archeological surveys overlap a portion of the study area. A 1992 survey along existing SH 249, south of its intersection with FM 1774 in Pinehurst, would overlap the south end of the proposed SH 249 Extension. In 2005, Moore Archeological Consulting, Inc. conducted two archeological surveys for TxDOT along FM 1774 between Todd Mission and FM 149 in Pinehurst. The southeast ends of the two survey areas would be within 0.6 mile of the proposed tollway, but the surveys did not identify any new archeological sites.

3.17.2 Historical Non-Archeological Properties

File searches for historical resources have been conducted as the environmental process evolved. During the MIS (conducted in 2002), the THC's Texas Historic Sites Atlas was reviewed. There were no National Register properties in the MIS study corridor. However, there were 12 historic-age resources and nine cemeteries.

In 2004, a constraints analysis was conducted with a study area that encompassed all of the alternative alignments. An updated review of the Texas Historic Sites Atlas and other sources confirmed the absence of National Register properties and the presence of the 12 historic-age resources and nine cemeteries in the study area. In addition, one Official State Historical Marker and the Magnolia Depot are within the study area. All of the historic properties noted are included in *Appendix E*.

A third file search refined the delineated study area to be 1,300 feet beyond the proposed ROWs for Alternative Alignment B, B/C, C, and E. Information for the third file search was gathered from the THC's *Texas Historic Sites Atlas* for National Historic Landmarks, National Register of Historic Places properties, State Antiquities Landmarks, Official Texas Historical Markers (Recorded Texas Historic Landmarks, subject markers, and Texas Centennial

markers), cemetery, neighborhood, and museum surveys; the East Texas Sawmill Database of the Texas Forestry Museum; the National Park Service's Historic American Buildings Survey, Historic American Landscapes Survey, and Historic American Engineering Record; and the Texas Department of Agriculture's Family Land Heritage Program properties.

No resources have been documented as part of neighborhood or museum surveys, or as part of the Historic American Buildings Survey, Historic American Landscapes Survey, or Historic American Engineering Record. Since the study area was refined, only one previously documented resource, a cemetery, is in the study area (see *Appendix E*). The cemetery, variously known as the Piney Grove Cemetery, Missionary Church Cemetery, and unnamed cemetery #5, was documented as part of a cemetery survey. The Piney Grove Missionary Baptist Church is associated with the cemetery, but has not been previously documented. At least three sawmills were near Magnolia, but information about each location was vague and not reliable enough to accurately plot (Johnson 1996a, 1996b, 1996c). The sawmills are unlikely to be extant, and based on current aerial photographs, any evidence of them would be represented as historic archeological sites.

3.18 HAZARDOUS MATERIALS

3.18.1 Hazardous Material Sites

To address issues of hazardous materials near the proposed SH 249 Extension study area, a regulatory database search was performed in accordance with American Society for Testing and Materials standards and TxDOT guidelines. The database search identified conditions that might indicate existing and past releases or a material threat of release of any hazardous substance or petroleum products into the ground, groundwater, and surface water in or near the study area. Based on recommendations from the American Society for Testing and Materials, the search was performed using the following federal, state, and local databases and records within the established proposed SH 249 Extension radii.

Table 3-17 lists the database records search and the number of database reported sites mapped within the proposed SH 249 Extension study area.

Table 3-17: Hazardous Material Regulatory Database Summary

Searched Regulatory Databases	Sites Mapped	Radius Search
Facility Registry System	2	Target Property
Notice of Violation	1	Target Property
Texas Superfund	0	1 mile
NPL	0	1 mile

Table 3-17: Hazardous Material Regulatory Database Summary

Searched Regulatory Databases	Sites Mapped	Radius Search
Delisted NPL	0	1 mile
Comprehensive Environmental Response, Compensation, and Liability Information System	0	0.5 mile
No Further Remedial Action Planned	0	0.5 mile
Resource Conservation and Recovery Act Corrective Action Activity Site Report	0	1.0 mile
Resource Conservation and Recovery Information System (treatment, storage, and disposal facilities)	0	0.5 mile
Resource Conservation and Recovery Information System (generators)	0	0.25 mile
LPST	4	0.5 mile
PST	7	0.25 mile
Emergency Response Notification System	0	0.25 mile
Industrial and Hazardous Waste	0	0.25 mile
Spills Listing	0	0.25 mile
Solid Waste Facilities/Landfill Site Database (Municipal Solid Waste)	1	0.5 mile
Solid Waste Facilities/Landfill Site Database (Closed/Abandoned)	0	0.5 mile
Voluntary Cleanup Program	0	0.5 mile
TIER II	6	0.5 mile
Groundwater Contamination Cases	1	Target Property
Regulatory Database Total	**22**	

Source: Various databases. The Hazardous Materials Database Report provides a more complete listing of databases searched (*Appendix F* of the Draft EIS).

Notes: LPST = leaking petroleum storage tank; NPL = National Priority List; PST = petroleum storage tank; TIER II = Texas Tier II Chemical Reporting Program.

The following descriptions expand on each of the databases listed in *Table 3-17*.

- The Texas Superfund is a program designed to remediate abandoned or inactive sites within the state that pose an unacceptable risk to public health, safety, or the environment. The sites under the program are not sites that qualify for action under the National Priority List (NPL). Information on the database includes any recent developments and the anticipated action for the sites.
- The NPL lists abandoned or uncontrolled hazardous waste sites identified by the EPA for priority remedial action under the federal Superfund Program.

- The Delisted NPL includes the EPA's final NPL sites where remedies have proven to be satisfactory or sites where the original analyses were inaccurate. The sites are no longer appropriate for inclusion on the NPL, and final publication in the Federal Register has occurred.
- The Comprehensive Environmental Response, Compensation, and Liability Information System lists the sites the EPA is currently investigating for the release or threatened release of hazardous substances pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act of 1980.
- Under the Comprehensive Environmental Response, Compensation, and Liability Information System, the No Further Remedial Action Planned (property and adjoining) sites are locations where, following an initial investigation, no contamination was found, where contamination was removed quickly without the need for the site to be placed on the NPL, or where the contamination was not serious enough to require federal Superfund action or NPL consideration.
- The Resource Conservation and Recovery Act Corrective Action Activity Site Report lists the nationally defined corrective action core events that have occurred for every handler that has had corrective action activity.
- The Resource Conservation and Recovery Information System for generators (property and adjoining) and treatment, storage, and disposal facilities tracks the many types of information about the regulated universe of Resource Conservation and Recovery Act hazardous waste handlers. It characterizes facility status, regulated activities, and compliance histories, capturing detailed data on the generation of hazardous waste from both large and small quantity generators and on waste management practices of treatment, storage, and disposal facilities.
- The Leaking Petroleum Storage Tank (LPST) database lists the underground storage tanks that have reported leaks of petroleum substances.
- The Petroleum Storage Tank (PST) database (property and adjoining properties) maintains a listing of petroleum storage tanks that have been registered with the state.
- The Emergency Response Notification System (property only) contains information on release notifications of hazardous substances that have occurred throughout the U.S. and are reported to the 10 EPA regions, the National Response Center, or the U.S. Coast Guard.
- The Solid Waste Facilities/Landfill Site database includes both active and inactive landfill sites, and the Closed Landfill Inventory includes closed and abandoned landfills.

- The Spills Listing contains information regarding the release of hazardous or potential hazardous chemical/materials into the environment.
- The Industrial and Hazardous Waste database lists owner and facility information for industrial and hazardous waste sites. Industrial waste is waste that results from or is incidental to operations of industry.
- The Voluntary Cleanup Program provides administrative, technical, and legal incentives to encourage the cleanup of contaminated sites in the state. Because all non-responsible parties, including future lenders and landowners, receive liability protection from the state for cleanup of sites under the program, most of the constraints for completing real estate transactions at the sites are eliminated. As a result, many unused or underused properties may be restored to economically productive or community beneficial uses.
- Texas Tier II Chemical Reporting Program (TIER II) is designed to protect the public health and environment by providing current and accurate information about hazardous chemicals and their health effects. The program ensures that the regulated community complies with the requirements of the applicable laws and regulations.

Table 3-18 describes facility locations and details for the identified hazardous materials and waste sites, which is further defined in *Appendix F* and on *Exhibit 3-7* of the Draft EIS. To supplement site information from the database report, sites within the proposed SH 249 Extension study area were reviewed for accuracy using field reconnaissance.

Table 3-18: Area Hazardous Materials and Waste Site Summary

Site ID	Description	Regulatory Database	Comments	Potential Concern
1	Adkison Ready-Mix Concrete Inc. 106 West Rolling Wood Pinehurst, Texas 77362	PST	Facility ID#0020156 is listed as having one 1,000-gallon-capacity gasoline PST (removed from the ground) and one 6,000-gallon-capacity diesel PST (removed from the ground).	Yes
		LPST	LPST ID#110087 (Facility ID#0020156) Priority Code: There is no groundwater impact and no apparent threats or impacts to receptors. Status Code: Final concurrence was issued, and the case is closed.	

Table 3-18: Area Hazardous Materials and Waste Site Summary

Site ID	Description	Regulatory Database	Comments	Potential Concern
2	Ken's Bread & Butter FM 249 (SH 149, FM 149) Pinehurst, Texas 77362	LPST	LPST ID#112623 (Facility ID#0030620) Priority Code: There is impacted groundwater used by humans and endangered species within 500 feet to 0.25 mile to the southwest. Status Code: Site assessment.	Yes
		LPST	LPST ID#093075 (Facility ID#0030620) Priority Code: There was a former vapor impact/ non-aqueous phase liquid near utility and potential vapor pathway. Status Code: Final concurrence was issued, and the case is closed.	
		NOV	Reference #RN102270485 There are 16 allegations, but all are minor or moderate.	
		PST	Facility ID#0030620 is listed as having two 8,000-gallon capacity gasoline PSTs (removed from the ground), one 3,000-gallon-capacity gasoline PST (removed from the ground), and one 20,000-gallon-capacity gasoline PST (active).	
		FRSTX	Registry ID: 110034102619 Programs listed for the facility are the TX-TCEQ ACR.	
		GWCC	File #112623. TCEQ initiated action to address a contamination incident.	
3	M-N-M Grocery 1510 FM 1486 Magnolia, Texas 77354	FRSTX	Registry ID: 110034618484 Programs listed for the facility are the TX-TCEQ ACR.	No
		PST	Facility ID#0075264 is listed as having one 14,000-gallon-capacity gasoline PSTs (active) and one 12,000-gallon-capacity gasoline PST (active).	No
4	Pine Vista Water Plant 16310 South Ravenswood Magnolia, Texas 77355	TIER II	Unique ID; 51EVLM02LDMV Validation Report: The facility passed all validation checks (chlorine and chlorine gas).	No
5	Devon Energy – Pinehurst 13 Magnolia, Texas 77354	TIER II	Unique ID: 930B1YASC51P Validation Report: Not reported.	No
	Devon Energy – Pinehurst 7 Magnolia, Texas 77354	TIER II	Unique ID: 930B1ZATJ668 Validation Report: Not reported.	No
	Devon Energy – Dean W AA4 Magnolia, Texas	TIER II	Unique ID: 930AUP3ZSVU8 Validation Report: Not reported.	No
6	Devon Energy – Dean AA5 Magnolia, Texas 77254	TIER II	Unique ID: 930AUP402W2G Validation Report: Not reported.	No

Table 3-18: Area Hazardous Materials and Waste Site Summary

Site ID	Description	Regulatory Database	Comments	Potential Concern
7	Devon Energy – Pinehurst 16 Magnolia, Texas 77354	TIER II	Unique ID: 930B1YASY5LY Validation Report: Not reported.	No
8	Handi Stop 90 32344 SH 149 Pinehurst, Texas 77362	PST	Facility ID#0075110 is listed as having three 12,000-gallon-capacity gasoline PSTs (active).	No
9	Former Pinehurst Gravel Facility 35614 FM 149 Pinehurst, Texas 77362	PST	Facility ID#0040679 is listed as having two 1,000-gallon-capacity unknown liquid PST (removed from the ground).	No
10	Pinehurst Co Southwestern Bell Telephone LP 35439 FM 149 Pinehurst, Texas 77362	PST	Facility ID#19442 is listed as having one 2,598-gallon-capacity diesel PST (active).	Yes
11	Pinehurst Country Store 35427 FM 149 Pinehurst, Texas 77362	PST	Facility ID#0045134 is listed as having two 8,000-gallon-capacity gasoline PSTs (active), one 4,000-gallon-capacity diesel PST (active), one 6,000-gallon-capacity gasoline PST (active), and one 2,000-gallon-capacity kerosene PST (active).	Yes
12	Easy Shop 505 505 FM 1774 Pinehurst, Texas 77362	LPST	LPST ID#114309 (Facility ID#0003896) Priority Code: There is no groundwater impact and no apparent threats or impacts to receptors. Status Code: Final concurrence was issued, and the case is closed. One 10,000-gallon-capacity PST was removed from the ground.	No
13	In The Garden Landscaping Materials 36530 FM 1774 Magnolia, Texas 77355	MSWLF	The facility was a resource recovery/recycling facility, but the facility status is now closed. Additionally, the MSWLF is located over 0.5 mile from the four alternative alignments.	No

Source: *Appendix F* of the Draft EIS.

Notes: Information and addresses are as stated in the Geo-Search data search report. Addresses may be incomplete or incorrectly located on the maps. Effort was made to determine the correct location for the table.

FRSTX = Facility Registry System; ID = identification; LPST = leaking petroleum storage tank; MSWLF = Solid Waste Facilities/Landfill Site Database (Municipal Solid Waste); NOV = Notice of Violation; PST = petroleum storage tank; TCEQ = Texas Commission on Environmental Quality; TIER II = Texas Tier II Chemical Reporting Program.

3.18.2 Oil and Gas Well Sites

A general oil and gas well and pipeline review was conducted using information provided by the Railroad Commission of Texas. Various types of installations (including oil and gas wells, dry holes, abandoned oil and gas wells, surface locations, and horizontal drain holes) are mapped throughout the proposed SH 249 Extension study area. The most notable is a small cluster of well sites located in the southern portion of the study area north of the Hazy Hollow East and Old Mill Lake subdivisions. Oil and gas transmission lines cross the proposed SH 249 Extension

at various locations within the study area. There are also aboveground valve and gauging facilities in proximity to the proposed SH 249 Extension. A more detailed study of the pipelines and oil and gas installations would occur for the Preferred Alternative.

3.19 VISUAL AND AESTHETIC QUALITIES

Two potential groups that could be visually impacted by the proposed SH 249 Extension are those who would use the roadway for travel and those who live and work in close proximity to the proposed tollway. The visual experience and aesthetic quality of an area depends upon the land (i.e., the topography), water body, vegetation, and human development patterns. More specifically, factors used to assess the visual experience and aesthetic qualities of an area include:

- Uniqueness of the landscape in relation to the region as a whole;
- Whether the scenic area is a foreground, middle ground, or background view;
- Focus of the view;
- Scale of the elements in the scene;
- Number of potential viewers;
- Duration of the view; and
- Amount of disturbance to the landscape.

Lands within the proposed SH 249 Extension study area are generally level, exhibiting little to no apparent topographic relief. Existing land use near the proposed tollway primarily consists of undeveloped land, agricultural land, and low-density residential development (with some commercial development). Potential natural visual scenic resources within the study area include forest, streams, wetlands, riparian areas, and rangeland.

SECTION 4: ENVIRONMENTAL CONSEQUENCES

Section 4 describes the anticipated direct impacts of Alternative Alignment B, B/C, C, E, and the No-Build Alternative on the physical, biological, and socioeconomic resources within the proposed SH 249 Extension study area. Direct impacts are effects that can be attributed to construction, operation, and maintenance of the proposed SH 249 Extension or to the continuation of the existing activities under the No-Build Alternative.

4.1 LAND USE

The proposed SH 249 Extension would convert existing land uses to a transportation use through the acquisition of ROW. Land use impacts were assessed by quantifying acreages by land use type that would be impacted by the proposed ROW for each of the four alternative alignments (excluding existing transportation land uses). As shown in *Table 4-1*, Alternative Alignment C would convert the most acres to a transportation use. The large majority of land use impacts, for all four alternative alignments, would be the conversion of undeveloped land to a transportation use.

Table 4-1: Land Use Impacts by Alternative Alignment

Land Use	Alternative Alignment			
	B	B/C	C	E
Commercial	0.58 acres 0.09%	0.58 acres 0.08%	0.58 acres 0.08%	0.58 acres 0.09%
Residential	3.02 acres 0.45%	12.55 acres 1.80%	11.81 acres 1.68%	19.06 acres 2.94%
Undevelopable	137.82 acres 20.41%	138.43 acres 19.89%	117.02 acres 16.67%	118.04 acres 18.21%
Undeveloped (farmland, ranchland, and vacant land)	533.74 acres 79.05%	544.39 acres 78.22%	572.69 acres 81.57%	510.47 acres 78.76%
Total	**675.16 acres**	**695.96 acres**	**702.10 acres**	**648.15 acres**

Source: H-GAC 2013a; GCAD 2013.
Note: % = percent.

Alternative Alignment B, B/C, C, and E would cross existing transportation land uses that range from an active UPRR railway to several major roadways (e.g., FM 1488, FM 1486, and FM 149). Adequate bridging would be provided to not interrupt service, but the four alternative alignments would also cross several local roads where overpasses would not be built. The impacts may result in access-related impacts to existing residences and communities, as further described in Section 4.3.2 of the Draft EIS.

The proposed SH 249 Extension would convert existing land use into transportation use, which would be within the developmental plans for the area. The conversion of existing land could also

result in the following impacts. A reference to the relevant Draft EIS sections is included in parenthesis.)

- The visual and aesthetic environment would change for adjacent land uses (Section 4.18).
- Some of the affected undeveloped land may be categorized as prime farmland (Section 4.2.2).
- According to H-GAC, approximately 400 acres of undeveloped land in the proposed SH 249 Extension study area would be converted to a residential use by 2040. Conversion of undeveloped land to a transportation use would reduce the inventory of land available for other uses (see Section 5).
- The construction of the proposed tollway may lead to future land uses changes, such as business development near the proposed tollway's interchanges (see Section 5).
- A number of residential areas are within close proximity to the four alternative alignments. The conversion of residential and commercial land uses to a transportation use may alter the physical makeup of local neighborhoods and impact community cohesion (Section 4.3.2), add traffic noise to the area (Section 4.7), impact the area's visual aesthetic (Section 4.18), and change access (Section 4.3.2).

No-Build Alternative

The No-Build Alternative would not result in the conversion of existing land uses. Land use changes would continue to occur based on market conditions and as parcels are platted for development.

4.2 GEOLOGY, FARMLANDS, AND SOILS

4.2.1 Geology

All four alternative alignments would cross similar topography and soils that are generally sandy loams to clayey loams that are moderately well to somewhat poorly drained and that have moderate shrink-swell potential.

Geologic resources in the proposed SH 249 Extension study area are influenced by regional activities, such as groundwater usage and oil and gas wells, that have the potential to impact the proposed SH 249 Extension. Impacts to the proposed tollway from the natural environment would be limited to land-surface subsidence and fault reactivation, particularly in response to heavy withdrawal of groundwater. The principal impacts of subsidence are activation of surface faults, loss of ground elevation in critical low-lying areas already prone to flooding, and alteration of natural slope and drainage patterns (Fisher 1972).

Data from the Harris-Galveston Subsidence District suggest that the proposed SH 249 Extension study area experienced between 1 to 3 feet of land surface subsidence from 1906 to 2000 (HGSD 2013a). Future subsidence would greatly depend on groundwater withdrawals in the immediate vicinity of the proposed SH 249 Extension. The Harris-Galveston Subsidence District has proposed a regulatory plan designed to minimize groundwater withdrawals by converting to surface water use (HGSD 2013b). Without proposed groundwater restrictions, by 2050, subsidence for the study area would potentially be 1 foot or less. If groundwater restrictions identified in the regulatory plan are effective, subsidence by 2050 would be limited to 0.5 foot or less (HGSD 2013b).

Surface faults are common to the region (Wheeler 1999). However, the low seismic activity rating of the faults does not appear to pose an imminent threat or need for concern to the proposed SH 249 Extension.

While impacts to geology and soils would be unavoidable under Alternative Alignment B, B/C, C, and E, engineering and design considerations would offset impacts. In areas of present or projected subsidence, special attention would be given to problems caused by loss of ground elevation. Impacts would be mitigated through final roadway design features that have not been completed at the time of the Draft EIS.

No-Build Alternative

Under the No-Build Alternative, there would be no impact to the proposed SH 249 Extension study area's topography or geological resources. If agency plans addressing subsidence are successful, further changes to the area topography should be minimized.

4.2.2 Farmlands

4.2.2.1 Prime Farmland

A soil mapping unit list was obtained from NRCS to identify the prime farmland within Montgomery and Grimes counties. As illustrated on *Exhibit 3-2* and summarized in *Table 4-2*, the listing quantified prime farmland that would be impacted within the proposed SH 249 Extension study area by all four alternative alignments.

Table 4-2: Prime Farmland Impacts by Alternative Alignment

Alternative Alignment	Montgomery County	Grimes County	Impacts to Prime Farmland (acres)
B	Ho, Ro, Sp	Wa	106.86
B/C	Ho, Ro, Sp	SpB	69.1
C	SpB	SpB	69.64
E	Wa	Wa	106.89

Source: NRCS 2012a; NRCS 2012b.

Soils that meet the criteria of prime farmland are distributed randomly throughout the Montgomery County portion of the study area. However, most prime farmland locations in the study area are not currently used for agricultural.

Prime farmland soils would be avoided where practicable. However, because of the large amount of prime farmland within Montgomery and Grimes counties, each alternative alignment would have an unavoidable effect on some prime farmland soils. The Preferred Alternative would be placed along and in close proximity to existing property lines (where possible) to minimize the splitting or fragmentation of any existing farms. As seen in *Table 4-2*, Alternative Alignment B/C and C would have the least impact on prime farmland, and Alternative Alignment B and E would have approximately 35 percent greater impacts on prime farmland.

Coordination with NRCS was conducted for the proposed SH 249 Extension, and a Farmland Conversion Impact Rating Form for Corridor Type Projects (NRCS-CPA-106) calculated the relative impact of each alternative alignment on prime farmland. Land evaluation and site assessment scores estimate the value of the impacted farmland and can add up to a maximum of 260 points. One-hundred and sixty points is a critical score, with the alternative alignments receiving scores less than 160 points being given a minimal level of consideration for protection.

Project-related impacts to prime farmland in Montgomery and Grimes counties were determined to be minimal according to the land evaluation and site assessment scoring used in the NRCS-CPA-106 Form (*Appendix D*). The total score for Alternative Alignment B, B/C, C, and E ranged from 107 to 111. Therefore, further coordination with the NRCS would not be required.

No-Build Alternative

Under the No-Build Alternative, there would be no immediate or direct impact to prime farmland. However, general development pressure could eventually result in the conversion of prime farmland to non-farmland uses.

4.2.2.2 Farmlands of Statewide and Local Importance

As noted in Section 3.2.2.2, no farmlands of local importance are within Texas. However, farmlands of statewide importance exist within the study area and would be impacted by Alternative Alignment B, B/C, C, and E (*Table 4-3*).

Table 4-3: Farmlands of Statewide Importance Impacts by Alternative Alignment

Alternative Alignment	Montgomery County	Grimes County	Impacts to Farmlands of Statewide Importance (acres)
B	Bd, So, Tk	AnC, CPC, Na, Wa	72.45
B/C	Bd, So, SuD, Tk	AnC, Na	37.00
C	Bd, So, SuD, Tk, Wa	AnC, Na	47.44
E	Bd, So, SuD, Tk, Wa	AnC, CPC, Na, Wa	72.47

Source: NRCS 2012a; NRCS 2012b.

Alternative Alignment B/C would have the least impact on farmlands of statewide importance, and Alternative Alignment B and E would have comparably the largest impact on farmlands of statewide importance.

No-Build Alternative

Under the No-Build Alternative, there would be no immediate or direct impact to farmlands of statewide importance. However, general development pressure could eventually result in the conversion of farmland to non-farmland uses.

4.2.3 Soils

Most soil groups traversed by Alternative Alignment B, B/C, C, and E have a moderate shrink-swell potential. The shrink-swell characterization is a measure of the potential volume change of soil from a loss or gain in moisture. Volume change occurs mainly from the interaction of clay minerals with water and varies with the amount and type of clay minerals in the soil. The load size on the soil and the magnitude of the change in soil moisture content influence the amount of soil swelling. If the shrink-swell potential is rated moderate to high, shrinking and swelling can cause damage to buildings, roadways, and other structures. Because shrink-swell in the proposed SH 249 Extension study area is rated moderate, shrinking and swelling would potentially cause damage to the proposed tollway.

Construction often involves compaction of soils and removal of vegetation that can increase the amount of erosion and subsequent sedimentation. Slope, soil texture, and precipitation during construction determine the soil loss potential. Erosion and sediment control measures would effectively minimize erosion and soil loss during construction. Long-term impacts to area soils can be reduced by implementing appropriate best management practices (BMPs) that would minimize erosion during ancillary development.

To the maximum extent possible and where required, material excavated from the road cuts would be used as fill material. If suitable soils are not found within the ROW, the soils would be obtained from other sites within a reasonable haul distance of the proposed SH 249 Extension. Detailed investigation of soils for construction would be conducted during the final design phase of project development. During final design, special consideration would be given to the selection of fill materials, which would be specifically noted for roadbed materials to offset any adverse impact from area soil conditions.

No-Build Alternative

Under the No-Build Alternative, there would be no anticipated impact to soils. However, other types of development may occur within the proposed SH 249 Extension study area that could impact or be impacted by the soils in the area.

4.3 SOCIAL CHARACTERISTICS

4.3.1 Population

Discussed in Section 3.1.1 of the Draft EIS, the proposed SH 249 Extension study area is forecasted to experience growth from predicted use and available land primarily located in the northwest section of the study area. The direction of growth would be consistent with the goals and objectives of Montgomery and Grimes counties and the surrounding communities. Population growth would likely continue well into the foreseeable future.

Table 4-4 identifies the forecasted growth for Montgomery County, Grimes County, Todd Mission, Magnolia, and Pinehurst. From 2010 to 2035, the forecast predicts a steady increase in population growth for all areas and a substantial increase in growth for the cities of Magnolia and Pinehurst.

Table 4-4: Area 2010 and 2035 Population Forecasts

Area[a]	Population		
	2010	2035	Percent Change
Montgomery County	455,746	857,637	88.2
Grimes County	26,604	29,651	11.45
Todd Mission	107	172	60.74
Magnolia	1,393	6,406	359.87
Pinehurst	2,097	12,746	507.82

Source: U.S. Census 2010; Texas State Data Center 2012; H-GAC 2013c.

[a] Because Montgomery County is part of the H-GAC planning area, the population forecast above is sourced from H-GAC to be consistent with the *2035 RTP Update* (H-GAC 2013a).

Alternative Alignment B, B/C, C, and E were proposed in response to present and anticipated growth. Forecasts predict that most of the growth would occur near Magnolia and Pinehurst, but all existing communities, as well as future residents and commercial businesses near the proposed SH 249 Extension, would benefit from a new commuter route, traffic congestion relief, and adequate capacity for future traffic.

4.3.2 Housing, Neighborhoods, and Community Cohesion

The four alternative alignments have the potential to affect housing, neighborhoods, and community cohesion by displacing residences, businesses, and community facilities and, in some instances, creating a barrier that would divide neighborhoods. Other impacts would involve:

- Improved and reduced congestion on the area's roadway network,
- Potential changes in land use and property values adjacent to the proposed SH 249 Extension,
- A temporary increase in noise, dust, and traffic congestion during construction,
- Potential increases in traffic noise after completion of construction, and
- Changes in access to areas where on-ramps and off-ramps would be located.

Depicted on *Exhibit 3-1*, *Table 4-5* identifies the potential impacts to the 12 residential communities/subdivisions described in Section 3.1.2.1 of the Draft EIS.

Table 4-5: Potential Impacts to Residential Communities/Subdivisions

Residential Communities (Neighborhoods/Subdivisions)	Potential Residential Displacements	Community Cohesion Impacts	Alternative Alignment(s)
Woodtrace	0	No	None
Oakcrest	0	No	None
Oak Hill Acres	0	No	None
Cripple Creek Farms West	0	No	None
Hazy Hollow East	2	Yes	B/C and C
Greentree Forest Estates	0	No	None
The Vintage	0	No	None
Pine Vista Village	0	No	None
High Chaparral	17	Yes	B
Mill Creek Landing	0	No	None
Magnolia Hills	0	No	None
Magnolia East	16	Yes	E

Source: The Proposed SH 249 Extension Study Team.

Note: Displacements only include the number of structures displaced and do not count displacements of ancillary buildings.

4.3.2.1 Housing

Residential properties could be displaced in the Hazy Hollow East, High Chaparral, and Magnolia East neighborhoods, all of which would reduce the housing stock in the neighborhoods.

Alternative Alignment B/C and C would displace two residential properties in the Hazy Hollow East neighborhood. The community is an even mixture of single-family residential homes and mobile homes. Because the community is closer to Pinehurst, home development is more densely compressed than in the more rural communities of the proposed SH 249 Extension study area. The land use surrounding Hazy Hollow East is primarily vacant/forested land on the northern boundary of the neighborhood, with mixed land uses of commercial and some residential uses on the southern boundary located along FM 1774. Pinehurst is anticipated to continue growing, and as such, the loss of two residential properties would not adversely impact the available housing stock of the neighborhood.

High Chaparral and Magnolia East are located east of FM 1486 and are more rural in nature, with larger lots and homes that are further spread apart from the next neighboring home. The two communities have a mixture of predominately single-family homes and some mobile homes. Both communities are located outside of Magnolia, where the dominant land use is vacant alongside sparse residential and commercial development. Each community has two access points located off FM 1486. The access roads into each community specifically serve the residents of the neighborhoods and are not connected to each other via cross streets. Alternative Alignment B would displace 17 residential properties in the High Chaparral neighborhood, and Alternative Alignment E would displace 16 residential properties in the Magnolia East neighborhood. However, sufficient residential development would still exist in the two neighborhoods. While the displacements would alter the immediately adjacent area, the long-term impacts on available housing stock would not be adverse.

No-Build Alternative

Under the No-Build Alternative, there would be no housing impact to residents within the study area’s communities and neighborhoods.

4.3.2.2 Neighborhoods and Community Cohesion

An adverse impact to neighborhoods and community cohesion occurs when an alternative alignment severs or alters social interaction among groups or individual members of a community. Impacts include dividing or displacing a functioning neighborhood or displacing that which allows the community to assemble and interact (such as a local church or community recreational facility). Applying the definition to the proposed SH 249 Extension study area, the High Chaparral and Magnolia East communities would experience a change in community cohesion.

Hazy Hollow East

Bordered by vacant property and Mill Creek to the north and by FM 1774 to the south, two residential displacements would occur in Hazy Hollow East because of Alternative Alignment B/C and C. However, the proposed tollway would not separate current residents from existing community facilities or impact overall community cohesion. No roadways within the community would be removed, and continued access to and from FM 1774 would exist. No community facilities are located within the neighborhood (e.g., community center, park/play area, or pool). Furthermore, because the proposed SH 249 Extension would be built as a controlled-access tollway, with access points only at major intersections, the proposed tollway is not anticipated to promote additional development within the community, although further development along FM 1774 could occur.

Because Hazy Hollow East would be directly adjacent to the proposed SH 249 Extension, residents may be impacted by increased traffic noise levels, altered visual aesthetics, and decreased property values.

The Wildwood Estates and Old Mill Lake subdivisions are located to the north of the northern section of Hazy Hollow East. However, the two communities are separated from Hazy Hollow East by vacant property and Mill Creek. Because there are no developments north of Hazy Hollow East, the proposed SH 249 Extension would not divide the community or isolate any portion of a neighborhood.

High Chaparral

Bordered by FM 1486 to the west and vacant property and Mill Creek to the north, the community cohesion of High Chaparral would be impacted by the proposed SH 249 Extension. While no community facilities are located within High Chaparral (e.g., community center, park/play area, or pool), Alternative Alignment B would divide the community and isolate five residences. Two access roads into High Chaparral (North Brenda Lane and Woodway Street) are not currently connected. Alternative Alignment B would cut off access to a portion of Woodway Street (the northern access road to High Chaparral), which would deny five residences access to FM 1486 and isolate the residences from the rest of the community. Because access cannot be denied, TxDOT would provide access to or displace and relocate each resident. At the current time, each would be considered a displacement/relocation (also see Section 4.3.4 of the Draft EIS). Even if it is determined that access can be provided to the displaced residences, High Chaparral would still be divided and, therefore, impacted by the proposed SH 249 Extension.

Because High Chaparral would be directly adjacent to the proposed SH 249 Extension, residents may be impacted by increased traffic noise levels, altered visual aesthetics, and decreased property values.

Access ramps would potentially exist between the proposed SH 249 Extension and FM 1486 that could result in new development in the immediate area. The development may increase population density, utility and social service responsibilities, and the conversion of forest, pasture, and croplands into additional residential areas or other urban forms of land use.

Magnolia East

Bordered by FM 1486 to the west and vacant property to the north, the community cohesion of Magnolia East would be impacted by the proposed SH 249 Extension. While no community facilities are located within Magnolia East (e.g., community center, park/play area, or pool), Alternative Alignment E would divide the community and isolate several residences. Two access roads into Magnolia East (Friartuck Drive and Sandy Hill Road) are not currently connected. Alternative Alignment E would cut off access to a portion of Friartuck Drive (the southern access road to Magnolia East), which would deny three residences access to Friartuck Drive and isolate the residences from the rest of the community. Because access cannot be denied, TxDOT would provide access to or displace and relocate each resident. At the current time, each would be considered a displacement/relocation (also see Section 4.3.4 of the Draft EIS). Even if it is determined that access can be provided to the displaced residences, Magnolia East would still be divided and, therefore, impacted by the proposed SH 249 Extension.

Because Magnolia East would be directly adjacent to the proposed SH 249 Extension, residents may be impacted by increased traffic noise levels, altered visual aesthetics, and decreased property values.

Access ramps would potentially exist between the proposed SH 249 Extension and FM 1486 that could result in new development in the immediate area. The development may increase population density, utility and social service responsibilities, and the conversion of forest, pasture, and croplands into additional residential areas or other urban forms of land use.

No-Build Alternative

Under the No-Build Alternative, neighborhoods or other residential areas could be impacted from increased traffic congestion that would likely occur on local area roadways if the proposed SH 249 Extension is not constructed. Increased congestion could also result in additional traffic noise levels and a decrease in property values.

4.3.3 Community Facilities, Services, and Resources

The following sections describe the limited impacts to local community resources in the proposed SH 249 Extension study area (see Section 3.3.3 of the Draft EIS for the location of each listed community facility, service, and resource).

Schools

The Believers Fellowship Baptist Church is the one school (preschool) that would be impacted by the proposed SH 249 Extension. The church and preschool would be considered a displacement/relocation under Alternative Alignment B/C and C. There are no other schools located within or adjacent to the study area.

Police Protection

No police stations are located within the study area, and, therefore, would not be impacted under the four alternative alignments. Although not directly impacted, the Montgomery County Sheriff's Department and the City of Magnolia Police Department would be in proximity to Alternative Alignment B.

Fire Protection

No fire departments are located within the study area. As such, no fire departments would be impacted under the four alternative alignments. Although not directly impacted, Alternative Alignment E would be near Station 185 and Station 181 in Magnolia.

Medical Services

No emergency medical services are located within the study area, and no impacts would be anticipated to medical services from the four alternative alignments. Although not directly impacted, two Montgomery County Hospital District facilities would be in proximity to Alternative Alignment C and E.

Churches and Cemeteries

The Believers Fellowship Baptist Church would be impacted by the proposed tollway. The church would be considered a displacement/relocation under Alternative Alignment B/C and C. Although not directly impacted, Bethel Baptist Church would be adjacent to Alternative Alignment B, B/C, C, and E, and the Piney Grove Missionary Baptist Church would be adjacent to Alternative Alignment B.

Because there are no cemeteries located within the study area, there would be no impacts to cemeteries from the four alternative alignments. Although not directly impacted, Piney Grove Cemetery and Todd Mission Cemetery would be in proximity to Alternative Alignment B, B/C, and E.

Parks and Recreational Areas

No parks, Section 4(f), or Section 6(f) resources are located within or adjacent to the study area. As such, no impacts would be anticipated under the four alternative alignments. The Texas Renaissance Festival, which is located near the study area, would also not be impacted.

Other Community Services

Although a U.S. Postal Service building would be adjacent to the proposed SH 249 Extension, the building would not be impacted by any of the four alternative alignments.

No-Build Alternative

Under the No-Build Alternative, travel patterns within the proposed SH 249 Extension study area would remain relatively the same, with the exception of maintenance and repair along existing SH 249 as needed. However, future traffic volumes on surrounding roadways would increase from the projected population growth. Traffic, coupled with travel patterns to and from work inside and outside the study area, would contribute to travel delays and access constraints from congestion. As a result, residents would experience mobility constraints when trying to access community services and facilities. Congestion would also likely lead to an increase in response times for police, fire, and medical services under the No-Build Alternative.

4.3.4 Displacements and Relocations

Alternative Alignment B, B/C, C, and E would cause displacements and relocations within the proposed SH 249 Extension study area. *Table 4-6* lists the number of relocations and displacements by alternative alignment.

Table 4-6: Potential Displacement/Relocation by Alternative Alignment[a]

Alternative Alignment	Residences	Businesses	Churches/ Schools	Total Displacements/ Relocations
B	23	3	0	26
B/C	6	0	1	7
C	6	0	1	7
E	18	0	0	18

Source: The Proposed SH 249 Extension Study Team.

[a] Displacement of ancillary buildings (e.g., garages) were not included in the table.

Alternative Alignment B

Alternative Alignment B would displace 26 structures, not including 12 associated ancillary buildings. The three displaced/relocated businesses would be:

- An unnamed business (which appears to be a warehouse facility) at the entrance to High Chaparral on Woodway Street, east of FM 1486 (no visible address),
- Various underground gas tanks on the Chevron property at 1510 FM 1486 Road in Magnolia, and
- Chupacabras Paintball Resort at 41318 Woodway Street, east of FM 1486.

The businesses may choose to relocate within the study area, decide to relocate to other areas, or not to re-open at all. If the businesses decide not to re-open or relocate within the study area, impacts to residents and local communities would be minor because the businesses are not major employers and do not provide essential services (e.g., much like a supermarket would). Comparable businesses are also available nearby (with the exception of the paintball course).

Nineteen of the 26 displacements/relocations would be within the High Chaparral community, including 17 residences and two businesses, the unnamed business (warehouse) and Chupacabras Paintball Resort. The remaining displacements/relocations are single, scattered residential sites. Alternative Alignment B would also displace an in-ground pool (associated with a residence located north of FM 1488 in The Vintage neighborhood) and a large pond and man-made lake with a water feature located east of the High Chaparral neighborhood.

Alternative Alignment B/C and C

Alternative Alignment B/C and C would displace seven structures, not including seven associated ancillary buildings. The Believers Fellowship Baptist Church at 36259 FM 149 Road in Pinehurst and the associated preschool located at 36255 FM 149 Road in Pinehurst would be the one church/school displaced/relocated. Of the seven displacements/relocations, two would be from the Hazy Hollow East neighborhood. The remaining displacements/relocations are single, scattered residential sites.

Alternative Alignment E

Alternative Alignment E would displace 18 structures, not including seven associated ancillary buildings. Sixteen of the 18 displacements/relocations would be from the Magnolia East neighborhood. The remaining displacements/relocations are single, scattered residential sites. Alternative Alignment E would also displace two in-ground pools and one large pond in the Magnolia East neighborhood.

No-Build Alternative

Under the No-Build Alternative, there would be no impact from displacements/relocations to residences, businesses, churches/schools, and/or ancillary buildings in and around the proposed SH 249 Extension study area.

4.3.5 Environmental Justice

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, mandates that federal agencies identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of projects on minority and low-income populations (59 Federal Register 7629 7633, February 16, 1994).

According to FHWA Order 6640.23 and U.S. Department of Transportation (USDOT) Order 5610.2(a), disproportionately high and adverse effects on minority or low-income populations are generally defined as an adverse effect that is predominantly borne, or would be suffered by a minority and/or low-income population, and is appreciably more severe or greater in magnitude than the adverse effect that would be suffered by a non-minority and/or non-low-income population (USDOT 2012).

A minority is defined under Order 5610.2(a) as:

- Black (a person having origins from any of the black racial groups of Africa),
- Hispanic or Latino (a person of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race),
- Asian American (a person having origins in any of the original peoples of the Far East, Southeast Asia, or Indian subcontinent),
- American Indian and Alaskan Native (a person having origins in any of the original people of North America, South America [including Central America], and who maintains cultural identification through tribal affiliation or community recognition), and
- Native Hawaiian and other Pacific Islander (a person having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands).

Low income is defined under Order 5610.2(a) as a person whose median household income is at or below the U.S. Department of Health and Human Services poverty guidelines. Poverty guidelines are categorized by the number of persons living in a household.

As defined in the order, adverse effects include:

- Bodily impairment, infirmity, illness, or death;
- Air, noise, and water pollution and soil contamination;
- Destruction or disruption of man-made or natural resources;
- Destruction or diminution of aesthetic values;
- Destruction or disruption of community cohesion or a community's economic vitality;
- Destruction or disruption of the availability of public and private facilities and services;
- Vibration;
- Adverse employment impacts;
- Displacement of persons, businesses, farms, or nonprofit organizations;
- Increased traffic congestion, isolation, exclusion, or separation of minority/low-income individuals within a given community or from the broader community; and

- The denial of, reduction in, or significant delay in the receipt of, benefits of USDOT programs, policies, or activities.

For race/ethnicity, the most detailed level for evaluation is the Census block level. For income, the most detailed level for evaluation is the Census block group level. 2010 Census demographic data were analyzed at each respective level to accurately identify where minority and/or low-income populations live in the proposed SH 249 Extension study area. If a Census block's minority population within the study area had a majority share (greater than 50 percent) of the total population within the Census block, it was defined as an environmental justice (EJ) block. If the median household income of a Census block group was below the national poverty guidelines, relative to the average household size within that Census block group, it was noted as an EJ block.

4.3.5.1 Environmental Justice based on Race and Ethnicity

Of the 485 Census blocks located within the proposed SH 249 Extension study area, 48 have a minority population that accounts for greater than 50 percent of the total population. *Table 4-7* delineates where the instance occurs. Of the 48 EJ blocks, none would be within 500 feet of the proposed tollway.

Table 4-7: EJ Census Block based on Race and Ethnicity within the Study Area

Geography	Total Population	White	Black/ African American	Native America/ Alaska Native	Asian	Native Hawaiian or Other Pacific Islander	Some Other Race	Total Hispanic (all races)	Minority[a]
Tract 1801.02 Block 2002	6 (100.0%)	0 (0.0%)	6 (100.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	6 (100.0%)
Tract 1801.02 Block 2003	8 (100.0%)	0 (0.0%)	8 (100.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	8 (100.0%)
Tract 1801.02 Block 2022	3 (100.0%)	0 (0.0%)	3 (100.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	3 (100.0%)
Tract 1801.02 Block 2028	33 (100.0%)	24 (72.7%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	9 (27.3%)	24 (72.7%)	24 (72.7%)
Tract 1801.02 Block 2064	8 (100.0%)	2 (25.0%)	1 (12.5%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	5 (62.5%)	5 (62.5%)	6 (75.0%)
Tract 1801.02 Block 2085	6 (100.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	6 (100.0%)	6 (100.0%)	6 (100.0%)
Tract 1801.02 Block 2095	5 (100.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	5 (100.0%)	5 (100.0%)	5 (100.0%)
Tract 1801.02 Block 2111	5 (100.0%)	5 (100.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	5 (100.0%)	5 (100.0%)
Tract 1801.02 Block 2114	6 (100.0%)	6 (100.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	6 (100.0%)	6 (100.0%)
Tract 1801.02 Block 3005	13 (100.0%)	7 (53.8%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	6 (46.2%)	8 (61.5%)	8 (61.5%)
Tract 1801.02 Block 3011	11 (100.0%)	11 (100.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	6 (54.5%)	6 (54.5%)
Tract 1801.02 Block 3014	18 (100.0%)	16 (88.9%)	2 (11.1%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	8 (44.4%)	10 (55.6%)
Tract 1801.02 Block 3027	5 (100.0%)	0 (0.0%)	5 (100.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	5 (100.0%)

Table 4-7: EJ Census Block based on Race and Ethnicity within the Study Area

Geography	Total Population	White	Black/ African American	Native America/ Alaska Native	Asian	Native Hawaiian or Other Pacific Islander	Some Other Race	Total Hispanic (all races)	Minority[a]
Tract 1801.02 Block 3031	5 (100.0%)	3 (60.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	2 (40.0%)	4 (80.0%)	4 (80.0%)
Tract 1801.02 Block 3034	6 (100.0%)	2 (33.3%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	4 (66.7%)	4 (66.7%)	4 (66.7%)
Tract 1801.02 Block 3036	8 (100.0%)	3 (37.5%)	5 (62.5%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	5 (62.5%)
Tract 1801.02 Block 3057	3 (100.0%)	0 (0.0%)	3 (100.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	3 (100.0%)
Tract 1801.02 Block 3064	10 (100.0%)	6 (60.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	4 (40.0%)	8 (80.0%)	8 (80.0%)
Tract 6902.02 Block 4002	75 (100.0%)	37 (49.3%)	0 (0.0%)	2 (2.7%)	4 (5.3%)	0 (0.0%)	32 (42.7%)	50 (66.7%)	54 (72.0%)
Tract 6902.02 Block 4004	6 (100.0%)	6 (100.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	4 (66.7%)	4 (66.7%)
Tract 6902.02 Block 4005	51 (100.0%)	27 (52.9%)	6 (11.8%)	1 (2.0%)	0 (0.0%)	0 (0.0%)	17 (33.3%)	33 (64.7%)	40 (78.4%)
Tract 6902.02 Block 4030	145 (100.0%)	93 (64.1%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	52 (35.9%)	85 (58.6%)	85 (58.6%)
Tract 6902.02 Block 4031	66 (100.0%)	30 (45.5%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	36 (54.5%)	53 (80.3%)	53 (80.3%)
Tract 6903 Block 1001	50 (100.0%)	45 (90.0%)	5 (10.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	21 (42.0%)	26 (52.0%)
Tract 6903 Block 1008	85 (100.0%)	56 (65.9%)	0 (0.0%)	1 (1.2%)	0 (0.0%)	0 (0.0%)	28 (32.9%)	67 (78.8%)	67 (78.8%)
Tract 6903 Block 1009	38 (100.0%)	23 (60.5%)	0 (0.0%)	1 (2.6%)	0 (0.0%)	0 (0.0%)	14 (36.8%)	19 (50.0%)	20 (52.6%)

Table 4-7: EJ Census Block based on Race and Ethnicity within the Study Area

Geography	Total Population	White	Black/ African American	Native America/ Alaska Native	Asian	Native Hawaiian or Other Pacific Islander	Some Other Race	Total Hispanic (all races)	Minority[a]
Tract 6903 Block 1010	45 (100.0%)	35 (77.8%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	10 (22.2%)	31 (68.9%)	31 (68.9%)
Tract 6903 Block 1015	54 (100.0%)	40 (74.1%)	8 (14.8%)	4 (7.4%)	0 (0.0%)	0 (0.0%)	2 (3.7%)	25 (46.3%)	33 (61.1%)
Tract 6903 Block 1020	3 (100.0%)	2 (66.7%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (33.3%)	0 (0.0%)	1 (33.3%)	2 (66.7%)
Tract 6903 Block 1024	11 (100.0%)	11 (100.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	6 (54.5%)	6 (54.5%)
Tract 6903 Block 1034	6 (100.0%)	6 (100.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	4 (66.7%)	4 (66.7%)
Tract 6903 Block 1036	88 (100.0%)	52 (59.1%)	6 (6.8%)	5 (5.7%)	0 (0.0%)	0 (0.0%)	25 (28.4%)	52 (59.1%)	58 (65.9%)
Tract 6903 Block 1038	14 (100.0%)	14 (100.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	9 (64.3%)	9 (64.3%)
Tract 9603 Block 1043	13 (100.0%)	8 (61.5%)	0 (0.0%)	4 (30.8%)	0 (0.0%)	1 (7.7%)	0 (0.0%)	9 (69.2%)	9 (69.2%)
Tract 6903 Block 1044	38 (100.0%)	19 (50.0%)	0 (0.0%)	7 (18.4%)	0 (0.0%)	0 (0.0%)	12 (31.6%)	36 (94.7%)	36 (94.7%)
Tract 6903 Block 2004	27 (100.0%)	12 (44.4%)	9 (33.3%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	6 (22.2%)	9 (33.3%)	18 (66.7%)
Tract 6903 Block 2016	46 (100.0%)	7 (15.2%)	33 (71.7%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	6 (13.0%)	6 (13.0%)	39 (84.8%)
Tract 6903 Block 2017	53 (100.0%)	23 (43.4%)	27 (50.9%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	3 (5.7%)	7 (13.2%)	34 (64.2%)
Tract 6903 Block 2018	18 (100.0%)	0 (0.0%)	18 (100.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	18 (100.0%)

Table 4-7: EJ Census Block based on Race and Ethnicity within the Study Area

Geography	Total Population	White	Black/ African American	Native America/ Alaska Native	Asian	Native Hawaiian or Other Pacific Islander	Some Other Race	Total Hispanic (all races)	Minority[a]
Tract 6903 Block 3021	6 (100.0%)	3 (50.0%)	0 (0.0%)	2 (33.3%)	0 (0.0%)	0 (0.0%)	1 (16.7%)	1 (16.7%)	4 (66.7%)
Tract 6904.02 Block 1028	105 (100.0%)	60 (57.1%)	4 (3.8%)	3 (2.9%)	0 (0.0%)	0 (0.0%)	38 (36.2%)	59 (56.2%)	64 (61.4%)
Tract 6904.02 Block 1029	42 (100.0%)	23 (54.8%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	19 (45.2%)	29 (69.0%)	29 (69.0%)
Tract 6946 Block 2001	1 (100.0%)	0 (0.0%)	1 (100.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (100.0%)
Tract 6946 Block 2006	1 (100.0%)	0 (0.0%)	1 (100.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (100.0%)
Tract 6946 Block 2013	13 (100.0%)	6 (46.2%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	7 (53.8%)	7 (53.8%)	7 (53.8%)
Tract 6946 Block 2014	34 (100.0%)	8 (23.5%)	26 (76.5%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	26 (76.5%)
Tract 6946 Block 2016	4 (100.0%)	0 (0.0%)	4 (100.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	4 (100.0%)
Tract 6946 Block 2058	86 (100.0%)	49 (57.0%)	37 (43.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	14 (16.3%)	51 (59.3%)
Proposed SH 249 Extension Study Area	16,858 (100.0%)	14,087 (83.6%)	697 (4.1%)	270 (1.6%)	86 (0.5%)	28 (0.2%)	1,690 (10.0%)	3,792 (22.5%)	4,725 (28.0%)

Source: U.S. Census 2010.

[a] Minority includes all people except white, non-Hispanic populations.

The 2010 Census asked respondent to identify their race and ethnicity based on their own perception of their racial and ethnic identity. Ethnicity is defined as a population that shares common characteristics such as religion, traditions, culture, language, and/or tribal or national origin. As such, people who identify themselves as Hispanic can be of any race.

Note: % = percent.

4.3.5.2 Environmental Justice based on Income

The U.S. Department of Health and Human Services issues poverty guidelines each year for the purposes of defining a low-income household. *Table 4-8* lists the 2013 poverty guidelines.

Table 4-8: 2013 Poverty Guideline

Persons in Household	2013 Poverty Guideline
1	$11,490
2	$15,510
3	$19,530
4	$23,550
5	$27,570
6	$31,590
7	$35,610
8	$39,630

Source: DHHS 2013.

The average household size within the proposed SH 249 Extension study area ranges from 2.5 to 3.2 persons per household, and the related median household income ranges between $29,667 and $73,036, as listed in *Table 4-9*. Based on household sizes and median household incomes, no block groups in the study area meet the definition of low-income.

Table 4-9: Income Characteristics of the Study Area

Geographic Area	Median[a] Household Income	Average Household Size	Low-Income
Census Tract 1801.02 Block Group 2	$31,927	2.6	No
Census Tract 1801.02 Block Group 3	$39,063	2.8	No
Census Tract 6902.02 Block Group 4	$32,131	2.5	No
Census Tract 6903 Block Group 1	$45,319	2.9	No
Census Tract 6903 Block Group 2	$50,673	3.2	No
Census Tract 6903 Block Group 3	$76,667	3.0	No
Census Tract 6904.02 Block Group 1	$79,413	2.9	No

Table 4-9: Income Characteristics of the Study Area

Geographic Area	Median[a] Household Income	Average Household Size	Low-Income
Census Tract 6904.02 Block Group 2	$50,394	3.2	No
Census Tract 6946 Block Group 2	$57,300	2.8	No

Source: U.S. Census 2013 (2007-2011 American Community Survey).

[a] Note: Median household income is reported in 2011 dollars, whereas the poverty guideline is reported in 2013 dollars. The 2011 DHHS guidelines for a family of four was $23,350. No block groups within the proposed project area were above the 2011 or 2013 guidelines.

EJ populations could be impacted by the proposed SH 249 Extension in areas where there is a minority population 50 percent or greater or where the median household income is below the poverty guideline. For those cases, field studies were conducted in March 2010 in an attempt to identify any minority and/or low-income populations that were not captured through the analysis of Census data.

Upon completion, the field surveys did not indicate a concentration of EJ populations, as evidenced by signs (e.g., storefront or church outdoor bulletins) written in a language other than English, or any other community indicators that may be indicative of minority or low-income populations.

4.3.5.3 Evaluation of Disproportionately High and Adverse Effects

Impacts from Displacements

Quantified in Section 4.3.4 of the Draft EIS, Alternative Alignment B would displace/relocate three businesses. None of the three businesses that would be displaced/relocated specifically serve minority communities, but there may be minority/low-income employees employed by the businesses. If any of the three businesses elect to relocate outside the proposed SH 249 Extension study area, some employees, who may be minority and/or low-income workers and who may have limited transportation options, could encounter difficulty maintaining employment with their present employer. However, the businesses being displaced would likely relocate in the general area because of the existing customer base. Therefore, the effects of the business relocations would not disproportionately impact EJ populations compared to non-EJ populations.

All four alternative alignments would result in the displacement of residences in the Hazy Hollow East, High Chaparral, and Magnolia East neighborhoods. While there are racial/ethnic minorities and low-income households in the three communities, the population is predominantly non-EJ. No residential displacements would occur in EJ-identified areas. As such, displacement impacts would not result in disproportionately high and adverse impacts on EJ populations.

Impacts from Noise

The proposed SH 249 Extension would potentially increase traffic noise that would impact noise-sensitive receivers with the study area. However, traffic noise impacts would occur throughout the corridor and would not disproportionately impact EJ populations compared to non-EJ populations. Traffic noise impacts are developed further in Section 4.7 of the Draft EIS.

Impacts from Construction

Short-term, localized effects to air quality (e.g., increase in dust) and noise levels (e.g., generated by construction equipment and activities) may occur in the immediate area adjacent to the proposed SH 249 Extension during construction. However, the impacts would be temporary and not limited to minority and/or low-income populations. Rather, the effects would impact all residents and businesses within and around the proposed SH 249 Extension.

In all, while individual minority and low-income populations may be impacted by the proposed SH 249 Extension, implementation of the proposed tollway would not cause disproportionately high and adverse impacts to minority or low-income populations.

No-Build Alternative

The No-Build Alternative would not result in disproportionately high or adverse impacts as all people would be similarly impacted. Under the No-Build Alternative, the entire community, including minority and low-income populations, would not experience potential impacts from the proposed SH 249 Extension, such as displacements, noise, and construction. However, the community would also not experience the benefits of decreased traffic congestion, improved mobility, creation of short and long-term jobs, and improved safety conditions resulting from the proposed tollway.

4.3.5.4 Toll Facility Impacts to Environmental Justice Populations

As discussed in Chapter 1 of the Draft EIS, the proposed SH 249 Extension would be constructed as a four-mainlane, controlled-access tollway with auxiliary lanes, on-ramps and off-ramps (where appropriate), and intermittent frontage roads within a typical 400-foot-wide ROW. The proposed tollway's mainlanes would use electronic toll collection only. As such, there would be no toll plazas, no manned tollbooths, and no cash collection systems.

Tolling represents an optional means of meeting the original need and purpose for the proposed SH 249 Extension. Tolling has been reviewed to assess its ability to reasonably and feasibly satisfy the original need and purpose, while minimizing adverse impacts to the human and natural environments of the proposed SH 249 Extension area. Tolling considerations were based on the environmental constraints identified, public input received, projected trends in traffic and population growth, and consistency with city and area planning. Operational and maintenance cost elements were also assessed for tolling.

An all-electronic toll collection system would eliminate the costly expense of cash collection and the extensive resources, security, and insurance needed to staff and collect cash tolls for a 24-hour, 7-day a week operation. The needs, along with the additional capital expenses for ROW and tollway construction necessary for manual toll collection, make the all-electronic toll collection option the most cost-effective option.

Operation of the proposed SH 249 Extension would not be expected to result in disproportionately high or adverse impacts to minority or low-income populations. As discussed in Section 4.3.5 of the Draft EIS, none of the adjacent blocks are dominated with minority or low-income populations. While there are minority and low-income populations located within each Census Block group adjacent to the proposed SH 249 Extension, the groups are not concentrated in one particular area. The populations within the Census block groups adjacent to the proposed SH 249 Extension could expect to experience improved traffic flow, which would include minority and low-income populations along the existing public roadways such as FM 1774, FM 149, FM 1488, and FM 1486. The use of alternative roads may result in a difference in travel time because of lower posted speed limits and signalization when compared with travel time on the proposed tollway.

Consideration is also given to whether there is a disproportionate impact resulting from operation of the proposed SH 249 Extension as a tollway. Because all motorists pay the same toll regardless of income, the toll for using the proposed SH 249 Extension may constitute a greater burden on lower-income motorists. However, considering the proposed tollway does not exist today, and alternate toll-free roads are available now and would continue to be available in the future, motorists would not be forced to use the proposed SH 249 Extension, with added expense. The actual toll to be charged on opening day and beyond has not yet been established and is subject to ongoing consideration by TxDOT. However, the toll rates for the proposed SH 249 Extension would likely be consistent with other toll rates in the region.

Proactive public involvement began in the fall of 2000 and involved public meetings, surveys, and coordination with local planning officials. The process initiated through the development of the MIS and continued into the Draft EIS. The public was first informed that the proposed SH 249 Extension would be a tollway at the Draft EIS Public Meeting #2 (on June 17, 2004) and every meeting thereafter. The public involvement approach allowed all persons, regardless of income or ethnicity, to be a part of the planning process by voicing concerns and commenting on the proposed tollway. Section 7 of the Draft EIS summarizes the public involvement process for both the initial MIS and the current Draft EIS.

From a system viewpoint, the existing local transportation network does contain existing north-south and east-west toll-free roadways. In addition, the proposed SH 249 Extension would represent a new location roadway and offer added capacity to the system rather than a conversion of an existing roadway to a tollway within the existing system.

From a project-specific standpoint, many concerns and issues are common to all residents, and some are specific in concern to minority and low-income populations. In accordance with TxDOT's *Guidance on Environmental Justice/Title VI Considerations for Toll Roads*, the following issues were reviewed for the proposed project (TxDOT 2005).

- FM 1774 is a non-tolled roadway and is available to minority and low-income populations. FM 1774 is parallel to and generally less than 1.0 mile from the proposed SH 249 Extension. In addition, improvements would be made to FM 1774 to widen the roadway creating additional capacity. The improvements, in conjunction with diverting through traffic from FM 1774, could benefit minority and low-income populations by improving the roadway's LOS.
- Access to major roadways within the proposed SH 249 Extension study area would be provided at FM 1774, FM 149, FM 1486, and FM 1488. Access would be achieved by bridging intersections and adding improved signalization and turn bays for traffic at the intersections of the roadways listed above.
- Safety would be improved because FM 1774 is the only north-south roadway in the study area and currently does not have a traffic divider or a continuous center turn lane. Proposed improvements to FM 1774 would separate traffic traveling in opposite directions. The proposed SH 249 Extension would remove through traffic that does not have a destination on FM 1774, which, in turn, would decrease traffic volumes on FM 1774.
- During emergency evacuation, the proposed tollway would be available as a free travel route for all persons, including minority and low-income populations.
- Using tolling as a funding source to provide accelerated project delivery for the proposed SH 249 Extension would provide benefits that involve congestion relief on non-toll, local arterials sooner than through traditional funding methods.

From a project-specific standpoint, minority and low-income populations would benefit from multiple aspects of the proposed SH 249 Extension, but the populations would be adversely impacted by toll costs.

Overview of the Tolling Process for the Proposed SH 249 Extension

On July 6, 2012, the Moving Ahead for Progress in the 21st Century Act (MAP-21) was signed into law. MAP-21 provides needed funds and transforms the policy and programmatic framework for investments to guide the growth and development of the country's vital transportation infrastructure by improving safety, maintaining infrastructure condition, reducing traffic congestion, improving efficiency of the system and freight movement, protecting the environment, and reducing delays in project delivery.

The *2035 RTP Update* includes increased use of tollways and congestion pricing to implement and finance new construction. Potential tollways include additions to facilities such as SH 99 (Grand Parkway Toll Road) and the proposed SH 249 Extension (H-GAC 2013a). The *2035 RTP Update* also includes more managed lane options throughout the region on freeway facilities such as US 290, IH 45, IH 10, and SH 288 (H-GAC 2013a). Recommended improvements are strategically focused to add capacity along the corridors where the most substantial traffic congestion is today and where it is projected to be in the future. Therefore, the proposed SH 249 Extension is included in the *2035 RTP Update* as an unfunded project. The proposed SH 249 Extension was presented to public as a four-mainlane, controlled-access tollway at Public Meeting #2 (on June 17, 2004) held at the Willie E. Williams Elementary School in Magnolia.

The tolling authority responsible for operation of the toll facility has not been determined at the current time, but an agreement would include discussions regarding toll rates, toll collection methods, and associated costs.

Geographical Profile of the Proposed SH 249 Extension Study Area

The existing SH 249 extends northwest from IH 45 in Harris County and terminates at FM 1774 in Pinehurst. The only roadway that continues to transport traffic in a northerly direction is FM 1774, which is a two-lane, undivided rural road that is severely congested, primarily during peak travel times. Oriented on a new location northwest of Todd Mission in Grimes County, the proposed SH 249 Extension would be a four-lane, controlled-access tollway with auxiliary lanes, on-ramps and off-ramps (where appropriate), and intermittent frontage roads. As discussed in Section 4.3 of the Draft EIS, Montgomery County continues to experience rapid growth and is one of the fastest growing counties in the region. Therefore, the purpose of the proposed SH 249 Extension would be to serve primarily as a commuter route facility, providing traffic congestion relief to existing FM 1774 and the four cities located along FM 1774: Todd Mission, Magnolia, Pinehurst, and the City of Stagecoach (Stagecoach).

Future Transportation Needs

International and national trade through the Port of Houston continues to grow. The successful growth of the Brazos Valley region and the Greater Houston area places increased strains on the existing infrastructure within Montgomery and Grimes counties, which link the two regions. Both Montgomery and Grimes counties are experiencing rapid population and employment growth that could result in subsequent traffic demands.

There are only a few major freeway-grade competing routes in the region, the closest being US 290 to the west and IH 45 to the east. The existing SH 249 is currently a controlled-access freeway with mainlanes and frontage roads to Tomball. From Tomball, the existing freeway becomes an arterial with an at-grade intersection. FM 1774 and SH 105, which run parallel to the proposed SH 249 Extension, are both two-lane, rural roadways. FM 1774 currently carries

7,000 VPD on the northern limits to 19,200 VPD on the southern limits of the proposed SH 249 Extension study area. FM 1774 between FM 149 in Pinehurst and FM 1488 in Magnolia is considered a fringe suburban setting, and the remainder of the roadway is classified as a rural setting. According to H-GAC, the estimated 24-hour capacity for a two-lane, undivided arterial in a fringe suburban setting is 83,780 VPD in Pinehurst and 13,166 in Todd Mission. No adequate roadways exist within the area to serve the population and subsequent traffic.

For a two-lane, rural, undivided roadway, the result of VPD increases is logically undesirable congestion. Volumes and congestion along FM 1774 and other existing two-lane roadways within the proposed SH 249 Extension study area (i.e., FM 149, FM 1488, and FM 1486) are similar. At the current levels of congestion, safety is compromised, and crashes become more frequent.

Travel Patterns and Regional Transportation Solutions

The proposed SH 249 Extension would address the increased traffic congestion, reduce the potential for crashes, and improve overall safety by providing additional capacity needed to meet the future demand for regional and local traffic. The existing roadways in the area (i.e., FM 149, FM 1488, FM 1486, and FM 1774) would continue to provide local access.

Distributing local and regional traffic, along with truck traffic, between the local and regional facilities of SH 249, FM 149, FM 1488, FM 1486, and FM 1774 would significantly improve traffic safety. As noted, the local roadways are only two lanes with few passing opportunities and numerous driveways and intersections. The proposed SH 249 Extension would be constructed as a freeway-type facility that would not have intersecting driveways and intersections and would use access ramps to enter or exit the proposed tollway to better handle higher speed traffic safely.

Overall, the proposed SH 249 Extension would enhance safety throughout the corridor and reduce traffic congestion.

Trip Purposes

Land use within a geographical area typically establishes trip purposes and contributes to traffic patterns for that area. For example, areas of commerce and residences can define when and where trips are taken. Typically, the first trip people make every day starts from home, and the last trip they make at night ends at home. As is true for the proposed SH 249 Extension study area, the pattern contributes to traffic characteristics, such as trip peaks occurring in the mornings and evenings on particular routes.

One of the major origin destination routes for Montgomery County is to and from the Greater Houston area. Therefore, it could be reasoned that one of the major trip purposes for the proposed SH 249 Extension study area would be to commute to work. Other designations for

the study area based on the area's geographical makeup would include academic (school) commute, health, shopping, recreation, and eating out.

Tomball is a major attractor and generator for those living within the proposed SH 249 Extension study area because of city size and the expected growth of the city. Tomball, in conjunction with H-GAC, is developing a plan to bring together land use and transportation by creating a "Livable Center" for the downtown area. The purpose of the Livable centers is to create bicycle and pedestrian-friendly areas, establish better connections between the centers, and create designs based on the context of the surrounding land uses. Daily destinations within 10 miles of the proposed SH 249 Extension consist of shopping centers, single and multi-residential units, Tomball College, and Tomball Hospital. Lone Star College–Tomball is one of five colleges in the Lone Star College System.

Other recreational attractions within 10 miles of the proposed SH 249 Extension that may attract people outside of the study area on a less frequent basis include the Magnolia Youth Sports Complex, Chupacabra's Paintball Resort, and the Texas Renaissance Festival, the last of which is in season from October to November.

Toll Collection Method

Tolls would be collected through electronic toll collection technology. The electronic toll collection configuration would consist of dual overhead gantries for violation cameras, lights, and transponder antennas. The proposed SH 249 Extension would be equipped with toll collection and violation enforcement hardware, in addition to a shoulder or ROW width capable of housing equipment to operate the system. The gantry structure would be similar to an overhead sign support or it can carry more of an architectural element. A dual gantry system would be required at each mainlane, and a small pre-fabricated building, approximately 8 feet by 10 feet, would be needed to house the toll collection electronic equipment (commonly referred to as a "pill box"). Typically, the facilities can easily fit within the available ROW for a controlled-access tollway. Elements of construction required for the proposed tollway would include drilled shaft foundations, structural steel for the gantries, and longitudinal barriers. Typically, each gantry would be designed to span the entire width of the proposed tollway in each direction, in which case no additional pavement widening would be required.

Toll collection would be based on an Automatic Vehicle Identification System. System technology features a radio frequency device called a transponder, located in the vehicle that transmits a unique identity to an antenna located on a gantry above each tolled lane. The antenna is linked to a reader located in an adjacent roadside housing or cabinet. The reader interprets the information received from the transponder device and sends it to a computer, which determines if the vehicle is carrying a valid transponder. The computer also verifies the vehicle classification and generates the appropriate toll transaction. Because electronic toll collection is the only option for toll collection, there is no variation in cost for those using the

electronic toll collection versus those using cash, and a vehicle must have a valid transponder to use the proposed tollway. If a vehicle does not contain a valid Automatic Vehicle Identification transponder and uses the proposed tollway without paying, the vehicle would be identified through a violation enforcement system. The system consists of fixed cameras that capture images of the license plate and read the license plate through optical character recognition software that converts a visual image to a computer-readable license number. The camera equipment is also mounted to an overhead gantry.

Toll Cost to Commuters

As noted above, one of the major origin destination routes for Montgomery County is to and from the Greater Houston area. The toll tags (EZ TAG) are provided in the Greater Houston area to allow non-stop travel on Texas toll roads, including all lanes of the Dallas-Fort Worth and other metropolitan areas. Montgomery County could benefit from using the existing HCTRA toll road system by leveraging the benefit during initial marketing and distribution efforts in establishing toll service for the proposed SH 249 Extension study area. Currently in the Greater Houston area, EZ TAGs are provided through HCTRA for toll road use in the H-GAC region. HCTRA was created by Harris County Commissioners Court in 1983 after Harris County voters approved a referendum to release $900 million in bonds to construct toll roads in the rapidly growing Greater Houston area. The HCTRA system consists of approximately 107 miles of roadway in the Houston/Harris County area and 12 miles in Fort Bend County. Most travelers living in Montgomery County often travel to and from the Greater Houston area and are already in possession of an EZ TAG. *Table 4-10* lists HCTRA's toll costs for tollway use within the H-GAC region. The proposed SH 249 Extension would likely utilize the same price ranges, which would be consistent with other toll rates in the region.

Table 4-10: HCTRA's Toll Costs to Commuters (On-ramp and Off-ramp use only)

Vehicle Type	Price Range
2 Axles	$0.75 to $1.00
3 Axles	$1.50 to $2.75
4 Axles	$2.25 to $3.75
5 Axles	$3.00 to $4.00
6 Axles	$3.75 to $5.00

Source: HCTRA 2013.

An EZ TAG Account can be opened through HCTRA by filling out the EZ TAG Account application form online, and the EZ TAG(s) would be mailed. Another option would involve either downloading the form to fill out and to present at one of any designated EZ TAG locations within the Greater Houston area or by filling the form out at one of the designated locations. The nearest EZ TAG store to the proposed SH 249 Extension study area is located at 15823 North

Freeway in Houston, although a store could be built closer to the proposed tollway once the facility is operational. Opening an EZ TAG Account requires a minimum pre-paid deposit of $40 for up to three vehicles to a maximum of $600 if one is paying by credit or debit card. If there is a preference to have funds directly deducted from an individual's bank, then a minimum of $80 for up to three vehicles to a maximum of $1200 is required. A one-time activation fee of $15.00 per vehicle is charged for the first three EZ TAGs and is $10.00 per EZ TAG thereafter. Tolls are automatically deducted from a user's EZ TAG Account balance every time the EZ TAG passes through a toll lane. When an EZ Account balance reaches 25 percent or below of the pre-paid deposit, a replenishment amount equivalent to the pre-paid deposit amount would be automatically charged against the credit/debit card (or bank account) on file.

Policy/Toll Revenue Use

As stated earlier, it is not known what tolling authority would be responsible for operating the proposed SH 249 Extension, and there is no toll policy in place specifically for the proposed tollway. However, any toll policy would almost certainly follow other tolling policies within the Greater Houston area. Under 23 United States Code (U.S.C) 129, toll revenues may be used to retire debt incurred in connection with a project, must be used to pay for the operation and maintenance of a project, or must be devoted to other highway improvements that have been selected by agreement that are eligible for development under the U.S.C. The expenditure of toll revenues must comply with all applicable state and federal laws.

The proposed SH 249 Extension would be a controlled-access tollway with intermittent frontage roads and no high occupancy vehicle (HOV) or managed lanes component. As such, there would be no policies regarding transit vehicles, HOVs, and motorcycles, and all vehicles using the proposed SH 249 Extension would be required to pay the established toll to gain access to the proposed tollway. Notably, HCTRA does offer discounted or free tolls to vehicles that qualify with the Texas Transportation Code 372.053, adopted by the state during the 2009 Texas Legislative Session, that authorizes tolling entities to offer discounted or free tolls to Texas-registered vehicles with qualifying specialty license plates for disabled veterans, Purple Heart recipients, and Medal of Honor recipients.

Accommodations for Limited English Proficiency and Americans with Disabilities Act

In 1990, the Americans with Disabilities Act was signed into law and decreed that any entity (be it a building, a restaurant, an office, a sidewalk, a restroom, a bus, etc.) that is open to the public must be accessible to people with disabilities. Therefore, the USDOT had to ensure that new design and construction would be in compliance. Compliance would cover anything that is a part of or related to a roadway or highway and would include traffic lights, curb cuts, median strips, ramps, sidewalks, pedestrian crosswalks, interstate and highway restroom facilities, parking spaces, parking lots, and any other highway-related facility. Currently, the proposed SH 249 Extension would not include any of the above-listed components, but an electronic transponder may be required for access to the proposed SH 249 Extension mainlanes. Although the tolling

authority has not been identified at the current time, presently in the Greater Houston area, EZ TAGs are provided by HCTRA, which complies with the American with Disabilities Act at all of the EZ TAG store location within the Greater Houston area.

Start-Up

Start-up for customer service centers and violations processing operations can be costly, and there could be economies of scale to outsourcing both operations. Whether TxDOT determines to operate, outsource, or develop an inter-local agreement with HCTRA as the operating agency, an understanding of the various components and costs would be beneficial in negotiating and determining a fair operating cost.

Toll Collection Capital Costs

Capital costs associated with the proposed SH 249 Extension include the upfront costs related to the construction of the proposed tollway and consist of roadway, drainage, bridge, tolling equipment, lighting, ROW acquisition, utility acquisition, and other construction-related items. Capital costs for electronic tolling equipment technology would include the design and development of a new system, or the purchase of an “off the shelf” toll system modified to meet TxDOT’s system design preferences and business rules. A comprehensive toll collection system includes toll collection hardware, software, and equipment configuration that incorporates:

- In-lane toll systems that include all toll collection equipment from the in-lane processor and back panel to the automatic vehicle identification, automatic vehicle classification, violation enforcement system, and patron signal notification (if applicable);
- Host systems that involve a local toll audit and reconciliation host computer server, components, and application software;
- Violation processing center and/or customer service systems that entail customer service and violation processing computers, components and application software, phone center systems and connectivity with HCTRA toll roads, telecommunication services, and the Internet;
- Security systems that incorporate alarm systems, card reader access for shift monitoring, video surveillance, and lane monitoring equipment; and
- Toll road fiber optic network systems and incident cameras.

Impacts of Toll Cost to Minority and/or Low-income Populations

Executive Order 12898 terms “disproportionately high and adverse effect” as the totality of significant individual or cumulative human health or environmental impacts on minority and low-income populations. In general, the economic impact of tolling is higher for low-income users because the cost of paying tolls on the proposed SH 249 Extension would represent a substantially higher percentage of household income than for non-low-income users. In addition,

toll collection methods could also serve to restrict access to a facility or disproportionately burden low-income populations because of a lack of credit or the inability to maintain a pre-paid account.

Proactive public involvement, including public meetings and comment forms, and coordination with local planning officials could help avoid disproportionate impacts by allowing minority and low-income populations to voice concerns and be a part of the planning process. EJ populations in the proposed SH 249 Extension study area would be affected equally as the entire study area's non-minority populations. However, individual low-income persons may choose to use adjacent non-toll alternatives specifically to save on costs. Low-income individuals may be impacted because of a difference in travel time associated with utilizing non-toll alternatives.

The following is an estimated example of the cost that may be incurred by a driver opting to use the proposed SH 249 Extension. If a toll rate of 15.0 cents per mile is used (which is the same rate as similar toll roads in the state), the potential cost can be illustrated using the following scenario. (It is assumed that the user would make 250 round-trips per year through the proposed tollway.) The annual cost for using the approximately 14-mile proposed tollway (28 miles per round trip) would be approximately $1,050 per year. As defined in Section 3.4.2 of the Draft EIS, a user who opted to use the proposed SH 249 Extension that had an annual household income equal to the median household income would spend approximately 2.3 percent of his/her income on tolls. A user living at the 2013 poverty guideline level of $23,550 would spend approximately 4.7 percent of his/her income on tolls.

The proposed tollway would benefit users and adjacent populations by improving system linkage and mobility within the study area and region. The proposed SH 249 Extension would also accelerate other infrastructure improvements in the region, in addition to the potential use of toll revenues for other transportation projects, including transit.

The option of choosing tolled roadways verses non-tolled roadways has been proven to provide increased mobility, accessibility, and safer, more efficient routes of transportation (of a user's choosing) for the user traveling to and from his/her home and/or workplace, as well as to other destinations (such as academics, recreation, shopping, other cities, and other counties) as described in the local and regional geographical area. The USDOT has conducted studies that have shown that lower-income populations face the greatest financial harm when they are denied adequate choices (USDOT 2013). For example, lack of choice can result in lost wages or late fees for day care that could have been avoided had the user been provided a viable choice. Surveys conducted on priced and managed lanes have concluded that a broad spectrum of income groups express approval of the priced projects because the groups are given a choice of choosing a tolled route, an alternative route, or a different transportation mode (USDOT 2013).

Taking all of the information into consideration, there would be no disproportionate impacts to minority or low-income populations with the implementation of the proposed SH 249 Extension as defined by the Council on Environmental Quality (CEQ) and FHWA Order 6640.23. Therefore, the requirements of Executive Order 12898 appear to be satisfied.

4.4 ECONOMICS

4.4.1 Property Tax Revenue

Each of the four alternative alignments would pass through several taxing jurisdictions and would remove property from the tax rolls through the acquisition of ROW and as a result of displacements. *Table 4-11* lists the taxing jurisdictions in the proposed SH 249 Extension study area and the adopted 2013 tax rates per $100 of property value.

Table 4-11: Property Tax Rates in the Study Area

Taxing Jurisdiction	2013 Tax Rate per $100 Value
Montgomery County	0.4838
Montgomery Hospital	0.0727
Lone Star College	0.1160
Magnolia ISD	1.3995
Tomball ISD	1.3600
Emergency Service District #10	0.1000
Grimes County	0.5303
Navasota ISD	1.1914

Source: GCAD 2013; MCAD 2013.
Note: ISD = independent school district.

The impacts of the proposed tollway on property tax revenue were quantified using the 2013 appraised values of the potentially impacted parcels. The calculations also included the assessed land value, improvement value, and agricultural or timber value. Geographic information system data were used to quantify the number of acres that would be required from each parcel for the ROW of each alternative alignment, as well as whether a primary structure would be displaced. The value of the impacted land was quantified by multiplying the share of the parcel impacted by the assessed land or agricultural/timber value. The value was then divided by $100 and multiplied by the tax rate.

> *For example, a 10-acre parcel is located in the Montgomery County taxing jurisdiction. The land is assessed at $100,000. Alternative X would require 1 acre of land. The 1 acre is equal to 10 percent of the total parcel and is worth $10,000*

(one-tenth of $100,000). The tax rate for the county is 0.4838 for every $100 of value. Therefore, taking 1 acre would result in a $48.38 loss in tax revenue.

If the ROW impacts would leave less than 0.25 acre remaining in a parcel, it was assumed that the full parcel would be taken. If a primary structure would be displaced, the full improvement value was added to the total value of the impacted land. *Table 4-12* summarizes the impacts to adjacent properties and the total appraised value of the affected land and improvements. *Table 4-13* summarizes the impacts to property tax revenue by alternative alignment and taxing jurisdiction.

Table 4-12: Impacted Parcels and Land Value by Alternative Alignment

Alternative Alignment	Number of Parcels Impacted	Number of Acres Impacted	Total Assessed Value of Impacted Property
B[a]	61	568.29	$1,339,571
B/C	61	609.07	$1,758,685
C	51	601.76	$1,732,353
E	68	543.10	$2,886,094

Source: GCAD 2013; MCAD 2013.

[a] The total assessed value of impacted property for Alternative Alignment B is likely underestimated because of missing values for the potentially displaced service station and paintball course.

Table 4-13: Impacts to Property Tax Revenue by Alternative Alignment[a]

Taxing Jurisdiction	Alternative Alignment			
	B	B/C	C	E
Montgomery County	$6,603	$8,428	$8,302	$13,796
Montgomery Hospital	$922	$1,266	$1,247	$2,073
Lone Star College	$1,583	$2,021	$1,990	$3,308
Magnolia ISD	$18,303	$23,588	$23,462	$39,113
Tomball ISD	$775	$769	$537	$773
Emergency Service District #10	$1,365	$1,742	$1,716	$2,852
Grimes County	$184	$89	$87	$183
Navasota ISD	$416	$199	$196	$411
Total	**$30,222**	**$38,101**	**$37,537**	**$62,508**

Source: GCAD 2013; MCAD 2013.

[a] The impacts to property tax revenue are based on the most current data available, but are only estimates for the purposes of comparison. Flaws in the data include unavailable appraisal data for six impacted parcels, and the potential loss in property tax revenue was not adjusted for the different classes of tax exemptions.

Note: ISD = independent school district.

While the acquisition of ROW removes property from the tax rolls, transportation improvements from the proposed tollway have the potential to spur economic development activities within the study area. Some of the potential loss in property tax revenue could be offset by an increase in overall property values.

4.4.2 Employment and Income during Construction

The construction of the proposed SH 249 Extension would potentially generate local, regional, and state economic benefits from construction spending. The benefits would be direct employment and income for the construction industry, indirect effects for industries that supply equipment and materials, and induced impacts based on the spending of the new employees. The direct employment effect would involve all people who work on the proposed tollway, such as construction workers, engineers, and equipment operators. The indirect employment effect would involve others (e.g., truck drivers and steelworkers) that are employed by companies that provide materials, products, and services purchased to support construction. People employed directly and indirectly for the proposed SH 249 Extension would have new income to spend on consumer goods and services. The consumer needs of the employees would generate new jobs in the retail, personal services, food services, and the manufacturing of consumer goods.

4.4.3 Long-term Employment Growth

The long-term economic impacts of the proposed SH 249 Extension would be an increase in regional economic activity because the proposed tollway would improve connections and mobility throughout the region. The types of long-term growth associated with improved mobility would be expanded customer or supplier markets, expanded labor markets, reduced business operating cost through lower direct costs or increased economies of scale, and/or increased volume, visibility, and access for companies that rely on pass-by traffic.

A new tollway may spur economic development in the study area by attracting businesses that directly benefit from improved access and mobility. In turn, ancillary businesses that provide complementary/support goods and services to those businesses follow and generate additional local economic activity. Economic development would increase property values and improve the tax base. Economic benefits experienced in the study area and across the region may be a continuation of economic trends already occurring. Improved mobility and access are two facets that often drive economic development.

No-Build Alternative

Under the No-Build Alternative, there would be no impact to property tax revenue or the removal of property from the tax rolls through the acquisition of ROW or because of displacements. However, the community would not experience the benefits of short-term employment, income during construction, and potential long-term growth. The increased traffic congestion and

deteriorating mobility resulting from the No-Build Alternative could also limit short and long-term economic growth in the study area and larger region.

4.5 PEDESTRIANS AND BICYCLISTS

Alternative Alignment B, B/C, C, and E would not adversely affect any existing bicycle or pedestrian network. The restriction of bicycle and pedestrian use of a controlled-access highway is permitted under Texas Transportation Code 545.0651. While no new bicycle or pedestrian facilities would be proposed for the controlled-access portion of the proposed SH 249 Extension, design would consider sidewalks for the non-tolled portions of the proposed tollway. Where sidewalks are considered, the sidewalks would be compliant with the Texas Accessibility Standards, the Americans with Disabilities Act accessibility guidelines, and TxDOT's bicycle and pedestrian standards. Although there may be safety concerns with providing bicycle and pedestrian facilities immediately adjacent to the proposed SH 249 Extension, additional studies could be conducted to determine if bicycle and pedestrian facilities could be accommodated outside of the controlled-access tollway, while still remaining within the 400-foot ROW.

The proposed SH 249 Extension would also accommodate all existing and future crossings for both pedestrians and bicyclists at intersections, bridges, and over/underpasses. While the proposed SH 249 Extension would affect the flow of bicycle and pedestrian traffic at grade-separated roadways with access ramps, the proposed tollway would minimize adverse effects to bicyclists and pedestrians by providing crosswalks, walk signals, and appropriate signage at grade-separated intersections (e.g., on-ramp access points).

No-Build Alternative

Under the No-Build Alternative, there would be an indirect impact to bicycle and pedestrian facilities because of increased congestion on existing local roadways, which may cause a decrease in safety and bicyclist/pedestrian mobility along existing roadways.

4.6 AIR QUALITY

4.6.1 Carbon Monoxide Traffic Air Quality Analysis

Current design year 2035 traffic is estimated to be 83,780 VPD in Pinehurst to 13,166 VPD in Todd Mission. A prior TxDOT modeling study demonstrated that it is unlikely that a carbon monoxide standard would ever be exceeded because of any project with an AADT below 140,000 VPD. The AADT projections for the proposed project do not exceed 140,000 VPD; therefore, a Traffic Air Quality Analysis would not be required. It should be noted that since the proposed project is listed as unfunded on the *2035 RTP Update*, traffic volumes were modeled for the proposed project in H-GAC's most current traffic model network in September 2013.

4.6.2 Conformity

Both H-GAC's *2035 RTP Update* and the *2013-2016 TIP*, as amended, were initially found to conform to the SIP by FHWA and the FTA on January 25, 2011, and November 1, 2012, respectively. However, the proposed SH 249 Extension is not consistent with the conformity determination because the proposed tollway is currently unfunded and is not included in the financially constrained plan. FHWA/TxDOT will not take final action on the environmental document until the proposed SH 249 Extension is consistent with the currently conforming *2035 RTP Update* and the *2013-2016 TIP*, as amended.

4.6.3 Congestion Management Process

The congestion management process (CMP) is a systematic process for managing congestion that provides information on transportation systems performance and on alternative strategies for alleviating congestion and enhancing the mobility of persons and goods to levels that meet state and local needs. The proposed SH 249 Extension was developed from H-GAC's operational CMP, which meets all requirements of 23 CFR 500.109. The CMP was adopted by H-GAC on January 25, 2013, and incorporated into the *2035 RTP Update* and *2013-2016 TIP*, as amended. The proposed SH 249 Extension is consistent with H-GAC's adopted CMP.

The region commits to operational improvements and travel demand reduction strategies at two levels of implementation: program level and project level. Program-level commitments are inventoried in the regional CMP, which was adopted by H-GAC. These commitments are included in the financially constrained *2035 RTP Update*, and future resources are reserved for their implementation.

The CMP element of the plan carries an inventory of all project commitments (including those resulting from MISs) detailing type of strategy, implementing responsibilities, schedules, and expected cost. At the project-level programming stage, travel demand reduction strategies and commitments will be added to the regional TIP or included in construction plans. The regional TIP provides for programming of projects at the appropriate time with respect to the single occupancy vehicle (SOV) facility implementation and project-specific elements.

As listed in *Table 4-14*, committed congestion reduction strategies and operational improvements within the surrounding proposed SH 249 Extension study area consist of roadway widening, HOV widening, new roadway construction, roadway rehabilitation, grade separation, interchange improvements, ROW acquisitions, relocations, utility adjustments, and traffic flow improvements. The proposed SH 249 Extension is one of the many projects in the area that are committed to congestion reduction strategies.

Table 4-14: CMP Strategies in and around the Study Area

Roadway Designation	Location (From)	Location (To)	Project Description	Project Status
FM 149	SH 149	Green Road	To construct left-turn lanes at six locations (Wildwood Circle North, Wildwood Circle South, Majestic Oaks, Wildwood Trail South, Wildwood Trail North, and Green Lane)	T
	at FM 1097	n/a	To construct a northbound to westbound left- turn lane	T
FM 1488	0.2 mile west of Millcreek Road	FM 149	To construct a railroad grade separation over FM 149 and the BNSF railroad at Mostyn (DOT# 597 112Y)	T
	FM 149	0.3 mile east of Community Road	To construct a railroad grade separation over FM 149 and the BNSF railway at Mostyn (DOT# 597 112Y)	T
FM 1774	Grimes County Line	Montgomery County Line	To widen to a four-lane, divided rural	S
	North of FM 1488	South of Lost Creek Boulevard	To reconstruct the roadway	Let
	0.045 mile south of West Lost Creek Boulevard	FM 149	To widen to a four-lane, divided rural	T
	Waller County Line	0.109 mile north of FM 1488	To widen to a four-lane, divided rural with a railroad grade separation	S
	0.109 Mile North of FM 1488	FM 149	To widen to a four-lanes divided rural	S
FM 2978	Conroe Huffsmith Road	Harris County Line	To widen from two to four lanes	L
	FM 1488	South of Dry Creek	To widen from two to four lanes	T
	South of Dry Creek	Conroe Huffsmith Road	To widen from two to four lanes	T
SH 105	LP 336 West	IH 45 North	To apply access management treatments	T
	Walden Road	Old River Road	To widen westbound from two to three lanes	T

Table 4-14: CMP Strategies in and around the Study Area

Roadway Designation	Location (From)	Location (To)	Project Description	Project Status
	IH 45	1st Street	To construct raised median, sidewalks, and pedestrian/transit amenities (e.g., lightening, planting, strip/buffer zone, transit stops, and bicycle racks)	T
SH 249	FM 1774/FM 149 in Pinehurst	Spring Creek/ Harris County Line	To construct a six-lane tollway with grade separations at Stagecoach Road and Woodlands Parkway	L
Gosling Road	Panther Creek Pines	Spring Creek	To widen to a four-lane divided and to construct half of the bridge across Spring Creek	L
Grogans Mill Road	Research Forest Drive	Woodlands Parkway	To widen to a six-lane divided	L
Honea Egypt Road/Sendera Ranch Drive/Fish Creek Thoroughfare/ McCabe Road	SH 105	FM 1488	To widen to four lanes	L
Kuykendahl Road	Alden Bridge Drive	Crownridge Drive	To construct a two-lane roadway (missing segment)	T
Lake Woodlands Drive	at Grogans Mill Road	n/a	To construct a grade separation	L
Longmire Corridor	Sergeant Ed Holcombe Road	FM 1488	To construct a new four-lane roadway (in sections)	L
Nichols Sawmill Road	South of Butera Road	FM 2920 in Harris County	To construct a new two-lane roadway	S
Research Forest Drive	Egypt Lane	Branch Crossing	To widen to a four-lane divided (Phase 2)	S
Research Forest Drive	Research Forest Drive	Grogans Mill Road	To construct a grade separation	L
Research Forest Drive	Shadow Bend Drive	Kuykendahl Road	To widen from four to six lanes	S
Sawmill Road	High Oaks Circle South	Spring Creek	To construct a four-lane divided and to construct half of the bridge across Spring Creek	T
Stagecoach	SH 249	Walnut Creek Road	To widen to four lanes	L
The Woodlands	n/a	n/a	Operating expenditures for public transportation in The Woodlands	Let
The Woodlands	n/a	n/a	Planning expenditures for public transportation in The Woodlands	Let

Table 4-14: CMP Strategies in and around the Study Area

Roadway Designation	Location (From)	Location (To)	Project Description	Project Status
The Woodlands	n/a	n/a	Capital expenditures for public transportation in The Woodlands	T
Woodland Hills Drive	Ford Road	North Park	To construct a new two-lane divided	S
Woodlands Parkway	SH 249	FM 2978	To construct a new two-lane divided	L
Woodlands Parkway	East of Panther Creek Drive	Grogans Mill Road	To widen to a six-lane divided	Let

Source: H-GAC 2013a (2035 RTP Appendix, revised on 07/18/13).

Notes: T = *2013-2016 TIP*, as amended; S = Short Range; L = Long Range; Let = Let to construction; n/a = not applicable.

In an effort to reduce congestion and the need for SOV lanes in the region, TxDOT and H-GAC would continue to promote appropriate congestion reduction strategies through the Congestion Mitigation and Air Quality program, the CMP, and the *2035 RTP Update*. The congestion reduction strategies considered for the proposed SH 249 Extension would help alleviate congestion in the SOV study area boundary, but would not eliminate congestion. Therefore, the proposed SH 249 Extension is justified. The CMP analysis for added SOV capacity projects in the Transportation Management Area is on file and available for review at H-GAC.

4.6.4 Hot-Spot Analysis

The proposed SH 249 Extension is not located within a CO/particulate matter non-attainment or maintenance area. As such, a project-level hot-spot analysis is not required.

4.6.5 Mobile Source Air Toxics

A qualitative analysis provides a basis for identifying and comparing the potential differences among MSAT emissions, if any, from the various alternatives. The qualitative assessment presented in the Draft EIS is derived in part from a study conducted by the FHWA entitled *A Methodology for Evaluating Mobile Source Air Toxic Emissions among Transportation Project Alternatives* (FHWA 2011).

4.6.5.1 Project-Specific Mobile Source Air Toxic Information

For each alternative in the Draft EIS, the amount of MSATs emitted would be proportional to the VMT, assuming that other variables (e.g., fleet mix) are the same for each of the alternatives. The VMT estimated for each of the Build Alternatives would be slightly higher than that for the No-Build Alternative because the additional capacity would increase the efficiency of the roadway and attract rerouted trips from elsewhere in the transportation network. The increase in VMT would lead to higher MSAT emissions for the Preferred Alternative along the corridor,

along with a corresponding decrease in MSAT emissions along parallel routes. The emissions increase is offset somewhat by lower MSAT emission rates because of increased speeds. According to the EPA's MOVES2010b model, emissions of all of the priority MSATs decrease as speed increases.

Also, regardless of the alternative chosen, emissions would likely be lower than present levels in the design year as a result of the EPA's national control programs that are projected to reduce annual MSAT emissions by over 80 percent between 2010 and 2050. Local conditions may differ from national projections in terms of fleet mix and turnover, VMT growth rates, and local control measures. However, the magnitude of the EPA-projected reductions is so great (even after accounting for VMT growth) that MSAT emissions in the proposed study area are likely to be lower in the future in nearly all cases.

The travel lanes contemplated as part of the project alternatives would have the effect of moving some traffic closer to nearby homes, schools, and businesses. Therefore, under each of the project alternatives, there may be localized areas where ambient concentrations of MSATs would be higher under certain project alternatives than others. The localized differences in MSAT concentrations would likely be most pronounced along the intersection of the new tollway and existing FM 1774, FM 149, FM 1488, and FM 1486. However, the magnitude and the duration of the potential increases cannot be reliably quantified because of incomplete or unavailable information in forecasting project-specific MSAT health impacts.

In sum, the localized level of MSAT emissions for the Build Alternative could be higher relative to the No-Build Alternative, but this could be offset due to increases in speeds and reductions in congestion (which are associated with lower MSAT emissions). Also, MSAT will be lower in other locations when traffic shifts away from them. However, on a region basis, the EPA’s vehicle and fuel regulations, coupled with fleet turnover, will over time cause substantial reductions that, in almost all cases, will cause region-wide MSAT levels to be significantly lower than today.

4.6.5.2 Incomplete or Unavailable Information for Project-Specific MSAT Health Impacts Analysis

In FHWA's view, information is incomplete or unavailable to credibly predict the project-specific health impacts due to changes in MSAT emissions associated with a proposed set of highway alternatives. The outcome of such an assessment, adverse or not, would be influenced more by the uncertainty introduced into the process through assumption and speculation rather than any genuine insight into the actual health impacts directly attributable to MSAT exposure associated with a proposed action.

The EPA is responsible for protecting the public health and welfare from any known or anticipated effect of an air pollutant. The EPA is the lead authority for administering the Clean Air Act and its amendments and has specific statutory obligations with respect to hazardous air

pollutants and MSATs. The EPA is in the continual process of assessing human health effects, exposures, and risks posed by air pollutants. They maintain the IRIS, which is “a compilation of electronic reports on specific substances found in the environment and their potential to cause human health effects” (EPA 2013a). Each report contains assessments of non-cancerous and cancerous effects for individual compounds and quantitative estimates of risk levels from lifetime oral and inhalation exposures with uncertainty spanning perhaps an order of magnitude.

Other organizations are also active in the research and analyses of the human health effects of MSATs, including the HEI. Two HEI studies are summarized in Appendix D of FHWA’s *Interim Guidance Update on Mobile source Air Toxic Analysis in NEPA Documents* (FHWA 2012). Among the adverse health effects linked to MSAT compounds at high exposures are cancer in humans in occupational settings, cancer in animals, and irritation to the respiratory tract, including the exacerbation of asthma. Less obvious is the adverse human health effects of MSAT compounds at current environmental concentrations or in the future as vehicle emissions substantially decrease (HEI 2007a, 2009).

The methodologies for forecasting health impacts include emissions modeling, dispersion modeling, exposure modeling, and then final determination of health impacts – each step in the process building on the model predictions obtained in the previous step. All are encumbered by technical shortcomings or uncertain science that prevents a more complete differentiation of the MSAT health impacts among a set of project alternatives. These difficulties are magnified for lifetime (i.e., 70-year) assessments, particularly because unsupportable assumptions would have to be made regarding changes in travel patterns and vehicle technology (which affects emissions rates) over that time frame, since such information is unavailable.

It is particularly difficult to reliably forecast 70-year lifetime MSAT concentrations and exposure near roadways in order to determine the portion of time that people are actually exposed at a specific location and to establish the extent attributable to a proposed action, especially given that some of the information needed is unavailable.

There are considerable uncertainties associated with the existing estimates of toxicity of the various MSATs because of factors such as low-dose extrapolation and translation of occupational exposure data to the general population, a concern expressed by HEI (HEI 2007a). As a result, there is no national consensus on air dose-response values assumed to protect the public health and welfare for MSAT compounds and, in particular, for diesel PM. The EPA and the HEI have not established a basis for quantitative risk assessment of diesel PM in ambient settings (EPA 2013a; HEI 2007b).

There is also the lack of a national consensus on an acceptable level of risk. The current context is the process used by the EPA as provided by the Clean Air Act to determine whether more stringent controls are required in order to provide an ample margin of safety to protect public health or to prevent an adverse environmental effect for industrial sources subject to the

maximum achievable control technology standards, such as benzene emissions from refineries. The decision framework is a two-step process. The first step requires the EPA to determine an "acceptable" level of risk due to emissions from a source, which is generally no greater than approximately 100 in a million. Additional factors are considered in the second step, the goal of which is to maximize the number of people with risks less than 1 in a million due to emissions from a source. The results of the statutory two-step process do not guarantee that cancer risks from exposure to air toxics are less than 1 in a million; in some cases, the residual risk determination could result in maximum individual cancer risks that are as high as approximately 100 in a million. In a June 2008 decision, the U.S. Court of Appeals for the District of Columbia Circuit upheld EPA's approach to addressing risk in its two-step decision framework.

Information is incomplete or unavailable to establish that even the largest of highway projects would result in levels of risk greater than deemed acceptable. Because of the limitations in the methodologies for forecasting health impacts described, any predicted difference in health impacts between alternatives is likely to be much smaller than the uncertainties associated with predicting the impacts. Consequently, the results of such assessments would not be useful to decision makers, who would need to weigh the information against alternative alignment benefits, such as reducing traffic congestion, accident rates, and fatalities plus improved access for emergency response, that are better suited for quantitative analysis.

As described, a qualitative MSAT assessment has been provided relative to the various alternative alignments and the No-Build Alternative for MSAT emissions. Alternative Alignment B, B/C, C, and E may result in increased exposure to MSAT emissions in certain locations, although the concentrations and duration of exposures are uncertain. Because of the uncertainty, the health effects from MSAT emissions cannot be estimated.

4.6.5.3 Air Quality Construction Emissions Reduction Strategies

During the construction phase of the proposed SH 249 Extension, temporary increases in air pollutant emissions may occur from construction activities. The primary construction-related emissions are PM (fugitive dust) from site preparation. The emissions are temporary in nature (only occurring during actual construction), and it is not possible to reasonably estimate impacts from the emissions due to limitations of the existing models. However, the potential impacts of PM emissions would be minimized by using fugitive dust control measures such as covering or treating disturbed areas with dust suppression techniques, sprinkling, covering loaded trucks, and other dust abatement controls, as appropriate.

The construction activity phase of the proposed SH 249 Extension may generate a temporary increase in MSAT emissions from construction activities, equipment, and related vehicles. The primary MSAT construction-related emissions are PM from site preparation and diesel PM from diesel-powered construction equipment and vehicles.

The Texas Emissions Reduction Plan (TERP) includes incentive programs to encourage the development of multi-pollutant approaches to ensure that the air in Texas is both safe to breathe and meets minimum federal standards. TxDOT encourages construction contractors to utilize the program to the fullest extent possible to minimize diesel emissions. Information about the TERP program can be found at http://www.tceq.state.tx.us/implementation/air/terp/.

However, considering the temporary and transient nature of construction-related emissions, as well as the mitigation actions to be utilized, it is not anticipated that emissions from construction of the proposed SH 249 Extension would have any significant impact on air quality in the area.

No-Build Alternative

Under the No-Build Alternative, additional air emissions may be associated with the increased congestion on existing local roadways.

4.7 NOISE

The traffic noise analysis was accomplished in accordance with TxDOT's (FHWA-approved) *Guidelines for Analysis and Abatement of Roadway Traffic Noise*, dated April 2011 (TxDOT 2011). A traffic noise analysis typically includes the following elements:

- Identification of land use activity areas that might be impacted by traffic noise,
- Determination of existing noise levels,
- Prediction of future noise levels,
- Identification of possible noise impacts, and
- Consideration and evaluation of measures to reduce noise impacts.

FHWA has established the following Noise Abatement Criteria (NAC) for various land use activity areas that are used as one of two means to determine when a traffic noise impact would occur (*Table 4-15*).

Table 4-15: FHWA NAC Criteria

Activity Category	dB(A) L_{eq}	Description of Land Use Activity Areas
A	57 (exterior)	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	67 (exterior)	Residential

Table 4-15: FHWA NAC Criteria

Activity Category	dB(A) L_{eq}	Description of Land Use Activity Areas
C	67 (exterior)	Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails, and trail crossings.
D	52 (interior)	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.
E	72 (exterior)	Hotels, motels, offices, restaurants/bars, and other developed lands, properties, or activities not included in A through D or F.
F	--	Agricultural, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical), and warehousing.
G	--	Undeveloped lands that are not permitted.

Source: TxDOT 2011.

A noise impact would occur when either the absolute or relative criterion is met.

- Absolute criterion: the predicted noise level at a receptor approaches, equals, or exceeds the FHWA NAC (*Table 4-15*). "Approach" is defined as 1 dB(A) below the NAC. For example, a noise impact would be predicted to occur at a Category B residence (FWHA NAC 67 dB[A]) if the noise level resulting from project implementation is predicted to be 66 dB(A) or above.
- Relative criterion: the predicted noise level substantially exceeds the existing noise level at a receptor even though the predicted noise level does not approach, equal or exceed the NAC. “Substantially exceeds” is defined as more than 10 dB(A). For example: a noise impact would be predicted to occur at a Category B residence if the existing level is 54 dB(A) and the predicted level is 65 dB(A) (an 11 dB[A] increase).

When a traffic noise impact occurs, noise abatement measures must be considered. A noise abatement measure is any positive action taken to reduce the impact of traffic noise on an activity area.

The FHWA Traffic Noise Model 2.5 software was used to calculate predicted traffic noise levels within the proposed SH 249 Extension study area. Existing ambient noise levels were collected in the field at the existing ROW shown on *Exhibit 3-4*. Predicted 2038 traffic noise levels were modeled at receiver locations that represent the land use activity areas adjacent to the proposed SH 249 Extension that might be impacted by traffic noise and potentially benefit from

feasible and reasonable noise abatement. The model primarily considers the number, type, and speed of vehicles; highway alignment and grade; cuts, fills, and natural berms; surrounding terrain features; and the locations of activity areas likely to be impacted by traffic noise. The vehicular mix for the traffic model was defined as follows.

- Existing SH 249 (the existing freeway south of the proposed SH 249 Extension limits): 87 percent light duty, 5 percent medium duty, and 8 percent heavy duty
- Proposed SH 249 Extension (the proposed tollway on a new location): 90 percent light duty, 4 percent medium duty, and 6 percent heavy duty
- FM 149: 92 percent light duty, 3 percent medium duty, and 5 percent heavy duty
- FM 1488: 93 percent light duty, 3 percent medium duty, and 4 percent heavy duty
- FM 1486: 95 percent light duty, 2 percent medium duty, and 3 percent heavy duty

Table 4-16 lists the existing and predicted traffic noise levels within the study area. *Exhibit 3-4* marks the location of the 21 designated receivers.

Table 4-16: Traffic Noise Levels within the Study Area

Receiver	NAC Category	NAC Level	Existing	Alignment B Predicted	Change (+/-)	Noise Impact	Alignment B/C Predicted	Change (+/-)	Noise Impact	Alignment C Predicted	Change (+/-)	Noise Impact	Alignment E Predicted	Change (+/-)	Noise Impact
R-1	B	67	50	57	+7	No	57	+7	No	57	+7	No	57	+7	No
R-2	B	67	63	63	0	No	63	0	No	63	0	No	63	0	No
R-3	D	52	38	43	+5	No	43	+5	No	43	+5	No	43	+5	No
R-4	B	67	58	67	+9	Yes	67	+9	Yes	67	+9	Yes	67	+9	Yes
R-5	B	67	60	62	+2	No	63	+3	No	63	+3	No	63	+3	No
R-6	B	67	63	61	-2	No	63	0	No	63	0	No	59	-4	No
R-7	B	67	44	56	+12	Yes	67	+23	Yes	67	+23	Yes	55	+11	Yes
R-8	B	67	53	62	+9	No	70	+17	Yes	68	+15	Yes	65	+12	Yes
R-9	B	67	57	62	+5	No	70	+13	Yes	56	-1	No	57	0	No
R-10	B	67	51	70	+19	Yes	69	+18	Yes	51	0	No	52	+1	No
R-11	B	67	47	51	+4	No	49	+2	No	54	+7	No	59	+12	Yes
R-12	B	67	45	46	+1	No	50	+5	No	51	+6	No	48	+3	No
R-13	B	67	45	42	-3	No	59	+14	Yes	59	+14	Yes	43	-2	No
R-14	B	67	44	42	-2	No	66	+22	Yes	66	+22	Yes	45	+1	No
R-15	B	67	44	45	+1	No	64	+20	Yes	58	+14	Yes	44	0	No
R-16	B	67	70	60	-10	No	69	-1	Yes	70	0	Yes	58	-12	No
R-17	B	67	47	64	+17	Yes	43	-4	No	44	-3	No	44	-3	No
R-18	B	67	68	61	-7	No	57	-11	No	58	-10	No	60	-8	No
R-19	B	67	43	47	+4	No	45	+2	No	46	+3	No	64	+21	Yes
R-20	B	67	43	46	+3	No	45	+2	No	46	+3	No	61	+18	Yes
R-21	B	67	49	50	+1	No	54	+5	No	53	+4	No	50	+1	No

Source: The Proposed SH 249 Extension Study Team.

Notes: All noise levels are represented in dB(A) L_{eq}. All predicted noise levels are for 2038. NAC Category B is residential, and NAC Category D is a church.

The proposed SH 249 Extension would result in a traffic noise impact.

Before any abatement measure can be proposed for incorporation into the project, it must be both feasible and reasonable. In order to be "feasible," the abatement measure must be able to reduce the noise level at an impacted receptor by at least 5 dB(A) at greater than 50 percent of first row impacted receivers, and to be "reasonable," it must not exceed the cost-effectiveness criterion of $25,000 for each receiver that would benefit by a reduction of at least 5 dB(A) and at least one first row receiver must achieve the noise reduction design goal of at least 7 dB(A).

The following sections describe the abatement measures considered for the Draft EIS traffic noise analysis.

4.7.1 Traffic Management

Traffic management is defined as control devices that could be used to reduce the speed of traffic. However, the minor benefit of 1 dB(A) per 5 mph reduction in speed does not outweigh the associated increase in congestion and air pollution. Other measures (e.g., time or use restrictions for certain vehicles) are prohibited on state highways.

4.7.2 Alteration of Horizontal and/or Vertical Alignments

Any alteration of the existing alignment would displace existing businesses and residences, require additional ROW, and not be cost-effective/reasonable.

4.7.3 Buffer Zone

The acquisition of undeveloped property to act as a buffer zone is designed to avoid rather than abate traffic noise impacts and, therefore, is not feasible.

4.7.4 Noise Barriers

As the most commonly applied measure, noise barriers were evaluated for each of the impacted receiver locations.

4.7.5 Not Feasible and Reasonable Noise Barriers - Not Proposed

Organized by alternative alignment, it was determined that noise barriers would not be feasible and reasonable for the following impacted receivers.

Alternative Alignment B, B/C, C, and E

Receiver (R)-4 represents one residence. There is already a commercial property and a U.S. Postal Service building between the receiver and the proposed SH 249 Extension. Therefore, a noise barrier placed on the proposed SH 249 Extension ROW would not be feasible because it would not achieve the minimum feasible reduction of at least 7 dB(A) at one receiver with a minimum of at least 5 dB(A) at greater than 50 percent of the first row benefitted receivers.

Alternative Alignment B

R-7 through R-10 represent 66 residences. A noise barrier was modeled for a length of 10,107 feet to a height of 12 feet. The model concluded a noise barrier is feasible in that it would achieve the minimum feasible reduction of at least 7 dB(A) at one receiver with a minimum of at least 5 dB(A) at greater than 50 percent of the first row receivers impacted would not be reasonable or feasible. However, the wall would exceed the reasonable cost-effectiveness criterion of $25,000 for a total cost of $2,183,074 or $35,788 per each of the 61 benefited receivers.

R-17 represents one residence. A noise barrier was modeled for a length of 222 feet to a height of 20 feet. The model concluded a noise barrier would not achieve the feasible noise reduction design goal of at least 7 dB(A) at one receiver with a minimum of at least 5 dB(A) at greater than 50 percent of the first row benefitted receivers.

Alternative Alignment B/C

R-13 represents one residence. A noise barrier was modeled for a length of 637 feet to a height of 20 feet. The model concluded a noise barrier would not achieve the feasible noise reduction design goal of at least 7 dB(A) at one receiver with a minimum of at least 5 dB(A) at greater than 50 percent of the first row benefitted receivers.

R-14 through R-16 represent 17 residences. A noise barrier was modeled for a length of 7,461 feet to a height of 12 feet. The model concluded a noise barrier that would achieve the minimum feasible reduction of at least 7 dB(A) at one receiver with a minimum of at least 5 dB(A) at greater than 50 percent of the first row receivers impacted. However, the wall would exceed the reasonable cost-effectiveness criterion of $25,000 for a total cost of $1,611,588 or $107,439 per each of the 15 benefited receivers.

Alternative Alignment C

R-7 through R-8 represent 20 residences. A noise barrier was modeled for a length of 10,599 feet to a height of 12 feet. The model concluded a noise barrier that would achieve the minimum feasible reduction of at least 7 dB(A) at one receiver with a minimum of at least 5 dB(A) at greater than 50 percent of the first row receivers impacted. However, the wall would exceed the reasonable cost-effectiveness criterion of $25,000 for a total cost of $2,289,342 or $176,103 per each of the 13 benefited receivers.

R-13 represents one residence. A noise barrier was modeled for a length of 637 feet to a height of 20 feet. The model concluded a noise barrier would not achieve the reasonable noise reduction design goal of at least 7 dB(A) at one receiver with a minimum of at least 5 dB(A) at greater than 50 percent of the first row benefitted receivers.

R-14 through R-16 represent 17 residences. A noise barrier was modeled for a length of 7,461 feet to a height of 12 feet. The model concluded a noise barrier that would achieve the minimum feasible reduction of at least 7 dB(A) at one receiver with a minimum of at least 5 dB(A) at greater than 50 percent of the first row receivers impacted. However, the wall would exceed the reasonable cost-effectiveness criterion of $25,000 for a total cost of $1,611,588 or $107,439 per each of the 15 benefited receivers.

Alternative Alignment E

R-7 and R-8 represent 12 residences. A noise barrier was modeled for a length of 10,401 feet to a height of 20 feet. The model concluded a noise barrier would not achieve the reasonable noise reduction design goal of at least 7 dB(A) at one receiver with a minimum of at least 5 dB(A) at greater than 50 percent of the first row benefitted receivers.

R-11 represents two residences. A noise barrier was modeled for a length of 1,004 feet to a height of 20 feet. The model concluded a noise barrier would not achieve the reasonable noise reduction design goal of at least 7 dB(A) at one receiver with a minimum of at least 5 dB(A) at greater than 50 percent of the first row benefitted receivers.

R-19 and R-20 represent 12 residences. A noise barrier was modeled for a length of 5,529 feet to a height of 6 feet. The model concluded a noise barrier that would achieve the minimum feasible reduction of at least 7 dB(A) at one receiver with a minimum of at least 5 dB(A) at greater than 50 percent of the first row receivers impacted. However, the wall would exceed the reasonable cost-effectiveness criterion of $25,000 for a total cost of $705,548 or $58,796 per each of the 12 benefited receivers.

4.7.6 Proposed Noise Barriers

Noise barriers would be feasible and reasonable for the following impacted receivers and, therefore, are proposed for incorporation into the proposed SH 249 Extension.

Alternative Alignment B/C

R-7 through R-10 represent 66 residences. Based on preliminary calculations presented in *Table 4-17*, a noise barrier of 10,242 feet in length and 8 feet in height (for a total area of 81,937 square feet) would reduce noise levels by at least 5 dB(A) for 66 benefited residences and meet the minimum reduction of at least 7 dB(A) for one receiver at a total cost of $1,474,858, or $22,346 for each benefited receiver.

Table 4-17: Proposed Barrier Calculations

Barrier	Representative Receivers	Total # of Benefited Receivers	Length	Height	Total Cost	$ per Benefitted Receiver
1	R-7 through R-10	66	10,242 feet	8 feet	$1,474,858	$22,346

Source: The Proposed SH 249 Extension Study Team.

Any subsequent design changes may require a reevaluation of the preliminary noise barrier proposal. The final decision to construct the proposed noise barrier will not be made until completion of the proposed SH 249 Extension's design, utility evaluation, and polling of adjacent property owners.

Some land use activity areas in various locations throughout the length of the proposed SH 249 Extension are currently Category G, undeveloped lands that are not permitted. Also, no new development is currently planned, designed, or programmed in the area. There is no NAC for undeveloped land; however, to avoid noise impacts that may result from future development of properties adjacent to the proposed SH 249 Extension, local officials responsible for land use control programs should ensure, to the maximum extent possible, that no new activities are planned or constructed along or within the following predicted (2038) noise impact contours. *Table 4-18* lists the noise impact contours.

Table 4-18: Noise Impact Contours within the Study Area

Geographic Area	Land Use	Impact Contour	Distance from ROW
All alternative alignments between FM 1486 and FM 1774 in Grimes County	NAC B and C	66 dB(A)	Within ROW
All alternative alignments between FM 1486 and FM 1774 in Grimes County	NAC E	71 dB(A)	Within ROW

Source: The Proposed SH 249 Extension Study Team.

Notes: dB(A) = a-weighted decibel; NAC = Noise Abatement Criteria; ROW = right-of-way.

Noise associated with the construction of the proposed SH 249 Extension is difficult to predict. Heavy machinery, the major source of noise in construction, is constantly moving in unpredictable patterns. However, construction normally occurs during daylight hours when occasional loud noises are more tolerable. None of the receivers are expected to be exposed to construction noise for a long duration. Therefore, any extended disruption of normal activities is not expected. Provisions would be included in the plans and specifications that require the contractor to make every reasonable effort to minimize construction noise through abatement measures such as work-hour controls and proper maintenance of muffler systems.

A copy of the traffic noise analysis would be made available to local officials to ensure, to the maximum extent possible, future developments are planned, designed, and programmed in a manner that would avoid traffic noise impacts. On the date of approval of the Draft EIS (Date of Public Knowledge), Montgomery and Grimes counties, along with TxDOT, are no longer responsible for providing noise abatement for new development adjacent to the proposed SH 249 Extension.

No-Build Alternative

Under the No-Build Alternative, there would be no short-term impact to noise in or around the proposed SH 249 Extension study area. However, congestion would continue to increase on existing SH 249 and the local arterial roadways, which would cause an increase in traffic noise levels in the area.

4.8 WATER QUALITY

4.8.1 Surface Water

Alternative Alignment B, B/C, C, and E would all result in short-term (construction-related) and long-term water quality impacts. An increase in impermeable surface area resulting from additional pavement would cause direct water quality impacts by increasing stormwater runoff. Surface water runoff from roadways frequently contains automobile pollutants (e.g., fluids, particles from brake linings, and tires) and municipal trash and debris.

Construction of the proposed SH 249 Extension would also result in soil disturbances that would cause a short-term water quality impact by temporarily increasing the level of suspended particles in stormwater runoff. All four alternative alignments also have the potential to affect surface water quality at stream crossings. *Table 4-19* lists the acreage of increased impermeable surface area and the number of stream crossings by alternative alignment.

Table 4-19: Impacts to Surface Water Quality by Alternative Alignment

Alternative Alignment[a]	Increased Impermeable Surface Area (acres)	Number of Stream Crossings[b]
B	157	27
B/C	176	21
C	164	22
E	153	19

Source: The Proposed SH 249 Extension Study Team.

[a] Impermeable surface acreage is based on the alternative alignment length and 88-foot pavement widths.

[b] Stream crossings were determined from NWI and USGS mapping.

Alternative Alignment E would construct the least amount of impermeable surface area and have the fewest number of stream crossings. As such, Alternative Alignment E would likely result in the least impacts to water quality.

On September 14, 1998, the Regional Administrator for the EPA (Region 6) approved Texas' application to administer and enforce the NPDES program for regulating discharges of pollutants into waters of the state. The authority to approve state programs is provided to EPA in

Section 402(b) of the CWA. The approved state program (i.e., the TPDES program) is administered by the TCEQ.

The proposed SH 249 Extension will comply with the TPDES CGP requirements because the proposed tollway would disturb more than 5 acres of land. Coordination with the TCEQ would be required per the TxDOT MOU with TCEQ. To adhere to CGP requirements, TxDOT must obtain a copy of the TCEQ CGP (TPDES Permit Number TXR150000), develop and implement a SW3P, complete and submit an NOI to the TCEQ, and submit a Notice of Termination once the site has reached final stabilization. Guidance documents (e.g., TxDOT's *Storm Water Management Guidelines for Construction Activities*) provide discussion of stormwater controls to be implemented during construction.

All four alternative alignments would also need to comply with the Section 401 Water Quality Certification conditions. Temporary vegetation would be used for erosion control. Vegetative filter strips would be used for post-construction total suspended solids control, and silt fences would be used for sedimentation control.

No-Build Alternative

Under the No-Build Alternative, there would be no increase in impermeable surface area and no additional stream crossings. Therefore, there would be no impact to surface water quality.

4.8.2 Groundwater

Construction and operation of the proposed SH 249 Extension would have a nominal impact to regional groundwater resources. As noted, quality and quantity of stormwater runoff would be altered by all four alternative alignments in two ways: direct effects from construction and effects from the long-term operation of the proposed tollway. Groundwater pollution prevention measures may be required for the public wells included under the SW3P for which capture zones, defined by the TCEQ, are overlapped by the alternative alignments.

The Source Water Protection Program is a voluntary pollution prevention program created by the Safe Drinking Water Act Amendments of 1996. The program is an expansion of the existing Wellhead Protection Program that was implemented to protect public groundwater sources from possible surface and subsurface source contamination. All public water supply systems are eligible to participate in the program. Under the program, a wellhead protection area is established around each public supply well. The protection area is a 0.5-mile diameter protective buffer zone within which certain development is excluded to prevent possible contamination of the groundwater.

According to data reviewed from the Public Water Supply Section of the TCEQ, none of the adjacent wells to the proposed tollway are enrolled in the Wellhead Protection Program. However, because of the close proximity of Alternative Alignment B, B/C, C, and E to the

identified wells, the wells identified could be potentially impacted. In addition, any wells found in or adjacent to the Preferred Alternative would be identified and plugged prior to construction. If contamination is encountered at any of the identified wells or abandoned well sites, remediation would be conducted prior to construction. Appropriate precautions (e.g., using established BMPs) would be used to divert surface runoff from entering the aquifers in the wellhead protection area.

Potential adverse impacts to groundwater could occur from the spilling of hazardous or toxic material after completion of the proposed SH 249 Extension. During construction, spills would be mainly limited to fuels (e.g., gasoline or diesel) and lubricants used by construction equipment. Such spills and the related adverse impacts can be controlled through proper maintenance of equipment, the management of the materials, and prompt response and cleanup of spills and leaks.

No-Build Alternative

Under the No-Build Alternative, there would be no impact to groundwater quality.

4.8.3 Public Drinking Water Systems

Construction and operation of the proposed SH 249 Extension would have a nominal impact to public drinking water resources. A review of well records and published groundwater reports of the Texas Water Development Board indicated that a total of three public water-supply wells, eight private/domestic water wells, and two unknown water wells are located within the study area. Two of the public water-supply wells are directly within the ROW of all four alternative alignments, and each would be plugged according to TCEQ regulations at the appropriate time. While the public use of groundwater from the wells would be impacted, plugging the wells would eliminate the potential impact to the groundwater resources. *Table 4-20* provides a summary of the impacted water-supply wells, where information is available.

Table 4-20: Water-Supply Wells within 0.25 Mile of the Alternative Alignments

Public Well ID	Well Owner	Proposed Use	Aquifer	Well Depth
No Data	Private Owner	Domestic	Evangeline	272 feet
No Data	Private Owner	Domestic	Evangeline	260 feet
No Data	Private Owner	Domestic	Evangeline	230 feet
No Data	Private Owner	Domestic	Evangeline	200 feet
No Data	Private Owner	Domestic	Evangeline	260 feet
No Data	Private Owner	Domestic	Evangeline	240 feet
6051104	Unknown	Unknown	Evangeline	340 feet
6051105	Private Owner	Unknown	Evangeline	222 feet
6051508	Private Owner	Domestic	Evangeline	685 feet

Table 4-20: Water-Supply Wells within 0.25 Mile of the Alternative Alignments

Public Well ID	Well Owner	Proposed Use	Aquifer	Well Depth
6051504	Private Owner	Domestic	Evangeline	105 feet
6051514	Hazy Hollow East	Public Supply	Evangeline	393 feet
6051808	Oak Hills	Public Supply	Chicot	1971 feet
6051815	Woodtrace Municipal Utility District #1	Public Supply	Jasper	1644 feet

Source: Public Water Supply Section of the TCEQ.

No-Build Alternative

Under the No-Build Alternative, there would be no impact to the public water supply.

4.9 WETLANDS AND OTHER WATERS OF THE U.S.

4.9.1 Navigable Waters of the U.S.

No navigable waterways or waters subject to the ebb and flow of a tide occur in areas traversed by Alternative Alignment B, B/C, C, and E. Therefore, a Section 9 permit from the U.S. Coast Guard or a Section 10 permit from the USACE would not be required for the proposed SH 249 Extension.

No-Build Alternative

Under the No-Build Alternative, there would be no impact to navigable waters of the U.S.

4.9.2 Waters of the U.S., including Wetlands

Preliminary information based on NWI maps indicates numerous small wetland areas scattered throughout the proposed SH 249 Extension study area. Most of the wetlands are Palustrine Open Water Permanently Flooded, diked/impounded or excavated wetlands. As implied in the NWI naming structure, wetlands are typically impounded or excavated wet areas, many of which serve an agricultural use for livestock watering or similar functions. As long as the ponds are maintained and used for the noted purposes, the ponds would not typically be considered jurisdictional waters by the USACE. Additionally, if the areas are not located within the 100-year floodplain, the current USACE guidelines would consider the areas isolated wetlands. Currently, isolated wetlands are not jurisdictional and are not regulated by the USACE.

Based on limited field surveys, the greatest potential to encounter waters of the U.S., including wetlands, is in and around Mill Creek and its tributaries. As listed in *Table 4-21*, impacts to potential waters of the U.S., including wetlands, were assessed based on the number of waterway crossings and the acreage of wetland impacts by each alternative alignment.

Table 4-21: Impacts to Waters of the U.S., including Wetlands, by Alternative Alignment

Alternative Alignment	Wetlands (acres)[a]	Number of Stream Crossings[b]
B	11.0	27
B/C	5.0	21
C	2.8	22
E	11.5	19

Source: The Proposed SH 249 Extension Study Team.

[a] Wetland acreages were determined from NWI mapping.

[b] Stream crossings were determined from NWI and USGS mapping.

Notes: NWI = National Wetland Inventory; USGS = U.S. Geological Survey.

Most impacts to wetlands would occur along Alternative Alignment B and E. Alternative Alignment C would have the least impact on wetlands, and Alternative Alignment B/C would have a comparably moderate impact on wetlands. Alternative Alignment B would require the most stream crossings.

Some degree of impact would generally be unavoidable, regardless of the care applied during the planning, design, and construction of the proposed tollway. Therefore, plans for compensatory mitigation may need to be developed to reconstruct the features or habitat that could be impacted, even after practicable minimization has been achieved. As documented, all four alternative alignments would affect wetlands and waters of the U.S. to varying degrees. Mill Creek, perennial stream, is the one major waterway located within the proposed SH 249 Extension study area. Each of the alternative alignments would traverse both Mill Creek and its intermittent tributaries.

Construction activities typically impact wetlands and aquatic systems in various ways. The initial clearing of land during construction activities would remove vegetative cover, which could lead to increased surface runoff and erosion. The runoff would flow into streams and could increase turbidity and sedimentation or modify water chemistry because of an increase in sediments, nutrients, and pollutants. Altered water chemistry may diminish suitable habitat for aquatic species and plants. Therefore, erosion control measures would be incorporated prior, during, and after construction to minimize and limit impacts from erosion and sedimentation.

Accounting for avoidance and minimization of wetland impacts where possible has been and would continue to be an essential part of the environmental and design process. Activities to minimize habitat impacts from construction would include minimizing devegetation of the construction area wherever safety allows, decreasing the amount of fill placement, and implementing BMPs (e.g., an erosion and sedimentation control plan). Specific impact minimization to wetland areas may include the use of bridge crossings instead of filled

embankment; the use of detention basins and revegetated swales to minimize runoff, sedimentation, turbidity, leaching of soil nutrients, and chemicals from petroleum products, pavement, and waste materials; and the alleviation of flow alterations from structures that may alter established wetland drainage or flooding patterns.

As discussed in Section 3.10 of the Draft EIS, for the Preferred Alternative, formal jurisdictional delineation would be performed and submitted to the USACE for verification. The verified delineation would be used to calculate impacts to waters of the U.S., including wetlands, that are associated with the proposed SH 249 Extension. Once the extent of impacts has been determined, mitigation alternatives for compensation of the impacts would be identified and evaluated. Should mitigation be required, the USACE 2008 mitigation rule regarding compensatory mitigation for losses of aquatic resources would be followed. Possible mitigation alternatives may be wetland/habitat restoration, enhancement, creation, and/or preservation. Preference would be given to potential mitigation within the San Jacinto River Basin. Natural resource agencies would be involved in decisions regarding appropriate mitigation, as well as wetland type, function, location, and size.

No-Build Alternative

Under the No-Build Alternative, there would be no impact to waters of the U.S., including wetlands.

4.10 VEGETATION AND WILDLIFE

4.10.1 Vegetation

The primary impact to vegetation would be the removal of existing vegetation to accommodate ROW, site preparation, and construction of the proposed SH 249 Extension. As described in Section 3.11.1 of the Draft EIS, loblolly pine-oak forest, mixed hardwoods within the floodplain, upland pasture, and residential/urban areas would potentially be impacted by all four alternative alignments. *Table 4-22* lists the amount of vegetation impacts by habitat type and alternative alignment.

Table 4-22: Impacts to Vegetation by Alternative Alignment

Alternative Alignment	Pine-Hardwood Forest (acres)	Young Forest/ Grassland (acres)	Other (acres)
B	599	69	43
B/C	634	69	21
C	641	69	20
E	579	69	43

Source: The Proposed SH 249 Extension Study Team.

Notes: Pine hardwood forest = Loblolly Pine-Sweetgum, Shortleaf Pine-Post Oak-Southern Red Oak, Loblolly Pine-Post Oak, Longleaf Pine-Sandjack Oak, and commonly associated plants.

Young forest/grassland = Mixed native or introduced grasses and forbs on grassland sites or mixed herbaceous communities resulting from the clearing of woody vegetation.

Other = Various combinations and age of pine and regrowth of southern red oak, sweetgum, and other commonly associated plants, as well as subsequent establishment of young pine plantation or young pine-hardwood forest.

Pine-hardwood forest would not only be the most dominant vegetation community within the study area, but it would also be the vegetation type most impacted by the four alternative alignments. Alternative Alignment C would affect the most acreage of unmaintained vegetation, and Alternative Alignment E would have the least impact to unmaintained vegetation.

Under all four alternative alignments, vegetation impacts would be direct and indirect, temporary, and long-term. The direct impacts of construction, operation, and maintenance of the new ROW would add an element of disturbance to the ecosystem, and the impacts would potentially alter vegetation, soils, and hydrology. Vegetation may be mowed or removed in preparation for construction. Depending on construction needs, soils would be graded or amended with fill, and heavy equipment would compact soils, which often alters drainage capability. As topography and vegetation are altered, hydrologic conditions associated with runoff and drainage flow would also change. Appropriate design measures would minimize the impacts. Disturbed areas are expected to be revegetated, and BMPs may call for seeding or sodding of disturbed areas.

Expanded upon in Section 6 of the Draft EIS, the cumulative impacts of numerous secondary developments resulting from the proposed tollway could continue to displace existing species from the area or could alter important migratory routes for others. The vegetation communities occurring alongside each of the alternative alignments would be directly impacted by construction-related activities that could fragment contiguous habitat. The severance of riparian forest corridors and the potential modifications of hydrologic and nutrient cycling and transfer processes would also likely have some impact on natural communities.

Field surveys would be performed for the Preferred Alternative to identify and quantify potential impacts to special habitat features, including bottomland hardwoods and riparian areas. As

required under the current TxDOT/TPWD MOU, TPWD coordination for the proposed SH 249 Extension would be conducted.

No-Build Alternative

Under the No-Build Alternative, there would be no impact to any vegetation type or habitat within the proposed SH 249 Extension study area.

4.10.2 Wildlife

Potential impacts to wildlife can be attributed to the interaction/avoidance of wildlife with construction machinery, the loss of wildlife habitat, habitat fragmentation, and wildlife/vehicle collision mortalities. The impacts would occur during the construction and operation of the proposed tollway and would potentially result in direct impacts to fish and wildlife resources in the proposed SH 249 Extension study area.

Construction of the proposed SH 249 Extension would directly impact animals that reside within the path of the Preferred Alternative. As with the vegetation, wildlife communities would be impacted by the permanent loss of habitat. In addition to direct, construction-related mortality or injury, wildlife populations often suffer impacts associated with displacement into adjacent habitats, which are often already at carrying capacity for that particular species. Wildlife inhabiting areas within each alternative alignment's ROW would need to relocate to adjacent habitats during vegetation clearing and earth-moving activities in order to survive. Heavy machinery and other construction equipment may cause mortality of wildlife species that are slow moving or species that seek cover in debris and fallen vegetation. Construction-related impacts would be short-term and primarily occur during initial ROW clearing activities.

Wildlife populations adjacent to the proposed SH 249 Extension study area would also be impacted by construction noise and activity that could stress or cause wildlife populations to seek refuge away from the study area. Once completed, noise and traffic activity would continue to persist, albeit at a lower level. Studies have indicated that breeding activity and population size of certain avian species (e.g., the eastern meadowlark [*Sturnella magna*] and horned lark [*Eremophila alpestris*]) decrease as traffic and traffic noise increases, while other species (e.g., the red-winged blackbird [*Agelaius phoeniceus*]) increase (Forman 2002; Clark 1979).

Because of increased noise, it is difficult to differentiate the impacts of visual disturbance, habitat fragmentation, or increased mortality from the proposed tollway. Species that benefit from edge habitats and tolerate increased noise and visual disturbances would occupy the ROW upon completion of the proposed SH 249 Extension. Overall, it is expected that wildlife diversity and composition would be altered because of the proposed tollway. However, no substantial long-term impacts to wildlife populations would result from increased noise and visual disturbances beyond the buffered area adjacent to the Preferred Alternative's ROW.

As listed, pine-hardwood forest is the dominant vegetation community within the study area. In addition to reducing the size of wildlife habitat, habitat fragmentation can result in degrading habitat quality and the disruption of wildlife movement, dispersal, and gene flow. The isolation of populations is dependent upon the species dispersal capabilities, probability of surviving highway crossings, and/or the tendency to avoid areas adjacent to roadways and highways (Conrey 2001).

Roadway pollutants (e.g., heavy metals, salts, organic compounds, oil and grease, and suspended solids) could affect wildlife adjacent to the proposed SH 249 Extension. The impacts would be minimized utilizing BMPs designed to limit erosion and to filter contaminants before entering aquatic systems.

No-Build Alternative

Under the No-Build Alternative, there would be no impact to wildlife species.

4.11 THREATENED AND ENDANGERED SPECIES

Numerous state and federally threatened and endangered species could occur in or near the proposed SH 249 Extension study area. Section 3.12 of the Draft EIS and the relevant discussion below describes the habitat requirements and the potential for suitable habitat for each identified species. Species not discussed in the subsequent sections would not be considered likely to occur within the study area, and it would be expected that the proposed tollway would have no impact on the species. (*Table 3-15* and *Table 3-16* provides for a full list of all related species.)

Limited field investigations/surveys were conducted to determine if the listed species would occur within the study area. Access to properties along the proposed SH 249 Extension ROW was limited to publicly accessible areas only. Although no threatened or endangered species were identified during the field surveys or through coordination with regulatory agencies, a more thorough study would be conducted during the next phase of the environmental clearance process for the Preferred Alternative. Continued coordination with TPWD would be completed as needed in compliance with the recent MOU for any impacts to threatened and endangered species or loss of habitat for the Preferred Alternative. If necessary, coordination would also be done with the USFWS.

4.11.1 Birds

The majority of the threatened or endangered birds that could occur within the study area would only appear on a transient basis. The Peregrine falcon, white-faced ibis, whooping crane, and wood stork could pass through the study area during migrations and possibly rest for a short time. Construction of the proposed tollway would not adversely impact birds in flight because the birds would be expected to fly at elevations well above the proposed tollway's travel lanes. If any should pause in the study area, the birds could continue to fly a short distance to an

undisturbed location. Because of property access issues and limited field surveys, an effect call cannot be made at the present time. A more detailed study would be conducted in the next phase of the environmental clearance process for the Preferred Alternative.

The red-cockaded woodpecker is a resident bird in east Texas that could be spotted in mature upland pine and pine-oak woodland habitat. Nesting and roosting occur primarily in open, mature (more than 60 years old) pine woodlands in the eastern part of the state. Preferred nesting and roosting sites are hollowed cavities in pine trees, with the highest preference for slash and longleaf pine woodlands. The bird's secondary choice would be loblolly and shortleaf pine woodlands.

The southern portions of Alternative Alignment B, B/C, C, and E would typically pass through developed areas where few, if any, stands of mature pine woodlands remain. The northern portions of the four alternative alignments would traverse a loblolly pine plantation that is owned and operated by timber companies.

As a result of timber harvesting and production activities in the study area, there is little old-growth forest remaining that would offer preferred habitat for the red-cockaded woodpecker. Previous population counts in 1993 indicated that more than 80 percent of the red-cockaded woodpeckers were found on state and federal lands within Texas. The remainder of the population was found on private land. A search of the TxNDD (conducted in November 2013) noted 15 sightings of the woodpecker approximately 4 to 5 miles from the study area. The latest sightings were dated 1990. There is also a rookery listed at approximately the same location, with a last sighting of 1993. There were no sightings listed on the TxNDD for the study area. Because of property access issues and limited field surveys, an effect call cannot be made at the present time. A more detailed study of the Preferred Alternative would occur in the next phase of the environmental clearance process for the SH 249 Extension. Detailed information would be provided to TPWD via a Tier I Assessment Form per the 2013 TxDOT and TPWD MOU.

4.11.1.1 Migratory Bird Treaty Act

The forested, wetland, and rangeland landscapes of the study area all provide potential habitat for migratory birds protected under the MBTA. The areas would all provide nesting habitat for migratory birds. A cursory nest survey would be conducted for the Preferred Alternative.

In accordance with the MBTA, no vegetation would be removed containing nests, eggs, or young should clearing occur during the nesting season (March 1 through September 30). Additionally, to avoid impacts, any active breeding areas found during the survey would be avoided entirely during the breeding season of any migratory birds identified within the study area.

4.11.1.2 Bald and Golden Eagle Protection Act

Although the bald eagle was delisted from the USFWS threatened and endangered species list on August 8, 2007, the USFWS continued to work with state wildlife agencies to monitor eagles for the last five years, where at that time the USFWS could propose to relist the species if it appears that the bald eagle needs further protection under the Endangered Species Act. While the bald eagle is no longer protected under the Endangered Species Act, the bird is currently protected under the Bald and Golden Eagle Protection Act and the MBTA. In addition, the bald eagle currently retains its status as a state-threatened species on TPWD's annotated list of rare, threatened, and endangered species.

While no confirmed sightings of bald eagles or nests are known within the proposed SH 249 Extension study area according to the TxNDD database, the bald eagle could nest along the riparian corridor of Mill Creek. Increases in traffic and construction noise may elevate stress levels for any potential breeding eagles, possibly causing the birds to flee or fail at breeding attempts. Construction outside of the breeding season may be considered to reduce stress levels on any eagles that might occur in the study area. Because of property access issues and limited field surveys, an effect call cannot be made at the present time. A more detailed study would be conducted for the Preferred Alternative in the next phase of the environmental clearance process. If investigations find the presence of eagles, the proposed SH 249 Extension would be analyzed for effects, and the appropriate construction buffers established by the National Bald Eagle Guidelines would be applied.

4.11.2 Fishes

The creek chubsucker could occur in the study area within small rivers or creeks of various types. Because of property access issues and limited field surveys, an effect call cannot be made at the present time. A more detailed study would be conducted for the Preferred Alternative in the next phase of the environmental clearance process.

4.11.3 Mammals

The Rafinesque's big-eared bat could occur in the study area within cavity trees of bottomland hardwoods, concrete culverts, and/or abandoned man-made structures. Because of property access issues and limited field surveys, an effect call cannot be made at the present time. A more detailed study would be conducted for the Preferred Alternative in the next phase of the environmental clearance process.

4.11.4 Mollusks

The Fawnfoot, Little Spectaclecase, Sandbank Pocketbook, Texas Pigtoe, and Wabash Pigtoe mollusks are known to occur within the San Jacinto River basin. Since the proposed project is located within the San Jacinto River basin, these species have the potential to occur within the proposed project area. Because of property access issues and limited field surveys, an effect

call cannot be made at the present time. A more detailed study would be conducted for the Preferred Alternative in the next phase of the environmental clearance process.

4.11.5 Reptiles

The Louisiana pine snake could occur in the study area within longleaf pine savannah with sandy, well-drained soils and substantial herbaceous ground cover. Because of property access issues and limited field surveys, an effect call cannot be made at the present time. A more detailed study would be conducted for the Preferred Alternative in the next phase of the environmental clearance process.

The timber/canebrake rattlesnake could occur in the study area within dense thickets and brush areas along floodplains of creeks and rivers. The snake could also be encountered in old pasture regrowth areas in unused farmlands. Because of property access issues and limited field surveys, an effect call cannot be made at the present time. A more detailed study would be conducted for the Preferred Alternative in the next phase of the environmental clearance process.

No-Build Alternative

Under the No-Build Alternative, there would be no impact to threatened or endangered species or their respective habitat.

4.12 FLOODPLAINS

The proposed SH 249 Extension would increase water runoff rates because of increased impermeable pavement surface area. However, the increase is not considered significant because drainage facilities (e.g., detention facilities) would be designed and constructed in compliance with guidelines of the impacted cities and flood control districts. The Preferred Alternative would be designed such that potential flooding would be avoided or minimized through applicable mitigation measures (e.g., crossing streams and tributaries at locations that would minimize impacts to floodplains). *Table 4-23* repeats water quality impacts as a point of comparison with total floodplain impacts by alternative alignment.

Table 4-23: Impacts to Floodplains by Alternative Alignment

Alternative Alignment	Increased Impermeable Surface Area (acres)[a]	Number of Stream Crossings[b]	Length of 100-year Floodplain Crossing (linear feet)
B	157	27	18,259
B/C	176	21	9,001
C	164	22	10,965
E	153	19	12,695

Source: The Proposed SH 249 Extension Study Team.

[a] Impermeable surface acreage is based on the alternative alignment length and 88-foot pavement widths.

[b] Stream crossings were determined from NWI and USGS mapping.

Any fill placement in the floodplain would need to be mitigated with floodplain storage (i.e., detention facilities) adjacent to the proposed tollway. The detention facilities would offset the increase in flows and provide additional floodplain storage to the watershed, which would restore and preserve the natural and beneficial floodplain values.

Additionally, the proposed tollway design would not increase the base flood elevation to a level that would violate applicable floodplain regulations and ordinances. The hydraulic design would be in accordance with current TxDOT and FHWA policies and standards. The proposed SH 249 Extension would permit the conveyance of the 100-year flood (inundation of the tollway being acceptable) without causing substantial damage to the proposed tollway or other property. As noted, both Montgomery and Grimes County participate in the National Flood Insurance Program.

No-Build Alternative

Under the No-Build Alternative, there would be no new encroachment on the 100-year floodplain. As such, the No-Build Alternative would not directly or indirectly affect floodplains in the study area. However, growth in the surrounding areas would continue, and potential indirect impacts to the floodplain could result from growth and development. Potential floodplain impacts would need to be regulated by floodplain policy.

4.13 WILD AND SCENIC RIVERS

No river or river segments listed in the national inventory of the National Wild and Scenic Rivers System are located within the proposed SH 249 Extension study area. Therefore, impacts to wild and scenic rivers are not anticipated under the four alternative alignments or the No-Build Alternative.

4.14 COASTAL BARRIERS

The SH 249 Extension study area is not mapped as part of the nation's Coastal Barrier Resource System. Therefore, impacts to coastal barrier resources are not anticipated under the four alternative alignments or the No-Build Alternative.

4.15 COASTAL ZONE MANAGEMENT PLAN AND ESSENTIAL FISH HABITAT

4.15.1 Coastal Management Zone

The proposed SH 249 Extension study area is not within the boundaries of the coastal management zone. Therefore, impacts to the coastal management zone are not anticipated under the four alternative alignments or the No-Build Alternative.

4.15.2 Essential Fish Habitat

There are no tidally influenced waters in the proposed SH 249 Extension study area. Therefore, the requirements of the Magnuson-Stevens Fishery Conversation and Management Act do not

apply, and impacts to essential fish habitat are not anticipated under the four alternative alignments or the No-Build Alternative.

4.16 CULTURAL RESOURCES

4.16.1 Archeological Resources

Alternative Alignment B, B/C, C, and E would have a moderate to high potential for Native American archeological sites. As the longest alternative alignment, Alternative Alignment B would require at least 9.1 to 10.8 miles of survey, with mechanical trenching on as much as 8.0 to 9.3 miles. Alternative Alignment E would involve at least 7.2 to 8.4 miles of survey, with trenching on 5.2 to 5.8 miles. Alternative Alignment B/C and C would intersect the same number of tributaries as Alternative Alignment E, but the shorter, more-direct Mill Creek crossing east of FM 1774 would result in the shortest required survey distance of the four alternative alignments. At least 5.2 to 6.3 miles of Alternative Alignment B/C and C would require survey, with trenching needed on 3.2 to 3.6 miles.

While drainage crossings may serve as focal points during the archeological survey of the Preferred Alternative, investigation would not be limited to only the drainage crossing segments. A majority of each alternative alignment would cross areas classified as Map Unit 2 on the PALM. Surface surveys with shovel testing would typically be recommended for each setting. Given the number of tributary crossings that would require archeological investigation, the likelihood of overlap between various survey segments, and the potential historic sites at unpredictable locations, it may be most logical to survey all of the Preferred Alternative.

4.16.2 Historical Non-Archeological Properties

Historical resource studies conducted for the MIS and throughout the Draft EIS environmental process determined the selection of potential alternative alignments that would have the least negative impact on historic properties. The study area remains heavily forested, and most development has been constructed in the last 50 years and is considered non-historic. Public involvement to date has not identified historic properties within the study area. Previously identified historic-age resources and cemeteries are all south of the study area, near Magnolia and Pinehurst. One exception is a church and cemetery at Piney Grove. The two resources would likely fall within the historical resources study area for the Preferred Alternative, but would still be outside the probable Area of Potential Effects. Another possible exception would be potential sawmill locations along Mill Creek. However, based on current aerial photographs, the locations would only be evident as historic archeological sites and, if discovered, would be documented as part of the archeological resources study.

At this time, no related Section 4(f) or Section 6(f) impacts would be anticipated for any of the alternative alignments. A reconnaissance survey would be conducted for the Preferred Alternative during the next phase of the environmental process to determine the presence of

historic properties and the effects to such properties, if found. The results of the survey would be reported in accordance with the National Historic Preservation Act and the Antiquities Code of Texas to provide sufficient documentation for determining the presence of and impacts to the historical properties and for consultation with the THC and the State Historic Preservation Office.

No-Build Alternative

Under the No-Build Alternative, there would be no impact to archeological or historical archeological sites.

4.17 HAZARDOUS MATERIALS

The proposed SH 249 Extension would pose very little risk of hazardous waste impacts. Instead, impacts would more likely be associated with currently operating sites/facilities or historical sites/facilities that have already impacted or have the potential to impact the existing environment. The Preferred Alternative's ROW would be acquired through acquisition. The acquisition of hazardous material sites/facilities could present a liability risk to TxDOT. Therefore, prior to acquisition, it is recommended that a more thorough review and/or subsurface investigation be conducted to evaluate the potential for hazardous material impacts to the existing environment and on the proposed SH 249 Extension.

Current and abandoned wells in or adjacent to the Preferred Alternative would be identified and plugged prior to construction. If contamination is encountered at any of the identified current or abandoned well sites, remediation would be necessary prior to construction.

A regulatory database search was conducted to identify known and potentially contaminated sites near the proposed SH 249 Extension. As listed in *Table 4-24*, four PST sites would be within the proposed SH 249 Extension ROW. Two of the four sites are also listed as the location of an LPST. Identified on *Exhibit 3-7*, all four sites are along existing FM 149, near where the proposed tollway would begin, and where all four alternative alignments would share the same ROW. As such, the four sites would have the potential to impact all four of the alternative alignments.

Table 4-24: Confirmed Hazardous Materials Sites within the Proposed ROW

Site ID	Facility Name/Address	Regulatory Database	Summary
1	Adkison Ready-Mix Concrete Inc. 106 West Rolling Wood Pinehurst, Texas 77362	Registered PSTs and LPST	The facility is listed as having two PSTs that have both been removed from the ground. The facility is also listed as the location of an LPST. According to the database report, there were no groundwater impacts or threats, or impacts to receptors. The facility has received final concurrence, and the case has been closed.

Table 4-24: Confirmed Hazardous Materials Sites within the Proposed ROW

Site ID	Facility Name/Address	Regulatory Database	Summary
2	Ken's Bread & Butter FM 249 (SH 149, FM 149) Pinehurst, Texas 77362	Registered PSTs and LPSTs	The facility is listed as having four PSTs, three of which have been removed and one that is active. The facility is also listed as the location of two LPSTs. According to the database report, one LPST contained former vapor impacts via the pathway of an underground utility. The LPST has received final concurrence, and the case has been closed. The second LPST could have impacted groundwater used by humans and endangered species within 500 feet to 0.25 mile to the southwest.
10	Pinehurst Co Southwestern Bell Telephone LP 35439 FM 149 Pinehurst, Texas 77362	Registered PST	The facility is listed as having one PST that is active. The facility is not listed as the location of an LPST.
11	Pinehurst Country Store 35427 FM 149 Pinehurst, Texas 77362	Registered PSTs	The facility is listed as having five PSTs, all of which are active. The facility is not listed as the location of an LPST.

Source: *Appendix F* of the Draft EIS.

Notes: LPST = leaking petroleum storage tank; PST = petroleum storage tank.

If any unanticipated hazardous materials and/or petroleum contamination are encountered during construction, the contamination would be handled in accordance with applicable state and federal regulations and TxDOT standard specifications. Additionally, the proposed SH 249 Extension would include the demolition and/or relocation of structures that may have asbestos-containing materials. Asbestos inspections, specification, notification, license, accreditation, abatement, and disposal (as applicable) would comply with state and federal regulations. Asbestos issues would be addressed during the ROW acquisition process prior to construction.

4.17.1 Petroleum Storage Tanks

Four facilities have PSTs that may be acquired for ROW purposes. All PSTs identified within the proposed ROW would need to be removed from the ground per TxDOT specifications prior to construction. Because of the age and location of the facilities, a subsurface investigation may be needed to evaluate the potential for subsurface releases within the study area.

4.17.2 Leaking Petroleum Storage Tanks

Two facilities (i.e., Adkison Ready-Mix Concrete Inc. and Ken's Bread & Butter) are known to have had one or more LPST that may be acquired for ROW purposes. According to a database review, an LPST at both sites has received final concurrence, and both cases have been closed. The second LPST at Ken's Bread & Butter is currently under site assessment for

impacts to groundwater used by humans and endangered species within 500 feet to 0.25 mile to the southwest.

4.17.3 Oil and Gas Well Sites

Oil and gas transmission lines would cross Alternative Alignment B, B/C, C, and E at various locations, and aboveground valve and gauging facilities are in proximity to the four alternative alignments. A more detailed study of the pipelines and oil and gas installations would be conducted after the selection of the Preferred Alternative and in the next phase of the environmental clearance process. The plugging of any identified wells and/or the remediation of polluted well sites associated with exploration activities would be recommended prior to construction.

4.17.4 Construction

Temporary aboveground storage tanks and equipment, vehicles, and machinery that contain oil and diesel fuel would typically be used during major construction projects. Construction-related impacts may include leaking valves, leaking hoses, or small spills that could occur during refueling activities associated with aboveground storage tanks or small leaks that could come from equipment, vehicles, and/or machinery. However, the impacts would be minimal and would not likely pose a substantial risk to the environment.

No-Build Alternative

Under the No-Build Alternative, there would be no additional hazardous materials impact in or around the study area. Hazardous waste impacts would likely still be associated with currently operating sites/facilities or historical sites/facilities that have already impacted or have the potential to impact the existing environment.

4.18 VISUAL AND AESTHETIC QUALITIES

Visual intrusion or privacy impacts from the proposed SH 249 Extension on adjacent properties were assessed. Upon evaluation, certain tollway characteristics (e.g., toll plaza areas, elevated structures/bridges, signs, and lights) could have a visual/aesthetic impact on the surrounding area. The visual assessment identified potential changes in visual resources and evaluated the effects on the primary viewers (e.g., motorists, single-family residents, multi-family residents, recreational users, commercial/office tenants, industrial tenants, and pedestrians) within the proposed SH 249 Extension study area.

The proposed tollway would alter the appearance of the forested and rural/suburban setting of the study area. The scattered nature of residential development would limit the most significant visual impacts to residential structures or future development located near the proposed tollway. However, as the viewer’s distance from the proposed SH 249 Extension increases, the relatively

flat terrain and forested vegetation would limit the visible aspects of the proposed tollway to only the elevated grade separations.

All four alternative alignments would cause potential visual impacts to Bethel Baptist Church, to commercial/retail buildings along existing SH 249 (south of FM 1774), and to the residential communities/subdivisions of Greentree Forest Estates, Oakcrest, Cripple Creek Farms West, Oak Hill Acres, and Hazy Hollow East (*Exhibit 3-1*). When approaching existing development and/or communities, more users and all viewers would have a view of the proposed tollway, but the approach would have less effect on the overall viewshed. Conversely, as the proposed tollway moves further away from developed areas, the result may provide a more significant change in the overall visual setting that would be observed by fewer individuals.

Alternative Alignment B would potentially affect the Piney Grove Missionary Baptist Church, the Piney Grove Cemetery, Chupacabra's Paintball Resort, and the residential communities/subdivisions of High Chaparral and Magnolia East. Alternative Alignment C could impacts the residential communities/subdivisions of Pine Vista Village, Mill Creek Landing, and Magnolia East. Along Alternative Alignment B/C, potential visual impacts would exist for the residential communities/subdivisions of Pine Vista Village, Mill Creek Landing, and Magnolia East. Alternative Alignment E would potentially affect the residential communities/subdivisions of Pine Vista Village and Magnolia East.

Because of the proposed tollway's length and width, Alternative Alignment B, B/C, C, and E would also have some impact on the aesthetic quality of the surrounding area. On an individual scale, visual intrusion would be most obvious on sections were the alternative alignments would be completely on a new location and/or within proximity to existing residences or sensitive community facilities.

Overall, the proposed SH 249 Extension would be as aesthetically pleasing as possible to minimize any perceived visual intrusion. Design and construction of the Preferred Alternative would be consistent with TxDOT design standards, including TxDOT Houston District's Green Ribbon Project. The Green Ribbon Project is a context-sensitive design solution that has been developed to provide continuity to roadway enhancements (AASHTO 2013). The project integrates landscape, architecture, and public art into the engineered aspects of state highways in the Greater Houston area.

No-Build Alternative

Under the No-Build Alternative, there would be no visual or aesthetic impact within the study area because the No-Build Alternative would not directly alter any visual or aesthetic resource. However, increased traffic congestion associated with the No-Build Alternative and the current development pressures in the region could lead to short and long-term impacts on the visual and aesthetic quality of the local and regional roadway network.

4.19 ENERGY

Both the construction and operational energy requirements of Alternative Alignment B, B/C, C, and E were considered. The energy needed to construct the proposed SH 249 Extension would increase proportionally with respect to the length of each alternative alignment.

However, completion of the proposed SH 249 Extension would compensate for the energy used during construction by increasing the efficiency of vehicles that would use the new tollway and would divert from current travel routes located a distant from the new extension. Increased energy efficiency on the proposed SH 249 Extension would be attributed to its free-flow, controlled-access features and would result in decreased vehicle delays and more efficient vehicle operating speeds. The proposed SH 249 Extension is consistent with the Federal Energy Policy and Conservation Act.

The proposed SH 249 Extension would increase access, decrease travel times, and ease congestion in nearby areas. Therefore, the long-term operational energy savings would offset any initial construction energy use.

No-Build Alternative

Under the No-Build Alternative, the proposed SH 249 Extension would not be built, which would not result in any associated energy consumption in or around the study area. However, congestion would continue to increase on existing SH 249 and the local arterial roadways, and travelers would not have any additional roadway options to accommodate travel within the study area and larger region. The lack of travel options would lead to increased travel times and energy consumption in and around the study area.

4.20 CONSTRUCTION IMPACTS

The following section describes potential impacts from construction of the proposed SH 249 Extension. The section only includes construction impacts for resources that were not discussed in the previous sections.

4.20.1 Utilities

Alternative Alignment B, B/C, C, or E may affect utilities (i.e., water, sewer, electric, and natural gas line) during construction. The contractor would contact the appropriate local officials to identify and locate all utility lines within the ROW and construction staging areas. The contractor would also coordinate a work schedule that would avoid and minimize any disruption to utility services during construction.

4.20.2 Maintenance and Control of Traffic

Although the proposed SH 249 Extension would be constructed on a new location, traffic on area roadways would still be disrupted. Maintenance of the current traffic flow on the existing roadway network would be planned and scheduled to minimize impacts to the traveling public.

Traffic control during construction would be in accordance with Part VI (Traffic Controls for Street and Highway Construction and Maintenance Operations) of the Texas Manual on Uniform Traffic Control Devices.

In the short-term, an increase in traffic congestion and potential modifications to traffic patterns may occur near other roadways during construction. The changes could cause temporary delays for emergency responders. Emergency service providers (i.e., police, fire, and emergency medical services) would receive notification and be provided accommodations prior to construction or ramp closings. With applicable information, emergency responders can plan detours in advance of an emergency. News releases of major construction activities and schedules would be provided to the local public.

4.20.3 Pollution Control

TxDOT would require the contractor to take appropriate measures to prevent, minimize, and control accidental spills that may occur during construction. All construction equipment and materials would be removed as soon as the schedule permits.

A potential for construction-related impacts to existing and unreported hazardous waste sites may occur during excavation or grading activities. Further investigation would assist in identifying sites that could be affected because of proximity to the Preferred Alternative. If an unreported or unknown site is discovered during construction activities, TCEQ regulatory procedures would be followed to eliminate or minimize any adverse environmental impacts.

Roadway and bridge construction would involve excavation of possibly unsuitable materials, placement of embankments, and use of materials (e.g., crushed aggregates, asphalt, and cement). Stockpiling and disposal of excavation and construction materials may be considered aesthetically displeasing by some residents and businesses within the study area. By using BMPs for erosion control measures, stockpiling would be a temporary condition and would not cause adverse permanent impacts. The contractor would place erosion and pollution control measures on haul roads, construction exits, borrow pits, embankments, and areas designated for disposal of waste materials.

The proposed SH 249 Extension and its associated facilities (e.g., on-ramps and off-ramps) would be adjusted during final design to avoid or minimize impacts to streams and other environmentally sensitive areas.

No-Build Alternative

Under the No-Build Alternative, there would be no construction-related impacts and no need for subsequent mitigation because the proposed SH 249 Extension would not be constructed.

4.21 THE RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES VERSUS LONG-TERM PRODUCTIVITY

Alternative Alignment B, B/C, C, and E are consistent with state and local plans, programs, and policies to improve overall long-term access. The most evident and long-term benefits under each of the four alternative alignments would be improved local and regional system linkage, decreased congestion, and increased safety.

The short-term uses of the environment associated with Alternative Alignment B, B/C, C, and E would be typical of roadway construction. As described throughout, short-term impacts from construction may include disturbances to local businesses and residences, detours, and changes in access that have the potential to produce minor traffic delays. Other short-term environmental impacts may involve:

- Minor air quality impacts from clearing, earthwork, construction, and fugitive dust from construction vehicles;
- Unavoidable construction-related noise impacts that would normally be limited to daylight hours when occasional loud noises are more tolerable;
- Temporary erosion, sedimentation, turbidity, and the potential displacement of aquatic flora and fauna; and,
- Visual impacts related to construction.

No-Build Alternative

Under the No-Build Alternative, there would be no short-term, construction-related impacts, but the No-Build Alternative would not maintain and/or advance long-term productivity or the recognized benefits of the proposed SH 249 Extension.

4.22 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

The implementation of Alternative Alignment B, B/C, C, or E would involve the commitment of natural, physical, human, and fiscal resources. Land used for the proposed tollway would be considered an irreversible commitment during which the land is used as a transportation facility. However, if a greater need arose, or if the facility would no longer be needed, the land could be converted to another use. Presently, there is no reason to consider that such a conversion would ever be necessary or desirable.

Considerable amounts of labor, fuel, and materials would be expended when constructing the proposed SH 249 Extension. Additionally, substantial amounts of labor and natural resources would be required for the fabrication and preparation of the construction materials. Although generally irretrievable, the materials are not in short supply, and their use would not have an adverse effect upon continued availability of any particular resource. Construction would also require an expenditure of fossil fuel. Although fossil fuel is an irretrievable resource, the amount

expended toward construction could be offset by the benefits of improved mobility in the region that could improve fuel efficiency.

The commitment of resources is based on the concept that residents in the immediate area, region, and state would benefit by the improved quality of the transportation system. The benefits would provide improved accessibility and safety, time savings, and a greater availability of quality services. The benefits are anticipated to outweigh the commitment of resources.

No-Build Alternative

The No-Build Alternative would involve no irreversible or irretrievable commitment of human and/or natural resources.

4.23 PREFERRED ALTERNATIVE RECOMMENDATION

The need for and purpose of the proposed SH 249 Extension is to improve the mobility, safety, and effectiveness of existing SH 249 and the surrounding transportation network. As discussed in Section 2 of the Draft EIS, the No-Build Alternative would neither safely nor adequately accommodate existing and future traffic volumes on roadways within the proposed SH 249 Extension study area. The No-Build Alternative would result in higher traffic volumes on existing roadways, which would lead to increased congestion and longer travel times in and around the study area.

While construction costs for the No-Build Alternative would be substantially lower than for any of the four alternative alignments, the No-Build Alternative would result in higher maintenance costs for the area's existing roadways because of increased traffic volumes and roadway use. The No-Build Alternative would also require additional short-term restoration and safety improvements to enhance operations of the existing transportation network. When compared to all four alternative alignments, maintenance improvements for the No-Build Alternative would cause more traffic disruptions along the existing roadways. Under the No-Build Alternative, traffic conditions would remain essentially unchanged with a high likelihood of increased current and future traffic congestion. In all, the No-Build Alternative would not offer a complete solution for improving mobility, safety, and the transportation network effectiveness. Therefore, the No-Build Alternative does not meet the need for and purpose of the proposed SH 249 Extension.

Instead, the alternative alignments that would meet the need for and purpose of the proposed SH 249 Extension are summarized in *Table 4-25*.

Table 4-25: Summary of Impacts by Alternative Alignments

Criteria	Unit	Alignment B	Alignment B/C	Alignment C	Alignment E
Length of proposed SH 249 Extension	Miles	15.3	15.0	15.3	14.2
Estimated ROW needed	Acres	741	727	741	688
Pipeline crossings	Number of crossings	9	8	8	8
Potential displacements/ relocations of residences and businesses	Number of displacements	26	7	7	18
Community cohesion[a]	High/Medium/ Low	Medium	Low	Low	High
NWI (potential wetlands)	Acres	11.0	5.0	2.8	11.5
Floodplain crossings	Linear feet	18,259	9,001	10,965	12,695
Stream crossing (USGS topographic map)	Number of crossings	27	21	22	19
Vegetation[b]	Acres	711	724	730	691
Previous public involvement[c]	High/Medium/ Low	Low	High	Medium	Medium

Source: The Proposed SH 249 Extension Study Team.

[a] Impacts to community cohesion involve the bisecting, separating, or isolating of neighborhoods.

[b] Vegetation involves forest, upland, and habitat fragmentation.

[c] The concept is determined by the public's preference of alternative alignments.

Notes: NWI = National Wetland Inventory; ROW = Right of Way; USGS = United States Geological Survey.

At approximately 14.2 miles in length, Alternative Alignment E would be the closest northern bypass around Todd Mission and Magnolia. The alternative alignment would require the least acres of additional ROW, but would have the highest potential to impact wetlands and community cohesion. Alternative Alignment E would also have high impacts related to displacements/relocations and floodplains.

Alternative Alignment B and C would be the furthest northern bypass around Todd Mission and Magnolia. Both alternative alignments would be 15.3 miles in length and would require the most ROW. Alternative Alignment C would remove the most acres of vegetation and contribute the most to habit fragmentation. However, the alternative alignment would have the lowest potential to impact wetlands and floodplains. Alternative Alignment C would also have low impacts to existing residential/commercial development, which would limit impacts to displacements/relocations and community cohesion. Conversely, Alternative Alignment B would cross the most streams, have the largest impact on floodplains, and have the second highest

potential to affect wetlands. Alternative Alignment C would lead to the most displacements/relocations and have a considerable impact to community cohesion.

At approximately 15 miles in length, Alternative Alignment B/C would require the second fewest acres of additional ROW. Alternative Alignment B/C would have fewer impacts on wetlands than Alternative Alignment B and E and would have the lowest impact on floodplains. The alternative alignment would have a low potential to impact existing residential/commercial development and, subsequently, would have a limited impact on community cohesion. Based on the findings and public's input, Alternative Alignment B/C is the most desirable of the four alternative alignments.

For the above noted reasons, Alternative Alignment B/C was selected as the Preferred Alternative.

SECTION 5: INDIRECT IMPACT ANALYSIS

Section 5 describes the indirect impact analysis conducted for the proposed SH 249 Extension. The analysis was conducted in accordance with CEQ, FHWA, and TxDOT regulations and guidance documents. CEQ defines indirect impacts as:

> Effects, which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems. (40 CFR 1508.8)

As to the cause and effect relationship between the proposed SH 249 Extension and any indirect impacts, CEQ defines related indirect impacts that may include induced changes to land use resulting in resource impacts. Other indirect impacts may involve the potential alteration of, or encroachment on, the affected environment. While the potential alteration and encroachment effects are described qualitatively, a quantitative assessment focuses on the potential induced changes to land use that would potentially result from the proposed SH 249 Extension.

Methodology

The methodology for the indirect impact analysis is based on the findings in the National Cooperative Highway Research Program (NCHRP) *Report 466, Desk Reference for Estimating Indirect Effects of Proposed Transportation Projects* (NCHRP 2002) and the revised *Guidance on Preparing Indirect and Cumulative Analyses* (TxDOT 2010). Both documents specify a seven-step process for analyzing indirect impacts.

1. Scoping
2. Identify the Study Area's Goals and Trends
3. Inventory the Study Area's Notable Features
4. Identify Impact-Causing Activities of the Proposed Action and Alternatives
5. Identify Potentially Substantial Indirect Effects for Analysis
6. Analyze Indirect Effects and Evaluate Results
7. Assess Consequences and Consider/Develop Mitigation (When Appropriate)

5.1 STEP 1: SCOPING

Step 1 identifies potentially significant issues, sets appropriate boundaries for impact analysis, and documents relevant past, present, and future actions within the set boundaries. The scoping process allows for interagency coordination concerning the types of indirect impacts to be evaluated and methodologies to be used. Generally, scoping establishes:

- The need for and purpose of a proposed project;
- Social, cultural, and natural resource issues that affect the human environment; and
- Potentially significant issues and effects for further analysis.

The NCHRP Report 466 states that "development effects are most often found up to 1 mile around a freeway interchange, up to 2 to 5 miles along major feeder roadways to the interchange, and up to one-half (sic) mile around a transit station" (NCHRP 2002). The report offers only general guidance, and individual projects must be analyzed on a case-by-case basis. The geographic boundary within which possible indirect impacts could occur is considered the Area of Influence (AOI).

Indirect impacts from the proposed SH 249 Extension were analyzed to 2035 (the latest year when H-GAC's long-range plan [the *2035 RTP Update*] had been fully evaluated based on projections) and 2040 (the year of H-GAC's land use data and mapping). Performance of the proposed SH 249 Extension beyond 2035 and 2040 cannot yet be reasonably evaluated. The indirect impact analysis also includes historical demographic information in order to establish population trends.

The AOI was established based on information from the *2035 RTP Update* in conjunction with the *Montgomery County Mobility Plan* (H-GAC 1998), Magnolia's 20-year comprehensive plan entitled *Magnolia on the Move* (City of Magnolia 2013), and other growth capacity elements. The AOI accounts for the proposed SH 249 Extension study area, local planner input, and the cities of Todd Mission, Magnolia (including the voluntary ETJ), Pinehurst, Stagecoach, Plantersville, Bobville, and Dobbin.

As detailed on *Exhibit 5-1*, the AOI includes SH 105 to the north; Lake Creek and FM 2978 to the east; Spring Creek and Walnut Creek to the south; and Walnut Creek, the UPRR railway, and FM 1774 to the west. The northern portion of the AOI (north of FM 1488) is primarily undeveloped land, much of which is forested with primarily residential development within and around Todd Mission, Plantersville, and Bobville and along the major roadways of FM 1774, FM 149, FM 1488, and FM 1486. The central and southern portions of the AOI (along and south of FM 1488) are primarily developed with concentrated residential and limited commercial development within and around the cities of Magnolia, Pinehurst, and Stagecoach and along the major roadways of FM 1774, FM 149, and FM 1488. Small sections of the AOI in the area are forested and undeveloped land.

The AOI encompasses approximately 100,616 acres (not including street ROW) within Montgomery, Grimes, and Waller counties. (Waller County makes up only a small portion of the AOI with roughly 477 acres, or 0.47 percent, of the total 100,616 acres.) Given the small percentage of Waller County within the AOI, the indirect impact analysis instead focuses on Montgomery and Grimes counties and the previously mentioned cities. The proposed SH 249

Extension is considered rural because of the amount of undeveloped land (e.g., farmland, ranchland, and vacant land) within the AOI. However, land use is rapidly changing to denser residential properties, with some commercial growth and subsequently less undeveloped land. *Table 5-1* identifies existing (2013) and predicted (2040) land use (see Exhibit 5-2 and 5-3).

Table 5-1: 2013 and 2040 Land Use within the AOI

Land Use Type	2013 Land Use (acres)	2013 Land Use (percent)	2040 Land Use (acres)	2040 Land Use (percent)	AOI Percent Change
Commercial	395.14	0.39	412.27	0.41	0.02
Government/ Medical/Education	219.88	0.22	219.88	0.22	0.00
Industrial	45.38	0.05	45.38	0.05	0.00
Other	1.94	0.00	1.94	0.00	0.00
Parks and Open Space	482.07	0.48	482.07	0.48	0.00
Residential	24,288.72	24.14	35,243.89	35.03	10.89
Undevelopable	5,898.81	5.86	5,898.81	5.86	0.00
Undeveloped (Farmland, Ranchland, and Vacant Land)	69,135.85	68.71	58,163.55	57.81	-10.91
Water	148.30	0.15	148.30	0.15	0.00
Total	**100,616.07**	**100**	**100,616.07**	**100**	**0.00**

Source: H-GAC 2013a.

5.2 STEP 2: IDENTIFY THE STUDY AREA'S GOALS AND TRENDS

Step 2 focuses on assembling information regarding general goals and trends within the study area (or AOI). The goals and trends in question are independent of the proposed SH 249 Extension and typically involve social, economic, ecological, and/or growth-related issues.

Noted throughout the Draft EIS, the proposed tollway would be located in Montgomery and Grimes counties. Montgomery County is part of the Greater Houston area that has recently been designated by the EPA as a marginal non-attainment area for 2008 ozone standard. Therefore, transportation conformity rules would apply for Montgomery County.

The *2035 RTP Update* defines transportation systems and services within the eight-county region, which includes the boundaries of the Montgomery and Waller County portions of the AOI (H-GAC 2013a). The Grimes County portion of the AOI is not included in the eight-county region. The *2035 RTP Update* addresses regional transportation needs that are identified through forecasting current and future travel demand, through developing and evaluating system alternatives, and through selecting the options that best meet the mobility needs of the region. Although the proposed SH 249 Extension is not currently in the funded portion of the

2035 RTP Update, the proposed tollway is planned for inclusion in the long-range plan. (H-GAC 2013a)

As a logical result of the larger area's population and employment growth, construction of predominately residential and some commercial development has increased. Magnolia, which is located in the center of the AOI, was settled in 1840 and was referred to as Mink's Prairie, after one of its early settlers, Joseph Mink. The city was officially renamed to Magnolia in 1903 and was incorporated in 1968. Because of the 25 percent growth over the last 10 years, and a 50 percent increase in commercial permits from March 2012 to March 2013, the city prepared *Magnolia on the Move*, a year-long planning process that culminated with a 20-year comprehensive plan (City of Magnolia 2013). Adopted on April 9, 2013, the plan covers areas from neighborhood development and community mobility to parks and other amenities. A top priority in the plan is to build a better transportation network.

Table 5-2 identifies the demographic forecast for Montgomery, Grimes, and Waller counties, alongside Todd Mission, Magnolia, and Pinehurst. From 2010 to 2035, the forecast predicts steady growth for all areas, with a substantial increase within Magnolia and Pinehurst.

Table 5-2: Area 2010 and 2035 Demographic Forecast

Area[a]	Population		
	2010	2035	Percent Change
Montgomery County	455,746	857,637	88.2
Grimes County	26,604	29,651	11.45
Waller County	43,205	75,618	75.02
Todd Mission	107	172	60.74
Magnolia	1,393	6,406	359.87
Pinehurst	2,097	12,746	507.82

Source: U.S. Census 2010; Texas State Data Center 2012; H-GAC 2013c.

[a] Because Montgomery County is part of the H-GAC planning area, the population forecast above is sourced from H-GAC to be consistent with the *2035 RTP Update* (H-GAC 2013a).

Note: Although 2010 data exists for Plantersville, Dobbin, and Stagecoach, data predicting future conditions are unavailable.

Table 5-3 identifies historical and forecasted employment for the counties in the Houston-Galveston-Brazoria CMSA. From 2000 to 2035, employment is predicted to grow. 2010 employment numbers have outpaced the predicted 2035 employment numbers in Fort Bend, Brazoria, and Chambers counties, while Montgomery County shows steady growth from 2010 to 2035.

Table 5-3: Area 2000 to 2035 Employment Forecast

County	Employment			
	2000[a]	2010[b]	2035[c]	2010 to 2035 Percent Change
Harris	1,653,892	2,110,358	3,144,992	90.2
Fort Bend	174,803	298,113	297,728	70.3
Montgomery	143,259	231,976	239,692	67.3
Brazoria	112,904	154,727	147,719	30.8
Galveston	122,894	151,735	169,492	37.9
Liberty	28,548	33,009	33,778	18.3
Waller	15,896	20,715	23,250	46.3
Chambers	12,353	16,798	12,779	3.4
CMSA Total	**2,264,549**	**3,017,431**	**4,069,430**	**79.7**

Source: [a] U.S Census 2000; [b] U.S. Census 2013 (2007-2011 American Community Survey); [c] H-GAC 2013c.

Much of the forecasted growth is associated with current development and the availability of land for future development within the AOI. The direction of growth is consistent with the goals and objectives of Montgomery and Grimes counties, as well as the surrounding communities. The growth patterns are expected to continue well into the foreseeable future.

The AOI is experiencing current and predicted residential development, and much of the development is master planned communities that include Thousand Oaks (constructed), Magnolia Ridge (under construction), Magnolia Woods (planned), Magnolia Ranch (planned), Magnolia Oaks (planned), Mill Ridge (planned), Magnolia Legacy Trust (planned), Timbers at Mill Creek (planned), Crown Ranch (planned), and an unnamed +/- 1,929-acre tract adjacent to Crown Ranch (planned). Lot sizes generally range from 50 to 80 feet, and acre/lot prices range from the $16,000 per gross acre to $26,000 to $32,000 per lot. The master planned communities involve wooded home sites, playgrounds, fitness trails, water features, natural lakes, and the preservation of large, mature oak trees. In addition, the Magnolia Ridge master plan has designated land for a new Magnolia ISD elementary school. *Table 5-4* identifies residential developments that are currently being built and/or are platted, and *Table 5-5* shows the number of undeveloped tracts of land that are planned for predominantly residential development.

Table 5-4: Residential Development within the AOI

Name of Development	Number of Homes to Be Built/Platted	Status of Development
Autumnwood Community	99	75 percent complete
Crown Ranch	347	Not under construction
Glen Oaks	184	Not under construction
Hidden Lake Estates	147	Ongoing construction and homes and lots for sale
High Meadow Estates	237	Constructed, Phase 3 grand opening, and lots for sale
Indigo Lake Estates	720	Constructed and lots for sale
Lake Windcrest	700+	Constructed and homes for sale
Lakes of Magnolia	298	Constructed and homes for sale
McCall Sound	41	Constructed and homes for sale
Mostyn Manor Estates	120	Constructed and homes for sale
Old Mill Lake	100+	Constructed and homes and lots for sale
Sendera Lake Estates	155	Constructed and homes and lots for sale
Thousand Oaks	200	Master Planned Community (lots for sale)
Westwood	1,193	Constructed and lots for sale
Woodland Oaks	423	Constructed and homes for sale
Magnolia Ranch	1,133	Master Planned Community (not under construction)
Magnolia Ridge	1,223	Master Planned Community (under construction)
Magnolia Woods	5,732	Master Planned Community (not under construction)
Magnolia Oaks	873	Master Planned Community (not under construction)

Source: The Proposed SH 249 Extension Study Team.

Table 5-5: Undeveloped Tracts Planned for Development within the AOI

Name of Tract Development	Acres	Status of Development
Unnamed property located west of FM 1486 in Montgomery County and extending to the east line of FM 1774 in Grimes County	1,929	Planned for a Master Planned Community that is adjacent to Crown Ranch
Mill Ridge	123	Planned with no information on what type of development will occur on the site
Magnolia Legacy Trust (east and west of FM 1488)	1,121	Planned for a Master Planned Community and commercial development
Timbers at Mill Creek (between FM 1488 and FM 1486)	5,934	Planned for a Master Planned Community
Primewood Investments (east of FM 149)	2,205	Planned with no information on what type of development will occur on the site
Primewood Investments (east of FM 149)	189	Planned with no detailed information on what type of development will occur on the site
Devon Oil and Gas	833	Planned with no information on what type of development will occur on the site
Ax EM Investments	25	Planned with no information on what type of development will occur on the site
Schoessow	80	Planned with no information on what type of development will occur on the site
Rhodes	209	Planned with no information on what type of development will occur on the site

Source: The Proposed SH 249 Extension Study Team.

The *Montgomery County Mobility Plan* and *Magnolia on the Move* continue to guide development in and around the proposed SH 249 Extension. The mobility plan outlines the need to invest in numerous infrastructure improvements, including new and improved roadways, transit services, and traffic management systems, to keep pace with the rapid development occurring within the county, while simultaneously maintaining the rural feel of the area (H-GAC 1998). In addition, Montgomery County relies on the surrounding cities to institute their comprehensive plan. *Magnolia on the Move* outlines how to protect the community's identity, while anticipating new demands on infrastructure and natural resources (City of Magnolia 2013). At the outset of the plan's development process, residents identified traffic congestion as a major deterrent to Magnolia's quality of life.

5.3 STEP 3: INVENTORY THE STUDY AREA'S NOTABLE FEATURES

Step 3 involves gathering additional data on environmental features and compiling the data to create a baseline of environmental conditions. The baseline would be used to assess notable features or specifically valued, vulnerable, or unique elements of the environment that could be indirectly impacted by the proposed SH 249 Extension. As depicted on *Exhibit 5-1*, the following

is an inventory of ecosystem conditions, socioeconomic conditions, and notable features in the AOI.

- The proposed SH 249 Extension is located in Montgomery and Grimes counties. Montgomery County is part of the Greater Houston area that has recently been designated by the EPA as a marginal non-attainment area for 2008 ozone standard. Therefore, transportation conformity rules would apply for Montgomery County.
- There is one medical center located within the AOI, the Magnolia Family Medicine is at 6912 FM 1488 Road in Magnolia.
- There are 42 churches located within the AOI.
- There are 24 schools located within the AOI.
- There are four registered daycare facilities within the AOI.
    - CC Child Care is at 32212 Decker Prairie Road in Magnolia.
    - Child Care Plus is at 29114 Hidden Lake Court in Magnolia.
    - Heart Start Day Care is at 419 Commerce Street in Magnolia.
    - Donnie’s Day Care is at 18115 Buddy Riley Boulevard in Magnolia.
- There are seven cemeteries located within the AOI.
    - Decker Prairie Cemetery is at Cemetery Road in Magnolia.
    - Klein Memorial Park Cemetery is at 32739 SH 249 in Pinehurst.
    - Pate Cemetery is at 26950 Dobbin Huffsmith Road in Magnolia.
    - Tillis Prairie Cemetery is in Magnolia (east of Spur 149 and north of Dobbin Huffsmith Road).
    - Rose Hill Cemetery is in Grimes County (south of SH 105 and off County Road 203).
    - Piney Grove Missionary Baptist Church Cemetery is at 16851 FM 1488 in Magnolia.
    - Todd Mission Cemetery is in Grimes County (east of FM 1774 and north of Mill Creek Drive in Todd Mission).
- There are three police departments and one sheriff’s department located within the AOI.
    - The Montgomery County Sheriff's Office is at 31350 Friendship Lane in Magnolia.
    - A Magnolia Police Department is at 16835 FM 1488 in Magnolia.

  - A second Magnolia Police Department is at 18111 Magnolia Conroe Road in Magnolia.
  - The Stagecoach Police Department is at 16930 Boothill Road in Stagecoach.
- There are five fire stations located within the AOI.
  - A Magnolia Volunteer Fire Department is at 32707 FM 2978 in Magnolia.
  - A second Magnolia Volunteer Fire Department is at 11515 FM 1488 in Magnolia.
  - A third Magnolia Volunteer Fire Department is at 107 Gayle Street in Magnolia.
  - The Dobbin Fire Department has no address but is south of Old Highway 105 and north of Bobville Road.
  - The Plantersville Stoneham Volunteer Fire Department is at 15985 FM 1774 in Plantersville.
- Water resources within the AOI are Mill Creek, Spring Creek, Walnut Creek, and each creek's various tributaries.
- Vegetation within the AOI includes 69,136 acres of natural (not maintained) vegetation. The proposed SH 249 Extension is located in the east Texas forested vegetation zone, with the loblolly pine-oak forest association being the dominant vegetation community followed by mixed hardwoods within floodplains.
- Threatened and endangered species within the AOI are not known at this time and would be studied in further detail during the next phase of the environmental clearance process. However, the proposed SH 249 Extension would lead to loss of habitat. The loss of habitat could affect threatened and endangered species that may be in the area.
- The Texas Renaissance Festival opened in 1974 and is an interactive theme park that embraces different eras, including the 16th century and beyond. Dates of operation for 2013 run from October 12th through December 1st, from 9:00 a.m. to 8:00 p.m. The festival is also open two weekdays (i.e., November 5th and 6th) for the School Days Program from 9:00 a.m. to 4:00 p.m. The festival is at 21778 FM 1774 in Plantersville.

5.4 STEP 4: IDENTIFY IMPACT-CAUSING ACTIVITIES OF THE PROPOSED ACTION AND ALTERNATIVES

Step 4 identifies and assesses impacts that may conflict with the goals and the notable features identified in Step 2 and 3 of the indirect impact analysis. *Table 5-6* summarizes the direct impacts resulting from the proposed SH 249 Extension.

Table 5-6: Summary of Direct Impacts Resulting from the Proposed SH 249 Extension

Type of Activity	Project-Specific Activity	Relevant Details
Modification of regime effects	Alteration of ground cover/New location roadway	Approximately 510 to 572 acres of undeveloped land would be converted from forested and/or pastureland to transportation use.
Modification of regime effects	Alteration of habitat/New location roadway	Impacts to wildlife would result from modifications to vegetation communities and permanent loss of habitat. It is not known at the present time if there are any threatened or endangered species residing within the proposed SH 249 Extension study area. Detailed field studies would be conducted during the next phase of the environmental clearance process, and it would be determined if the proposed tollway would have any permanent impacts to threatened or endangered species or their habitat.
Modification of regime effects	Possible change in drainage pattern(s)/New location roadway	Because much of the proposed SH 249 Extension is on a new location, construction of the proposed SH 249 Extension would likely modify drainage adjacent to the proposed tollway. Natural surface flow would potentially be disrupted and would be diverted to open ditches on either side of the roadway, which would lead to an outfall at stream crossings along the proposed tollway.
Land transformation and construction	Improved transportation facility/New location roadway	Approximately 688 to 741 acres of ROW would be required. Of the ROW to be acquired, approximately 510 to 572 acres of undeveloped land would be converted from forested and/or pastureland to transportation use.
Resource extraction	Improved transportation facility/New location roadway	Soil would potentially be excavated to accommodate the construction of open ditches and waterway crossings for the proposed SH 249 Extension.
Processing	Improved transportation facility/New location roadway/Material storage	It is anticipated that storage of construction materials would occur off-site. Based on usual practices, the contractor may choose to use a portion of a parking lot that is not completely occupied, undeveloped land, or another site for material storage. The storage of materials on undeveloped land or another site could result in increased impacts to natural resources.
Land alteration	Improved transportation facility/New location roadway	Because the proposed SH 249 Extension is on a new location, there would be several land alterations. Approximately 688 to 741 acres of ROW would be required. Of the ROW to be acquired, approximately 510 to 572 acres of undeveloped land would be converted from forested and/or pastureland to transportation use. In addition, the proposed SH 249 Extension would traverse waterways, requiring the construction of culverts or bridges, which could place fill into waters of the U.S.
Resource renewal	Improved transportation facility/New location roadway	It is not known at the present time how much vegetation would be reestablished following construction and specific landscaping plans. However, a majority of the 400-foot ROW not used for construction would likely be revegetated with native grasses.

Table 5-6: Summary of Direct Impacts Resulting from the Proposed SH 249 Extension

Type of Activity	Project-Specific Activity	Relevant Details
Changes in traffic patterns	Improved transportation facility/New location roadway	Traffic patterns will change and bring traffic to this area. In 2035, projections note that 13,166 VPD to 83,780 VPD would use the proposed tollway. In addition, the proposed SH 249 Extension would have access to/from major existing roadways within the area (e.g., FM 149, FM 1488, FM 1486, and FM 1774), which would allow commuters to enter the proposed tollway without having to travel to FM 1774.
Waste emplacement and treatment	Improved transportation facility/New location roadway/ Material storage	While detailed construction plans have not been determined at the present time, based on other construction projects, it is anticipated that soil excavated from the proposed SH 249 Extension would be stockpiled for use on other projects or sold for other uses (provided the soil is not contaminated). The contractor may choose to provide sanitary facilities for employees in the field. As discussed in Section 4.17 of the Draft EIS, the proposed tollway could potentially affect four confirmed hazardous material sites.
Chemical treatment	Improved transportation facility/New location roadway	Detailed landscaping plans have not been determined at the present time, but during the revegetation of the ROW, fertilizers could be used and periodic applications of herbicide could occur during the maintenance phase of the proposed SH 249 Extension.
Access alteration	Improved transportation facility/New location roadway	Alternative Alignment E would directly affect access to 23 structures. Three of the 23 structures would be denied roadway access. Because roadway access cannot be denied to properties, TxDOT would have to provide access or displace all three structures. The other three alternative alignments would not restrict access. The proposed SH 249 Extension would provide new access where the proposed tollway meets FM 149, FM 1488, FM 1486, and FM 1774. The proposed SH 249 Extension would offer improvements to travel patterns and accessibility within the study area by offering a commuter route facility and by providing traffic congestion relief to the existing roadways. The controlled-access design of the proposed tollway would incorporate access where needed so as not to impede the use of existing intersections or interrupt travel on existing roadways. Access to existing roadways would be improved, which would allow through traffic (such as truck traffic) the option of using a commuter route. Residents would still have the option of using the existing roadway system or the commuter route when traveling within or beyond the study area. In addition, travel times to major attractors in the study area (e.g., the Texas Renaissance Festival and Magnolia) would be more convenient in not having to use local roadways, which become congested, especially on Texas Renaissance Festival weekends.

Source: The table summarizes Section 4 of the Draft EIS.

Note: See the list of acronyms and abbreviations for a full listing of abbreviations used in the table.

5.5 STEP 5: IDENTIFY POTENTIALLY SUBSTANTIAL INDIRECT EFFECTS FOR ANALYSIS

Indirect effects associated with the proposed SH 249 Extension are cataloged, and potentially significant impacts meriting further analysis are identified. The discussion of general issues is organized by the three basic types of indirect effects: encroachment-alteration effects, induced growth effects, and effects related to induced growth.

Encroachment-alteration effects are defined as the alteration of the behavior and functioning of the affected environment caused by a project's encroachments. The impacts are generally categorized as ecological or socioeconomic. Induced growth effects are similar to encroachment-alteration effects, but occur because of induced growth.

5.5.1 Encroachment-Alteration Effects: Ecological

Indirect effects were identified and examined for the potential to be substantial. Biologists and ecologists from Jacobs have determined the ecological encroachment-alteration effects considered to be potentially substantial are effects to vegetation, threatened and endangered species, and water resources. The ecological encroachment-alteration effects on air quality, including MSATs, were determined not to be substantial.

5.5.1.1 Vegetation

As described in Step 2 of the indirect impact analysis, area population is rapidly growing with an expected average of 234.97 percent growth by 2035 within Todd Mission, Magnolia, and Pinehurst. The AOI is growing and developing because of the availability of undeveloped land, and a need for improved infrastructure exists within the AOI to provide accessibility and connectivity to the proposed SH 249 Extension study area for the developments that are planned or under construction. Potential indirect impacts associated with the proposed SH 249 Extension would involve conversion of undeveloped land to primarily residential uses. Of the 100,616 acres of land within the AOI, approximately 25 percent is currently developed for residential, commercial, industrial, or mixed uses, and 75 percent of the land is undeveloped, including farmland, ranchland, and vacant land. Future development of the undeveloped areas could lead to removal of vegetation and conversion of vegetated areas into largely residential uses. Therefore, further discussion is necessary in Step 6 and 7 of the indirect impact analysis.

5.5.1.2 Threatened and Endangered Species

Because the AOI contains potential habitat for state and federal-listed threatened and endangered species, the removal or disturbance of native vegetation within the AOI associated with future development could affect sensitive species. Therefore, further discussion is necessary in Step 6 and 7 of the indirect impact analysis.

5.5.1.3 Water Resources

Indirect impacts to water resources would involve the increased potential for erosion and sedimentation during roadway construction activities. The potential for increased development within the AOI would be facilitated by roadway construction. Clearing vegetation for any proposed roadway projects within the AOI could increase the potential for erosion and sedimentation into creeks and tributaries within the AOI, all of which drain into Segment 1008 of Spring Creek within the San Jacinto River Basin. Spring Creek, Segment 1008, is listed in the 2012 Texas Integrated Report as impaired for depressed dissolved oxygen. Therefore, further discussion is necessary in Step 6 and 7 of the indirect impact analysis.

5.5.1.4 Air Quality, including Mobile Source Air Toxics

Outside of the marginal non-attainment 2008 ozone standard for Montgomery County, the AOI is currently in attainment for all other NAAQS criteria pollutants, including CO. No change in attainment status is anticipated within the AOI as the result of the rate of growth that would be facilitated by the proposed SH 249 Extension. Approximately 688 to 741 acres of the AOI would potentially be impacted by the proposed SH 249 Extension. The amount is not expected to provide enough change, if any, on its own to alter the non-attainment status of ozone or the attainment status of all other NAAQS criteria pollutants, including CO. Although the proposed SH 249 Extension is not currently in the funded portion of the *2035 RTP Update* (conforming plan), the proposed tollway is planned for inclusion in the long-range plan.

In order for the region to achieve ozone attainment, a variety of point, non-point, and mobile source emission reduction strategies must be implemented for the entire Greater Houston area as outlined in the SIP. Indirect air quality impacts from MSATs are unquantifiable because of existing limitations for determining pollutant emissions, dispersion, and impacts to human health. Emissions would likely be lower than present levels in future years because of the EPA's national control regulations (e.g., new light duty and heavy duty on road fuel and vehicle rules and the use of low sulfur diesel fuel). Even with an increase in VMT and possible temporary emission increases related to construction activities, the EPA's vehicle and fuel regulations (coupled with fleet turnover) would cause substantial reductions of on-road emissions over time, which would include CO, MSATs, and the ozone precursor volatile organic compounds and nitrogen oxides.

No long-term, indirect CO or ozone impacts are anticipated as a result of conforming plan requirements, state and federal regulations, and SIP controls. However, there could be short-term temporary impacts from non-road vehicle exhaust and dust that would be generated from construction activities associated with roadway construction and other construction within the AOI. The MSATs for the entire region are expected to decrease because of improved vehicle technology, changes in fuel (gasoline and diesel), and other regulatory controls of air toxics that are currently in place or would be phased in to reduce MSATs in the future.

Tolling on the proposed SH 249 Extension could result in traffic distribution within the AOI and could cause an increase in localized MSAT emissions. However, without construction of the proposed tollway, congestion would be expected within the existing transportation network on arterials and collectors. The congestion could lead to higher mobile source emissions within neighboring communities. Furthermore, without any standards criteria established for MSAT emissions, the extent of the impacts resulting from increased MSAT emissions cannot be identified and, therefore, cannot be mitigated at the present time.

No change in attainment status is expected to occur because of the proposed SH 249 Extension. Therefore, there would not be an indirect impact to air quality, and air quality is not carried forward for the indirect impact analysis.

5.5.2 Encroachment-Alteration Effects: Socioeconomic

Encroachment-alteration effects to socioeconomic resources were identified as a concern during the scoping process. The effects include changes in travel patterns, access, and property values as a result of land use changes. Because the proposed SH 249 Extension would be on a new location, it was determined that land use changes may be significant to the affected community.

The proposed SH 249 Extension would potentially increase mobility and decrease travel time. The two benefits could lead to the growth of commercial business within the AOI, particularly along the proposed SH 249 Extension corridor. Because the proposed tollway is a controlled-access tollway, adjacent commercial growth would likely be limited to intersections with existing roadways where access ramps would be available (e.g., at FM 149, FM 1488, FM 1486, and FM 1774). A decrease in traffic congestion would likely lead to economic growth for other businesses located along existing roadways within the AOI. The number and frequency of customers would probably increase as the area becomes a more attractive shopping location for future residential development. In addition, property values can sometimes increase at interchanges as a result of increased access to services and opportunities, and the increase in property values may result in increased property taxes. However, the potential indirect economic impacts are not expected to disproportionately and adversely affect low-income populations. The potential socioeconomic encroachment-alteration effect has the potential to increase revenues for Todd Mission, Magnolia, Pinehurst, Stagecoach, Plantersville, and Dobbin. The potential indirect impact is not anticipated to be significant, but it was determined that noting such an impact was merited.

5.5.3 Induced Growth Effects

The presence of the proposed SH 249 Extension is expected to result in some amount of additional development within the AOI, which would include the conversion of presently undeveloped lands to developed conditions and possibly a change of some areas from a present use to a different use. Because this project is proposed as a controlled-access tollway,

development caused by induced effects would be limited and would most likely occur adjacent to or near on and off-ramps. The conversion of such areas to new or different land uses would remove existing vegetation and replace it with structures, impervious cover, and possibly ornamental landscape plantings. Stormwater drainage improvements would also be expected as part of the developed conditions. Additional streets and roadways could provide new access to areas near developments. New or differing land uses, therefore, may have a substantial effect on ecological resources in the AOI.

Changed land uses from current conditions may be perceived as diminishing the aesthetic value of the landscape in more rural portions of the AOI.

The majority of the AOI is undeveloped; however, in developed areas, land use changes may differ completely from the existing use, or the changes may be an intensification of an existing use, for example, from low-density residential to higher density residential. The effects of land use changes could be positive or negative, depending on the perspective of the stakeholder.

Induced growth would be analyzed further in the next phase of the environmental clearance process.

5.5.4 Effects Related to Induced Growth

In undeveloped areas, land use changes could represent a notable change on the landscape as vegetated pastures or farmlands are converted to another use. Changing land uses would convert presently undeveloped areas to developed conditions, which may result in habitat loss and fragmentation, changes in stormwater runoff, and the introduction of new structural elements in rural landscapes. Development would increase the local tax base and would likely have a positive effect on the local economy as additional residential properties, commercial establishments, and public and private services and facilities are developed.

Effects related to induced growth would be analyzed further in the next phase of the environmental clearance process.

5.6 STEP 6: ANALYZE INDIRECT EFFECTS AND EVALUATE RESULTS

The purpose of Step 6 is to assess the potential and magnitude of the project-influence effect. The following analysis assumes the proposed SH 249 Extension is planned to support the direction and goals of the AOI. Because encroachment has been identified as a potentially significant indirect impact, it is analyzed further below.

The NCHRP Report 466 states that empirical evidence would indicate that transportation investment and changes in land use occur only in the presence of other factors, such as supportive local land use policies, development incentives, availability of developable land, and a good investment climate. The analysis relied primarily on qualitative forecasting tools from literature reviews and surveys of local planning personnel to local planning documents and

referencing the area's general population and growth projections. The use of planning documents assumes future development would follow the trends outlined in long-range plans. However, economic trends and market demand are variables that may have more influence over development in the long term. Therefore, the conclusions of the indirect impact analysis must be qualified by the uncertainties involved in predicted growth.

5.6.1 Socioeconomic Effects

The proposed SH 249 Extension could cause indirect encroachment effects that could alter land use within the AOI. A large portion of the AOI is undeveloped, and although residential land use is scattered throughout the AOI, high-density residential and other land uses are concentrated near Todd Mission, Magnolia, Pinehurst, Stagecoach, Plantersville, Dobbin, and the major roadways of FM 149, FM 1774, and FM 1488.

Encroachment-alteration effects such as, changes in travel patterns, access, and property values can result in changes that may be significant to the affected community.

5.6.1.1 Changes in Land Use

The conditions for AOI development are favorable, and the area has been and is continuing to undergo urbanization. Residential neighborhoods and planned developments are located throughout the AOI (see Step 2 of the indirect impact analysis), and development is primarily associated with the area's established communities (i.e., Todd Mission, Magnolia, Pinehurst, Stagecoach, Plantersville, and Dobbin). Additional residential and limited commercial development is scattered within the AOI along major roadways. However, large areas of undeveloped land remain, mostly in the northern portion of the AOI.

Forecasted development within the AOI would result in a change in the landscape. Adhering to local land use plans would most likely increase the aesthetics and visual dynamics of any future development.

5.6.1.2 Changes in Traffic Patterns, Traffic Access, and Property Values

Indirect development and potential community change could be perceived as positive or negative. To some, the change may be unwanted, and development would be undesirable as some commercial uses and area populations increase. For others, new development often means potential new jobs and increased economic utility.

The proposed SH 249 Extension is consistent with the current and expected forecasted growth of Montgomery County, Grimes County, Magnolia, and the surrounding communities. In addition, the proposed tollway would improve system linkage and connectivity within the existing transportation network, expand capacity to address transportation demand, improve LOS, reduce traffic congestion, provide travel options, improve regional and local roadway safety, and provide an opportunity for economic development by improving the movement of persons and

goods, which would minimize barriers among businesses, consumers, and transportation infrastructure. Therefore, using the proposed tollway would probably affect traffic on adjacent roadways. The potential improvement to economic opportunity could lead to a potential increase in property values that could result in increased property taxes. Yet, as noted above, the potential economic indirect impacts are not expected to disproportionately affect low-income populations.

5.6.2 Vegetation and Threatened and Endangered Species

The undeveloped land located near the established AOI communities would likely be the first areas purchased to accommodate the predicted population and employment growth. Human disturbance and activity levels in the areas may not be conducive to supporting large numbers or diverse species of wildlife. Subsequently, undeveloped land adjacent to the proposed SH 249 Extension not located near existing development (particularly the areas where major and secondary roadways are not present) is not expected to undergo major land use changes in the short term. Such areas, which may be only minimally disturbed by human activities, would continue to provide habitat for indigenous and migratory wildlife, but regional population and economic growth could exert development pressure on many of the undeveloped tracts.

Potential indirect impacts to vegetation and threatened and endangered species could occur from additional development within the AOI following completion of the proposed SH 249 Extension. The impacts could include removal of vegetation and conversion of vegetated areas to developed land uses. Clearing of vegetation would increase the potential for erosion and sedimentation into Segment 1008 of Spring Creek within the San Jacinto River Basin.

Development under either the Preferred Alternative or the No-Build Alternative would impact vegetation and wildlife habitat through a continued net loss of established woody and herbaceous vegetation, through fragmentation of remaining vegetation resources, and through reduction in habitat connectivity within the AOI. Although much of the AOI is undeveloped, wildlife habitats have been affected by agricultural/range land practices and urbanization. Residential and other development activities would likely continue to encroach into woodland areas and alter natural stream channels. Induced property development within the AOI could result in the clearing of woody (pine-hardwoods) vegetation and habitat fragmentation. The proposed SH 249 Extension may indirectly affect undeveloped land or potential wildlife habitat through permanent conversion of habitat into homes.

5.6.3 Water Resources

Indirect impacts to water resources, including groundwater, would be the increased potential for erosion and sedimentation during construction activities and the potential for increased development in the area facilitated by roadway construction.

Previous agricultural and rangeland activities are presumed to have impacted water resources to some degree within the AOI. Water resources are presumed to have been impacted to a greater degree in the more developed central and southern portions of the AOI because of residential development. The main indirect impact of the proposed SH 249 Extension to water resources would be from induced land development. Construction fill and the deterioration of habitat quality are the primary threats to water resources. There are approximately 4,618 acres of NWI-mapped wetlands within the AOI and approximately 2,229,165 linear feet of named and unnamed streams (TNRIS 2013). Based upon the projected growth within the AOI, approximately 10,972 acres of new development could occur within the AOI by 2040. The total developed area would be approximately 35,923 acres, or roughly 36 percent of the AOI. The quantifications represent an estimated maximum potential effect from forecasted development through 2040. As many water resources are roadside drainage ditches or stock ponds, it is unlikely that all water resources within the AOI would be considered jurisdictional by the USACE. Only jurisdictional waters of the U.S., including wetlands, are subject to protection under Section 404 of the CWA.

Under the No-Build Alternative, development within the AOI would most likely still occur, but at a slower rate than with the proposed SH 249 Extension. The slower pace in development may be from a decrease in market forces arising from an increase in traffic, which could deter developers from constructing mixed-use and residential structures on currently available tracts of land.

5.6.4 Induced Growth Effects

Transportation projects that provide new or improved access to adjacent land could induce development of undeveloped land or redevelopment of land to more intensive uses. As discussed in Section 4.6.3 of the Draft EIS, a number of transportation projects are listed in the *2035 RTP Update*, of which the proposed SH 249 Extension is one. The proposed SH 249 Extension would provide access to property with previously limited access, making the area more desirable for development. Area residential development would potentially increase by almost 11 percent, or an additional 10,955 acres, by 2040. Residential properties are primarily available for sale or lease within the AOI, and the large undeveloped tracts are suitable for large developments, especially in the northern portion of the AOI where existing development is less dense. As discussed in Step 2 of the indirect impact analysis, many residential developments are planned or under construction, and many more undeveloped tracts are currently planned for residential development.

Within the AOI, development along regional arterials and other area roadways would trend towards residential development resulting from the growth of Montgomery and Grimes counties as “bedroom communities” for the Greater Houston area. As mobility and connectivity are improved, reduced travel time south towards Houston may result in residential development growth that serves those who wish to work in Houston but live in a more rural environment.

Development trends and population growth rates indicate that development is occurring and will continue to occur throughout the AOI. The proposed SH 249 Extension would provide increased mobility and accessibility, which would facilitate the rate of growth that is already occurring.

5.6.5 Effects Related to Induced Growth

Existing development is heaviest in the central to southern portion of the AOI. The trend would likely continue because of the existing infrastructure. The northern portion of the AOI is less developed, and construction of the proposed SH 249 Extension has the potential to greatly alter land use within the area. Resulting from future development, further removal of forested and pastureland vegetation would lead to further habitat fragmentation within the AOI. However, future development would remain large lot residential development with the preservation of the rural, natural surrounding area within the AOI. Many developments are planning to incorporate wooded hiking trails around existing natural lakes to reduce the potential impacts to habitat.

The acquisition of ROW for the proposed tollway could divide larger tracts of land, leaving smaller parcels that may be subject to development pressures. Previously rural agricultural/ranch land could become less suitable for farming or grazing because of size and become more attractive for uses that do not require large tracts of land, such as a convenience store or franchise restaurant.

Depending upon the location and type of development, continued development could impact riparian vegetation and other habitats by direct conversion to developed uses or by disturbing the present condition of habitats. Conversion of undeveloped acreage to roadways, structures, and other developed conditions would reduce available habitat for wildlife. Increased noise and activity associated with developed conditions could affect wildlife use in the remaining habitat areas. Additionally, increased stormwater runoff from impermeable and developed surfaces could introduce pollutants into habitat areas. Therefore, induced growth-related effects require further analysis.

Development under both the Preferred Alternative and the No-Build Alternative would result in some adverse impacts to water resources through water quality degradation. Development impacts that contribute to water quality degradation include an increase in the amount of impermeable surface and non-point source pollution from roadways and other area sources (e.g., fertilizers, pesticides, and sediments). The indirect impacts from development could be increased stormwater runoff velocities and pollutant loads leading to water quality impacts. Construction activities could also contribute to soil erosion and the introduction of chemicals in stormwater runoff that cause siltation, turbidity, and contamination adversely affecting vegetation and wildlife habitats, particularly in the area of the discharge. Stormwater detention and detention facilities constructed as part of development, as well as other stormwater management practices implemented to manage stormwater flows, would reduce pollutant loads entering into receiving watercourses.

5.7 STEP 7: ASSESS CONSEQUENCES AND CONSIDER/DEVELOP MITIGATION, WHEN APPROPRIATE

5.7.1 Socioeconomic Effects

5.7.1.1 Changes in Land Use

Land use changes include development within the rapidly developing AOI, as well as possible conversion of undeveloped land into residential uses along the existing roadways. Mitigation for development within the AOI would be the responsibility of the agencies with the authority to implement such controls. Transportation providers such as TxDOT have the responsibility, in conjunction with local and regional transit authorities, to implement a transportation system to compliment the land use.

5.7.1.2 Changes in Traffic Patterns, Traffic Access, and Property Values

The proposed SH 249 Extension would improve system linkage and connectivity within the existing transportation network, expand capacity to address transportation demand, improve LOS, reduce traffic congestion, provide travel options, improve regional and local roadway safety, and provide an opportunity for economic development by improving the movement of persons and goods, which would minimize barriers among businesses, consumers, and transportation infrastructure. The infrastructure improvements could stimulate growth in an area that could increase property values. Although the proposed SH 249 Extension may heighten noise levels, a traffic noise analysis was conducted as part of the Draft EIS. In addition, a traffic noise analysis would be conducted during the next phase of the environmental clearance process. If noise barriers are considered reasonable and feasible, the barriers would be recommended for incorporation into the proposed SH 249 Extension.

Structures, paving, and other development components occurring as part of induced development would introduce new visual elements into the viewshed. New structures would be more noticeable in areas that are currently undeveloped, as opposed to areas where existing development is present. Depending on the type of proposed development and the design specifications, visual mitigation measures could include the preservation of naturally vegetated areas or the incorporation of landscape features that might blend with the existing landscape. The use of regionally native plants for landscaping could provide some continuity of vegetation between developed and undeveloped areas. There are no requirements that development projects mitigate for potential visual impacts. Incorporation of visual and aesthetic measures into the projects would be at the discretion of the individual developers.

Although the proposed SH 249 Extension could increase the rate of development in the AOI, it has been shown that Montgomery County, Grimes County, Magnolia, and the surrounding communities have steadily increased in population over the last two decades. A general conclusion from regional and local planning notes that Montgomery County, Grimes County,

Magnolia, and the surrounding communities can accommodate and serve existing and future development in the area relatively well.

5.7.2 Vegetation and Threatened and Endangered Species

Impacts to vegetation would consist of converting undeveloped areas into predominately residential land use. Impacts to vegetation would be assessed and addressed for each individual project that might involve federal funds, and impacts to threatened and endangered species would be addressed through compliance with the Endangered Species Act.

5.7.3 Water Resources

Changes in land use and related impacts on waters of the U.S., including wetlands, are presently occurring and would likely continue to occur. Effects resulting from induced development could encroach upon and/or affect aquatic resources by changing vegetation/wildlife habitat or hydrology, which would affect the size, functions, and value of aquatic resources within the AOI. Construction of the proposed SH 249 Extension could accelerate impacts, as growth and development would occur sooner than under the No-Build Alternative.

Forecasted development, whether public or private, would have to comply with Section 401 and 404 of the CWA that regulates the filling of and encroachment on water resources. Section 401 of the CWA Water Quality Certification requires the use of BMPs to control erosion, sedimentation, and post-construction total suspended solids. In addition, water quality impacts from development would be minimized by implementing a SW3P in compliance with TPDES requirements and a Municipal Separate Storm Sewer System (MS4) in conjunction with city improvements. For projects disturbing more than 5 acres under the TPDES, an NOI is to be submitted to the TCEQ prior to construction. In addition to current state and federal regulations, many local government ordinances include provisions that provide some level of water pollution prevention. The provisions generally entail varying levels of water quality protection measures through site plan approval and construction site inspections to verify implementation of a SW3P. Substantial differences in impacts to water quality are not anticipated between the proposed SH 249 Extension and the No-Build Alternative.

USACE administers Section 404 of the CWA and operates under a “no net loss” policy for protected wetlands. The policy requires the avoidance and minimization of impacts and compensatory mitigation for unavoidable impacts. Public and private developers must identify impacts to jurisdictional wetlands and other jurisdictional waters of the U.S. in coordination with USACE, prior to construction. Mitigation measures would be required to compensate for impacts to jurisdictional wetlands. Compensatory mitigation for non-jurisdictional waters of the U.S., including wetlands, would not be required as part of USACE permitting. Therefore, functions provided by the waters may not be replaced.

Impacts to jurisdictional waters would be documented, coordinated, and permitted through USACE, as needed. USACE would require the consideration of compensatory mitigation in some instances. Additionally, the conversion of undeveloped land to residential properties may necessitate vegetation removal and could result in increased erosion and water quality issues. Private, government, and/or municipal entities might be required to coordinate with the TCEQ for impacts associated with water quality.

Development within floodplains would be in accordance with the National Flood Insurance Program and local regulations. Stormwater detention facilities and hydraulic features would be used to offset potential increases in stormwater flows from the addition of impermeable cover and to maintain the storage capacity of floodplains. Individual developments would be responsible for calculating and detaining additional runoff generated by the construction of impermeable surfaces. The developments would also be responsible for maintaining conveyance capacities to accommodate expected flood flows. If development within floodplains follows the guidelines of the National Flood Insurance Program, indirect and cumulative impacts of existing and future development would not substantially impact the extent of the 100-year floodplain.

5.8 REGIONAL INDIRECT EFFECTS OF TOLLING FACILITIES AND MANAGED LANES

As noted throughout, the majority of the proposed SH 249 Extension (12.18 miles) is included in Appendix F (unfunded improvements) of H-GAC's *2035 RTP Update* (MPO long-range plan). Although the proposed SH 249 Extension is not currently in the funded portion of the *2035 RTP Update*, the proposed tollway is planned for inclusion in the long-range plan. Because the proposed SH 249 Extension is not consistent with the conformity determination (*2035 RTP Update*), as it is unfunded and is not included in the financially constrained plan, FHWA will not take final action on the environmental document until the proposed tollway is consistent with a currently conforming RTP and TIP. In addition, once the proposed SH 249 Extension is included in the *2035 RTP Update*, per a new conformity determination, the regional toll analysis documented in the Draft EIS will be updated in the next phase of the environmental clearance process with the information in new update. The remaining 2.6 miles of the proposed SH 249 Extension is located within Grimes County. Grimes County is not a part of the *2035 RTP Update*, as Grimes County is not a part of the Metropolitan Planning Organization's (MPO's or H-GAC's) 13-county region for inclusion in the plan.

5.8.1 Regional Perspective

The freeway and toll road system is a major component of the Houston-Galveston regional transportation system. Currently, the freeway/toll road system represents nearly 19 percent of regional lane miles, but carries more than 48 percent of VMT. Although growth in vehicle travel may be mitigated by transit expansion, improved operation of major arterial streets and growth

of teleworking and e-business options, regional and State economic growth would require continued expansion of the region's freeway/toll road network.

The Metropolitan Transit Authority of Harris County (METRO) is the region's largest transit provider. Its service area encompasses approximately 1,300 square miles. The agency has 100 miles of barrier-separated HOV lanes operating on six freeways that carry 73,000 carpool and vanpool passengers daily.

Inherent to the region's freeways are the high costs of maintenance and improvements. Although they generate few operational costs once constructed, building, maintaining, and expanding freeway facilities is very expensive. Over the last few years, the idea of user-fee based roadways has been growing in acceptance and popularity, and recently the Texas Transportation Commission adopted a favorable toll road policy to promote the study of additional toll roads throughout the State.

The Houston-Galveston region is a national leader in using toll roads as a method of financing facilities and improving mobility for more than two decades. Currently, there are four toll roads in operation - the Hardy, Sam Houston Parkway, Westpark, and Fort Bend Parkway Toll Roads. As seen in *Table 5-7*, the system of toll roads and "managed" (high occupancy tolls [HOT]) lanes is planned to grow from approximately 947 lane miles today to over 2,902 lane miles by 2035. In addition to increasing system capacity, the development of managed lanes would provide travel priority for transit buses, carpools, and vanpools on an expanded number of roadways, thereby greatly increasing their attractiveness to commuters and reducing congestion.

Table 5-7: Transportation System Expansions (lane miles)

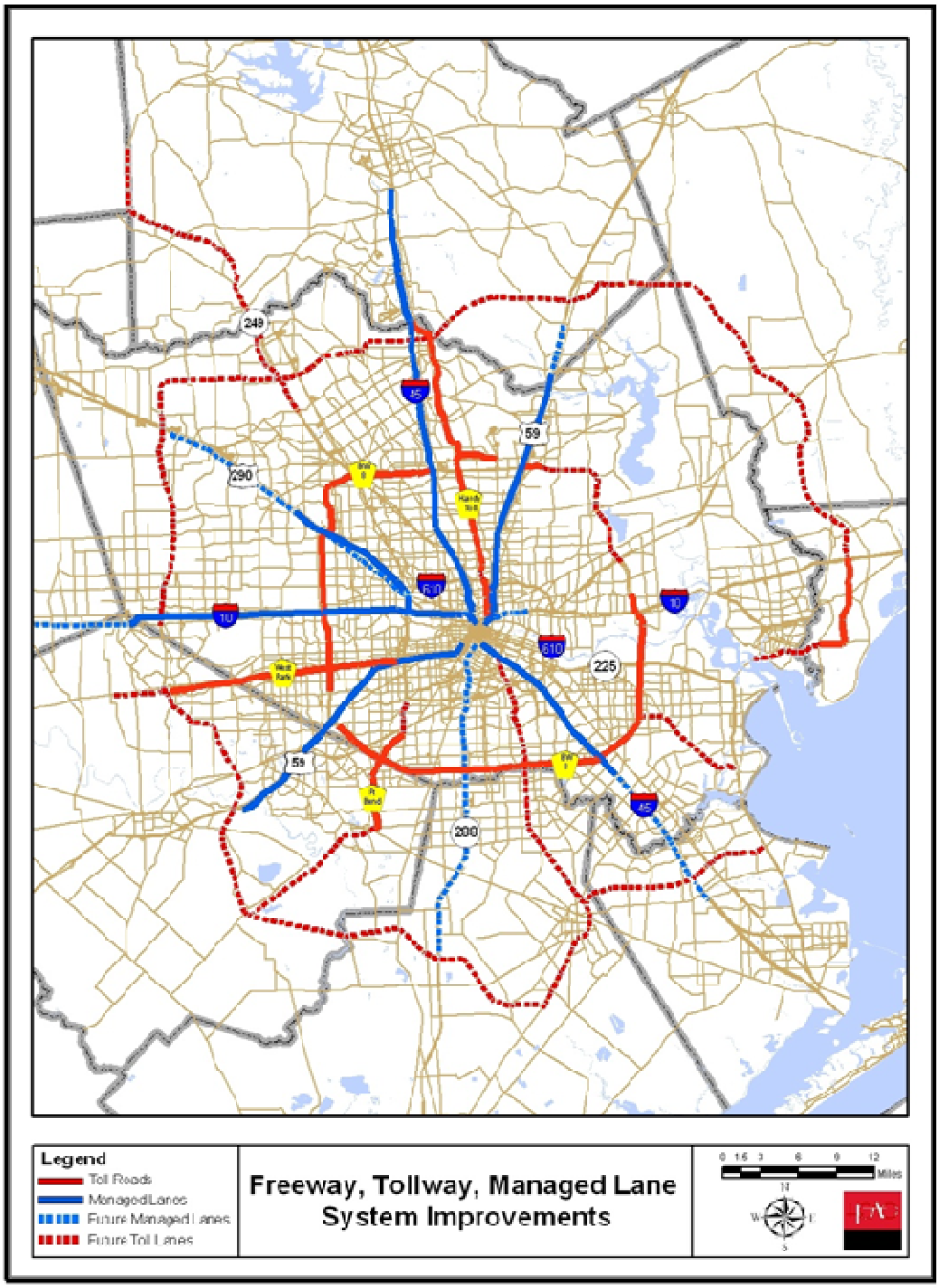
Year	Freeway	Toll Roads	HOT Lanes	Arterial	Total Lane Miles
2009 Network	3,669	658	289	19,955	24,571
2035 RTP	4,339	2,049	853	25,614	32,855

Source: H-GAC 2013d.
Note: HOT = high occupancy tolled.

Managed lanes use pricing as a means to manage demand. In essence, during peak periods managed lanes carry vehicles with a certain minimum number of occupants for no or low toll amounts with SOV paying a higher toll. This "management" allows for fine tuning of HOV lane eligibility because tolls can be varied to find the appropriate price to generate only sufficient additional demand to utilize any spare capacity. This use of capacity would not slow travel time because the pricing component ensures that the federal requirements regarding HOT lanes with speed limits greater than 50 mph must maintain a speed of 45 mph 90 percent of the time during peak periods is upheld.

Figure 5-1 details the toll and managed lane improvements to the roadway system contained in the fiscally constrained RTP for the year 2035.

Figure 5-1: Proposed 2035 Regional Roadway Network



Source: H-GAC 2013d.

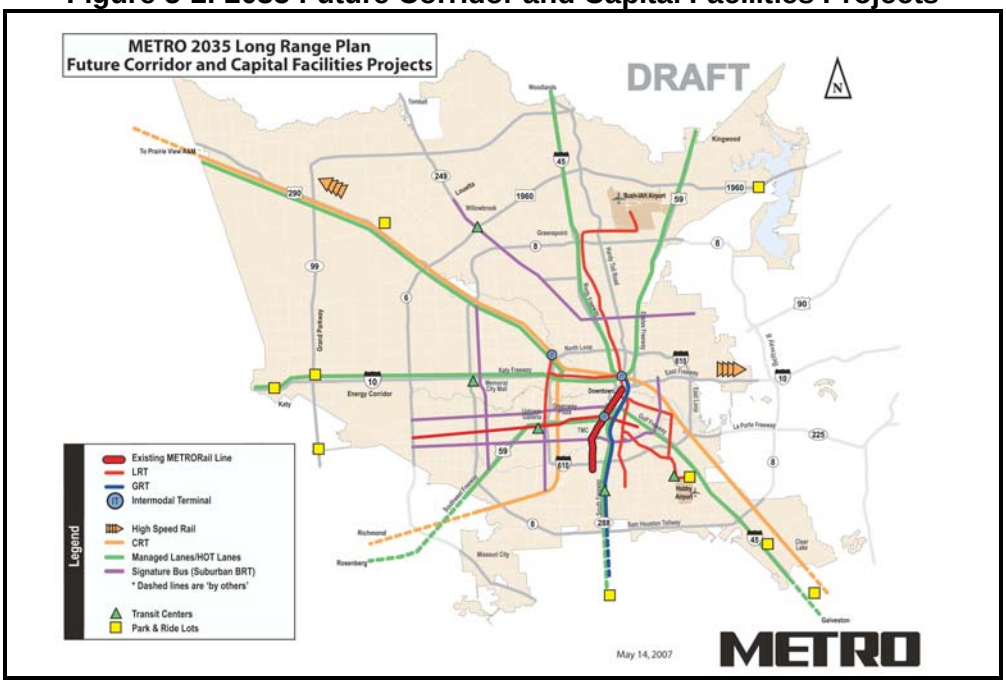
As regional and area population and employment continue to grow, transit will become an increasingly important tool for improving mobility. Transit is forecasted to significantly increase from its current 485,000 daily passenger boarding's, to over 725,000 daily passenger boarding's by 2035. This significant increase will be attributed to:

- Expansion of transit services (increased bus and rail transit services),
- New transit modes (commuter rail transit and signature express bus service),
- Transit connectivity to multiple employment centers, and
- Coordination of transit services among regional public transportation providers.

The 2035 METRO Long Range Plan is an iterative process incorporating the 2025 METRO Solutions Plan and future mobility needs identified in regional planning efforts (*Figure 5-2*). METRO's 2035 Long Range Plan recommends significant expansion of the current transit system and includes a network of integrated high-capacity transit facilities on major travel corridors. The plan also identifies service expansions beyond the METRO service area. New improvements scheduled for implementation through the year 2035 include HOT lanes, a new intermodal terminal, park-n-ride facilities, and several new high-capacity transit corridors throughout the region. Additional key elements of the METRO Solutions plan include 89 miles of fixed light rail transit, 84 miles of commuter rail transit, and 40 miles of signature bus service.

Figure 5-2 illustrates the Future Corridor and Capital Facilities projects in the 2035 METRO Long Range Plan.

Figure 5-2: 2035 Future Corridor and Capital Facilities Projects



Source: H-GAC 2013d.

5.8.2 Demographics

The following information and projections provide an overview of H-GAC demographics at the regional level. The 2000 population of the Houston-Galveston region is over 4.5 million people, which includes eight counties and covers more than 7,000 square miles. Several counties in the region are listed among the top ten for growth in the nation having experienced double-digit population growth for over a decade. Significant investments have been made to the regional transportation system, such as the expansion of our major highways and our toll road systems. The region is anticipated to grow by more than 3 million new residents by 2035. *Table 5-8* shows the projected demographic changes expected in the region by 2035.

Table 5-8: Projected Demographic Changes in H-GAC Region 2000 to 2035

H-GAC Region	2000	2035	Percent Change
Population	4,669,571	8,835,000	89.20
Households	1,639,401	3,302,013	101.40
Percent Minority	52.10	68.97	16.87
Percent Non-Minority	47.80	31.02	-16.87
Percent Zero-Auto Households	8.28	14.10	5.82

Source: U.S. Census 2000.

As can be seen in *Table 5-9*, significant changes in the distribution of household income are also projected to occur in the H-GAC region between 2000 and 2035. The analysis divided household income into five groups: 0 to $15,000, $15,000 to $30,000, $30,000 to $50,000, $50,000 to $75,000, and $75,000 and above. The income figures are presented in 1995 base year dollars since the travel demand model is estimated based on the 1995 household survey. The year 2000 household income distribution has the least percentage of households in the lowest income quintile ($0 to $15,000) and the highest percentage of households in the highest income quintile ($75,000 and above).

The projection for year 2035 shows this distribution trend reversing. By 2035, the highest income quintile would have the lowest household income percentage share. While the percentage of households within the middle quintile is projected to increase by 2035, the largest projected increase is in the lowest quintile, increasing by 3.79 percent. The projections indicate that overall wealth, as indicated by income, would decrease in the future. The shift in the percentage of the populations within income quintiles indicates a potential change and possible increase in future EJ zones.

Table 5-9: Percent of Households in the H-GAC Region within Income Categories

Household Income (1995 Dollars)	2000 (Percent)	2035 (Percent)	Percent Change
$0 to $15,000	14.31	18.07	3.79
$15,000 to $30,000	18.32	21.60	3.28
$30,000 to $50,000	22.27	24.41	2.14
$50,000 to $75,000	18.91	19.03	0.12
$75,000 and above	26.19	16.89	-9.30

Source: U.S. Census 2000.

5.8.3 Conclusion

The expanding regional roadway network, including tolled facilities and managed lanes, along with the expanding transit network could have indirect and cumulative impacts. However, the impacts are not isolated to one location and would be better evaluated at the regional level. As a result, the consideration of a regional tolled roadway network is included in Section 6.9 of the Draft EIS.

SECTION 6: CUMULATIVE IMPACT ANALYSIS

Section 6 presents the cumulative impact analysis conducted for the proposed SH 249 Extension and the No-Build Alternative. In accordance with the revised *Guidance on Preparing Indirect and Cumulative Impact Analyses*, resources that would not directly or indirectly be affected by the proposed SH 249 Extension were not considered in the cumulative impact analysis. In addition, resources that are currently not in poor or declining health or at risk were also not included in the cumulative impact analysis. Therefore, the following resources were not evaluated in the cumulative impact analysis: farmlands, geology and soils, air quality, noise, environmental justice, wild and scenic rivers, coastal barriers, coastal zone management zone, essential fish habitat, cultural resources, and hazardous materials.

Table 6-1 presents the resources/environmental impact categories that could be substantially impacted by the proposed SH 249 Extension or that are in poor or declining health or are at risk. The resources/environmental impact categories are carried forward and evaluated in the following section. It should be noted that socio-economic issues are evaluated in the land use section of the analysis.

Table 6-1: Resources Carried Forward in the Cumulative Impact Analysis

Current Health of Resource	Direct Impacts	Indirect Impacts
Land Use		
Changing: Within the AOI, land use is primarily a mix of residential properties, undeveloped land, farmland, ranchland, and vacant land. In general, higher density development occurs in the central and southern portions of the AOI within established communities and along major roadways. Large areas of undeveloped land are common in the northern portion of the AOI. Residential and other developments would likely increase in response to predicted population and employment growth.	ROW acquisition for the proposed SH 249 Extension would convert between 688 acres to 741 acres of undeveloped land to transportation use. Some residential and commercial properties would be displaced (7 to 26 structures), and areas of undeveloped land would be changed to paved travel lanes and maintained ROW.	Currently planned residential and other developments within the AOI would continue as the area's population and employment grow. Future development would be based upon developer expectations of corridor transportation improvements and would be accelerated by improved transportation infrastructure. Approximately 36 percent of the AOI is projected to be developed by 2040.
Vegetation		
Declining: The amount of vegetated areas remaining within the AOI is declining as undeveloped land is converted to primarily residential use.	Direct impacts would include between 691 to 730 acres of natural (not maintained) vegetation, which is primarily forested land (as based on a preliminary assessment).	There are approximately 69,135 acres of undeveloped land within the AOI. Dominant vegetation types within the AOI are farmland, rangeland, and forested vacant land. Based upon the projected growth within the AOI, approximately 10,972 acres of new development would occur by 2040 on previously undeveloped land.
Threatened and Endangered Species		
Declining: Threatened and endangered species and other wildlife species are declining as a result of fragmentation of vegetated areas and habitat loss from continued development.	Direct impacts to wildlife species could be mortality because of construction or vehicle collisions. Once selected, investigations for the presence of threatened and endangered species would be conducted for the Preferred Alternative.	The proposed SH 249 Extension would potentially induce development. The indirect impact on threatened and endangered species and wildlife species would be from removal of vegetation and habitats, as well as from displacement of some individual animals. For some wildlife species, an indirect impact may also include mortality. Developers would be responsible for assessing potential impacts to listed threatened and endangered species and to coordinate with resource and regulatory agencies, as appropriate.

Table 6-1: Resources Carried Forward in the Cumulative Impact Analysis

Current Health of Resource	Direct Impacts	Indirect Impacts
Water Resources: Water Quality		
Declining: Water quality is declining within Montgomery County because of agricultural practices, oil and gas production, and the conversion of vacant land to urban uses. The proposed SH 249 Extension crosses one stream, Mill Creek and its associated tributaries, which is located within 5 miles upstream of Spring Creek, Segment 1008. Segment 1008 is on the TCEQ's 2012 Integrated Report with concerns for depressed dissolved oxygen.	During construction, exposed soil could runoff into streams, which would increase turbidity and sediment loading downstream. The use of BMPs would minimize any impact to water quality.	The indirect impacts of development could increase stormwater runoff velocities and pollutant loads, which would cause water quality impacts. Construction activities could also contribute to soil erosion and the introduction of chemicals in stormwater runoff. The impacts would cause siltation, turbidity, and contamination that could adversely affect vegetation and wildlife habitats, particularly in the area of the discharge. Stormwater detention and retention facilities (constructed as part of future development) and other stormwater management practices implemented to manage stormwater flows would reduce pollutant loads entering into receiving waters.
Water Resources: Floodplains		
Changing: Changing development has caused encroachment on the floodplain. Development in the floodplain is typically offset with detention. Flooding continues to be a problem in the Greater Houston area, which includes Montgomery County and the AOI.	Direct impacts would include up to 18,259 linear feet of floodplain crossings (as based on a preliminary assessment). The proposed SH 249 Extension would not raise the base floodplain elevation.	Indirect impacts to floodplains would continue as development continues to expand within the AOI. Development within floodplains would be in accordance with federal, state, and local regulations. Stormwater detention facilities and hydraulic features would offset any increase in flows from the addition of impermeable cover.
Water Resources: Waters of the U.S., including Wetlands		
Declining: Waters of the U.S., including wetlands, are declining because of changes in land use (primarily residential development).	Direct impacts would include up to 27 open waters of the U.S. (stream crossings) and up to 11.5 acres of impacts to wetlands (as based on a preliminary assessment). The waters of the U.S., including wetlands, would be impacted by the construction of bridges and culverts and the addition of fill materials on a new location and for the proposed detention facilities.	There are approximately 4,618 acres of NWI-mapped wetlands within the AOI and approximately 2,229,165 linear feet of named and unnamed streams (TNRIS 2013). Based on 2040 land use projections, approximately 10,972 acres of new development would occur within the AOI, which would potentially cause indirect impacts to waters of the U.S., including wetlands.

Source: The table summarizes Section 4 and Section 5 of the Draft EIS.

Note: See the list of acronyms and abbreviations for a full listing of abbreviations used in the table.

CEQ defines cumulative impacts as:

> The impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor, but collectively significant, actions taking place over a period of time. (40 CFR 1508.7)

To assess cumulative impacts, consideration is given to 1) the degree to which the proposed action affects public health or safety, 2) the unique characteristics of the geographic area, 3) the degree to which the impacts on the quality of the human environment are likely to be highly controversial, 4) the degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks, and 5) whether the action is related to other actions with individually insignificant but cumulatively significant impacts on the environment.

Cumulative impacts can result from different activities, such as adding materials to the environment from multiple sources, repeated removal of materials or organisms from the environment, or repeated environmental changes over large areas or long periods. More complicated cumulative impacts occur when stressors of different impacts combine to produce a single impact or suite of impacts. Cumulative impacts may also occur when the timing of disturbances is so close that the effects of one disturbance has not dissipated before the next occurs or when timing is so close in space that the effects overlap.

The cumulative impact analysis considers the magnitude of cumulative impacts on the resource health, where health refers to the general overall condition, stability, or vitality of the resource and the trend of that condition. Laws, regulations, policies, or other factors that may change or sustain the resource trend were considered when determining if more or less stress on the resource is likely in the foreseeable future. Opportunities to mitigate adverse cumulative impacts on a stressed resource, or a resource that would continue to be stressed, are also discussed.

Methodology

The following eight steps serve as guidelines for identifying and assessing cumulative impacts.

1. Identify the Resources to Consider in the Analysis
2. Define the Study Area for Each Resource
3. Describe the Current Status/Viability and Historical Context for Each Resource
4. Identify Direct and Indirect Impacts of the Project that Might Contribute to a Cumulative Impact
5. Identify Other Reasonably Foreseeable Future Effects
6. Identify and Assess Cumulative Impacts
7. Report the Results

8. Assess the Need for Mitigation

6.1 STEP 1: IDENTIFY THE RESOURCES TO CONSIDER IN THE ANALYSIS

Step 1 identifies the resources to consider for evaluation. The cumulative impact analysis is to focus only on resources substantially impacted by a proposed project (even if the impacts are relatively small) and/or resources currently in poor or declining health or at risk. As defined in *Table 6-1*, the resources identified for the cumulative impact analysis are land use, vegetation, threatened and endangered species, and water resources. None of the remaining resources were included, as they are either not substantially impacted by the proposed SH 249 Extension or they are currently not in poor or declining health or at risk.

6.2 STEP 2: DEFINE THE STUDY AREA FOR EACH RESOURCE

The cumulative impact analysis considers both geographic and temporal study limits where applicable. A Resource Study Area (RSA) is defined to characterize the health condition and trend for the resources under analysis. Based on the data available during the DEIS studies, changes in land use continues to be the main contributing factor for indirect and cumulative impacts. Therefore, the RSA for the cumulative impact analysis is the same as the AOI used for determining indirect impacts (also see Section 5.1 of the Draft EIS). The AOI and RSA were established based on information from the *2035 RTP Update* in conjunction with the *Montgomery County Mobility Plan* (H-GAC 1998), Magnolia's 20-year comprehensive plan entitled *Magnolia on the Move* (City of Magnolia 2013), and other growth capacity elements. The RSA accounts for the proposed SH 249 Extension study area, local planner input, and the cities of Todd Mission, Magnolia (including the ETJ), Stagecoach, Pinehurst, Plantersville, Bobville, and Dobbin. The RSA would be reevaluated as constraints become known for any impacted resources verified by on site field visits along the Preferred Alternative in the next phase of the environmental process.

The temporal period for the land use analysis ranges from 1970 to 2040. The timeframe captures the population and residential migration outside of the Greater Houston area, when land development began to increase in the area. The timeframe also helps to explain known projected growth in the area for residential and transportation infrastructure. The RSA is approximately 100,616 acres in size. The watersheds that intersect the RSA is the Spring and West Fork San Jacinto watershed, and the RSA within the watershed has approximately 1,750 square miles of drainage area. While the study area has seen elements of new residential growth from the Greater Houston area, the RSA still contains over 75 percent of undeveloped land.

6.3 STEP 3: DESCRIBE THE CURRENT STATUS/VIABILITY AND HISTORICAL CONTEXT FOR EACH RESOURCE

The historical context and health of each evaluated resource in the RSA are important for establishing the baseline condition and trend of each resource in order to estimate the

magnitude of impact on a particular resource. The historical context is described initially to explain the factors that have led to the current health of the resource. Past actions represent the projects or activities in the area that have collectively caused the current status, health, vitality, and trend for a particular resource.

6.3.1 Land Use

During the 1970s, approximately 80,000 new residents a year were added to the Houston-Galveston-Brazoria CMSA population. For the most part, suburban development was concentrated near the Harris County line. Typically, the 1970s suburbanization of the Greater Houston area led to the “leap frog” nature of suburban development, with new master-planned communities developing further away from Houston employment centers (e.g., Downtown, the Galleria area, Greenway Plaza, and the Medical Center). As a result of the fragmented land ownership within Montgomery and Grimes counties and the lack of good highway access, suburban development was not as prominent during the 1970s as it would become in later years.

The suburban growth of Montgomery and Grimes counties has historically been linked to the economic growth of Houston. The lower cost of land in Montgomery County drew residential development away from the central portion of Houston. The decentralization of Houston continued through the 1980s as jobs and retail sales relocated to the suburbs. Business migration left the Houston region as a central city surrounded by smaller edge communities that were large enough to support shopping and labor markets.

According to recent U.S. Census figures, Montgomery County is the fourth fastest-growing county in Texas, and new master-planned communities and other residential developments are currently under construction or proposed to be developed throughout the RSA. Tomball, Conroe, Houston, and The Woodlands are all major employment centers located easterly of Magnolia. According to H-GAC, Montgomery County is projected to have a 67 percent increase in employment from 2010 to 2035 (*Table 5-3*). Primarily housing and some associated commercial developments are responding to the demand created by the population growth in the area.

In March 2003, the Texas Cooperative Extension of the Texas A&M University System and American Farmland Trust assessed the extent of land fragmentation in the state. The group identified predictors that warn of areas around the state that are most at risk for fragmentation. Texas leads all other states in the loss of rural farming and ranching lands, and if the trend continues at the same rate over the next two decades, land within portions of south, central, and east-central Texas would become fragmented. Land use within the RSA consists primarily of residential properties and undeveloped land (e.g., farmland, ranchland, and vacant land). The study found that rural land, including farmlands, is increasingly being developed, with 2.2 million

acres of rural land converted to urban use in a 5-year period between 1992 and 1997. (Wilkins 2003)

In 2007, the U.S. Department of Agriculture's Census of Agriculture documented over 247,000 farming and ranching operations in the state. The number of operations represented an 8 percent increase from the same census conducted in 1997. However, the land base for Texas agriculture decreased by as much as 2 percent during that same period. Average ownership size declined from 585 acres in 1997 to 527 acres in 2007, and Texas had a total net decrease of approximately 1.5 million acres of agricultural lands in those 10 years. The loss of agricultural land was related to population changes, particularly within counties that experienced the highest growth rates. If land consumption rates continue as they have over the past decade, population growth within the top 25 highest-growth counties (Montgomery County being one) would contribute to another 1.37 million acres of lost agricultural land by 2020. (Texas A&M 2007)

6.3.2 Vegetation and Threatened and Endangered Species

Native vegetation areas and potential habitats for threatened and endangered species in the greater Houston metropolitan area have been lost due to the conversion of natural areas to agricultural production, livestock grazing, and development. Continued urbanization and industrialization of Montgomery County will cause continued pressure on remaining habitats and ecosystems. Since the early to mid-1990s, Montgomery County has experienced an increase in land development projects. The increase in residential development has led to the development of retail centers and other businesses providing goods and services to local residents. These land development activities, and others, have led to the loss of undeveloped land throughout the RSA.

The proposed SH 249 Extension would be located in East Texas within a forested vegetation zone. According to the TPWD, the proposed tollway would be situated within the pine-hardwood forest and young forest/grassland regions of Texas (TPWD 1984). Other than urbanized areas, the proposed SH 249 Extension would be consistent with the regional description. Currently, approximately 69,136 acres of undeveloped land exist within the RSA. The loblolly pine-oak forest association is the dominant vegetation community and vegetation type to be impacted by the proposed tollway, followed by mixed hardwoods within floodplains. The loss of potential habitat could impact any threatened and endangered species that may be in the area. Sections 3.12 and 4.11 discuss the potential threatened and endangered species that may be in SH 249 Extension study area. The RSA would be reevaluated as constraints become known for any threatened and endangered species or their habitat during on site field visits along the Preferred Alternative in the next phase of the environmental process. Loblolly pine-oak forest habitat areas within Montgomery and Grimes counties are currently under development pressure due to residential development within the RSA. The proposed SH 249 Extension would lead to loss of habitat along the boundaries of habitat already fragmented by construction of surrounding

subdivisions, other residential development, and utilities. The loss of habitat could impact any threatened and endangered species that may be in the area.

6.3.3 Water Resources

To some degree, pollution has affected all of Texas' 15 inland river basins, eight coastal basins, several of its reservoirs, and all of its estuaries, coastal wetlands, and bays (TCEQ 2002). Since the late 1980s, watershed organizations, tribes, and federal and state agencies have moved toward managing water quality by using a watershed approach (EPA 2005). The TCEQ assesses the water quality of each water body in Texas and reports on the water bodies that meet water quality standards to the EPA. In Texas, TCEQ manages the Water Pollution Control Program, which is the primary regulatory program that maintains, restores, and enhances water quality by watershed (TCEQ 2002).

Roughly 20 percent of the assessed water bodies were designated as impaired or did not meet one of the designated water quality uses. While overall river and stream water quality improved slightly between 1996 and 2002 as the number of miles not meeting designated water quality uses fell from 4,290 to 3,568 miles, many miles of streams and rivers did not have sufficient data to determine if they met state water quality standards. In fact, TCEQ identified hundreds of miles of streams and rivers with water quality "concerns," but the agency had insufficient data to meet its methodology for calling a stream or river "impaired."

Between 1994 and 2002, overall use support in reservoirs declined from 98 to 70 percent, indicating a substantial decline in reservoir water quality (Alam 2007). The decline in overall use was likely caused by mercury deposition in reservoirs from atmospheric deposition, low levels of dissolved oxygen, higher levels of metals and organic substances, either high or low levels of Ph, elevated levels of chloride, and high levels of total dissolved solids. Consumption advisories and aquatic life closures by the Texas Department of Health (several of which were related to mercury deposition) increased the number of reservoirs that were determined to yield fish that could not be safely consumed. More than 360,000 acres of reservoirs were covered by fish-consumption advisories, while some 12,000 acres of reservoirs were determined to yield fish unsafe for consumption and were subject to aquatic life closures.

The RSA is located within the Spring and the West Fork Watersheds. In 2010, there were 16 impaired water bodies within the Spring Watershed and (EPA 2014) and 6 impaired water bodies within the West Fork San Jacinto Watershed, due to bacteria and dissolved oxygen levels. The proposed SH 249 Extension crosses one major stream, Mill Creek, which has several tributaries located within the study area. While Mill Creek and its tributaries are not listed as impaired, they do flow into Spring Creek (Segment 1008), which is within 5 miles of the proposed SH 249 Extension. Spring Creek is on TCEQ's 2012 303d list because it does not meet the criteria for dissolved oxygen. Under TCEQ’s 2012 Integrated Report, some of the streams within the RSA are in heavily urbanized areas and receive treated domestic and

industrial wastewater as well as agricultural and urban runoff. The decentralization of Houston during the 1980s brought jobs and development to Montgomery County, which has contributed to the decrease in water quality primarily due to agricultural practices, oil and gas production, and the conversion of undeveloped land to an urban environment. In agricultural practices, the use of herbicides, pesticides, and concentrated animal waste contribute to water quality concerns. Oil and gas exploration creates additional concerns with the possibility of spills. Urbanization has introduced additional potential contaminants into the area via household chemicals, domestic pet waste, and pollutants from automobiles.

Up to 18,259 linear feet of floodplain crossings would be located within the proposed SH 249 Extension ROW. Historically, construction in the floodplain has contributed to flooding and an increase in runoff. Executive Order 11988 requires federal agencies to avoid, to the extent possible, the short and long-term adverse impacts associated with occupancy development wherever there is a practicable alternative. In addition, county and other local agencies regulate development in floodplains.

Currently, approximately 4,618 acres of NWI-mapped wetlands and 2,229,165 linear feet of named and unnamed streams are within the RSA (TNRIS 2013). There have been substantial losses of wetlands, other critical habitat, and subsequent wildlife habitat diversity since the 1950s, and the continued urbanization and industrialization of the Greater Houston area, which influence growth in the RSA, would continue to put pressure on the habitat and ecosystem.

Approximately 392 million acres of fresh water and estuarine wetlands existed in 1780 in lands that now form the U.S. Of that, 221 million acres were in the contiguous 48 states. As of the 1980s, the lower 48 states supported only an estimated 103.3 million acres, or a 53 percent loss from the original wetland acreage (TPWD 1997).

Despite the decline of wetland acreage, various factors have contributed to improving wetland vitality and limiting the overall wetland loss rate. The factors have included implementation and enforcement of wetland protection measures and elimination of some incentives for wetland drainage. Public education and outreach regarding the value and functions of wetlands, private land initiatives, coastal monitoring and protection programs, and wetland restoration and creation actions have also helped reduce overall wetland losses (EPA 2013b).

6.4 STEP 4: IDENTIFY DIRECT AND INDIRECT IMPACTS OF THE PROJECT THAT MIGHT CONTRIBUTE TO A CUMULATIVE IMPACT

Step 4 identifies the direct and indirect effects that could result from the proposed SH 249 Extension and potentially contribute to a cumulative effect when added to non-project related effects. *Table 6-1* and the following sections summarize the direct and indirect impacts of the proposed tollway.

6.4.1 Land Use

One factor in creating favorable land development conditions is having efficient and convenient transportation facilities. Other factors include favorable local and regional economic conditions, adequate utilities, demand for new development based on increased population, and supportive local land development regulations and policies. The proposed SH 249 Extension would directly acquire between 688 acres to 741 acres of new ROW.

Residential development in the communities within and adjacent to the proposed SH 249 Extension has been occurring at a relatively rapid pace and is expected to continue in order to accommodate the housing needs of residents moving into the area. In addition, development tends to follow established infrastructure patterns, and infrastructure, in turn, follows development. Therefore, future development plans would likely be based upon developer expectations of transportation improvements, and the rate of development would be indirectly influenced by the proposed SH 249 Extension. Residential development would primarily involve constructing a large number of homes, as well as the infrastructure necessary to support development. Additional housing, infrastructure, commercial, and public land uses required to serve the area's projected growth would also result in continued development and land use changes in the region.

Some indirect land use would occur because of the proposed SH 249 Extension. Commercial developments (e.g., the development of restaurants, retail shops, and convenience stores) are often associated with areas of residential construction. Typically, retail and institutional construction follow close behind residential areas in build out. Office and industrial park construction requires that a degree of residential and retail development is in place before it is economically feasible. Consequently, there is typically a time lag between residential development and office/industrial growth. However, some retail/industrial development may be generated with or without residential expansion.

Because the proposed SH 249 Extension is a controlled-access tollway, direct and indirect impacts would typically be limited to sections that intersect with major roadways where there would be direct access (e.g., FM 149, FM 1488, FM 1486, and FM 1774). In addition to related infrastructure and services, development impacts associated with historical growth patterns in the region could result in conversion of wetlands, riparian habitat, and forests to primarily residential development. Because the four alternative alignments have the same proposed transportation elements, but vary in typical sections horizontally along the existing roadways, indirect changes to land use and the increased development would likely be similar under all four of the alternative alignments.

6.4.2 Vegetation and Threatened and Endangered Species

The majority of vegetation impacts, and subsequently potential impacts to threatened and endangered species (including wildlife), would be to loblolly pine-oak forests and mixed

hardwoods. Between 691 to 730 acres of natural (not maintained) vegetation that is primarily forested would need to be cleared for the construction, operation, and maintenance of the proposed SH 249 Extension.

Approximately 10,972 acres of new development is forecasted within the RSA by 2040. The indirect effects of additional development could continue to fragment contiguous habitat, sever riparian forest corridors, and potentially modify hydrologic and nutrient cycling and transfer processes, all of which would potentially affect natural communities.

6.4.3 Water Resources

Various existing and planned developments in the area have and would have a cumulative water quality impact on receiving waters because of wastewater discharges and urban runoff. Surface water quality impacts from new development include point source and non-point source discharges. Point source discharges are regulated by the TPDES, which is administered by the TCEQ to protect the quality of the receiving waters. Runoff from developed sites is a major contributor of non-point source discharges. The discharges are regulated under the TPDES stormwater program for construction and industrial multi-sector activities. In accordance with stormwater regulations, impacts from runoff are generally mitigated by BMPs utilized to the extent practicable.

The proposed SH 249 Extension could dictate the type of development in locations where direct access would be provided. Under the No-Build Alternative, the RSA would likely consist of residential development. Because the proposed tollway is a controlled-access tollway, development would likely be contained only in adjacent areas at interchanges with major roadways, and more than likely that development would be commercial. Commercial development could include gas stations with above or underground storage tanks, restaurants with grease traps, and other development that could result in discharges of pollutants into groundwater or local surface watercourses.

Impervious cover would increase because of development. The increase in impervious cover would lead to higher runoff volumes and higher peak runoff rates. As a result, residences and businesses along watercourses could be subjected to inundation by floodwaters. Flood control projects are designed to improve the hydraulics of major waterways in an attempt to reduce the risk of future flood damage to residences and businesses without worsening existing flood conditions in other areas. Increased stormwater runoff and urban discharges would be directed to receiving waters in the RSA that would potentially affect the water quality of the receiving waters.

While water quality impacts would probably occur during construction of the proposed SH 249 Extension, the impacts would be temporary and localized. Similar activities for other projects in the region could have similar temporary and localized effects on water quality, wetlands, and

floodplains. In Texas, the TPDES program implements the NPDES program. The TCEQ administers Phase I stormwater permits for construction projects disturbing more than 5 acres of land. Therefore, any project that disturbs more than 5 acres would require a TPDES CGP and an NOI. Additionally, the discharge of dredged or fill material into waters of the U.S., including wetlands, would require a Section 401 Water Quality Certification by the TCEQ. Executive Order 11990 directs federal agencies to minimize the destruction, loss, or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands.

As noted, approximately 2,229,165 linear feet of named and unnamed streams are within the RSA (TNRIS 2013). Construction of the proposed SH 249 Extension could result in impacts to waters of the U.S., including wetlands. Up to 27 open waters of the U.S. (stream crossings) and up to 11.5 acres of NWI-mapped wetlands are located within the study area.

Approximately 4,618 acres of NWI-mapped wetlands are within the RSA. Construction of the proposed SH 249 Extension could indirectly lead to development or redevelopment of land within the RSA. The most common cause and effect consequence is land conversion from wetlands to other uses, primarily urban/developed land. As a result, stresses on wetlands may include water quality impacts, changes in water levels, and overall impacts from urban development and agricultural activities. However, wetland impacts from construction and associated indirect development would be limited based on the current regulations and the fact that the USACE regulates all wetland impacts, including jurisdictional waters. As a result of the federal mandate with regard to "no net loss" of wetlands, impacts from future proposed land use are not anticipated.

6.5 STEP 5: IDENTIFY OTHER REASONABLY FORESEEABLE FUTURE EFFECTS

Cumulative and indirect impact analyses require consideration of past, present, and reasonably foreseeable future actions. The approach used for the cumulative impact analysis included an assessment of past, present, and future actions for the purpose of characterizing the types of actions that are representative of past, present, and future development in the RSA (*Table 6-2a* and *Table 6-2b*). The approach provides a context for the development projects that have caused the current health of each resource and the trends that each resource is experiencing. It also provides insight as to the effect of development on future resource stress and trends.

Table 6-2a: Reasonably Foreseeable Future Effects from Development Projects

Name of Tract Development	Acres	Status of Development
Unnamed property located west of FM 1486 in Montgomery County and extending to the east line of FM 1774 in Grimes County	1,929	Planned for a Master Planned Community that is adjacent to Crown Ranch
Mill Ridge	123	Planned with no information on what type of development will occur on the site
Magnolia Legacy Trust (east and west of FM 1488)	1,121	Planned for a Master Planned Community and commercial development
Timbers at Mill Creek (between FM 1488 and FM 1486)	5,934	Planned for a Master Planned Community
Primewood Investments (east of FM 149)	2,205	Planned with no information on what type of development will occur on the site
Primewood Investments (east of FM 149)	189	Planned with no detailed information on what type of development will occur on the site
Devon Oil and Gas	833	Planned with no information on what type of development will occur on the site
Ax EM Investments	25	Planned with no information on what type of development will occur on the site
Schoessow	80	Planned with no information on what type of development will occur on the site
Rhodes	209	Planned with no information on what type of development will occur on the site

Source: The Proposed SH 249 Extension Study Team.

Table 6-2b: Reasonably Foreseeable Future Effects from Transportation Projects

Roadway Designation	Location	Project Description
FM 149	SH 149 to Green Road	To construct left-turn lanes at six locations (Wildwood Circle North, Wildwood Circle South, Majestic Oaks, Wildwood Trail South, Wildwood Trail North, and Green Lane)
FM 149	at FM 1097	To construct a northbound to westbound left- turn lane
FM 1488	0.2 mile west of Millcreek Road to FM 149	To construct a railroad grade separation over FM 149 and the BNSF railroad at Mostyn (DOT# 597 112Y)
FM 1488	FM 149 to 0.3 mile east of Community Road	To construct a railroad grade separation over FM 149 and the BNSF railroad at Mostyn (DOT# 597 112Y)
FM 1774	Grimes County Line to Montgomery County Line	To widen to a four-lane, divided rural
FM 1774	North of FM 1488 to South of Lost Creek Boulevard	To reconstruct the roadway

Table 6-2b: Reasonably Foreseeable Future Effects from Transportation Projects

Roadway Designation	Location	Project Description
FM 1774	0.045 mile south of West Lost Creek Boulevard to FM 149	To widen to a four-lane, divided rural
FM 1774	Waller County Line to 0.109 mile north of FM 1488	To widen to a four-lane, divided rural with a railroad grade separation
FM 1774	0.109 Mile North of FM 1488 to FM 149	To widen to a four-lanes divided rural
FM 2978	Conroe Huffsmith Road to Harris County Line	To widen from two to four lanes
FM 2978	FM 1488 to South of Dry Creek	To widen from two to four lanes
FM 2978	South of Dry Creek to Conroe Huffsmith Road	To widen from two to four lanes
SH 105	LP 336 West to IH 45 North	To apply access management treatments
SH 105	Walden Road to Old River Road	To widen westbound from two to three lanes
SH 105	IH 45 to 1st Street	To construct raised median, sidewalks, and pedestrian/transit amenities (e.g., lightening, planting, strip/buffer zone, transit stops, and bicycle racks)
SH 249	FM 1774/FM 149 in Pinehurst to Spring Creek/ Harris County Line	To construct a six-lane tollway with grade separations at Stagecoach Road and Woodlands Parkway
Gosling Road	Panther Creek Pines to Spring Creek	To widen to a four-lane divided and to construct half of the bridge across Spring Creek
Grogans Mill Road	Research Forest Drive to Woodlands Parkway	To widen to a six-lane divided
Honea Egypt Road/Sendera Ranch Drive/Fish Creek Thoroughfare/ McCabe Road	SH 105 to FM 1488	To widen to four lanes
Kuykendahl Road	Alden Bridge Drive to Crownridge Drive	To construct a two-lane roadway (missing segment)
Lake Woodlands Drive	at Grogans Mill Road	To construct a grade separation
Longmire Corridor	Sergeant Ed Holcombe Road to FM 1488	To construct a new four-lane roadway (in sections)
Nichols Sawmill Road	South of Butera Road to FM 2920 in Harris County	To construct a new two-lane roadway

Table 6-2b: Reasonably Foreseeable Future Effects from Transportation Projects

Roadway Designation	Location	Project Description
Research Forest Drive	Egypt Lane to Branch Crossing	To widen to a four-lane divided (Phase 2)
Research Forest Drive	Research Forest Drive to Grogans Mill Road	To construct a grade separation
Research Forest Drive	Shadow Bend Drive to Kuykendahl Road	To widen from four to six lanes
Sawmill Road	High Oaks Circle South to Spring Creek	To construct a four-lane divided and to construct half of the bridge across Spring Creek
Stagecoach	SH 249 to Walnut Creek Road	To widen to four lanes
The Woodlands	n/a	Operating expenditures for public transportation in The Woodlands
The Woodlands	n/a	Planning expenditures for public transportation in The Woodlands
The Woodlands	n/a	Capital expenditures for public transportation in The Woodlands
Woodland Hills Drive	Ford Road to North Park	To construct a new two-lane divided
Woodlands Parkway	SH 249 to FM 2978	To construct a new two-lane divided
Woodlands Parkway	East of Panther Creek Drive to Grogans Mill Road	To widen to a six-lane divided

Source: The Proposed SH 249 Extension Study Team/H-GAC 2013a (Appendix E, revised on 07/18/13).

Notes: T = *2013-2016 TIP*, as amended; S = Short Range; L = Long Range; Let = Let to construction; n/a = not applicable.

6.6 STEP 6: IDENTIFY AND ASSESS CUMULATIVE IMPACTS

The cumulative impact analysis has so far considered the direct and indirect effects of the proposed SH 249 Extension, coupled with the effects of past, present, and reasonably foreseeable future projects. The magnitude of the cumulative impact is then determined by comparing the impact to the health and trend of the resource.

6.6.1 Land Use

Section 3.1 of the Draft EIS identifies the past and present land use and socio-economic patterns within the proposed SH 249 Extension study area and the surrounding communities. The section also identifies the breakdown of the present land use within the study area. Approximately 688 to 741 acres of ROW would be required to implement the proposed SH 249 Extension. Of the ROW to be acquired, approximately 510 to 572 acres of undeveloped land would be converted from forested and/or pastureland to transportation use.

There are multiple existing and proposed residential developments within the RSA. Approximately 10,972 acres of undeveloped lands are forecasted by H-GAC to become primarily residential and some commercial development with other land use changes to support the development (such as transportation and public facilities) in response to increases in regional population and employment. Regional land use change within the RSA suggests that development activities to accommodate projected population and employment growth would represent a continuation of the growth already being experienced in the RSA. The projected growth is expected to have a greater influence on the densities of development in areas that are already experiencing growth rather than on the amount of acreage consumed for development.

6.6.2 Vegetation and Threatened and Endangered Species

Section 3.1 of the Draft EIS provides a breakdown of the present land use within the proposed SH 249 Extension study area. Section 3.11 and 3.12 of the Draft EIS provides past and potentially present impacts to vegetation and threatened and endangered species within the study area. Based upon the projected growth within the AOI, approximately 10,972 acres of new development (primarily residential) could occur within the AOI by 2040. The total developed area would be approximately 35,923 acres, or roughly 36 percent of the AOI. The quantifications represent an estimated maximum potential effect from forecasted development through 2040. To a large extent, impacts to protected species within the RSA would be avoided, minimized, or mitigated through compliance with existing federal statutes that apply to private and government interests. The USFWS (under the Endangered Species Act) has legislative mandates to reduce or avoid significant and adverse impacts to protected resources on an individual and cumulative basis. The regulations are intended to minimize adverse effects on protected ecological resources as a cumulative consequence of development. Regardless, the obvious trend is toward continued development in the region.

6.6.3 Water Resources

Section 3.1 of the Draft EIS provides a breakdown of the present land use within the proposed SH 249 Extension study area. Section 3.8 of this Draft EIS provides past and potentially present impacts to water quality within the study area. Any new development indirectly caused by the proposed SH 249 Extension would result in more impervious cover and larger volumes of runoff during storm events. New residential development would also result in additional municipal discharges from sewage treatment and stormwater runoff from new off-system roadways (e.g., city streets and county roads).

Future development within the RSA could create additional point and non-point pollution sources (e.g., contamination from household chemicals, domestic pet waste, and pollutants from automobiles). Commercial development could be gas stations with above or underground storage tanks, restaurants with grease traps, or other development that could discharge pollutants into groundwater or local surface waters. Construction could impact water quality on a

temporary basis by allowing exposed soil to runoff into streams. Runoff could increase turbidity and sediment loading downstream. The proposed tollway and rehabilitation of other roadways within the RSA would add impermeable cover that would increase water runoff that could contain oil and other lubricants that might be carried to waters beyond the study area or the RSA.

Specific impacts will be fully assessed for the Preferred Alternative in the next phase of the environmental clearance process. The stream or tributary crossings would likely be bridged or placed in culverts. Construction activities could temporarily affect water quality in area streams, and an increase in suspended sediments could occur at or near the construction site. However, BMPs would be used during construction to minimize any impact to the immediate construction area.

Based on applicable floodplain regulations and ordinances, the proposed SH 249 Extension (and other transportation projects within the RSA) would not adversely impact the base flooding elevations.

Because of the net conversion of undeveloped land (which includes wetlands) to structures, impervious cover, and maintained open spaces, water resource impacts within the RSA would be probable. To a large extent, impacts to wetlands would be avoided, minimized, or mitigated by compliance with existing federal statutes that apply to private and government interests. The USACE (under Section 404 of the CWA) has legislative mandates to reduce or avoid significant and adverse impacts to protected resources on an individual and cumulative basis. The regulations are intended to minimize adverse effects on protected water resources as a cumulative consequence of development. Regardless, the obvious trend is toward continued development in the region.

6.7 STEP 7: REPORT THE RESULTS

While Section 3 and 4 of the Draft EIS provide a full description of the direct and indirect impacts of the proposed SH 249 Extension, resource-specific results of the cumulative impact analysis are summarized under Step 7. The applicable assumptions and methods are described for each resource.

6.7.1 Land Use

It is difficult to predict the exact amount of land acquisition and displacements that would be needed for future roadways or other residential development in the RSA. Because of future travel demands, a roadway system deficiency analysis identified roadway segments in need of additional capacity within the proposed SH 249 Extension study area. All foreseeable projects in conjunction with the proposed tollway have the potential to displace several homes and businesses in the RSA. However, the cumulative impact of displacements would not adversely affect regional housing and business resources because alternative residential, commercial,

and vacant land is available. In the short-term, access to community facilities and resources would be adversely impacted in construction areas. However, over the long-term, improving the regional transportation system would reduce congestion and increase access to the same community facilities and resources.

Approximately 10,972 acres of undeveloped land could be developed within the RSA by 2040, accounting for approximately 36 percent of the RSA. In the short-term, land use changes would probably occur near major roadways and in areas currently experiencing growth. Over time, land use in the RSA would change as the population continues to increase, as area-wide mobility is improved, and as portions of the RSA become more accessible. The resulting land use changes would be the redevelopment of currently developed areas and the conversion of vacant land to developed uses. However, land use impact associated with the proposed SH 249 Extension would be minor in comparison to the impacts caused by other residential (and some commercial) projects within the RSA.

The cumulative impact for new and improved transportation facilities in the RSA would be improved traffic flow and reduced travel times for the traveling public, local residents, and emergency vehicles. In the long-term, the No-Build Alternative would lead to an increase in traffic congestion that would negatively affect travel times and reduce public safety.

6.7.2 Vegetation, Threatened and Endangered Species, and Wildlife

Cumulative impacts to vegetation, threatened and endangered species, and other wildlife species may happen as a result of additional impervious cover from the proposed tollway and potential development and redevelopment within the RSA.

6.7.3 Water Resources

Cumulative impacts to water resources may happen because of additional impervious cover from the proposed tollway and potential development and redevelopment within the RSA.

6.8 STEP 8: ASSESS THE NEED FOR MITIGATION

While mitigation of adverse impacts is discussed for each applicable resource, mitigation efforts are not measures that FHWA or TxDOT would, or has the authority to, implement. Rather, mitigation is intended to disclose steps or actions that could be taken by local, state, and other federal agencies and organizations to minimize the potential cumulative impact on each resource's health and trend.

6.8.1 Land Use

Large areas of undeveloped land are in the northern portion of the RSA, and much of the land is farmland, rangeland, or forested vacant land. Because contiguous areas of vacant land are available to meet demand, the northward expansion of residential, commercial, and other development would likely continue. An increase in land value because of proximity to

development may entice landowners to sell or develop their property for a monetary gain. Effective competing opportunities of equivalent or greater value offered to landowners to purchase the development rights or to dedicate their property to a use other than development would be needed to deter the continued conversion of vacant land to other land uses.

The *Texas Rural Lands* study documented how that Purchase of Development Rights programs are used in other states to slow land conversion and fragmentation of farms, ranches, and wildlife habitats (Wilkins 2003). The program buys development rights from willing landowners. Based on simulation models, Texas would benefit most if the program was implemented in areas where a relatively large ownership of land (greater than 2,000 acres) existed (Wilkins 2003). Because the average farm size is 90 acres in Montgomery County and 236 acres in Grimes County, a Purchase of Development Rights program would not be effective mitigation within the RSA (USDA 2002).

All four alternative alignments would be consistent with state and local government plans and policies for land use and growth within the proposed SH 249 Extension study area. Direct land use impacts would be mitigated through avoidance and minimization. Although all four alternative alignments would result in the reduction of forest and other vegetative communities, mitigation would minimize the impacts to vegetative and undeveloped habitats through:

- Minimizing devegetation of the construction area wherever safety allows,
- Decreasing the amount of fill placement, and
- Implementing BMPs, such as an erosion and sedimentation control plan.

Specific impact minimization to wetlands, floodplains, and streams may include:

- Roadway design (using bridge crossings instead of filled embankment);
- The use of detention/retention basins and revegetated swales to minimize runoff, sedimentation, turbidity, leaching of soil nutrients, and leaching of chemicals from petroleum products, pavement, and waste material; and
- Maintaining flow patterns to ensure wetland hydrology is tied with roadway design requirements.

Indirect impacts to land use would be similar to the direct impacts, but would occur throughout the RSA.

Because TxDOT and FHWA do not have the authority to implement zoning or planning regulations, land use mitigation would require the collaborative efforts of the public, private developers, and local, county, and regional planners. All parties have a stake in the ultimate landscape in which they reside, and only proactive, cooperative interactions would enhance the optimum blend of natural and developed communities.

6.8.2 Vegetation and Threatened and Endangered Species

Mitigation efforts to compensate for the loss of natural resources could be done within or near the proposed SH 249 Extension study area. There may also be opportunities from other projects to restore or enhance degraded natural areas, or create certain habitat types for terrestrial and aquatic wildlife (as an example) that previously were not present in a particular area. Re-vegetation along the ROW would adhere to TxDOT re-vegetation guidelines.

6.8.3 Water Resources

Potential impacts to water resources would be mitigated through development and implementation of a SW3P that would address measures to prevent or correct erosion that may occur during construction. BMPs for temporary and permanent soil erosion and sedimentation controls would be implemented along with measures to prevent/control hazardous material spills during construction. Stormwater detention areas or vegetated open drainage ways with culverts would collect stormwater discharges, promote settling of suspended solids, and reduce potential pollutant concentrations.

Wetland impacts, whether direct, indirect, or cumulative, would be regulated through the USACE Section 404 permit process. Natural resource agencies (including the TPWD, USFWS, USACE, EPA, and TCEQ) would be party to decisions regarding appropriate mitigation (if required), as well as wetland type, function, location, and size. Should mitigation be required, the USACE 2008 mitigation rule regarding compensatory mitigation for losses of aquatic resources would be followed. Possible mitigation alternatives may be wetland/habitat restoration, enhancement, creation, and/or preservation. Preference would be given to potential mitigation within the San Jacinto River Basin.

6.9 CUMULATIVE REGIONAL EFFECTS OF TOLLED FACILITIES AND MANAGED LANES

As noted throughout, the majority of the proposed SH 249 Extension (12.18 miles) is included in Appendix F (unfunded improvements) of H-GAC's *2035 RTP Update* (MPO long-range plan). Although the proposed SH 249 Extension is not currently in the funded portion of the *2035 RTP Update*, the proposed tollway is planned for inclusion in the long-range plan. Because the proposed SH 249 Extension is not consistent with the conformity determination (*2035 RTP Update*), as it is unfunded and is not included in the financially constrained plan, FHWA will not take final action on this environmental document until the proposed tollway is consistent with a currently conforming RTP and TIP. In addition, once the proposed SH 249 Extension is included in the *2035 RTP Update*, per a new conformity determination, the regional toll analysis documented in the Draft EIS will be updated in the next phase of the environmental clearance process with the information in new update. The remaining 2.6 miles of the proposed SH 249 Extension is located within Grimes County. Grimes County is not a part of the *2035 RTP*

Update, as Grimes County is not a part of the MPO's (H-GAC's) 13-county region for inclusion in the plan.

6.9.1 Overview

As the MPO for the Houston-Galveston-Brazoria region, the H-GAC is charged with enabling and creating a regional perspective for transportation and mobility.

In order to maintain mobility in the region, the *2035 RTP Update* provides major strategies, which utilized together would preserve needed regional mobility. The *2035 RTP Update* recognizes that although the region cannot build itself out of congestion, adding system capacity cannot be avoided and is thus an important strategy for improving mobility. Adding capacity to the roadway network is costly, and with dwindling funding, strategies such as tolled facilities have become an increasingly attractive option as a means of adding capacity to the network. The Houston-Galveston region is now one of the few regions in the country that has or is on the verge of having a regional tolled roadway network. The H-GAC conducted analyses on the regional indirect and cumulative effects of tolled facilities and managed lanes and in April, 2009 prepared a report titled Regional Toll Analysis Summary for Inclusion in Houston Area Toll Road Environmental Documents). This report was updated (lastly) in October 2013 and the report is titled Regional Cumulative and Indirect Effects of Toll Facilities (H-GAC 2013d). The analysis focuses on a regional tolled roadway network and its indirect and cumulative impacts on the previously discussed resources.

Cumulative impacts may result from individually minor, but collectively significant actions taking place over time. H-GAC plans for regional changes over a long time horizon, 30 years, thus providing a means to assess cumulative impacts to a region. Indirect effects are typically observed after the action occurs. Consideration of both the indirect and cumulative effects of a regional tolled roadway network is essential to the analysis of tolled facilities, as the existence of this type of network can cause long-term changes in air and water quality, vegetation, and land use patterns. Air and water quality are most affected by the increase the number of vehicles and non-permeable surface area, respectively. Furthermore, as the regional tolled roadway network increases, the potential for changes in land use also increase. Land use changes often result because the regional tolled roadway network and proposed additions are located outside of the core urban area where development is not yet clearly defined or existing.

Indirect and cumulative impacts from a regional tolled roadway network may also be evident in EJ populations, as these populations are most sensitive to a tolled roadway network in relation to access. Restricting access based on pricing has the potential to create disproportionate adverse effects. The analysis focuses on quantifying the benefits and/or dis-benefits to the identified EJ populations based on accessibility and travel time.

It is also likely that a tolled roadway network would also have an impact on the regional economy, as freight and transportation are vital to the health of the economy in the Houston-Galveston region. The analysis concludes that a regional tolled roadway network is not expected to have any significant adverse cumulative or indirect impacts.

6.9.2 Air Quality

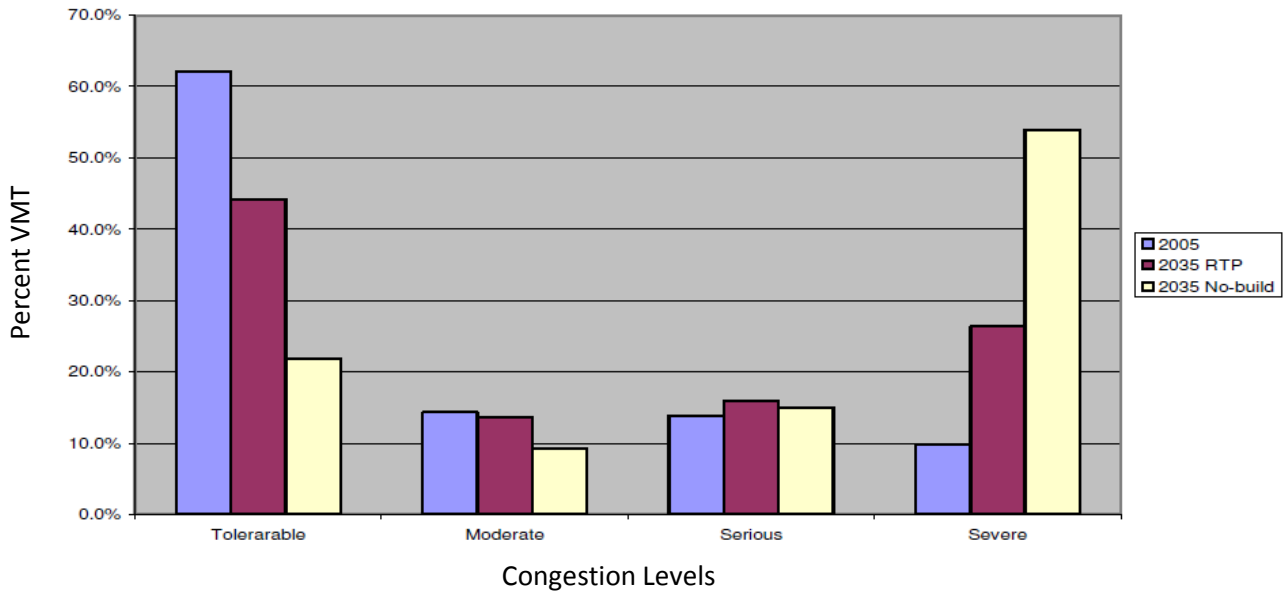
The Clean Air Act Amendments of 1990 require transportation plans, programs, and projects in nonattainment areas, which are funded or approved by the FHWA or FTA, to conform to the SIP. This ensures that transportation plans, programs, and projects do not produce new air quality violations, worsen existing violations, or delay timely attainment of the NAAQS.

Under the Clean Air Act, the EPA established criterion called the NAAQS to determine the health threat of criteria pollutants, generally located within CMSAs. If a CMSA has a health threat, it is designated as a 'nonattainment' area until compliance is achieved. The Houston-Galveston-Brazoria region is classified as a nonattainment area for the 2008 ozone standard ozone standard, and it has been further classified as "marginal."

Transportation conformity is an analytical methodology that establishes the connection between projected on-road emissions from the *2035 RTP Update* and the known reductions in the motor vehicle emission budget from the SIP. Through the process of transportation conformity, the *2035 RTP Update* uses the SIP on-road mobile strategies and air quality targets to demonstrate if the *2035 RTP Update* complies with the federal air quality requirements. Vehicle emissions resulting from the implementation of transportation projects in the *2035 RTP Update* cannot exceed emission budgets established by the SIP. The Houston-Galveston region must demonstrate that the *2013-2016 TIP*, as amended and the long-range plan (*2035 RTP Update*) result in less VOC and NOx than established and approved by EPA for each analysis year. The USDOT (FHWA and FTA) determined that the *2035 RTP Update* and the *2013-2016 TIP*, as amended conformed to the requirements of the SIP for the Houston-Galveston ozone nonattainment area on January 25, 2011 and November 1, 2012, respectively.

Level of mobility was developed to illustrate the degree of congestion on roadways within the region. The H-GAC analyzed the relative distribution of morning peak period congestion levels for the current and future regional roadway network as a percentage of VMT in each level of mobility category (*Figure 6-1*). There will be an increase in regional congestion levels if the forecasted growth occurs. The most significant changes would be at the low end of the range (tolerable congestion levels) and high end (severe) congestion levels, between the current system performance and a future scenario without the *2035 RTP Update* project (the No-Build). The proposed *2035 RTP Update*, Regional Roadway Network would reduce the percentage of severely congested VMT in the morning peak period, from approximately 50 percent to less than 30 percent compared to the 2035 No-Build Scenario.

Figure 6-1: Level of Mobility (AM Peak)



6.9.3 Water Quality

The Houston-Galveston region has an abundance of water resources including rivers, lakes, and bays, among others. The TCEQ, along with the Clean Rivers Program and numerous local agencies, are responsible for monitoring all major bodies of water and reporting those conditions in a biennial Texas Water Quality Inventory report. Section 303(d) of this report details those water bodies TCEQ has identified as impaired because of water contamination.

The 303(d) list identifies several major water systems as impaired with pollutants and bacteria in the Houston-Galveston Transportation Management Area. A majority of the waterways located in the Trinity-San Jacinto Coastal Basin, San Jacinto River Basin, San Jacinto-Brazos Coastal Basin, Brazos-Colorado Coastal Basin, including bays and estuaries that flow to the Gulf of Mexico, are impaired and included in the 303(d) list. The construction of the proposed priced facility system would cross and impact the previously mentioned water bodies at multiple locations and could cause water quality impacts. The increase of impervious square footage from adding capacity to the roadway network greatly increases non-point source pollution and the potential to cause further impairment to the region's waterways.

The TCEQ regulates water quality through SWP3, MS4, and BMPs. All construction of the priced facilities in the *2035 RTP Update* would follow the water quality regulations that would aid in preventing further pollution to these impaired waters and to waters that are not impaired. Additionally, any indirect land use development that would occur from the construction of these facilities would follow TCEQ's regulations for water quality through SWP3 and MS4.

Water Quality Findings

Although overall impacts cannot be avoided, the previously discussed mitigation techniques would ensure that the regional priced facilities would not have significant cumulative impacts to water quality.

6.9.4 Vegetation

Prairie, wetland, bottomland forest, upland forest, and riparian corridor ecosystems are all located in the Houston region. Each of these resources provides vital functions such as flood protection, air quality, water quality and wildlife habitat. Vegetation aids in the health of water quality by filtering excessive nutrients and trapping sedimentation before it has an opportunity to enter surface water resources. In much the same way, vegetation can filter air pollutants that can improve air quality. In addition, shade produced by vegetation can reduce the demand for energy, further decreasing the production of associated air pollution. Protection of these natural resources that contribute to our region's quality of life is an important priority when planning for our region's future growth and transportation requirements, a desire that was strongly echoed at the Envision Houston Region workshops and forums. The H-GAC launched the Envision Houston Region initiative in 2005 to facilitate citizen involvement in the process of analyzing how future population growth could affect land use and transportation plans across the region and to identify innovative approaches to meet transportation challenges associated with rapid growth.

As growth and development are part of our region's future, it is not feasible that every environmental parcel would be able to be conserved. However, it is feasible that the region identifies and works to conserve those areas that are most significant ecologically. The H-GAC identified areas of concern that are distinct environmental resources within the H-GAC region for special consideration in the transportation planning process. However, the identification is not intended to be used for project-level screening. The results are intended to be used for long-range planning purposes and screening to identify areas in which future transportation projects or development may potentially impact these sensitive resources. In addition, the identified environmental resources are areas in which mitigation efforts may be focused.

In some instances, disturbing natural resources may be unavoidable for regionally significant projects or projects located on facilities that are multiple-lane, limited access facilities, such as highways and tollways. Due to their scale, regionally significant projects potentially have a larger impact on the environment than a local project and, therefore, are closely examined. Currently, projects within the *2035 RTP Update* are individually subject to environmental requirements but have no mechanism for cumulatively identifying or mitigating environmental impacts. At the project level, the TxDOT Houston District can mitigate for loss of vegetation with the TPWD, and wetlands mitigation would occur through the permitting process under the jurisdiction of the

USACE. Locally, cities can also curb vegetation loss by implementing measures to protect vegetation areas.

Vegetation Findings

Impacts to vegetation would undoubtedly occur from the priced facility system. However, these impacts are best evaluated and mitigated at the project level; region-wide impacts on vegetation would be minimal from toll network facilities.

6.9.5 Land Use

While we can increase system capacity, manage demand, and improve the efficiency of the existing system, the strategy with potentially the most effect upon improving mobility and quality of life is the strategy of connecting transportation and land use. Land use has a direct impact on the ability of the region's transportation system and agencies to deliver a variety of travel choices. The *2035 RTP Update* has shown that sustained major investments in roadway capacity would only moderate, and would not eliminate the level of future traffic congestion; however, significant mobility gains are possible through better coordinated land use and transportation planning.

The Envision Houston Region process was initiated by H-GAC and its partners to engage residents in a discussion of the region's future growth and development. The process focused on land use and transportation alternatives. Citizen input from workshops was used to develop growth scenarios representing two different types of alternative development patterns. The objective was to provide information on the projected impacts of the alternatives and to highlight the difference between the two growth scenarios developed from the workshops and the Base Case or traditional growth scenario. *Table 6-3* shows the statistics produced through the analysis of each scenario. Brief descriptions of each scenario are below:

- Scenario A: (fiscally constrained *2035 RTP Update* network): denotes the current growth and development pattern for the Houston region, based on H-GAC's 2035 demographic forecasts. It is characterized by low-density housing development in currently undeveloped portions of the region with mixed-use development along major roadways. Jobs are concentrated in the central business district, and several other employment centers are scattered throughout the region.
- Scenario B: indicates the workshop participants' ideal growth pattern, adjusted to the regional forecast of household and job growth. This scenario is characterized by development along major roadways, in a radial pattern, creating centers at major intersections.
- Scenario C: signifies the workshop participants' ideal growth pattern, adjusted to the forecast of household and job growth by county. This scenario clusters mixed-use

development in satellite cities and along major roadways in a radial pattern. Satellite employment centers emerge throughout the region.

Table 6-3: Alternative Growth Scenarios

Data of Interest	Scenario A	Scenario B	Scenario C
Transit Boardings	758,000	+10%[a]	+20%[a]
VMT	248 million	-7%[a]	-7%[a]
VHT	7 million	-16%[a]	-15%[a]
NO_x Emissions	46.58	46.43	43.74
VOC Emissions	50.72	48.65	47.65

Source: H-GAC 2013d.

[a] Denotes change over Scenario A.

Notes: NO_x = nitrogen oxides; VMT = Vehicle Miles Traveled; VHT = Vehicle Hours Traveled; VOC = volatile organic compounds; % = percent.

These results reinforce the public's intuitive notions about coordinated transportation and land use planning. The H-GAC has identified a three-pronged land use and transportation coordination strategy that it calls the "3C's" strategy. The "3C's" strategy calls for the creation of bicycle and pedestrian friendly ***centers***; establishment of better ***connections*** between the centers, and designs based on the ***context*** of the surrounding land uses. In order to integrate the 3Cs concepts into regional transportation planning, the H-GAC has identified the following five strategies:

- Coordinate transit and roadway planning to connect existing and planned centers with the region's multi-modal transportation network,
- Promote roadway designs appropriate for the context of the surrounding community to ensure safe, convenient travel choices for all user modes,
- Coordinate transportation improvements and private sector development efforts to promote projects that combine sustainable mobility and economic benefits,
- Help fund local planning studies to assist in the development of centers, and
- Provide funding support for infrastructure projects that enhance connections within and between centers.

In addition to expanding the regional transit system, transit ridership and efficiency can be improved by coordinating transit and land use. Development along transit lines that increases density and integrates transit with development can make transit more accessible and decrease the need for single-occupancy vehicle trips. Recommended strategies include:

- Promote community design that provides convenient access to transit systems,
- Promote transit-oriented development investments around regional transit facilities, and
- Enhance access opportunities for the transportation disadvantaged.

These land use/transportation coordination tools are tools that can be used in the H GAC region to reduce the need for additional infrastructure, including utilities, transportation, water, and tolled facilities for the region. Without sustainable land use, the additional cost of new infrastructure items will increase beyond the current estimated costs.

The current future roadway network outlined in the fiscally constrained *2035 RTP Update* (Scenario A) is in support of the predicted land use changes and growth in the region. To meet the demand of the expansive growth and changes in land use from development, the aim of the 2035 regional roadway network is to supply the transportation portion of infrastructure requirements for the expanding growth and development. Current and future predicted available funds from the federal government for transportation alone will not be able meet the demands for the transportation infrastructure needed to support the predicted changes. Toll roads and managed lanes are methods that the *2035 RTP Update* employs to ensure the transportation demands from future growth are met based on limited transportation funds.

Land Use Findings

The proposed 2035 toll network may affect land use within the MPO boundaries by creating land development opportunities. However, the toll network is only one factor in creating favorable land development conditions; other prerequisites for growth in the region include demand for new development, favorable local and regional economic conditions, adequate utilities, and supportive local land development policies. The proposed 2035 toll network as currently envisioned may, with the right conditions, help to influence the additional planned regional land use conversion, redevelopment, and growth.

6.9.6 Economic

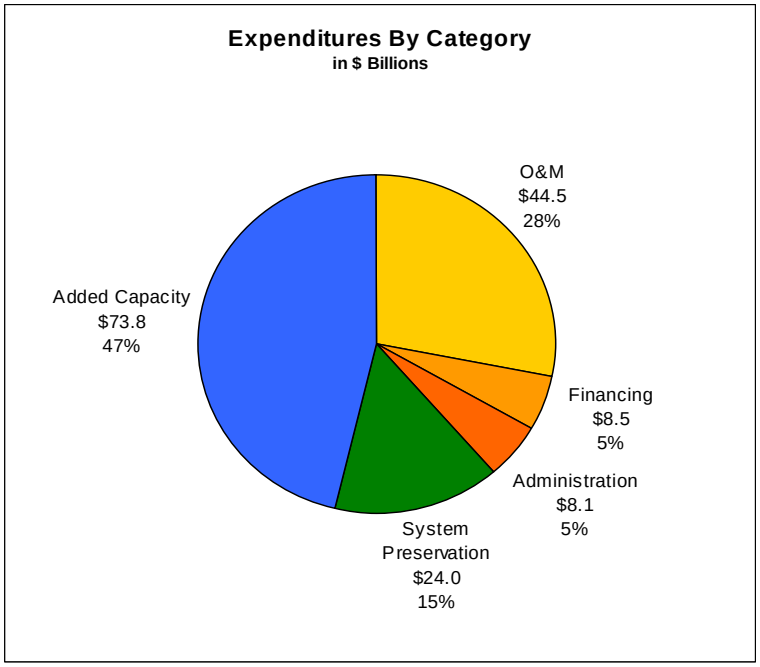
In 2006, H-GAC completed an extensive financial survey that included local governments and agencies with significant expenditures on the transportation network and services. The result is a more complete understanding of how much, by whom, and where transportation dollars are being spent. The results indicate a significant undercounting in previous plans (based on preliminary results) of the contribution by local governments on transportation investments. However, for the purposes of fiscal constraint, this undercounting is neither surprising nor alarming because a large portion of local transportation investment is done on local street networks that are not included in the *2035 RTP Update* because they are not considered to be of regional significance. Fiscal constraint is demonstrated for the regionally significant transportation projects.

This financial summary is different from those in past Plans in that it conforms to new federal regulations requiring the expression of future costs and revenues in year-of-expenditure dollar values, that is, the effects of inflation must be included. The rate of inflation from 1996-2005 has been, on average, 2.53 percent. Another innovation is expressing the costs of projects in terms of their total costs, including the costs of ROW, realignment of utilities, and engineering costs, of which funding can come from multiple agencies.

6.9.6.1 Expenditures

Expenditures on the transportation network include building new and improving existing roadways and transit lines (added capacity), operating the network and maintaining it in good repair (operations and maintenance), reconstructing existing facilities when they have reached the end of their useful life (system preservation), financing costs associated with debt incurred for transportation projects (financing), and wages and salaries paid to various staff of the roadway and transit agencies (administration). Total Estimated Expenditures 2035: $158.9 Billion (*Figure 6-2*).

Figure 6-2: Expenditures by Category (in $ Billions)



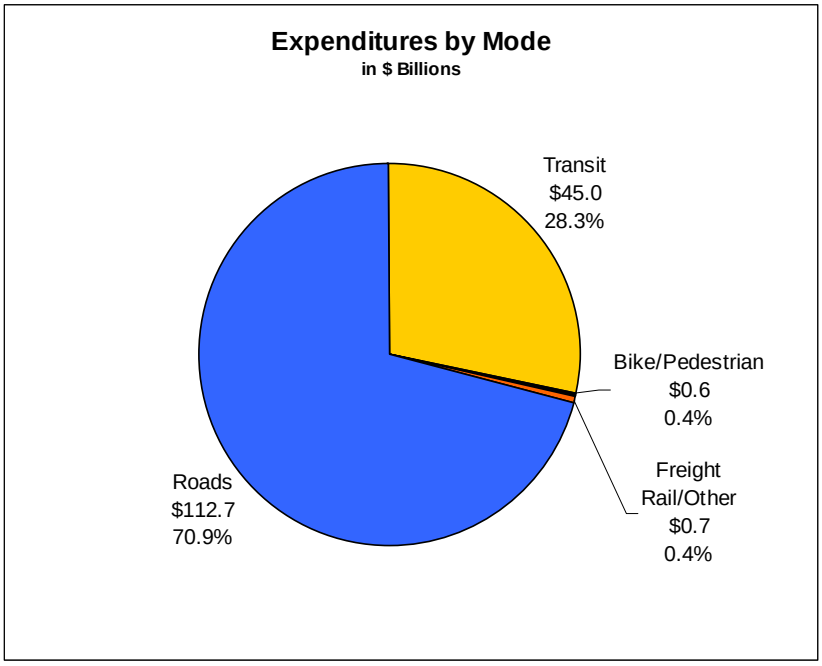
Source: H-GAC 2013d.

For the next several years the region is expecting to continue the trend of expanding the transportation network through added capacity projects. However, in the 2006, edition of the Texas Metropolitan Mobility Plan prepared by H-GAC, findings indicate that added capacity projects would decrease in spending relative to system preservation costs. Not only would there be a larger network to maintain in the future, but also system preservation efforts are currently

under-funded. In the future, more revenues would be needed for system preservation to prevent further deterioration of roadway surfaces.

When examined by mode of travel (roadway, transit, or bicycle), nearly 71 percent of all expenditures are for roadway projects that support the automobile (*Figure 6-3*). In a region known for its dispersed suburbanized housing, this percentage is not unusual. However, over the last several years transit investments have increased dramatically, and this trend is expected to continue.

Figure 6-3: Expenditures by Mode (in $ Billions)

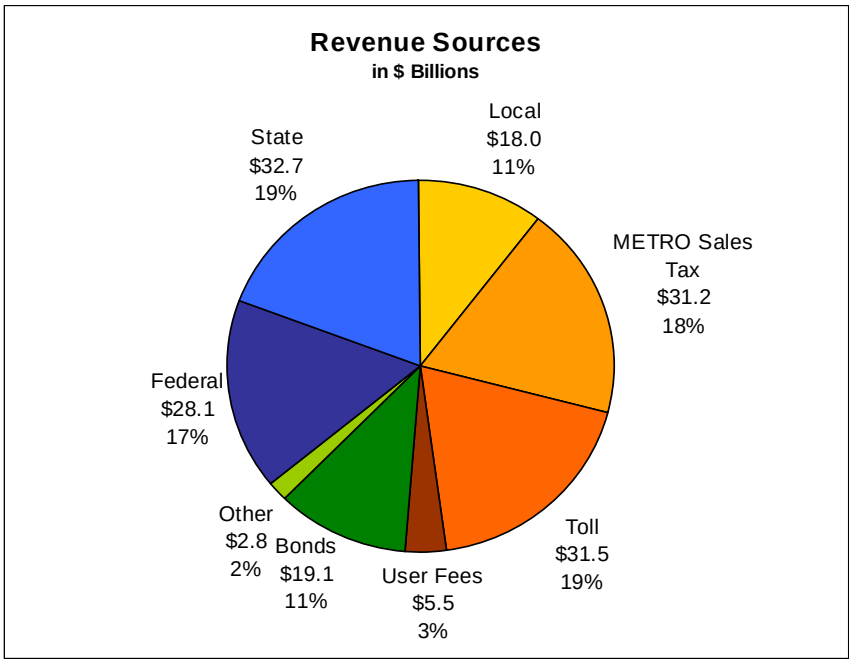


Source: H-GAC 2013d.

6.9.6.2 Revenues

The estimated total revenue available for the *2035 RTP Update* is $168.9 Billion (*Figure 6-4*). These revenues come from a variety of federal, State, and local sources. Among the federal sources are the federal gas tax and programmed funds from the FHWA and FTA. State sources include the motor fuel tax, vehicle registration fees, pass-through financing agreements, and other State allocations. Local sources include property and sales taxes collected by the cities and counties, toll revenues, bonds, and user fees from transit agencies. As a group, the local sources provide the greatest amount of revenues for the *2035 RTP Update*.

Figure 6-4: Revenue Sources (in $ Billions)



Source: H-GAC 2013d.

It is particularly important to note that the region's reliance on toll receipts to fund the *2035 RTP Update* is growing each year. New toll roads, such as the SH 99 (Grand Parkway), as well as managed lanes, are scheduled to come on line in the next 30 years. Although the Harris, Fort Bend, Brazoria, and Montgomery County Toll Road Authorities are not obligated to spend tolling receipts on non-toll transportation projects, in the past they have reinvested all toll-generated revenues into the toll and connecting roadway road systems.

6.9.7 Title VI/Environmental Justice

6.9.7.1 Methodology

The H-GAC conducted an evaluation to determine the effects of a regional tolled roadway network on EJ populations. The unit used for the analysis is the traffic analysis zone (TAZ). The TITLE VI/EJ TAZs were selected based on the Census 2000 block groups that contain 51 percent or greater minority and low-income populations. A TAZ is recognized as an EJ zone if 50 percent its area is covered by EJ block groups.

As shown in *Table 6-4*, in the year 2000, approximately 31 percent of H-GAC's regional population has been identified as being within EJ zones, which represents approximately 46 percent of the total number of TAZs in the 8-county region. This equates to 1,383 of the 3,000 total TAZs being considered EJ TAZs. As can be seen in *Figure 6-5*, there are significant EJ communities located throughout the H-GAC region, but the majority of EJ communities are located within Harris County and generally clustered within the Sam Houston Toll Road. *Figure*

6-5 below also shows a subset of the EJ zones that have minority or low-income population that are greater than 51 percent of the total TAZ population.

Table 6-4: Distribution of Environmental Justice Communities in the H-GAC Region

Designation	Population (2000)	Percent of Total	Number of TAZ	Percent of Total
Total Population within EJ Zones	1,634,500	31.3	1,383	46.1
Total Regional Population	5,214,051	100	3,000	100

Source: H-GAC 2013d.

Notes EJ = environmental justice; TAZ = traffic analysis zone.

6.9.7.2 Analysis Approach

The analysis addresses the potential impacts of tolled facilities on accessibility by analyzing their impacts on the travel time choices of the persons residing in EJ zones and Non-EJ zones. The introduction of tolled facilities would generally result in a travel time benefit (i.e., a travel time savings) to those who choose to use the facilities (both EJ and Non-EJ users). It is a user decision whether or not to use one of the proposed new tolled facilities. From an EJ perspective, it appears the issue should be whether the introduction of the proposed tolled facilities is expected to have a significant and/or disproportionate adverse impact on the EJ population. This issue is addressed by analyzing forecasted trips made by the EJ population that are "candidate" trips for the new tolled facilities.

Two networks were used for purposes of the analyses: *2035 RTP Update* Build and *2035 RTP Update* No-Build Managed Road. The full extent of the toll and managed lane system as contained in the fiscally constrained *2035 RTP Update* can be seen on *Figure 6-6.* As shown on *Figure 6-7*, the No-Build network is essentially the fiscally constrained *2035 RTP Update* network with the existing plus committed managed lane system; the Katy Freeway HOT lanes are included.

6.9.7.3 Analysis Assumptions and Limitations

The region's travel demand models do not provide a means for tracking travel at an individual household level, but do provide a means for tracking travel at a zonal level. For purposes of the analyses, the zones are specified as either EJ zones or non-EJ zones based on the socioeconomic characteristics of the zonal populations. Some regional travel models employ a generalized cost assignment procedure for toll analyses. The H-GAC models perform toll analyses at the mode choice level. Hence, the H-GAC travel model uses a multi-class assignment procedure rather than a generalized cost procedure.

The mode choice models are applied by trip purpose. For the mode choice toll analyses, two travel time estimates are developed from each zone to all other zones: 1) the travel time using both toll and non-toll links (commonly referred to as “toll path” travel times), and 2) the travel time using only non-toll links (commonly referred to as the “free path” travel time). In the mode choice model, if the toll path does not offer a shorter travel time between two zones than the free path travel time, the trip is not considered a “candidate” for the toll facility. If a trip can save travel time using a toll path over a free path then it is considered a “candidate” trip. Of course, not all candidate trips will choose to use a tolled path. The probability of a candidate trip using a tolled path is a function of a number of variables such as the magnitude of the potential travel time savings, the toll costs and the income characteristics of the zones residents. Aspects of this approach are employed in the analyses presented in this report.

In mode choice model applications, a single highway network is used to estimate the travel times for toll paths and free paths. For the regional toll analyses, there are two networks: the “Build” network (i.e., the forecasted roadway network containing the subject toll facilities) and the “No-Build” network (i.e., the network containing all the forecasted roadways except the subject toll facilities). Existing and committed toll facilities are contained in both networks. In this analytical setting, simply comparing the toll path versus free path option will not identify the candidate trips for only the new toll facilities being studied. Indeed, such a grouping would include trips using both existing and proposed toll facilities.

To focus on candidate trips for the new toll facilities, the travel time for toll paths in the Build network is compared to the toll path travel time in the No-Build network. Trips that have a shorter toll path travel time in the Build network than the toll path travel time in the No-Build network are defined as candidate trips for the new toll facilities. The trips from EJ zones are stratified as either candidate trips or non-candidate trips using the data from the two networks. Likewise, the trips produced by the Non-EJ zone are similarly stratified. Stated differently, the trips for a given trip purpose is segmented into four groups:

- Trips produced by EJ zones that are classified as “Candidate” trips;
- The remaining trips produced by EJ zones are classified as non-“Candidate” trips;
- Trips produced by non-EJ zones that are classified as “Candidate” trips;
- The remaining trips produced by non-EJ zones are classified as non-“Candidate” trips.

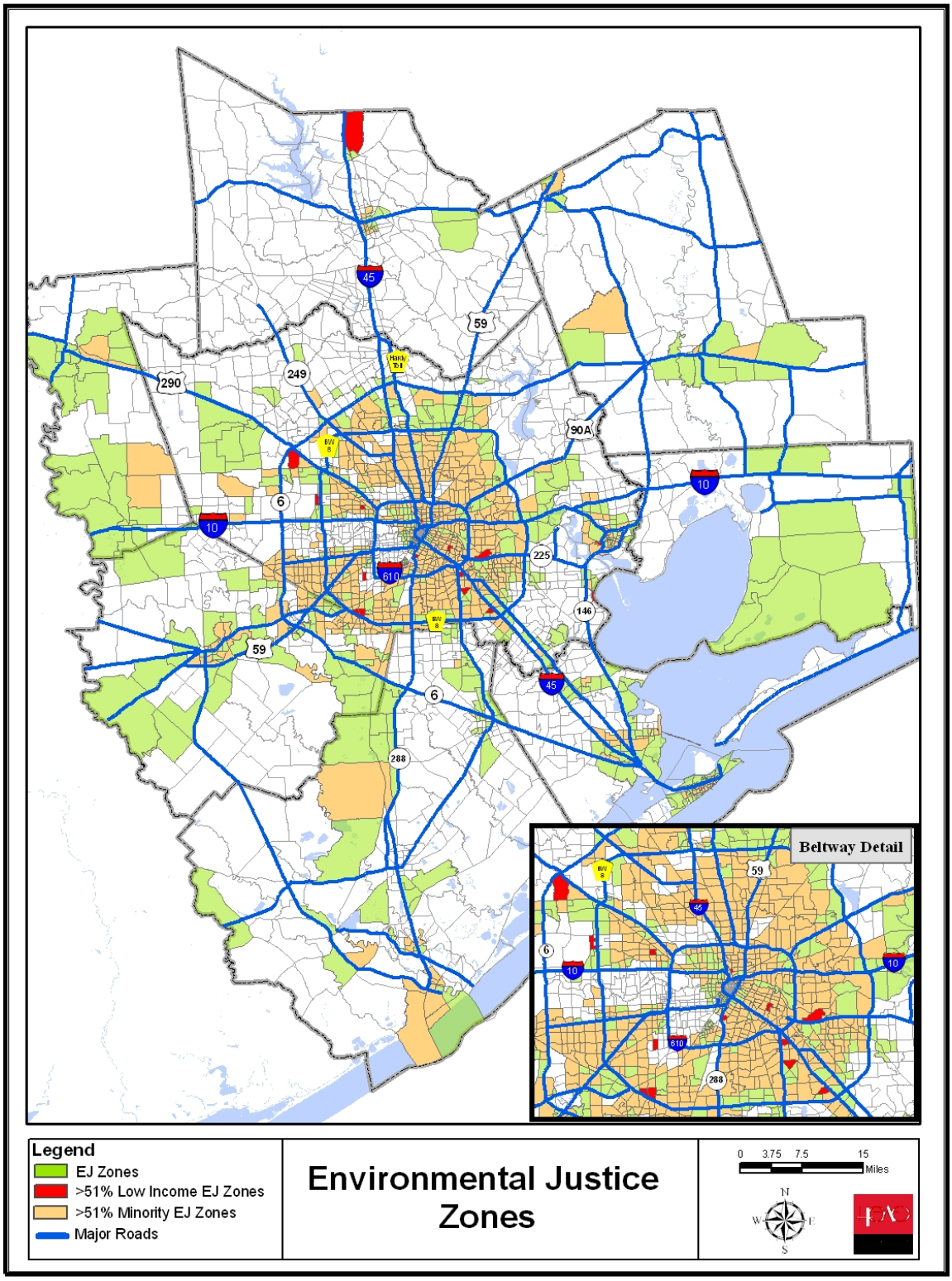
Using toll path travel times and free path travel times from the Build and the No-Build networks, there are four travel times for each trip, (i.e. 1) Build network-toll path option, 2) Build network-free path option, 3) No-Build network-toll path option, and 4) No-Build network-free path option). By computing the average trip lengths for each of the options, the impacts of the two networks on the choice options can be quantified, compared, and analyzed.

Using this approach, the results allow the comparison of the toll and free path options for each network for each segmentation of trips. Clearly, the implementation of new toll facilities should be expected to benefit those who might choose to use a toll facility. Of perhaps more interest is determining if there are any expected overall disadvantages to those who might chose not to use a toll facility or that are not candidates for using one of the new toll facilities.

One of the interesting side benefits of the approach used is that it calls attention to the fact that there will be some potential travel time savings realized for trip makers who chose not to use a toll facility. The time savings would be expected to accrue from the reduced congestion on free facilities due to trips diverted to toll facilities.

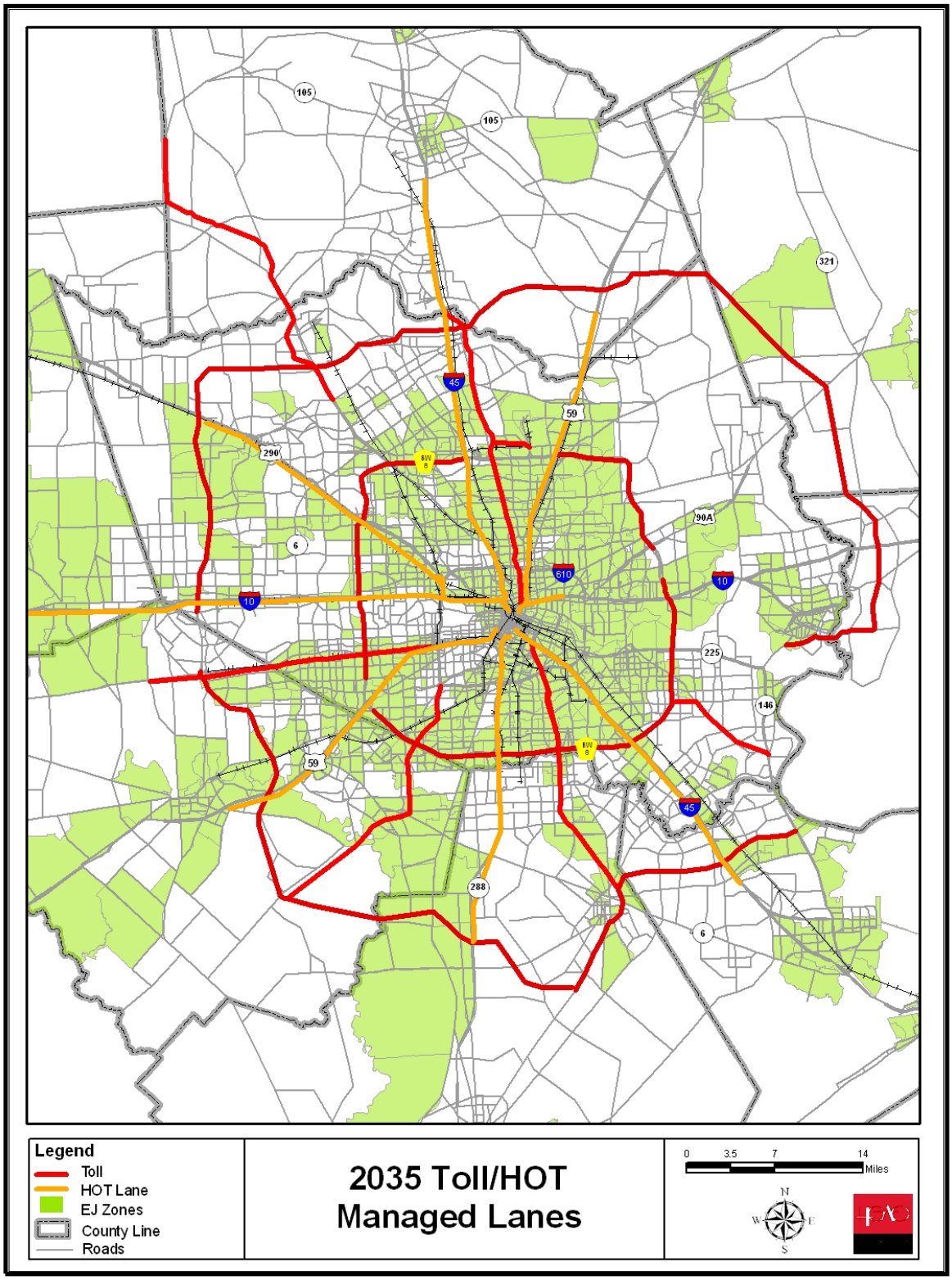
The analyses are regional level analyses and focus on average regional results. Such analyses do not isolate any zone specific analyses or the impacts in the immediate proximity of the new proposed facilities. These impacts were addressed by the analyses performed for the individual facilities. Indeed, the purpose of these analyses are to determine if there are any cumulative regional impacts to the EJ populations represented by the zones designated as EJ zones.

Figure 6-5: H-GAC Region with Environmental Justice Communities of Concern



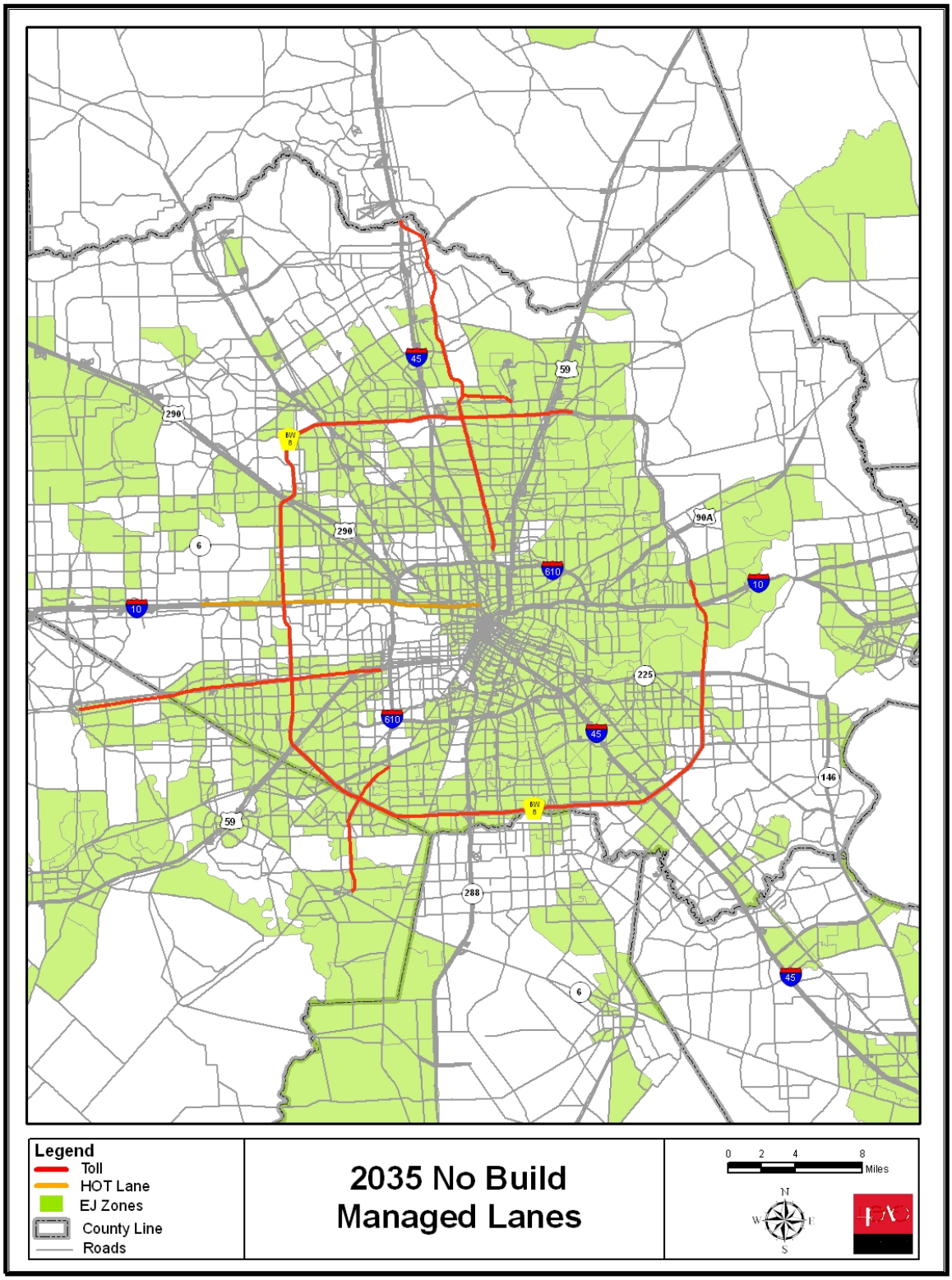
Source: H-GAC 2013d.

Figure 6-6: 2035 RTP Managed Road System



Source: H-GAC 2013d.

Figure 6-7: 2035 No-Build RTP Managed Road System



Source: H-GAC 2013d.

A key focus of the analysis was to determine if the "free" path travel time under the Build scenario is significantly greater than the "free" path travel time under the No-Build scenario for the EJ and Non-EJ zones. The analyses show the expected travel time benefits that may be realized by EJ and Non-EJ zone residents if they chose the pay options for their travel.

Trips were divided into Home-Based-Work trips (HBW) and Home-Based Non-Work trips (HBNW), and for both EJ zones and Non-EJ zones that can save highway travel time by using one of the new proposed toll facilities. For a given trip purpose, the forecasted person travel was divided into four (4) market segments for analysis:

- Trips produced by an EJ zone that are candidates for using one of the proposed new toll facilities (i.e., that could save travel time by electing to use one of the proposed new tolled facilities for their scheduled travel).
- Trips produced by an EJ zone that are not candidates for using one of the proposed new toll facilities (i.e., that could not save travel time by electing to use one of the proposed new tolled facilities for their scheduled travel).
- Trips produced by a Non-EJ zone that are candidates for using one of the proposed new toll facilities (i.e., that could save travel time by electing to use one of the proposed new tolled facilities for their scheduled travel).
- Trips produced by a Non-EJ zone that are not candidates for using one of the proposed new toll facilities (i.e., that could not save travel time by electing to use one of the proposed new tolled facilities for their scheduled travel).

As mentioned in the discussion of the approach, the objective of the EJ analysis is to quantify the impacts of the Build and the No-Build options on the travel time of potential users. Examination of the results will show whether the introduction of the proposed new tolled facilities is expected to generally have a significant and/or disproportionate negative impact on the EJ population of the region.

6.9.7.4 Findings

Home-Based Work Trips

Table 6-5 shows the number of year 2035 HBW person trips and the expected average trip length (ATL) for free and tolled path options under both the Build and No-Build Scenarios. The travel times are based upon AM peak period congested travel times. EJ and non-EJ population trips are each segmented into two separate sub-groups:

- Those trips that can save travel time by using a toll facility; these trips are "candidate trips" for using a toll facility, and

- Those trips that cannot save travel time by using a toll road; these trips are "non-candidate trips" for using a toll facility. Consequently, for purposes of the analysis, only the free path is examined for these trips.

Table 6-5: 2035 Home Based Work Person Trips[a]

Zone	2035 HBW Trip Scenario	Number of 2035 HBW Person Trips	Build Network		No-Build Network		Difference: Toll Facility Option	Difference: Free Facility Option
			ATL: Tolled Facility	ATL: Free Facility	ATL: Tolled Facility	ATL: Free Facility		
EJ Zone	Trips that save 0+ minutes using a new tolled facility	1,124,064	34.72	42.88	36.30	43.70	1.58	0.82
	Trips that *cannot* save 0+ minutes using a new tolled facility	1,517,692	18.36	18.80	18.50	18.95	0.14	0.15
Non-EJ Zone	Trips that save 0+ minutes using a new tolled facility	1,571,960	44.57	54.84	49.18	56.96	4.61	2.12
	Trips that *cannot* save 0+ minutes using a new tolled facility	1,526,036	20.56	20.89	20.96	21.3	0.40	0.41

Source: H-GAC 2013d.

[a] AM Peak average trip length (ATL) in minutes for free and tolled path options under the Build and No-Build network.

[b] No-Build ATL minutes minus Build ATL minutes (differences are in AM peak ATL in minutes).

Notes: ATL = average trip length; EJ = environmental justice; HBW = home based work trips.

Both EJ and Non-EJ Zones Benefit from the Build Alternative

From an EJ perspective, perhaps the most important observation in *Table 6-5* is that ATL for both the toll path and free path options are reduced under the Build Alternative for both EJ and Non-EJ zones. Therefore, the analyses did not find any significant and/or disproportionate adverse impacts on the ATL of the path options for the EJ zones; in fact, these results show that both EJ and Non-EJ zones realize an overall benefit from the proposed new toll facilities in the Build Alternative.

6.9.7.5 Home-Based Non-Work Trips

Table 6-6 shows the number of year 2035 HBNW person trips and their expected ATL for free and tolled path options under both the Build and No-Build alternatives. Since most of the HBNW trips do not occur during the peak traffic periods, the travel times based on the 24-hour speeds were used for these analyses. The 24-hour speeds are generally considered to represent typical off-peak speeds. Therefore, the 24-hour travel times are used by the H-GAC's HBNW mode choice model rather than the peak travel times. Again, the EJ and Non-EJ population trips are each segmented into two separate sub-groups:

- Those trips that can save any travel time by using a toll facility (i.e., trips that are "candidate trips" for using a toll facility), and
- Those trips that cannot save any travel time by using a toll road. Most of these trips do not have a minimum time path that would use any toll facility. Some trips in this group do not have a toll path and hence are unable to be toll users. These trips are "non-candidate trips" for using a toll facility. Hence, for purposes of the EJ analyses, only the free path travel times will be examined for these trips.

Table 6-6: 2035 Home Based Non-Work Person Trips[a]

Zone	2035 HBNW Trip Scenario	Number of 2035 HBNW Person Trips	Build Network		No-Build Network		Difference: Toll Facility Option	Difference: Free Facility Option
			ATL: Tolled Facility	ATL: Free Facility	ATL: Tolled Facility	ATL: Free Facility		
EJ Zone	Trips that save 0+ minutes using a new tolled facility	1,134,814	25.65	30.07	27.27	31.08	1.62	1.01
	Trips that cannot save 0+ minutes using a new tolled facility	5,266,409	12.13	12.26	12.26	12.39	0.13	0.13
Non-EJ Zone	Trips that save 0+ minutes using a new tolled facility	1,313,864	28.92	34.22	34.13	37.32	5.21	3.10
	Trips that cannot save 0+ minutes using a new tolled facility	5,306,422	13.54	13.59	14.09	14.14	0.55	0.55

Source: H-GAC 2013d.

[a] 24-hour ATL in minutes for free and tolled path options under the Build and No-Build network.

[b] No-Build ATL minutes minus Build ATL minutes (differences are in AM peak ATL in minutes).

Notes: ATL = average trip length; EJ = Environmental Justice; HBNW = home based non-work trips.

Toll Path Option Benefit for the Build Alternative for Both EJ and Non-EJ Zones:

From an EJ perspective, perhaps the most important observation in *Table 6-6* is that ATL for both the toll path and free path option are reduced under the Build Alternative for both EJ and Non-EJ zones. Hence, the analyses did not find any significant and/or disproportionate negative impacts on the ATL of the path options for the EJ zones. Indeed, these results show that both EJ and Non-EJ zones realize an overall benefit from the proposed new toll facilities in the Build Alternative.

Latent demand is essentially unrealized demand of travel due to constraints of the roadway network that becomes realized when improvements to the network are made, and can show increases in traffic on capacity-enhanced networks. The travel demand model used in the analysis uses an equilibrium assignment that disperses any latent demand throughout the toll and non-toll network, thus reducing the overall congestion in the region. This is evident by

observing the changes in VMT and vehicle hours traveled (VHT) in the Build scenario, which includes the regional tolled roadway network. As seen in *Table 6-7*, the daily VMT decreases by approximately 1.5 million miles in the Build scenario versus No-Build scenario. Furthermore, daily VHT decreases by approximately 5 percent for the region when the network is fully built out. This gives evidence that the 2035 roadway network with toll facilities would improve the overall system performance and provide travel time savings to both EJ and Non-EJ populations.

Table 6-7: Regional VMT and VHT

Designation	Build	No-Build
Daily VMT	252,578,686	254,031,712
Daily VHT	7,349,969	7,761,311
AM VMT	42,929,640	43,058,792

Source: H-GAC 2013d.
Notes: VMT = Vehicle Miles Traveled; VHT = Vehicle Hours Traveled.

6.9.7.6 Overall Environmental Justice Toll Network Findings

For HBW trips and HBNW trips, EJ population trips that are candidate toll users are benefited by the introduction of the new toll facilities in terms of both the toll and free path travel times. Equally important, EJ population trips that are not candidate toll users benefit by the introduction of the new toll facilities, as the free path travel time ATL is reduced between the No-Build and Build scenarios. As such, EJ populations experience an overall benefit under the Build Alternative for their HBW and HBNW travel.

Although EJ zones spread throughout the region, they are generally clustered within Beltway 8 and are not in close proximity to the majority of future toll facilities as the Non-EJ zones are. Consequently, as the ATL of the EJ zones are less than the ATL of Non-EJ zones, the EJ zones cannot derive as much travel time savings as the longer trips from Non-EJ zones. However, the analysis did not explicitly examine the impact on ATL. As seen on *Figure 6-8*, the significant amount of future transit improvements are targeted at EJ zones; the ATLs for the populations within those zones would tend to improve due to increased access to improved transit facilities.

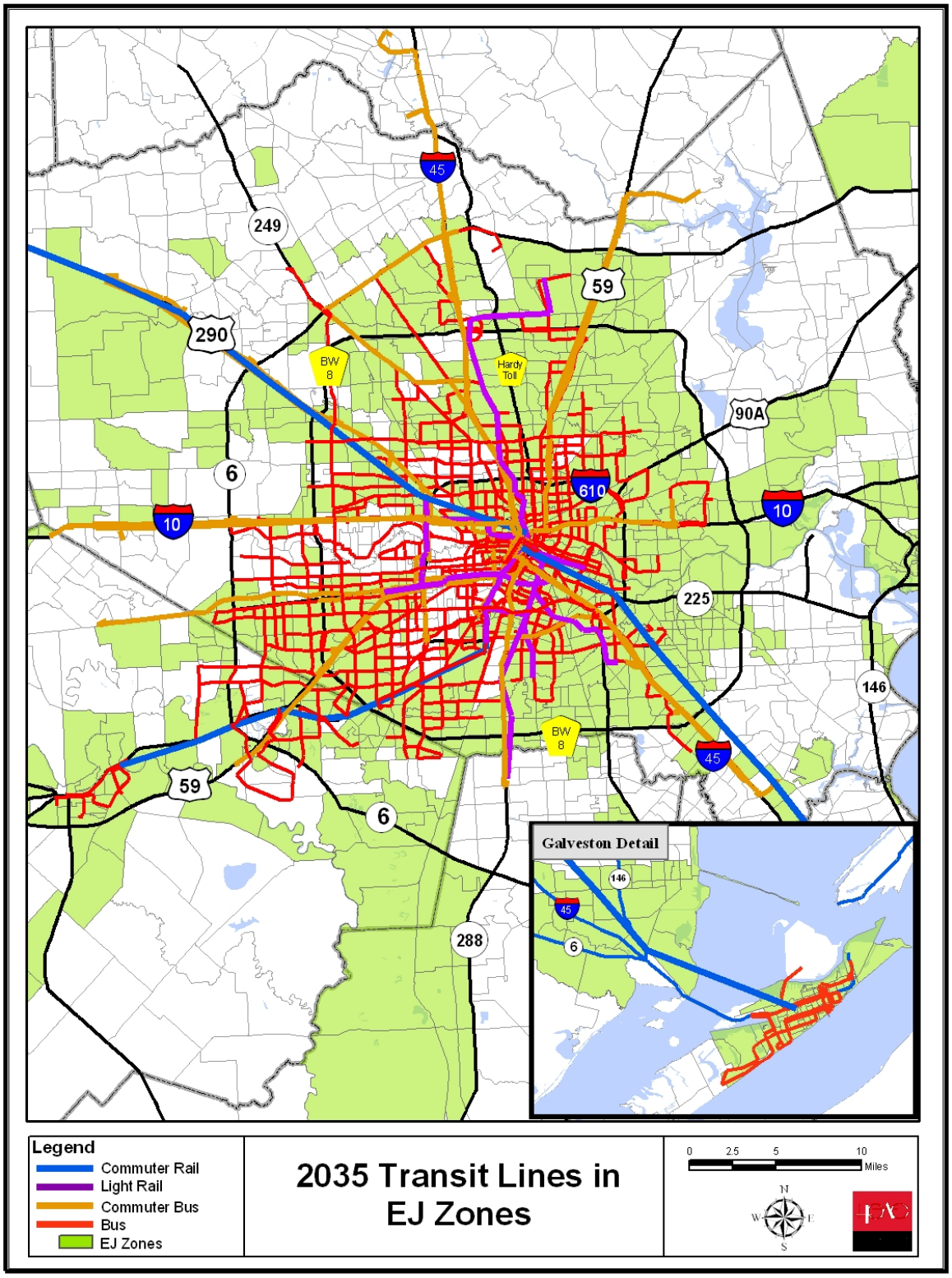
Although EJ populations would see an increase in spending for toll facilities, the entire region would also see an increase in spending and usage as the toll and managed lane system expands. Both EJ and Non-EJ populations would benefit from future toll facilities. In fact, the *2035 RTP Update* relies heavily on toll funding to finance a significant portion of future added capacity projects, both free and toll. Additionally, for both populations who choose to use non-toll options, the Build scenario for 2035 would provide a roadway network that would operate at better traffic conditions than the No-Build scenario and would provide an increased benefit for those users over the No-Build scenario.

An analysis was also conducted to determine the annual financial burden of utilizing the toll road system for HBW trips. The analysis assumed a 2035 toll rate per mile of 19.96 cents (current toll rate of 10 cents per mile with an annual escalation rate of 2.5 percent). In addition, the analysis assumed that an average HBW trip length is 23.30 miles and the SOV user makes 250 round-trips per year using the toll facility. Under this scenario, the annual cost would be approximately $2,325 per year. However, the accrual cost should be substantially less since the likelihood of a trip using only tolled facilities is diminutive.

The 2013 HHS poverty guideline for a family of four is $23,550, of which approximately 10 percent would equate to the annual cost per year for utilizing the toll road system for HBW trips. In addition to this, median household income to projected annual toll costs can be seen below (U.S. Census 2013 [2007-2011 American Community Survey]. Based on the previous discussion and analysis, the Build scenario for the *2035 RTP Update* would not cause cumulative disproportionately high and adverse effects on any EJ populations, as per EO 12898 regarding EJ.

The results of the analysis suggest that although most of the new toll facilities are not being implemented in EJ zones, EJ populations would enjoy benefits the of future toll facilities. It is important to note that future toll facilities are generally not being proposed in EJ zones because those zones are largely inside the urban core. The costs of ROW acquisitions, community disruption, etc. make those locations prohibitive. However, it is important to note that much of the proposed light rail and bus improvements in the region are being implemented in the EJ zones identified in the analysis, thereby improving mobility for those populations.

Figure 6-8: 2035 RTP Managed Road System



Source: H-GAC 2013d.

This analysis only sought to determine whether disproportionate benefits or dis-benefits are accruing to TITLE VI/EJ and Non-TITLE VI/Non-EJ populations based upon travel time savings. In no way does this analysis replace the work required in the project development phase of a project per NEPA.

6.9.8 Conclusion

The regional priced facility system would cause minor impacts to some of the resources discussed in the analysis. Regional mitigation for some of the resources is addressed by the H-GAC. As part of the transportation planning process, H-GAC addresses issues related to air quality and EJ. The priced facility projects would be included in the STIP/TIP and MTP, and the STIP/TIP and MTP would need to be found to conform to the SIP. Additionally, the transportation planning process would need to comply with the requirements of Title VI of the Civil Rights Act of 1964 and Executive Order 12898 on Environmental Justice. This assures that the STIP/TIP and MTP are in compliance for air quality under the CAAA and EJ under Title VI of the Civil Rights Act of 1964 and Executive Order 12898.

Although land use impacts cannot be mitigated at a regional level, they can be mitigated and/or controlled at the municipality level because these entities have direct control over land use. However, the MPO can aid in land use impact avoidance at the regional level by only funding transportation projects consistent with the regional vision and by working with municipalities to address regional infrastructure changes in their comprehensive plans. State and federal regulatory agencies that have direct jurisdiction over natural and cultural resources would be responsible for requiring avoidance, minimization, and mitigation from any entity whose proposed project (transportation or other type) has a direct impact to any of these resources on their project.

SECTION 7: AGENCY AND PUBLIC COORDINATION

Section 7 summarizes the public involvement process for the MIS and the current Draft EIS.

7.1 ELEMENTS OF THE MIS PUBLIC INVOLVEMENT PROGRAM

7.1.1 Mailing List

During the initial stages of the MIS process, names of area citizens and businesses; local, state, and federal governmental officials; community coalition representatives; and media contacts were collected and recorded in a database used to sort entries for distribution of newsletters and public meeting notices.

7.1.2 Notification

Notification of public meetings/open houses were advertised in the following four local newspapers within the study area for the MIS:

- The Bryan/College Station Eagle,
- The Magnolia Potpourri,
- The Tomball Tribune, and
- The Houston Chronicle.

TxDOT advertised all meetings/open houses in each publication approximately 30 and 10 days prior to the meetings, noting that every reasonable effort would be made to accommodate special communication requirements (given two days advance notice prior to each meeting). Because of the demographics within the study area for the MIS and no local distribution outside of central Houston, notices were published only in English.

7.1.3 Website

Information regarding the MIS was provided through a web page on TxDOT's website (http://www.dot.state.tx.us) beginning in the fall of 2000. Information included MIS updates, a map of the study area for the MIS, MIS newsletters, and contact information.

7.1.4 Newsletters

An MIS newsletter entitled the *SH 249 Extension Corridor News* was developed during the MIS to provide progress and information to interested parties and residents. Regular, ongoing communication to elected officials and members of the community was an essential part of the public involvement process. In all, three newsletters and one postcard were sent to the individuals on the mailing list. The first two newsletters served to notify recipients of the dates and location for the first and second public meeting, and a postcard served as notice for the third public meeting. The newsletters were mailed two weeks prior to each public meeting.

Approximately 400 copies of the newsletter were mailed. In addition to the mailings, newsletters were also distributed at public meetings and were posted on the MIS website.

7.1.4.1 SH 249 Extension Corridor News Fall 2000

The first newsletter was published in the fall of 2000 with information on the study area for the MIS, corridor characteristics, the study process, and the public involvement plan. The newsletter also introduced the consultant team and steering committee.

7.1.4.2 SH 249 Extension Corridor News Spring 2001

The second newsletter was published in the spring of 2001 and provided a brief summary of the first public meeting held, the study schedule, the study history, and a brief summary regarding the second steering committee meeting. The newsletter also provided a study update that included details regarding existing conditions of FM 1774 and a brief overview of the universe of alternative corridors.

7.1.4.3 SH 249 Extension Corridor News Winter 2002

The third newsletter, published in the winter of 2002, discussed the results of the MIS process with a recommendation for the Most Feasible Alternative Corridor.

7.1.5 Public Meetings

Described further below, three public meetings were held during the course of the MIS. Each meeting included an open house session, a slide presentation, and a public comment period. The three meetings updated the public regarding the study's progress and provided a general forum for public input.

7.1.5.1 MIS Public Meeting #1 (November 16, 2000)

The first public meeting introduced the MIS and presented the initial corridor alternatives. The majority of attendees expressed a preference for a corridor east of FM 1774 with no disruption to downtown Magnolia. The participants also ranked criteria for evaluating alternative transportation improvements as follows.

1. Improve everyday travel conditions.
2. Minimize environmental impacts.
3. Improve safety for motorists.
4. Further economic development.
5. Minimize construction costs.
6. Be cost-effective.

The total number of participants in attendance was 166.

7.1.5.2 MIS Public Meeting #2 (March 29, 2001)

The second public meeting presented the initial evaluation of alternative corridors alongside the proposed preliminary alternative corridors. A summary of public comments received during the meeting included:

- The need for immediate improvements to FM 1774,
- No disruption to downtown Magnolia,
- Preference for an eastern alignment,
- Improvement of everyday travel conditions, and
- Minimization of environmental impacts.

The total number of participants in attendance was 89.

7.1.5.3 MIS Public Meeting #3 (October 16, 2001)

The third and final public meeting reviewed the detailed evaluation results and presented the preliminary Most Feasible Alternative Corridor. A summary of public comments received during the meeting included:

- Inquiries regarding the process and time line for ROW acquisitions,
- Concerns regarding property values,
- Whether property owners should consider selling their property now or wait until TxDOT is ready to acquire properties needed,
- Impacts to floodplains, and
- Proximity of the alternative corridors to development.

The total number of participants in attendance was 134.

7.1.6 Agency Involvement

A steering committee was formed at the beginning of the MIS with team members at the TxDOT Houston District to offer policy decisions and guide the technical development of the MIS. Members included representatives from local, state, and federal agencies; representatives from Montgomery, Grimes, and Waller counties; and individuals from the communities within the study area for the MIS. Three meetings were held throughout the MIS process on August 16, 2000; January 17, 2001; and November 11, 2001. Input, ideas, and suggestions from the representatives included:

- Travel demand and accessibility issues,
- Ways to relieve traffic congestion and reduce safety issues on FM 1774,

- Magnolia's need for immediate traffic congestion relief,
- Texas Renaissance Festival attendance and traffic,
- ROW issues/needs,
- Railroad restrictions, and
- Alignment impacts concerning existing neighborhoods, businesses, proposed development, economic, and environmental impact.

All comments and suggestions from the steering committee representatives provided valuable information and aided in performing the MIS.

7.2 ELEMENTS OF THE DRAFT EIS PUBLIC INVOLVEMENT PROGRAM

7.2.1 Mailing List

The database that was started during the MIS was also used throughout the Draft EIS and updated with the names of individuals attending public meetings, new agency or organization contacts, and those who requested information, as applicable. In addition, property ownership data were obtained for properties that could be directly affected by the proposed SH 249 Extension, and the owner's names were added to the mailing list.

To date, the proposed SH 249 Extension mailing list includes approximately 400 people. The names and addresses compiled were used to distribute public meeting notices as needed.

7.2.2 Notice of Intent

In September 2003, an NOI to prepare an EIS was published in the Federal Register and the Texas State Register. Publication of the NOI began the formal scoping process for the proposed SH 249 Extension in accordance with NEPA. A copy of both NOIs is included in *Appendix G* of the Draft EIS.

7.2.3 Notification

Notification of public meetings/open houses were advertised in the same four local newspapers used during the MIS:

- The Bryan/College Station Eagle,
- The Magnolia Potpourri,
- The Tomball Tribune, and
- The Houston Chronicle.

TxDOT advertised all meetings/open houses in each publication approximately 30 and 10 days prior to the meetings, noting that every reasonable effort would be made to accommodate

special communication requirements (given two days advance notice prior to each meeting). Because of the demographics within the study area for the MIS and no local distribution outside of central Houston, notices were published only in English. The notices provided a point of contact so that reasonable accommodations could be arranged. The facilities used for the meetings were fully accessible to persons with disabilities in accordance with the Americans with Disabilities Act.

7.2.4 Comment Forms

Public meeting/open house participants were given the opportunity to submit comments in writing. Comment forms were provided at each public meeting requesting each attendee's primary interests and preferences regarding the proposed SH 249 Extension. The comment form also asked how the attendee had heard about the meeting. A total of 92 written comment forms were received during the Draft EIS process.

7.2.5 Draft EIS Public Meetings

Described further below, four public meetings have been held thus far during the course of the Draft EIS process at various locations in the study area. TxDOT has communicated at each public meeting/open house that the proposed SH 249 Extension would be a tollway. The format of each meeting allowed for the attendees to engage in informal discussions with members of the consultant team and TxDOT personnel.

7.2.5.1 Draft EIS Scoping Meeting #1 (December 15, 2003)

The initial meeting/open house was held at the Magnolia Elementary School in Magnolia. The meeting initiated the scoping process, presented the Draft EIS study process, and solicited public comments regarding the proposed SH 249 Extension. A summary of the public's comments received during the meeting included:

- Concerns regarding property values,
- Interests in the ROW process,
- Requests to be informed of future meetings, and
- Requests to be informed on the development of the proposed SH 249 Extension.

The total number of participants in attendance was 54, including two elected officials.

7.2.5.2 Draft EIS Public Meeting #2 (June 17, 2004)

The second meeting/open house was held at the Willie E. Williams Elementary School in Magnolia. The meeting presented the preliminary alternative alignments. A summary of the public's comments received during the meeting included the following.

- Six participants were against constructing the proposed SH 249 Extension.

- Four participants expressed concerns about possible impacts to the environment.
- Two participants were against constructing the proposed SH 249 Extension either as a tollway or freeway.
- Two participants were in favor of the proposed SH 249 Extension and requested that the proposed tollway be built quickly.
- Two participants were specifically in favor of Alternative Alignment E (Orange) because the alignment appeared to be the shortest route and the lowest cost to build.

The total number of participants in attendance was 89, including one elected officials.

7.2.5.3 Draft EIS Public Meeting #3 (November 18, 2004)

The third meeting/open house was held at the Magnolia Elementary School in Magnolia. The meeting presented the five preliminary alternative alignments and the Recommended Alternative (Alternative C [Blue]) at that time. A summary of the public's comments received during the meeting included the following.

- One request was made to either move the alternative alignments farther from the Hazy Hollow East neighborhood or to acquire the properties.
- One participant was concerned that Alternative Alignment C was too close to their property fence line.
- One participant requested that the proposed SH 249 Extension not be built.
- One participant expressed concern regarding the curve design for Alternative Alignment C and that it would not handle traffic traveling at 70 mph.
- One participant stated that Alternative Alignment C would acquire too much property.
- Three participants were in favor of developing the proposed SH 249 Extension as a tollway because it would bring revenue to Montgomery County.
- One participant was in favor of the proposed SH 249 Extension as long as on-ramps and off-ramps were constructed at FM 1488 and FM 1486.
- Fourteen participants were against developing the proposed SH 249 Extension as a tollway. The reasons cited were that tolls would hurt economic development, the participants were not in favor of paying both taxes and tolls, and the Magnolia Chamber of Commerce just passed a resolution against tolling.

The total number of participants in attendance was 69, including five elected officials.

7.2.5.4 Draft EIS Public Meeting #4 (October 3, 2013)

The fourth meeting/open house was held at the Magnolia West High School in Magnolia. The meeting presented a new hybrid alternative alignment (Alternative Alignment B/C) as the Recommended Alternative. A summary of the public's comments received during the meeting included the following.

- Twelve comments addressed issues or questions relating to the proposed SH 249 Extension.
- Nine comments were general comments regarding additional information requests to show support for the proposed SH 249 Extension.
- Three comments addressed issues or questions concerning the need of and purpose for the proposed SH 249 Extension.
- One comment addressed issues relating to natural and physical environmental issues.

The total number of participants in attendance was 148 participants, including three elected officials.

7.2.6 Public Presentations

In addition to the previously listed public involvement efforts, TxDOT presented the proposed SH 249 Extension Draft EIS study process at the Magnolia City Council Meeting on December 9, 2003.

7.2.7 Future Public Involvement

A Public Hearing is anticipated for the first quarter of 2014, pending the approval and release of the Draft EIS. The Draft EIS would be posted for public review at least 45 days prior to the Public Hearing and at multiple locations within the proposed SH 249 Extension study area. Legal notices for the Public Hearing would be published in English and Spanish 30 and 10 days prior in newspapers having a general and local area circulation. Verbal comments would be recorded at the Public Hearing, and written comments would be encouraged and accepted at the hearing and via mail or e-mail until 10 days following the hearing. Comments on the DEIS and the Preferred Alternative would be considered.

7.3 AGENCY COORDINATION

7.3.1 Contact with Agencies

As part of the development process for the proposed SH 249 Extension, local, federal, and state government and agencies were consulted prior to and during the preparation of the Draft EIS. FHWA sent a letter requesting that the U.S. Department of the Interior (DOI), EPA, NRCS, USACE, and USFWS participate in the Draft EIS as a Cooperating Agency. The following

agencies were requested, by correspondence, to provide input on the proposed tollway and invited to attend the proposed SH 249 Extension information meetings.

Federal Government Agencies

Federal Highway Administration (FHWA)
National Resources Conservation Service (NRCS)
U.S. Army Corps of Engineers (USACE) – Accepted invitation as a Cooperating Agency
U.S. Department of the Interior (DOI) – Accepted invitation as a Cooperating Agency
U.S. Environmental Protection Agency (EPA) – Accepted invitation as a Cooperating Agency
U.S. Fish and Wildlife Service (USFWS)

State Government Agencies

Texas Department of Transportation (TxDOT)
Texas Historical Commission (THC)
Texas Parks and Wildlife Department (TPWD)
Texas Commission on Environmental Quality (TCEQ)
Texas General Land Office
Texas Transportation Commission
Texas Department of Public Safety Hazard Mitigation

Local Government Agencies

Montgomery County
Montgomery County Historical Commissioner Chair
Grimes County
Grimes County Commissioners Court
Grimes County Historical Commissioner Chair
Magnolia Area Chamber of Commerce
Magnolia Independent School District (ISD)
City of Magnolia
City of Todd Mission
Houston-Galveston Area Council (H-GAC)

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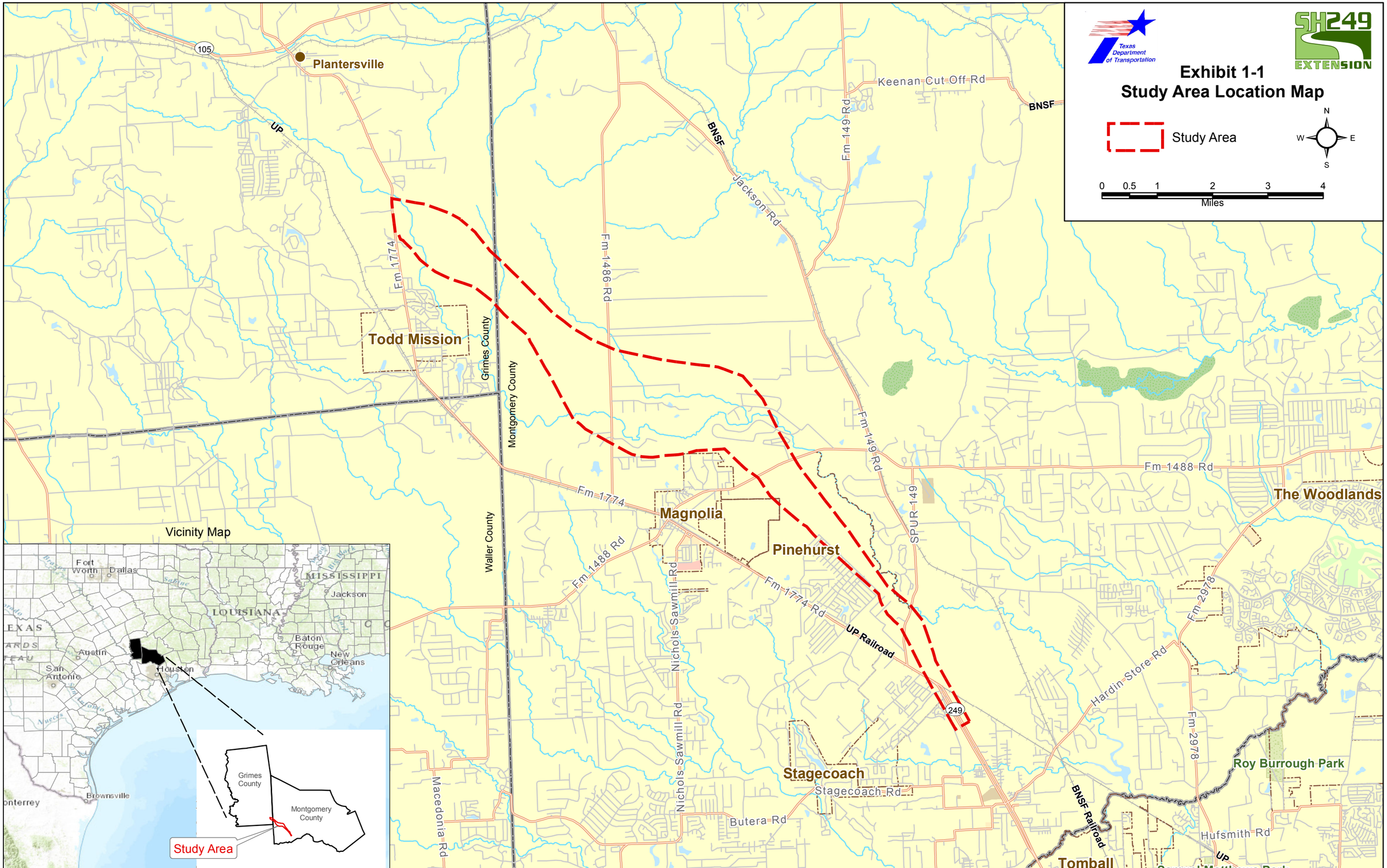

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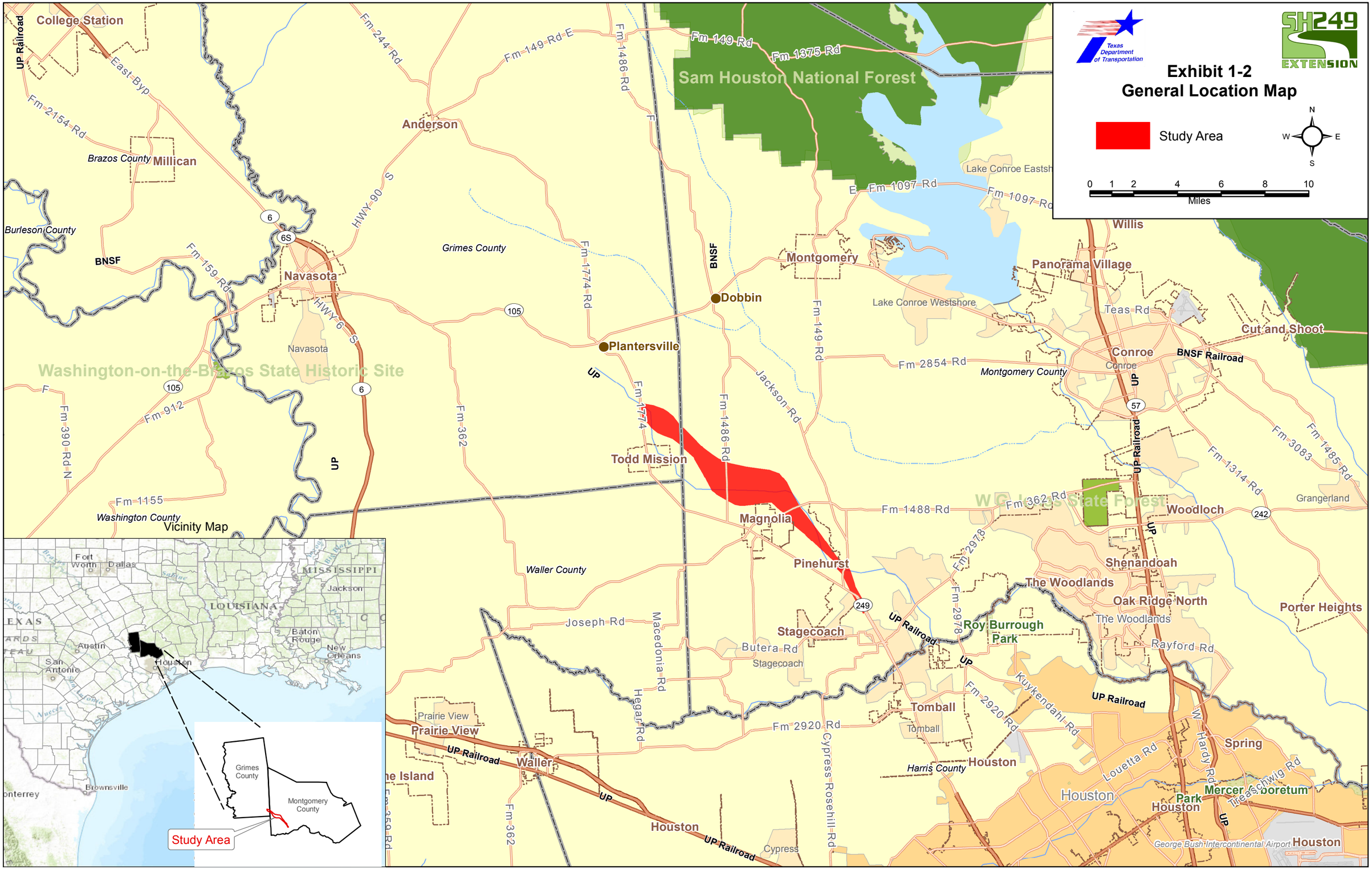

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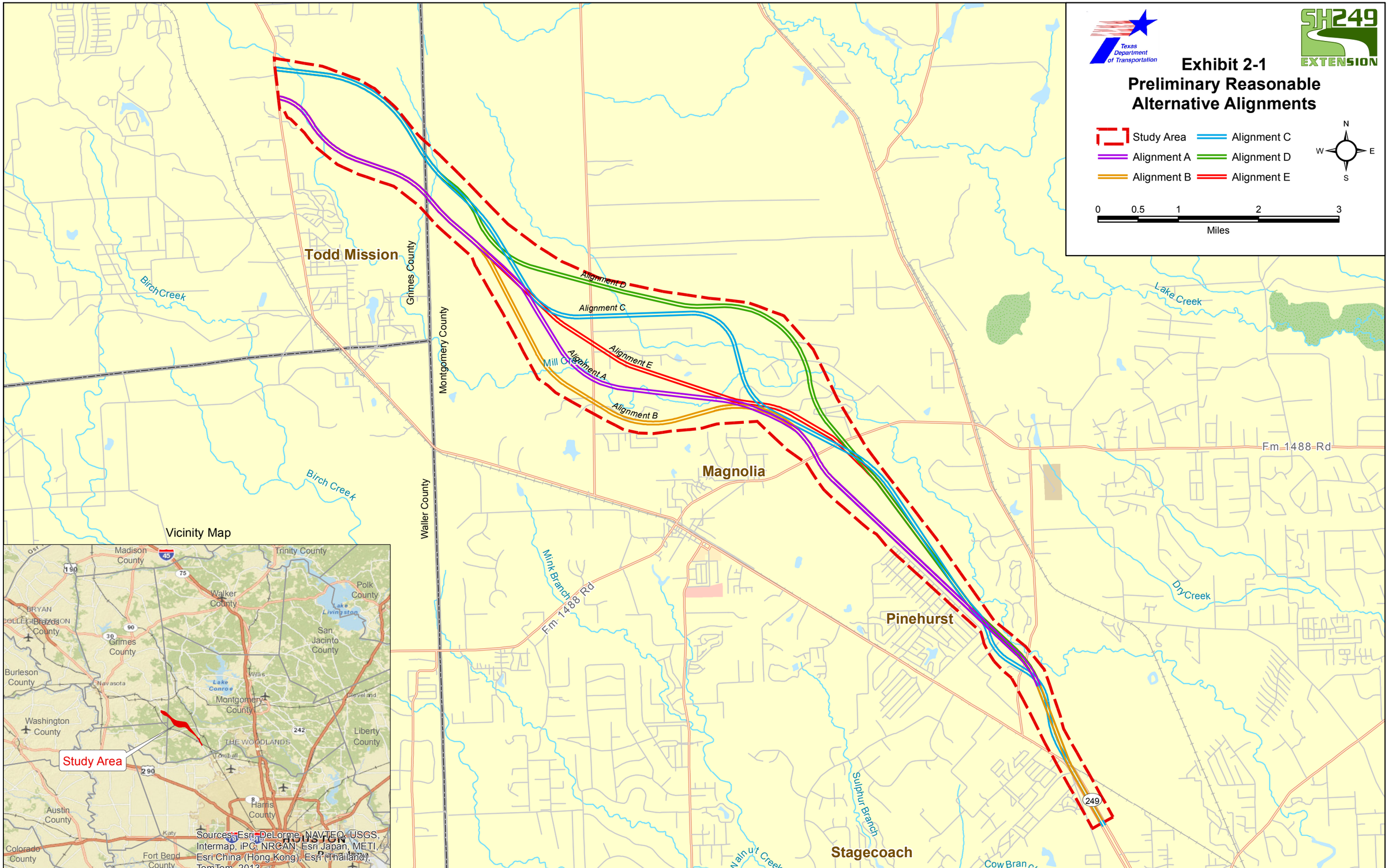

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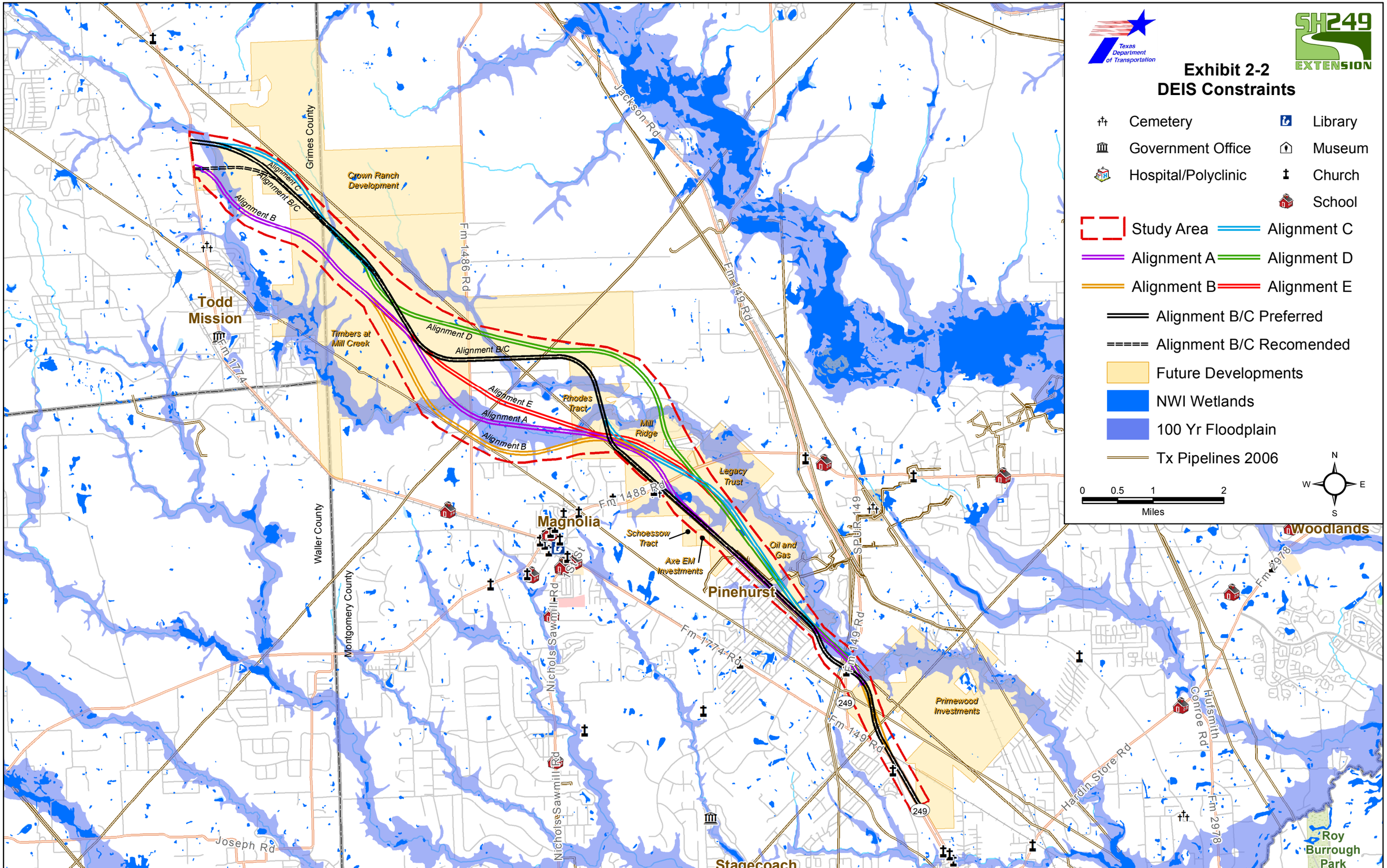

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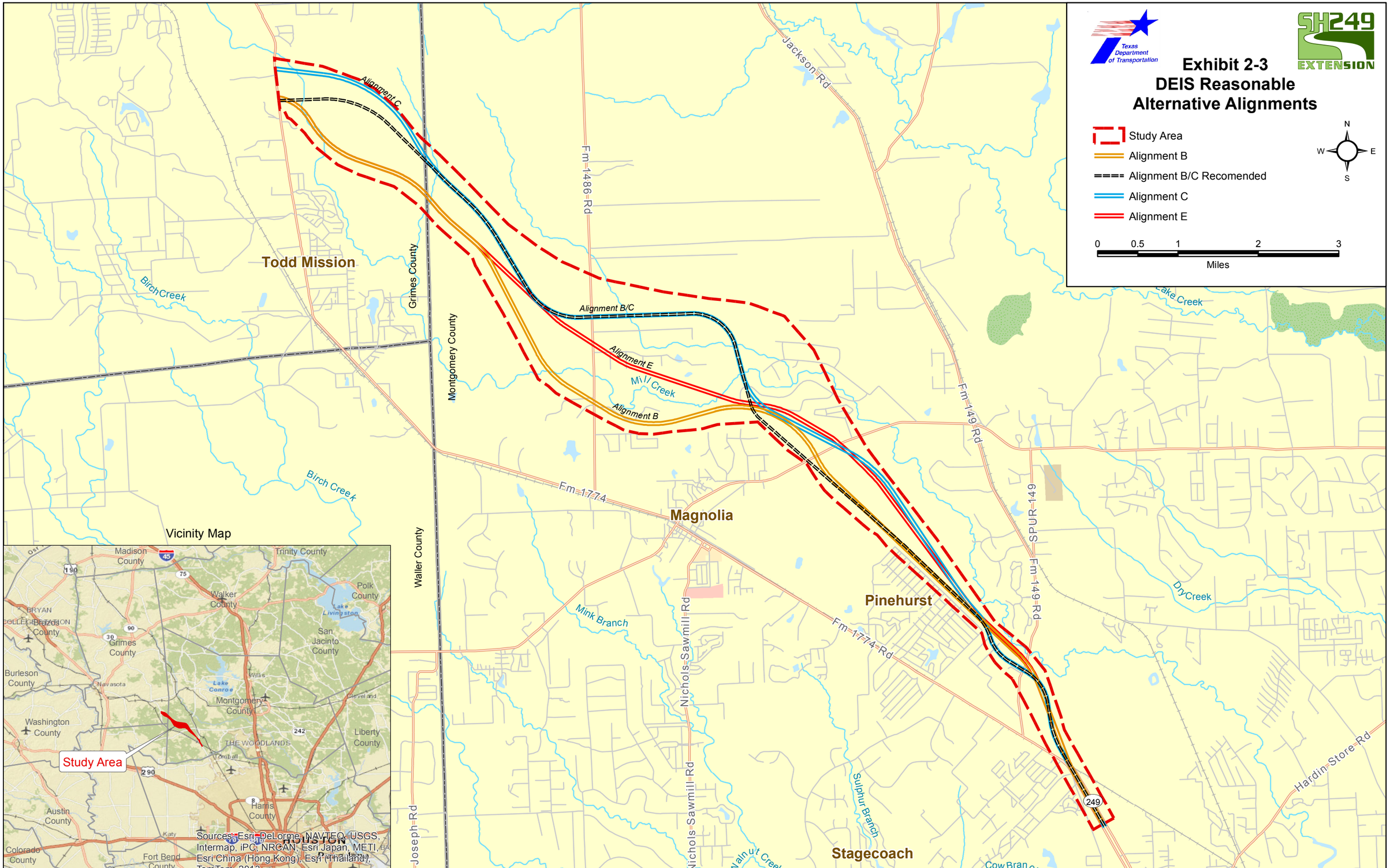

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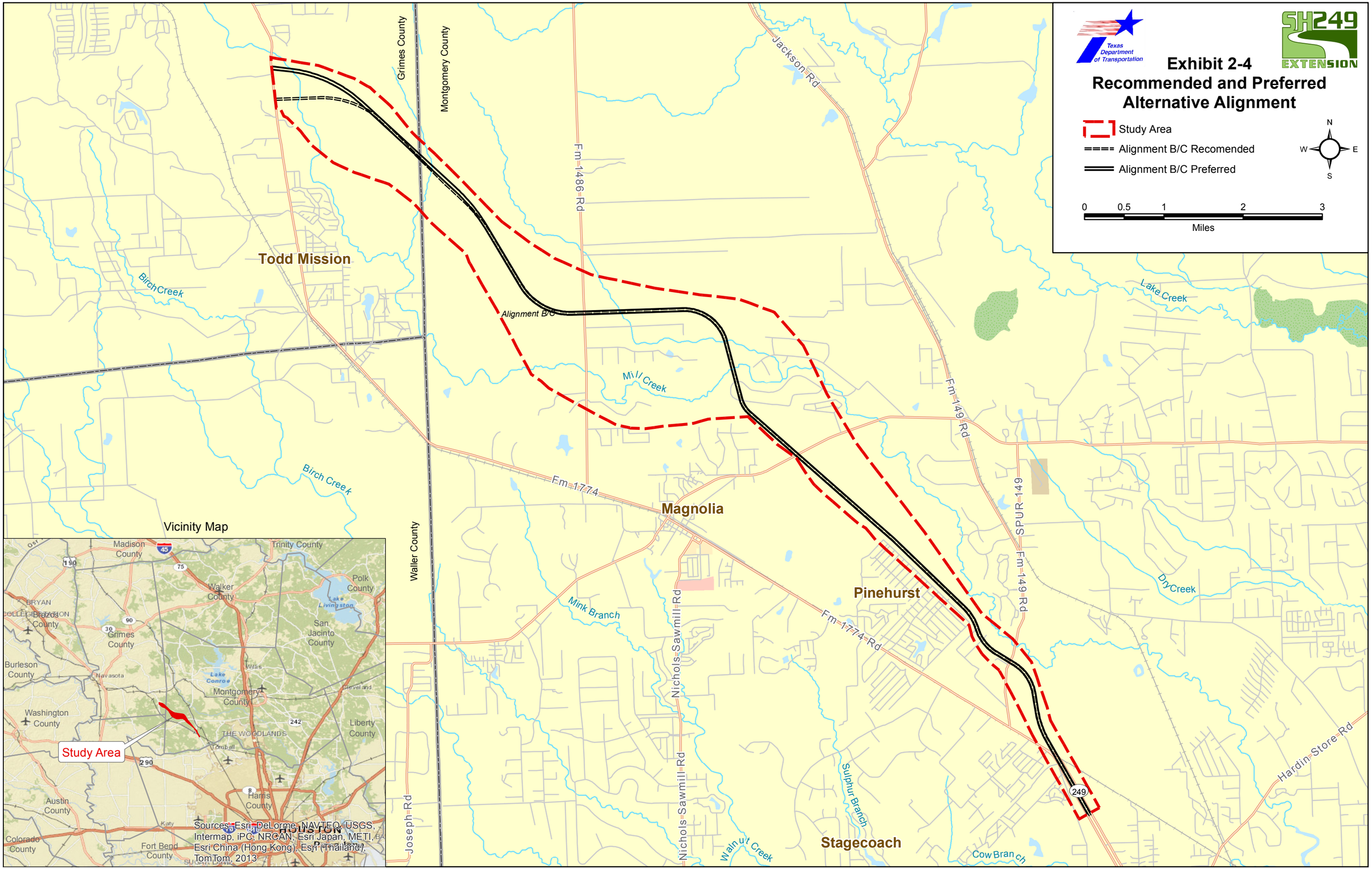

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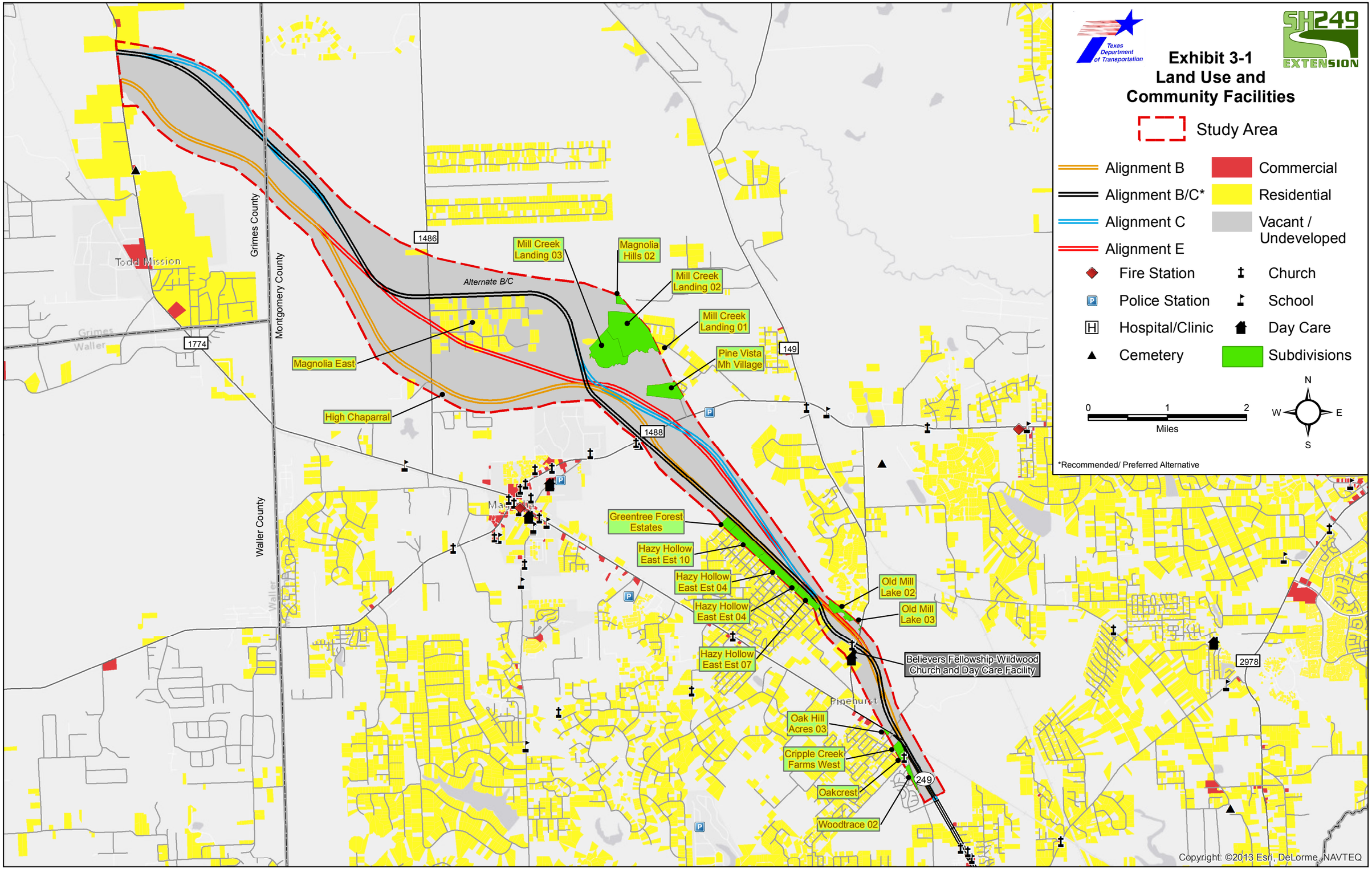
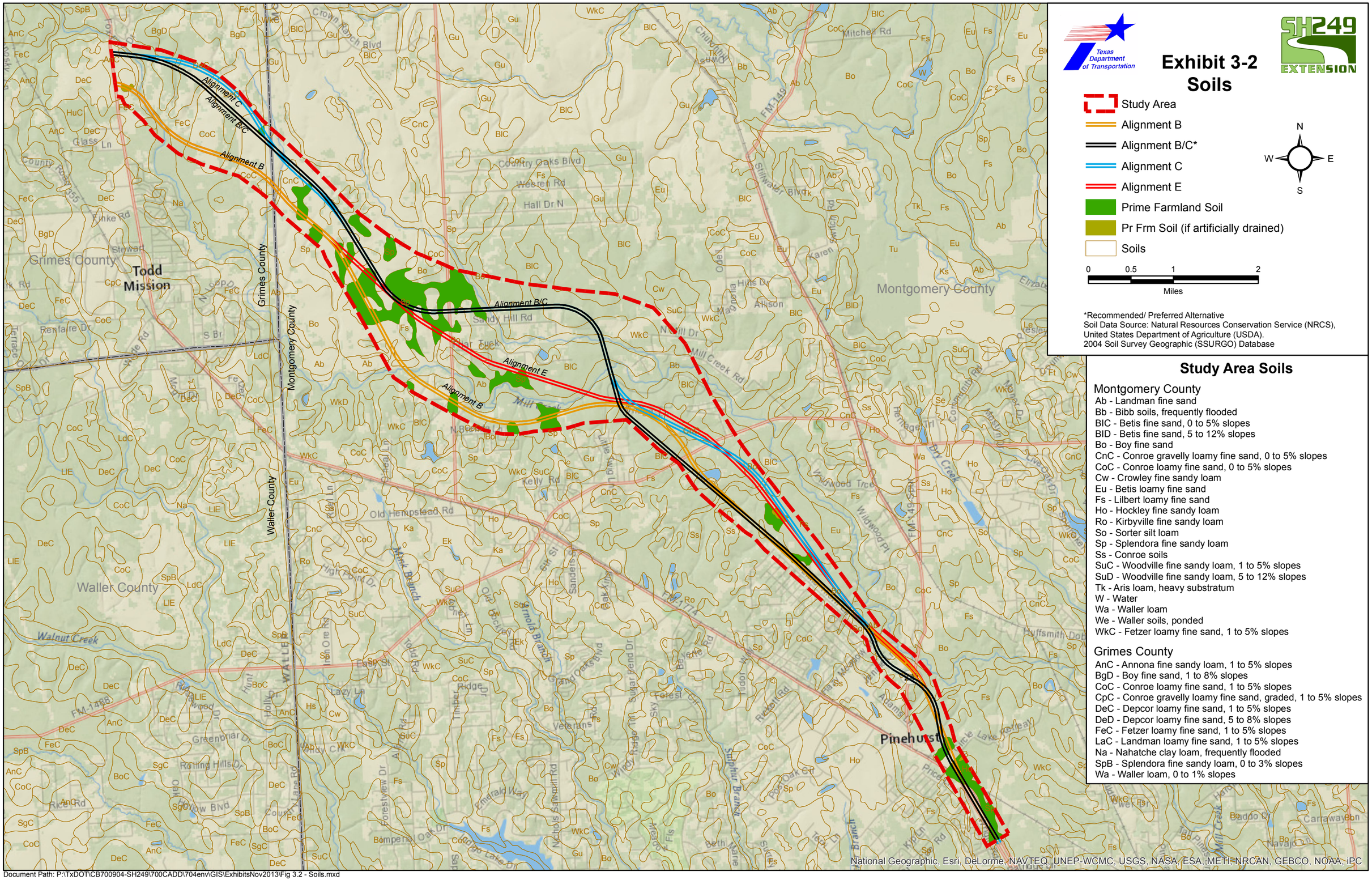


Document Path: P:\TxDOT\CB700904-SH249\700CADD\704env\GIS\ExhibitsNov2013\Fig 3.1 - Land Use and Comm Facilities 2.mxd



Study Area Soils

Montgomery County

Ab - Landman fine sand
Bb - Bibb soils, frequently flooded
BIC - Betis fine sand, 0 to 5% slopes
BID - Betis fine sand, 5 to 12% slopes
Bo - Boy fine sand
CnC - Conroe gravelly loamy fine sand, 0 to 5% slopes
CoC - Conroe loamy fine sand, 0 to 5% slopes
Cw - Crowley fine sandy loam
Eu - Betis loamy fine sand
Fs - Lilbert loamy fine sand
Ho - Hockley fine sandy loam
Ro - Kirbyville fine sandy loam
So - Sorter silt loam
Sp - Splendora fine sandy loam
Ss - Conroe soils
SuC - Woodville fine sandy loam, 1 to 5% slopes
SuD - Woodville fine sandy loam, 5 to 12% slopes
Tk - Aris loam, heavy substratum
W - Water
Wa - Waller loam
We - Waller soils, ponded
WkC - Fetzer loamy fine sand, 1 to 5% slopes

Grimes County

AnC - Annona fine sandy loam, 1 to 5% slopes
BgD - Boy fine sand, 1 to 8% slopes
CoC - Conroe loamy fine sand, 1 to 5% slopes
CpC - Conroe gravelly loamy fine sand, graded, 1 to 5% slopes
DeC - Depcor loamy fine sand, 1 to 5% slopes
DeD - Depcor loamy fine sand, 5 to 8% slopes
FeC - Fetzer loamy fine sand, 1 to 5% slopes
LaC - Landman loamy fine sand, 1 to 5% slopes
Na - Nahatche clay loam, frequently flooded
SpB - Splendora fine sandy loam, 0 to 3% slopes
Wa - Waller loam, 0 to 1% slopes

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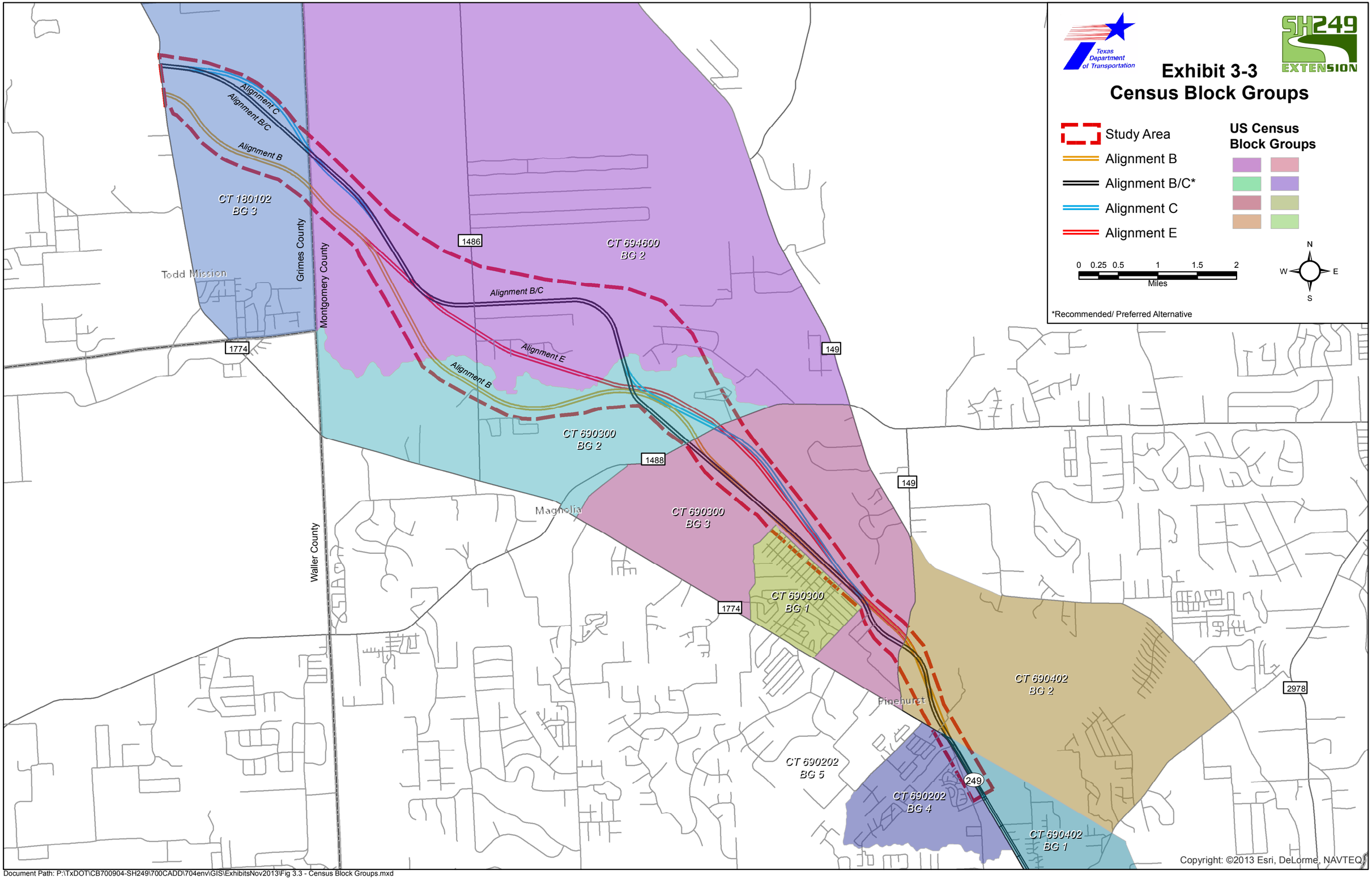

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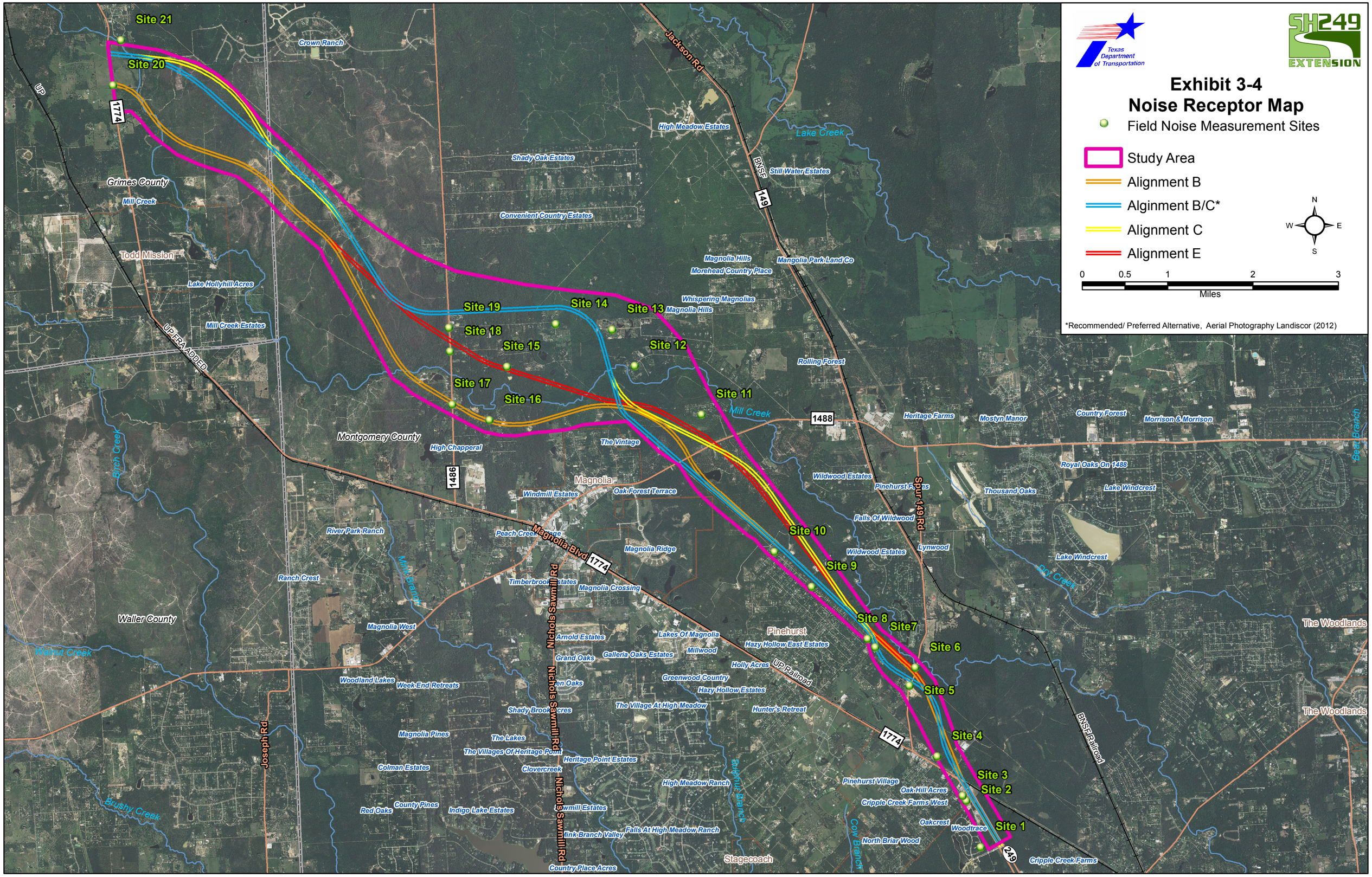


Exhibit 3-4
Noise Receptor Map
Field Noise Measurement Sites
Study Area
Alignment B
Alginment B/C*
Alignment C
Alignment E
0 0.5 1 2 3
Miles
N
S
E
W
*Recommended/ Preferred Alternative, Aerial Photography Landiscor (2012)
Texas Department of Transportation
SH249 EXTENSION
Site 1
Site 2
Site 3
Site 4
Site 5
Site 6
Site7
Site 8
Site 9
Site 10
Site 11
Site 12
Site 13
Site 14
Site 15
Site 16
Site 17
Site 18
Site 19
Site 20
Site 21
Grimes County
Montgomery County
Waller County
Todd Mission
Magnolia
Pinehurst
Stagecoach
The Woodlands
Crown Ranch
Jackson Rd
High Meadow Estates
Lake Creek
Shady Oak Estates
Still Water Estates
Convenient Country Estates
Mill Creek
Lake Hollyhill Acres
Mill Creek Estates
Magnolia Hills
Morehead Country Place
Mangolia Park Land Co
Whispering Magnolias
Rolling Forest
Heritage Farms
Mostyn Manor
Country Forest
Morrison & Morrison
Royal Oaks On 1488
Lake Windcrest
Thousand Oaks
Wildwood Estates
Pinehurst Farms
Falls Of Wildwood
Lynwood
Spur 149 Rd
High Chapperal
The Vintage
Windmill Estates
Oak Forest Terrace
River Park Ranch
Peach Creek Ranch
Magnolia Ridge
Ranch Crest
Timberbrook Estates
Magnolia Crossing
Magnolia West
Arnold Estates
Lakes Of Magnolia
Hazy Hollow East Estates
Grand Oaks
Galleria Oaks Estates
Millwood
Holly Acres
Greenwood Country
Hazy Hollow Estates
Woodland Lakes
Week End Retreats
Shady Brook Acres
The Village At High Meadow
Hunter's Retreat
Magnolia Pines
The Lakes
The Villages Of Heritage Point
Heritage Point Estates
Colman Estates
Clovercreek
High Meadow Ranch
Pinehurst Village
Oak Hill Acres
Cripple Creek Farms West
Red Oaks
County Pines
Indigo Lake Estates
Sawmill Estates
Falls At High Meadow Ranch
North Briar Wood
Oakcrest
Woodtrace
Cripple Creek Farms
Country Place Acres
Magnolia Blvd
Nichols Sawmill Rd
Joseph Rd
UP Railroad
UP FRA ADDED
BNSF
BNSF Railroad
Birch Creek
Walnut Creek
Brushy Creek
Mill Branch
Cow Branch
Bear Branch
Dog Creek
1774
1488
1486
149
249

Exhibit 3-4
Noise Receptor Map

Texas Department of Transportation

SH249

- Benefited
- Impacted
- Non-impacted
- Study Area
- Alignment B

N E S W

0 400 800 1,600 2,400
Feet

Aerial Photography Landiscor (2012)

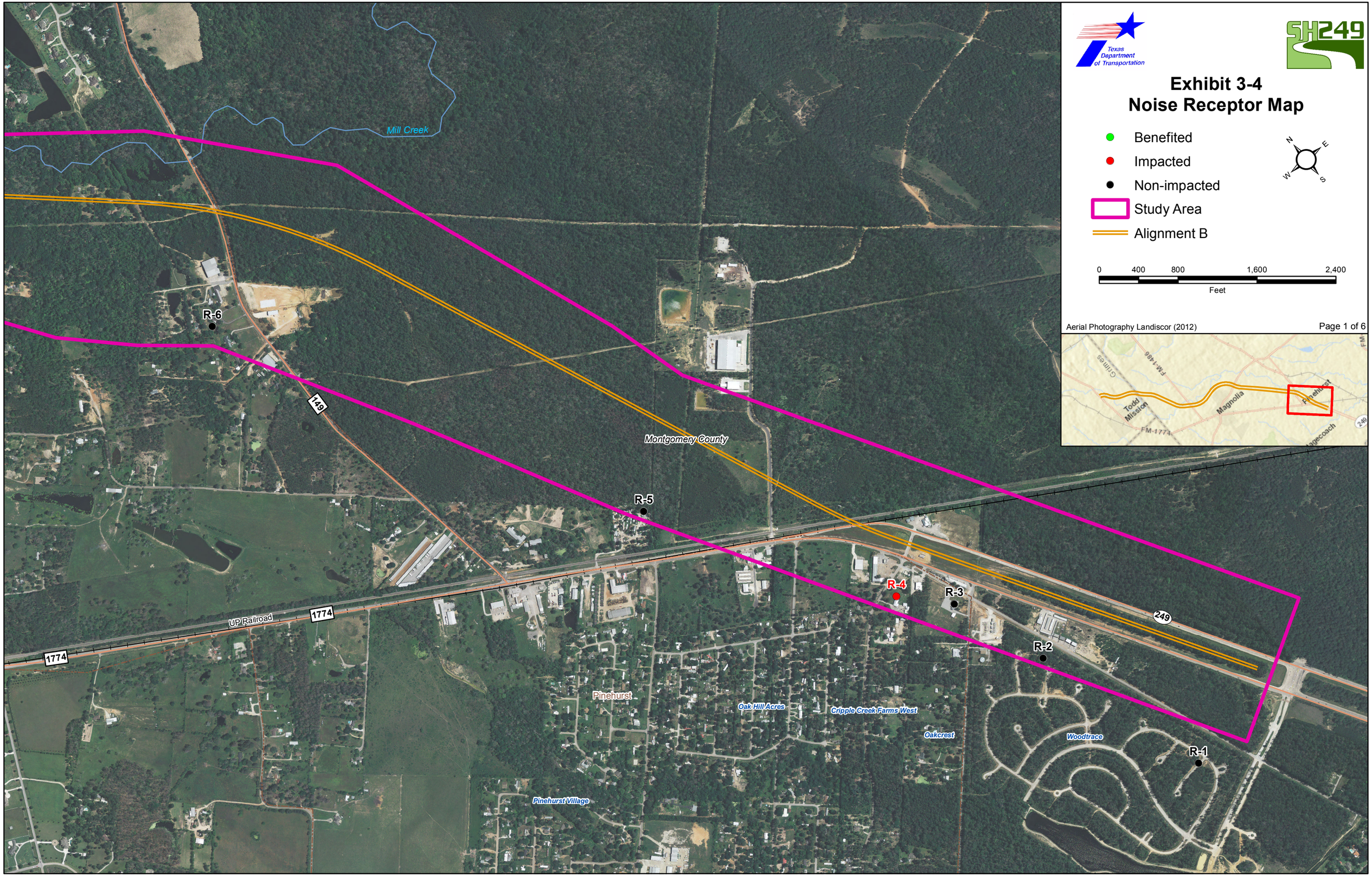


Exhibit 3-4
Noise Receptor Map

Texas Department of Transportation

SH249

- Benefited
- Impacted
- Non-impacted
- Study Area
- Alignment B

N E S W

0 400 800 1,600 2,400
Feet

Aerial Photography Landiscor (2012)

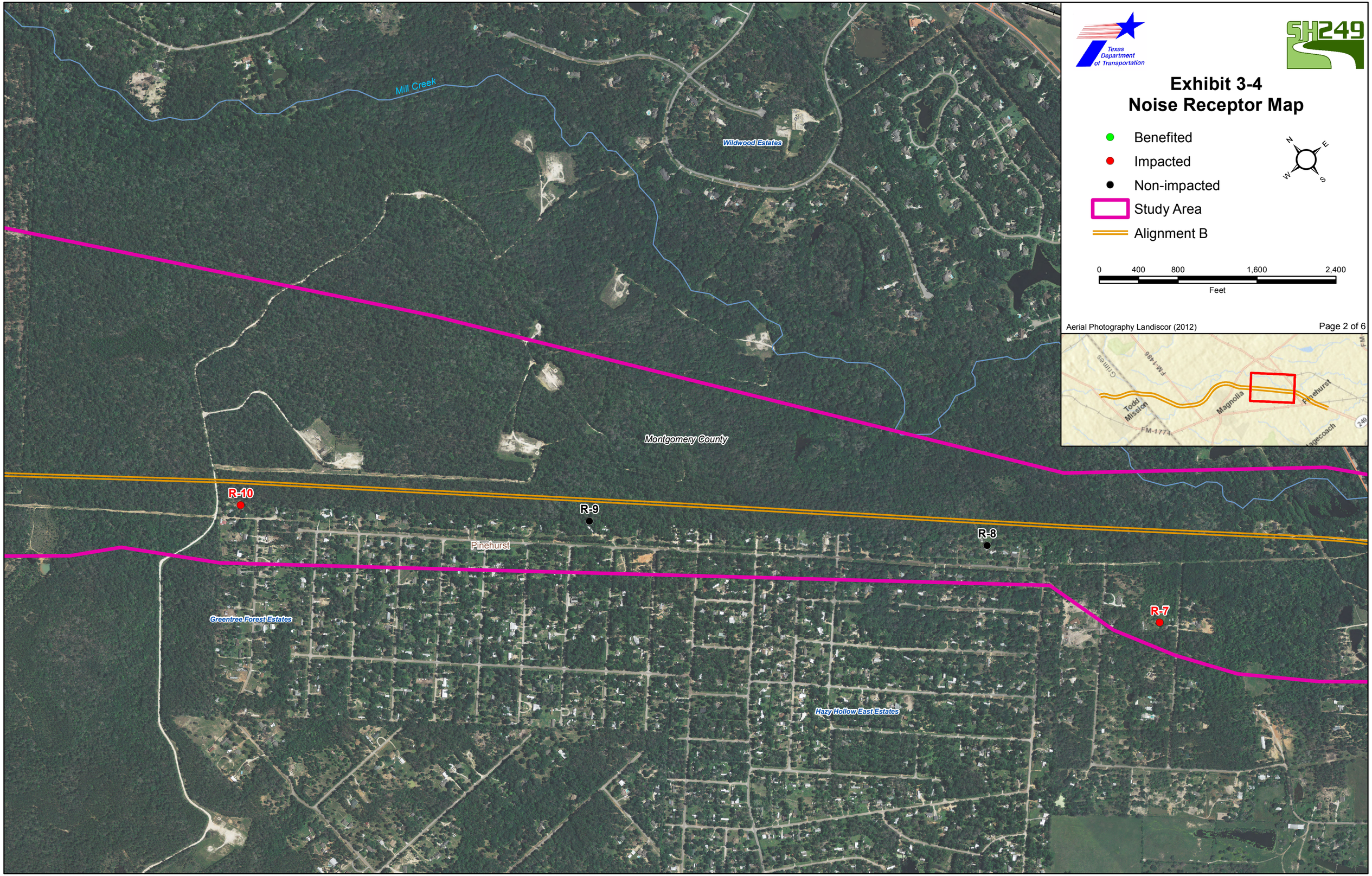


Exhibit 3-4
Noise Receptor Map

Texas Department of Transportation

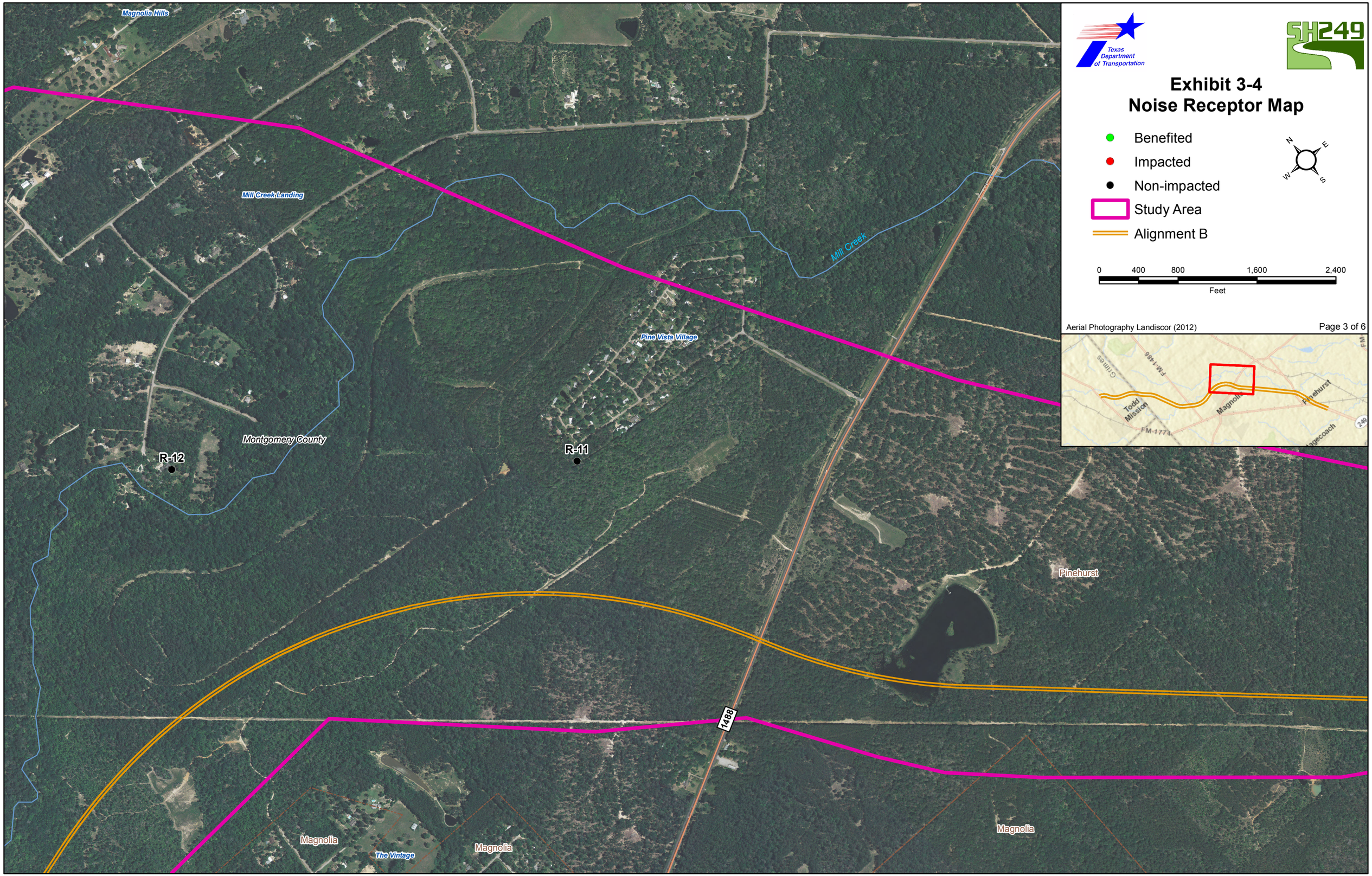
SH249

- Benefited
- Impacted
- Non-impacted
- Study Area
- Alignment B

N E S W

0 400 800 1,600 2,400
Feet

Aerial Photography Landiscor (2012)



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Texas Department of Transportation

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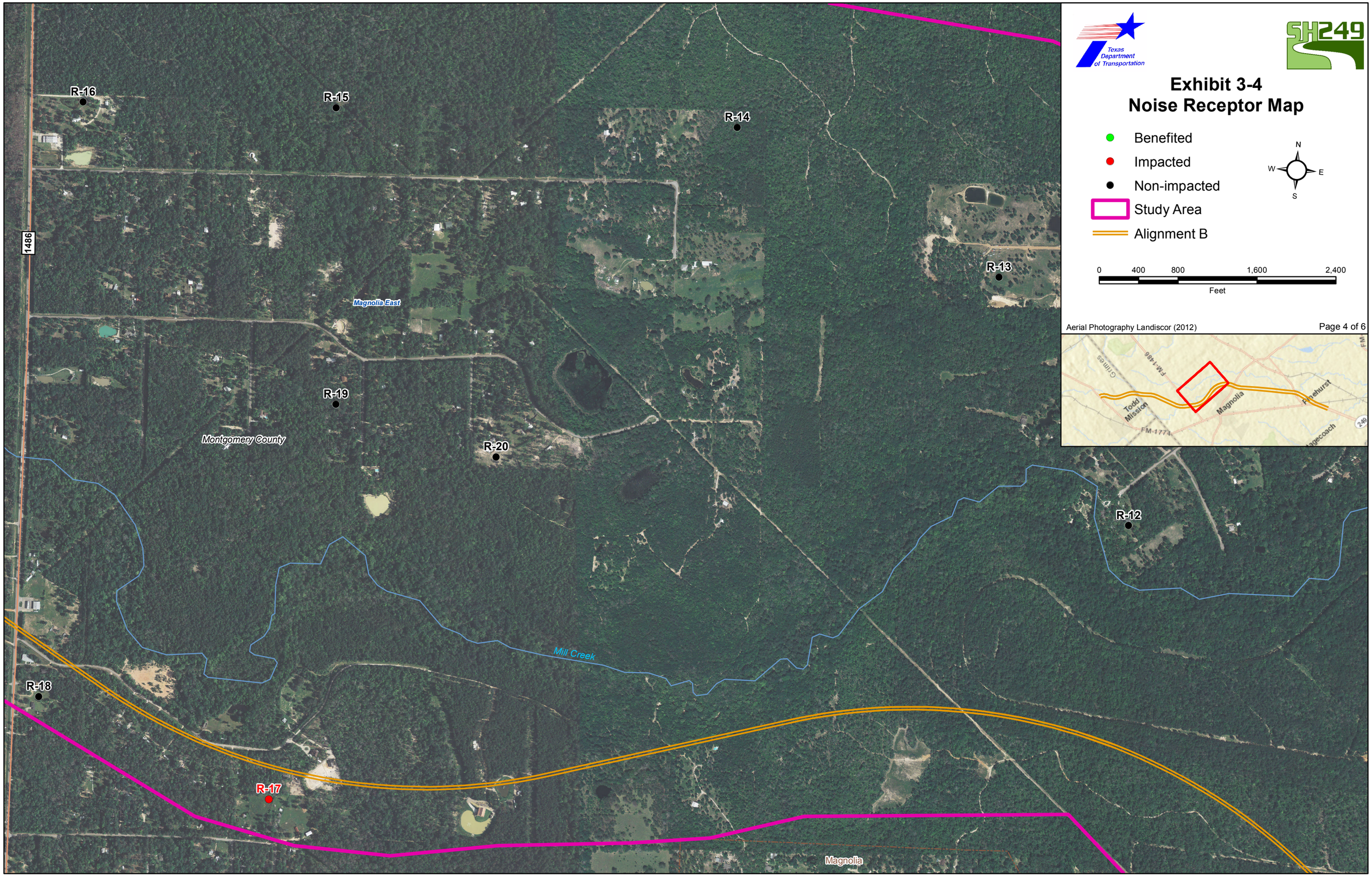
N W E S

0 400 800 1,600 2,400
Feet

Aerial Photography Landiscor (2012)



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Texas Department of Transportation

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- Alignment B

N E S W

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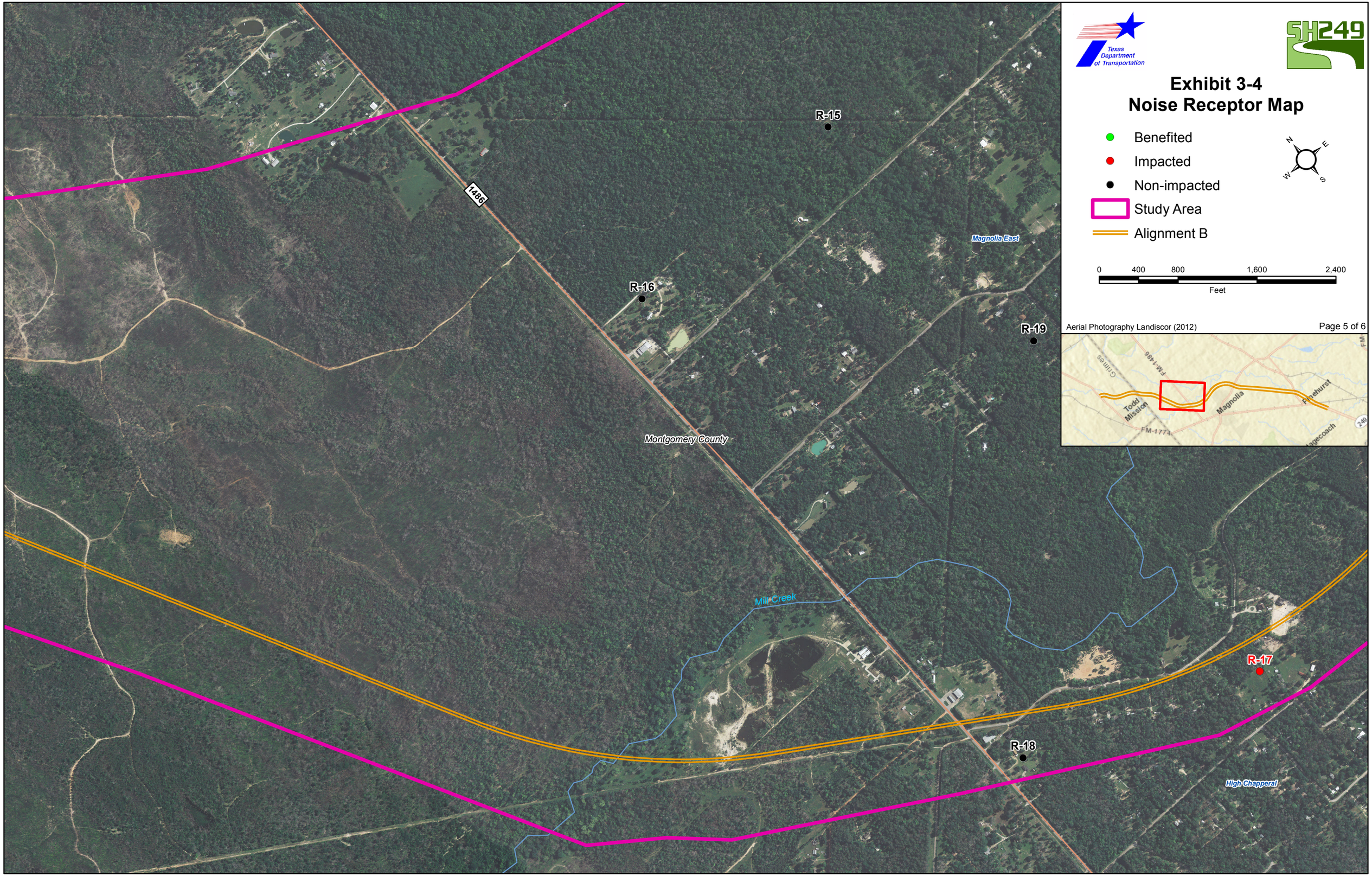
Feet

Aerial Photography Landiscor (2012)



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Noise Receptor Map

Texas Department of Transportation

SH249

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- Alignment B

N E S W

0 400 800 1,600 2,400
Feet

Aerial Photography Landiscor (2012)

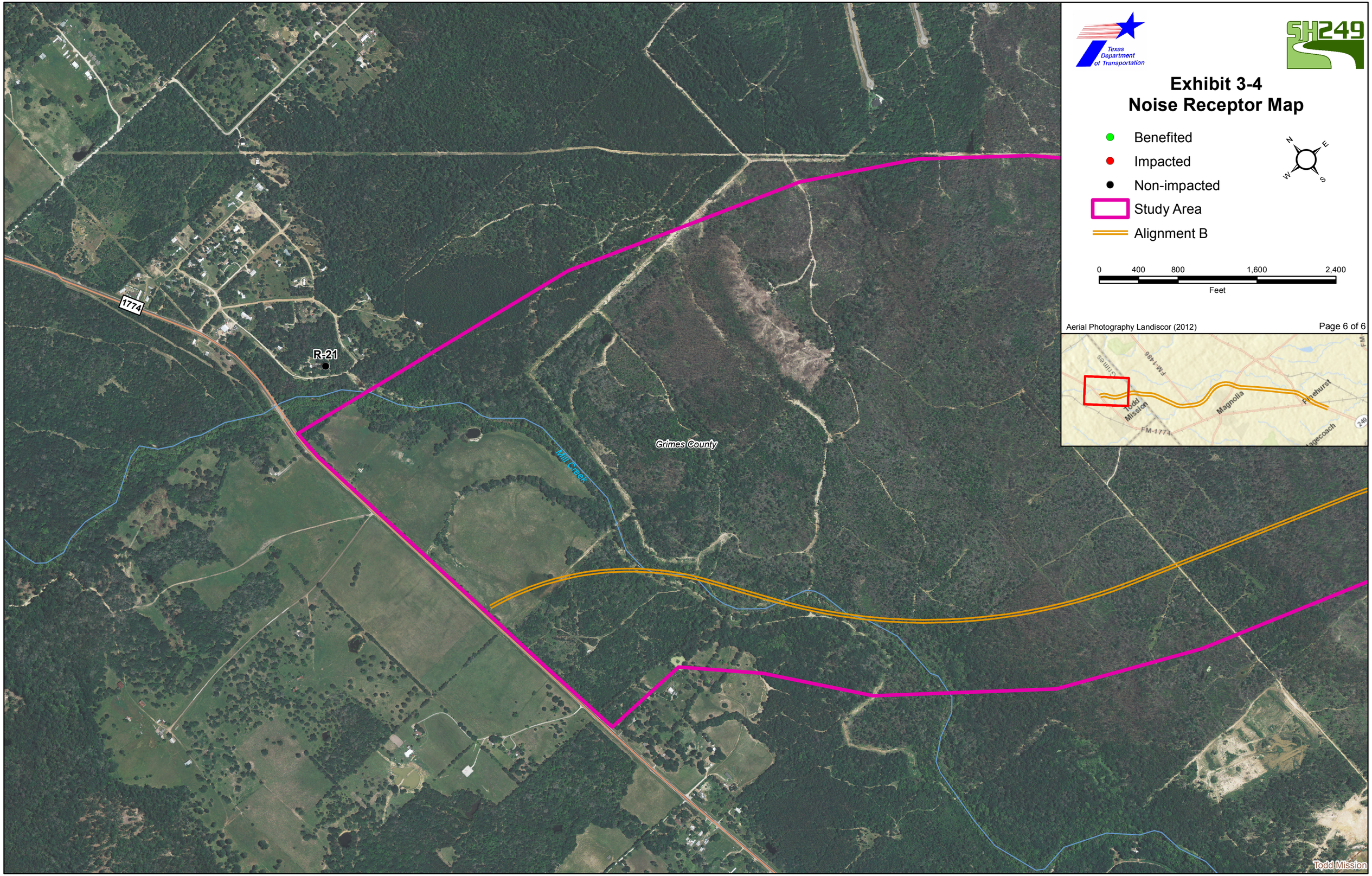

Exhibit 3-4
Noise Receptor Map

Texas Department of Transportation

SH249 EXTENSION

- Benefited
- Impacted
- Non-impacted
- Barrier
- Study Area
- Alignment B/C*

N E S W

0 400 800 1,600 2,400
Feet

*Recommended/ Preferred Alternative, Aerial Photography Landiscor (2012)

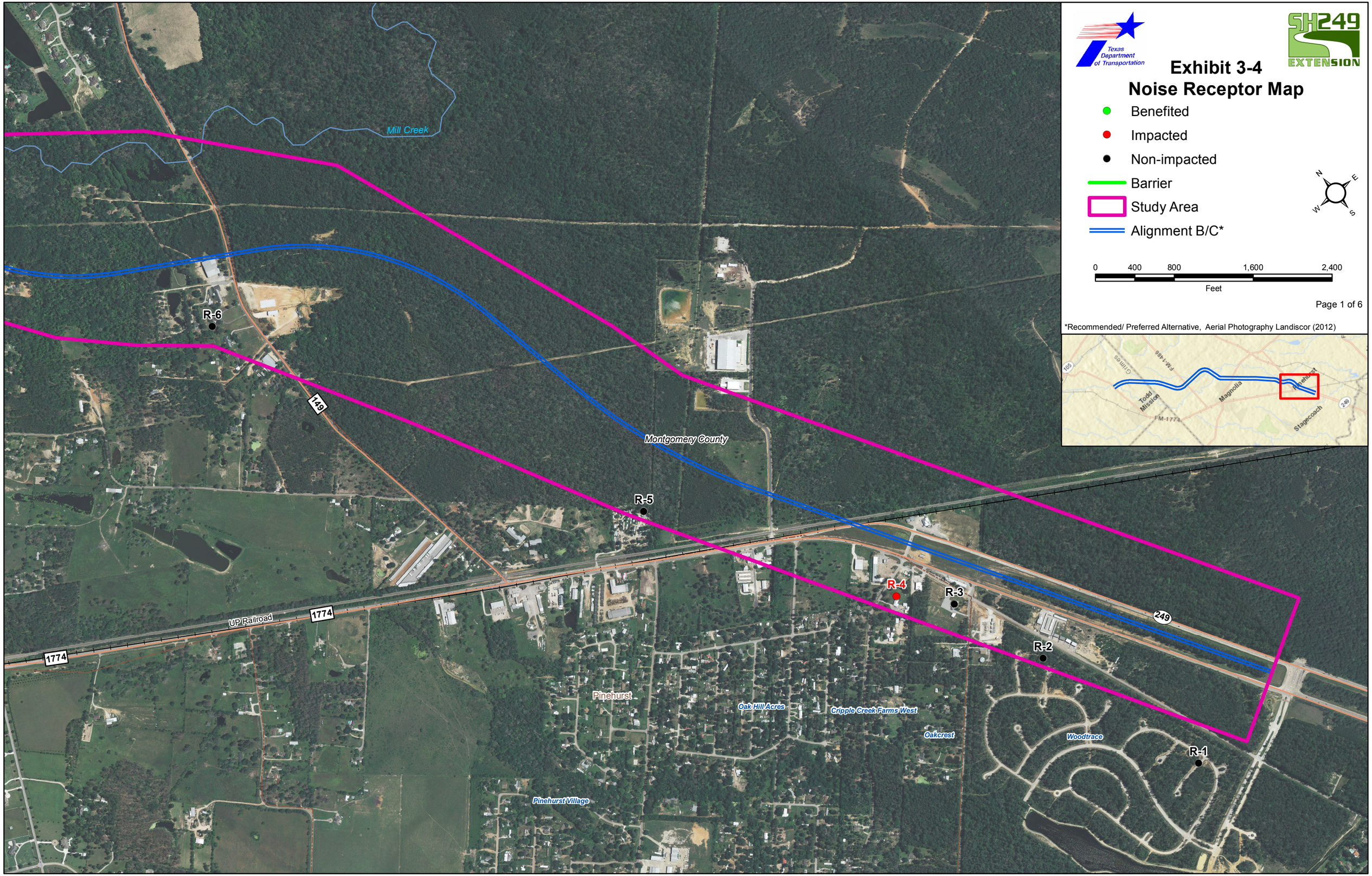

Exhibit 3-4
Noise Receptor Map

Texas Department of Transportation

SH249

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- Impacted
- Non-impacted
- Barrier
- Study Area
- Alignment B/C*

N E S W

0 400 800 1,600 2,400
Feet

*Recommended/ Preferred Alternative, Aerial Photography Landiscor (2012)

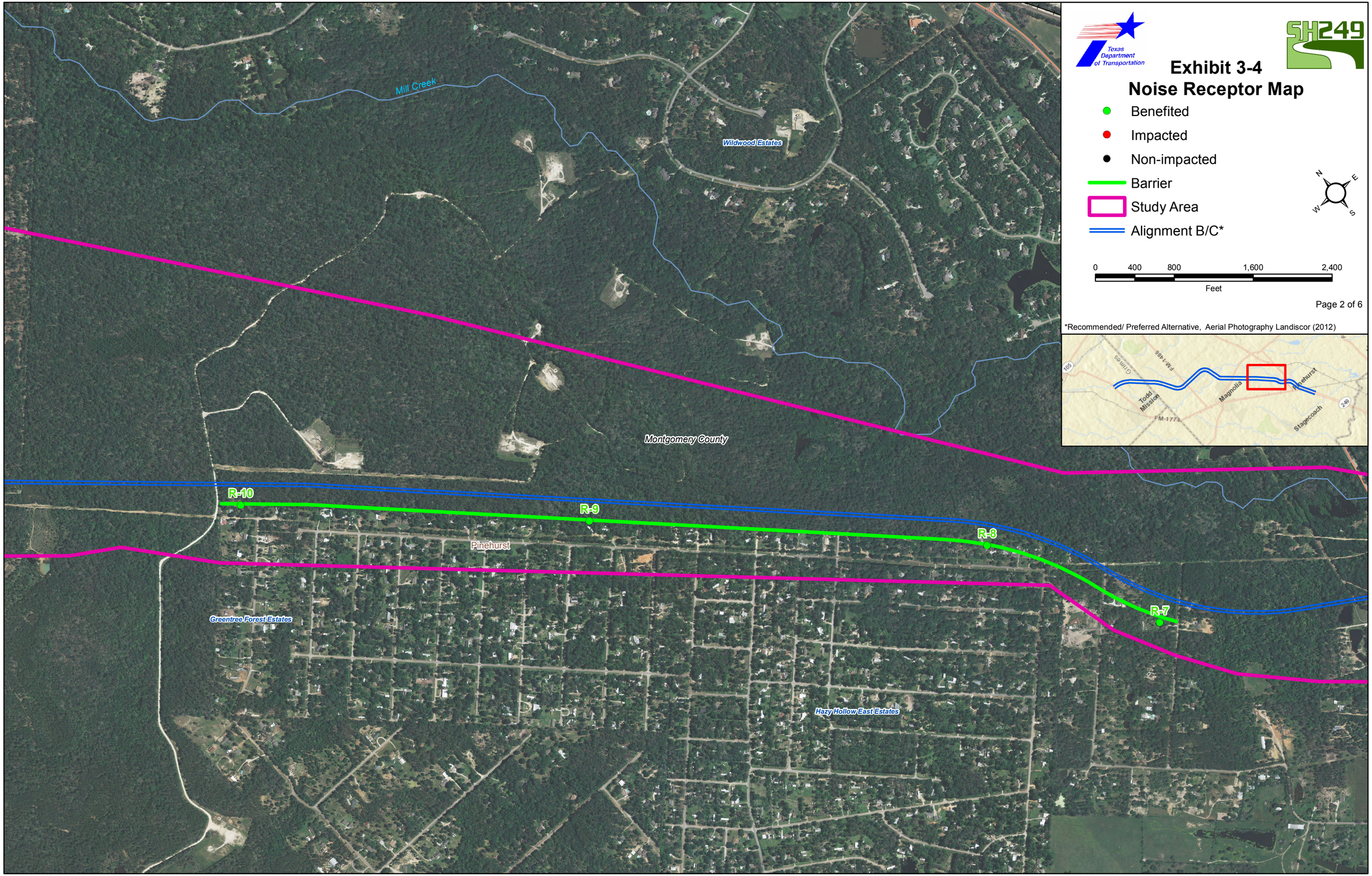

Exhibit 3-4
Noise Receptor Map

Texas Department of Transportation

SH249

- Benefited
- Impacted
- Non-impacted
- Barrier
- Study Area
- Alignment B/C*

N E S W

0 400 800 1,600 2,400
Feet

*Recommended/ Preferred Alternative, Aerial Photography Landiscor (2012)

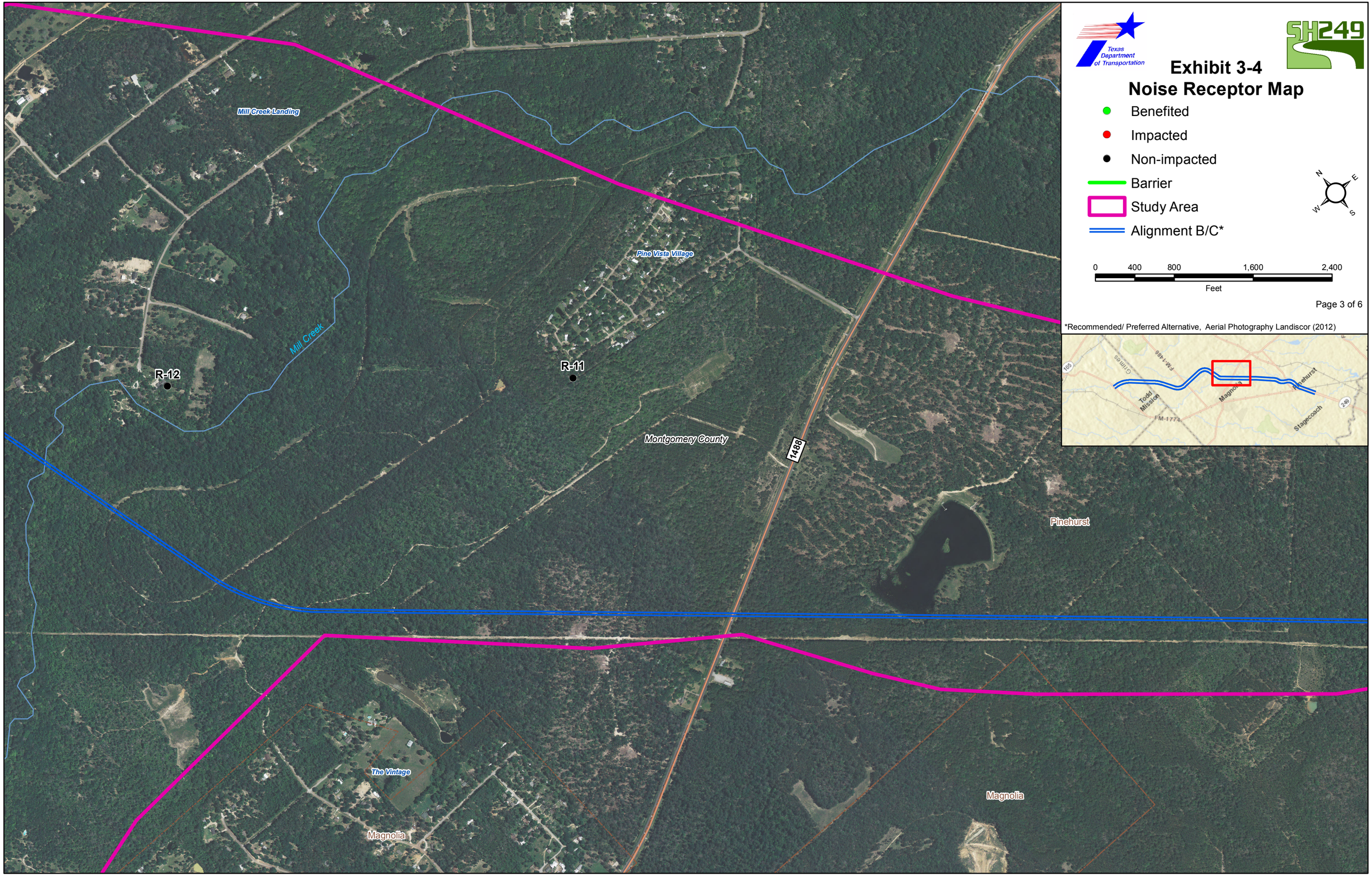

Exhibit 3-4
Noise Receptor Map

Texas Department of Transportation

SH249

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N W E S

0 400 800 1,600 2,400
Feet

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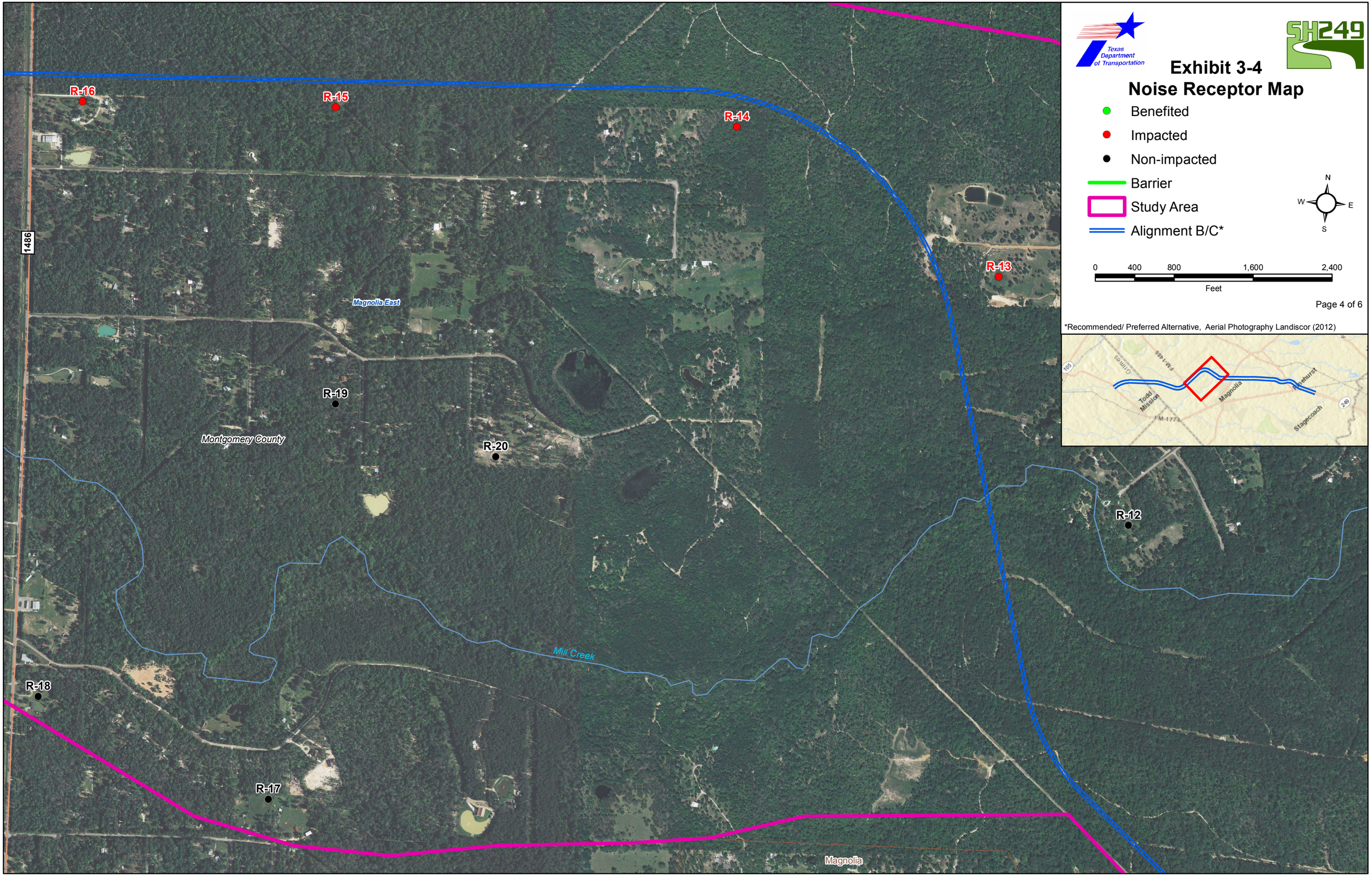

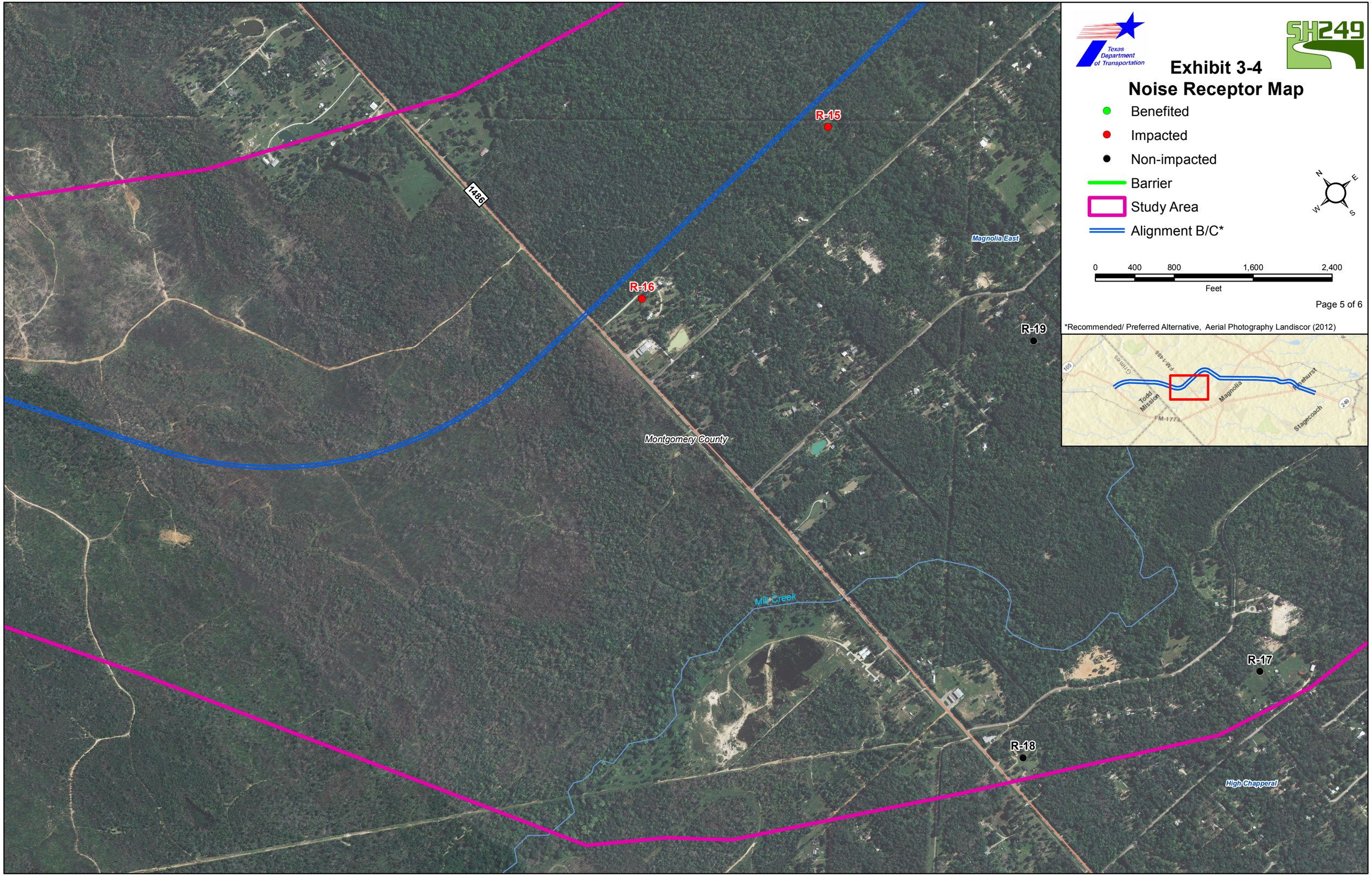
Texas Department of Transportation
SH249
Exhibit 3-4
Noise Receptor Map
Benefited
Impacted
Non-impacted
Barrier
Study Area
Alignment B/C*
N
E
S
W
0
400
800
1,600
2,400
Feet
Page 5 of 6
*Recommended/ Preferred Alternative, Aerial Photography Landiscor (2012)
Todd Mission
Magnolia
Rehurst
Stagecoach
FM-1774
FM-1486
Gilmas
105
249
R-15
R-16
R-17
R-18
R-19
1486
Magnolia East
Montgomery County
Mill Creek
High Chapperal

Exhibit 3-4
Noise Receptor Map

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- Barrier
- Study Area
- Alignment B/C*

0 400 800 1,600 2,400
Feet

*Recommended/ Preferred Alternative, Aerial Photography Landiscor (2012)

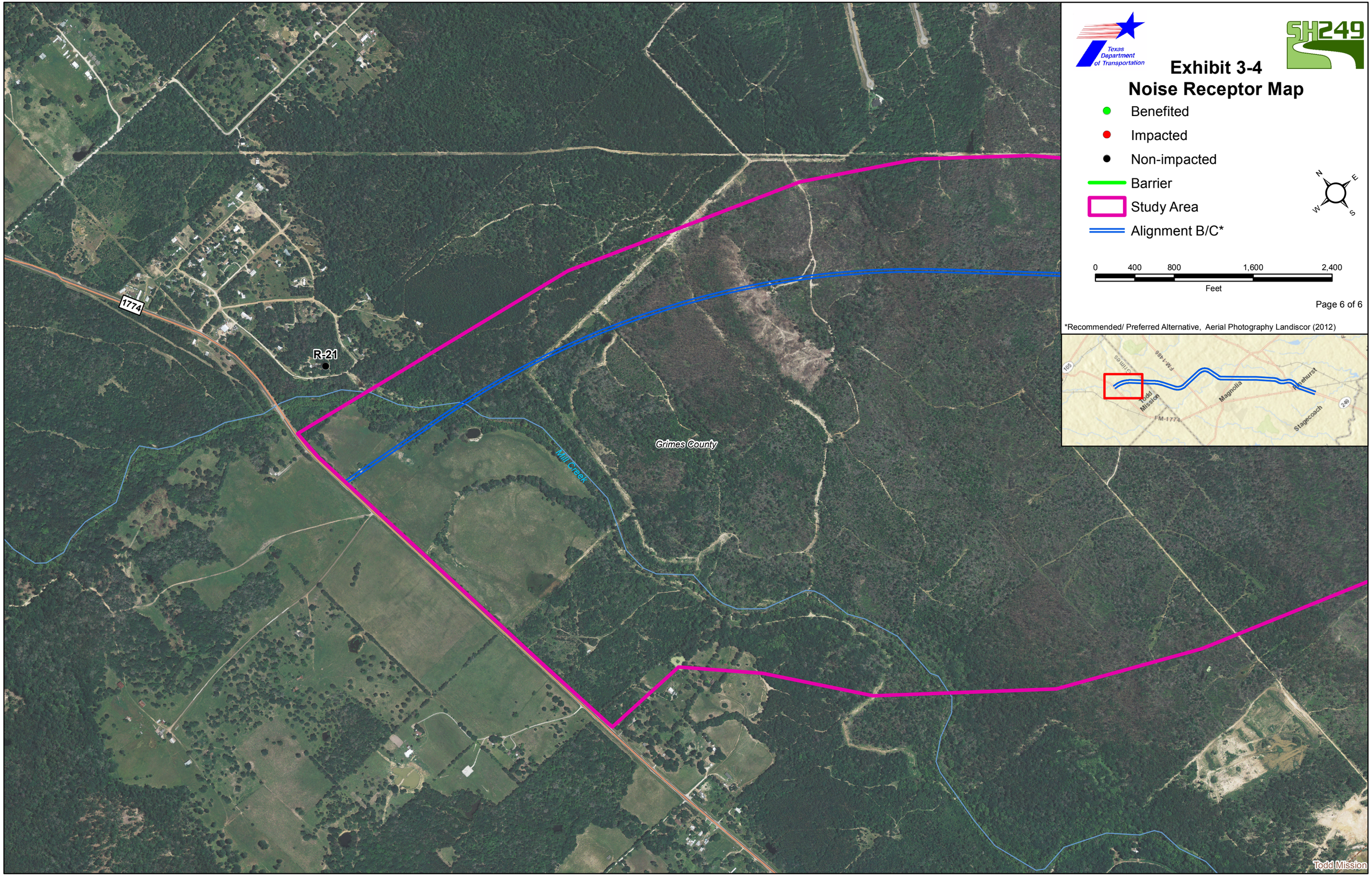

Exhibit 3-4
Noise Receptor Map

Texas Department of Transportation

SH249 EXTENSION

- Benefited
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- Non-impacted
- Study Area
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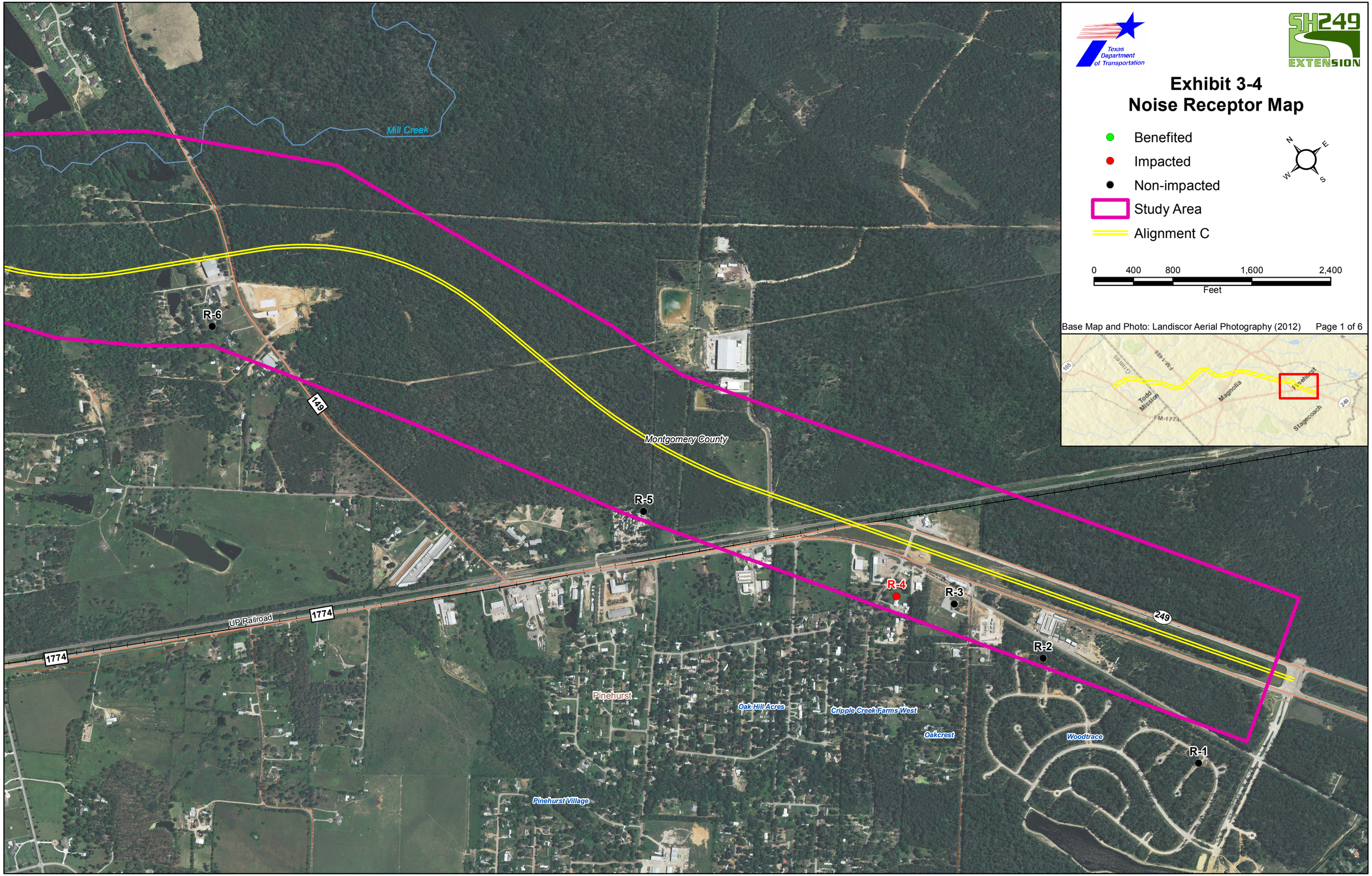
N E S W

0 400 800 1,600 2,400
Feet

Base Map and Photo: Landiscor Aerial Photography (2012)



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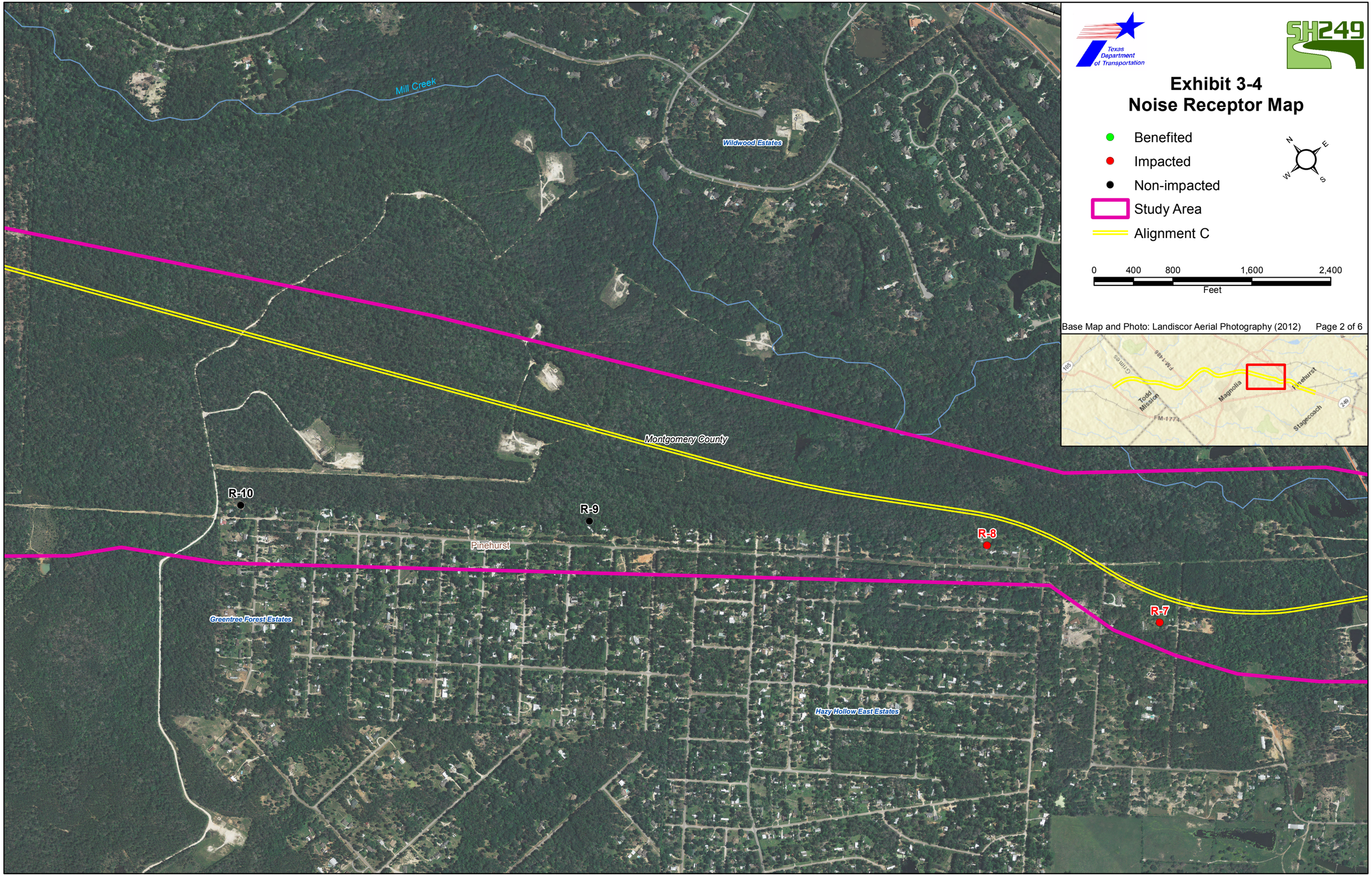

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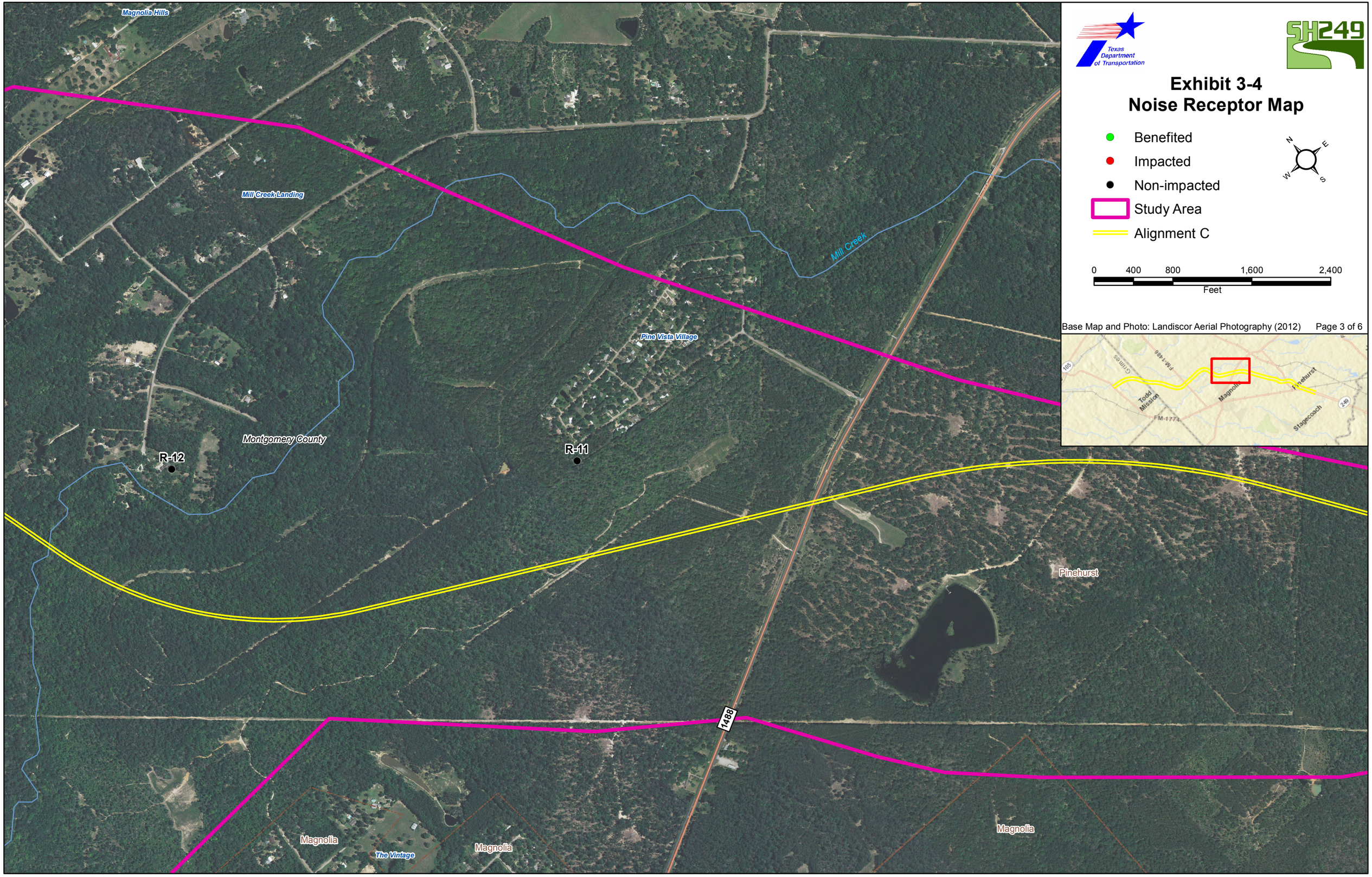

Exhibit 3-4
Noise Receptor Map

Texas Department of Transportation

SH249

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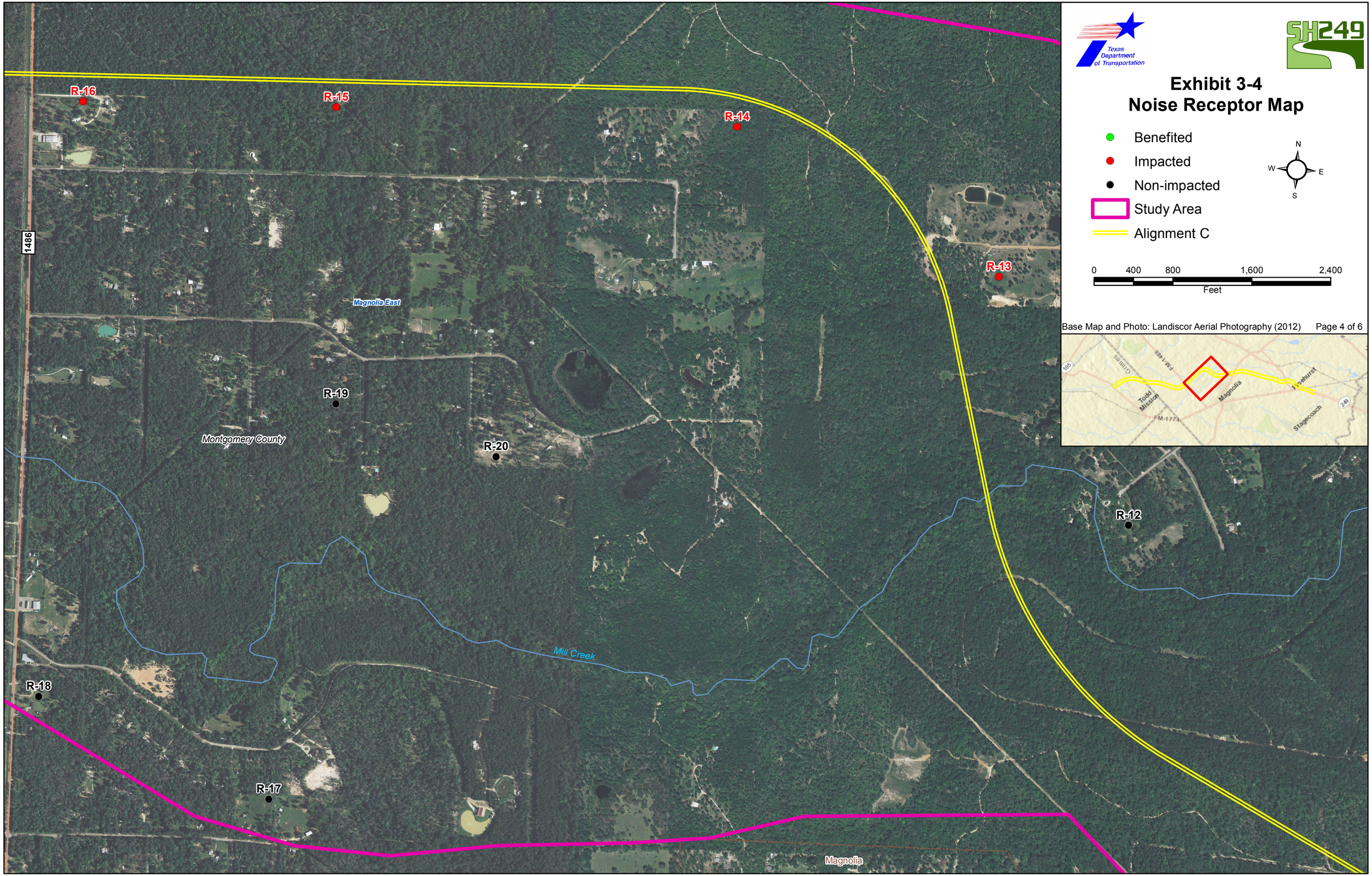
- Non-impacted
- Study Area
- Alignment C

N
W E
S

0 400 800 1,600 2,400
Feet

Base Map and Photo: Landiscor Aerial Photography (2012)



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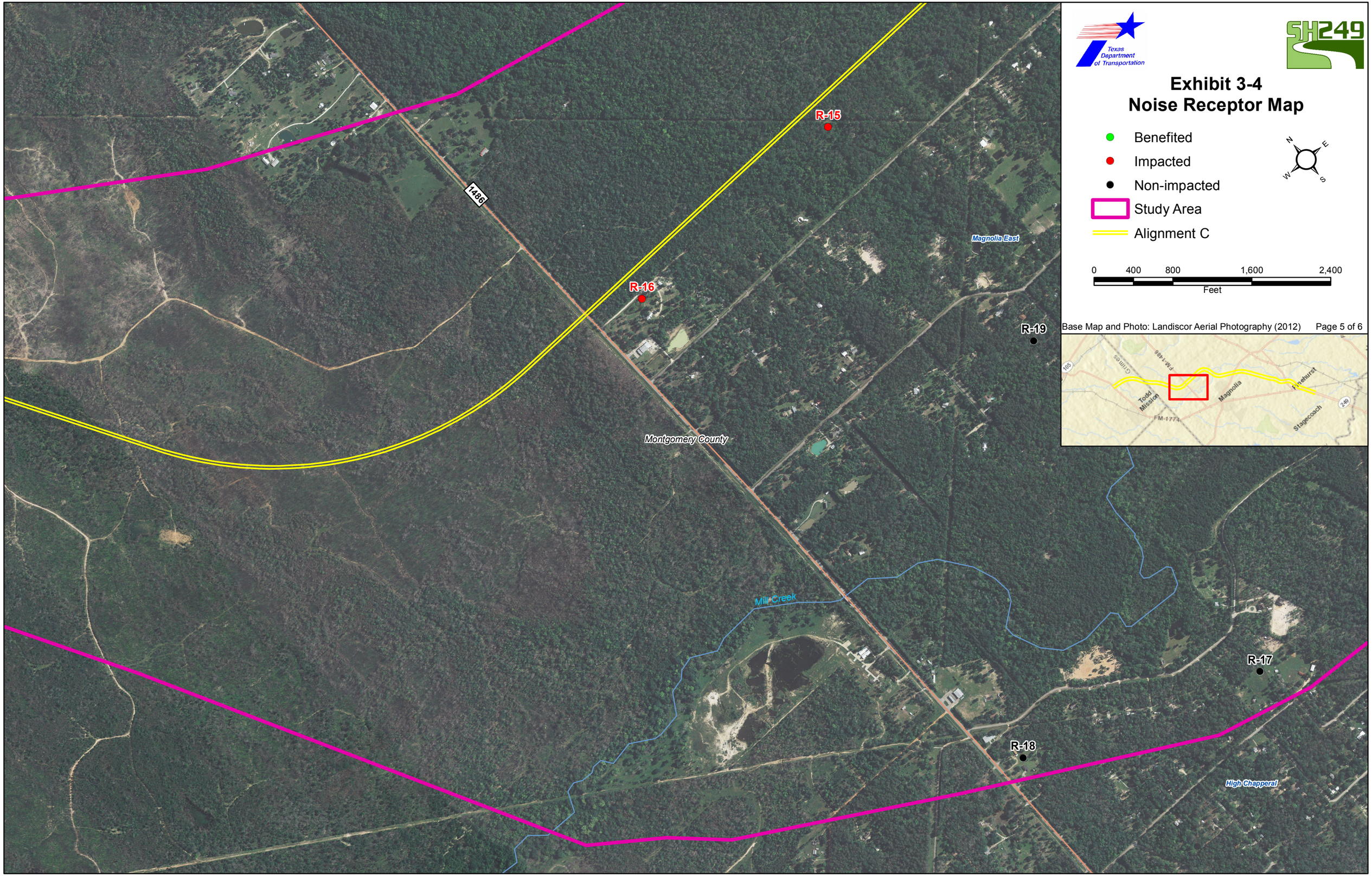

Exhibit 3-4
Noise Receptor Map

Benefited
Impacted
Non-impacted
Study Area
Alignment C

0 400 800 1,600 2,400
Feet

Base Map and Photo: Landiscor Aerial Photography (2012)

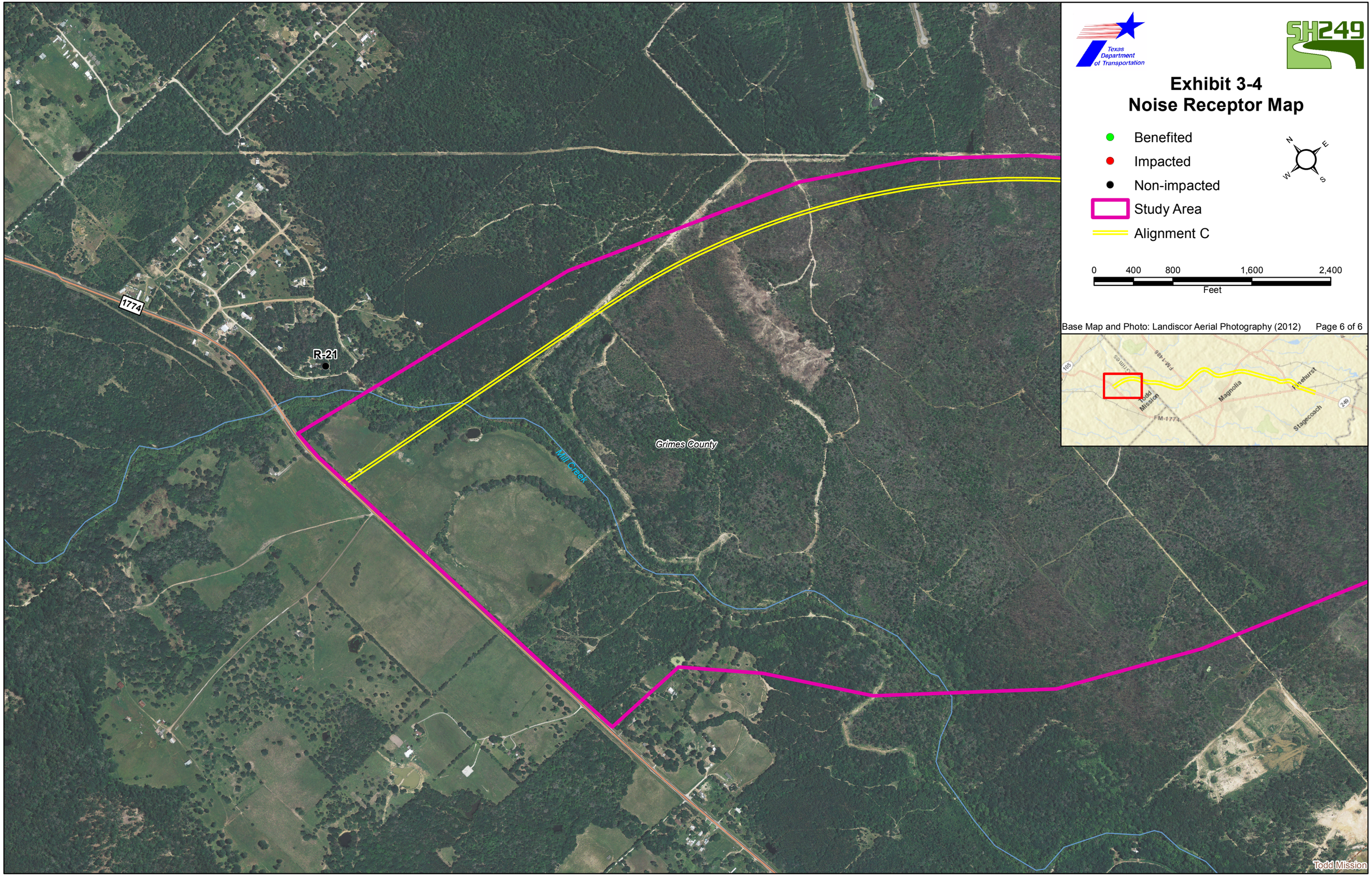

Exhibit 3-4
Noise Receptor Map

Texas Department of Transportation

SH249 EXTENSION

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- Non-impacted
- Study Area
- Alignment E

N E S W

0 400 800 1,600 2,400
Feet

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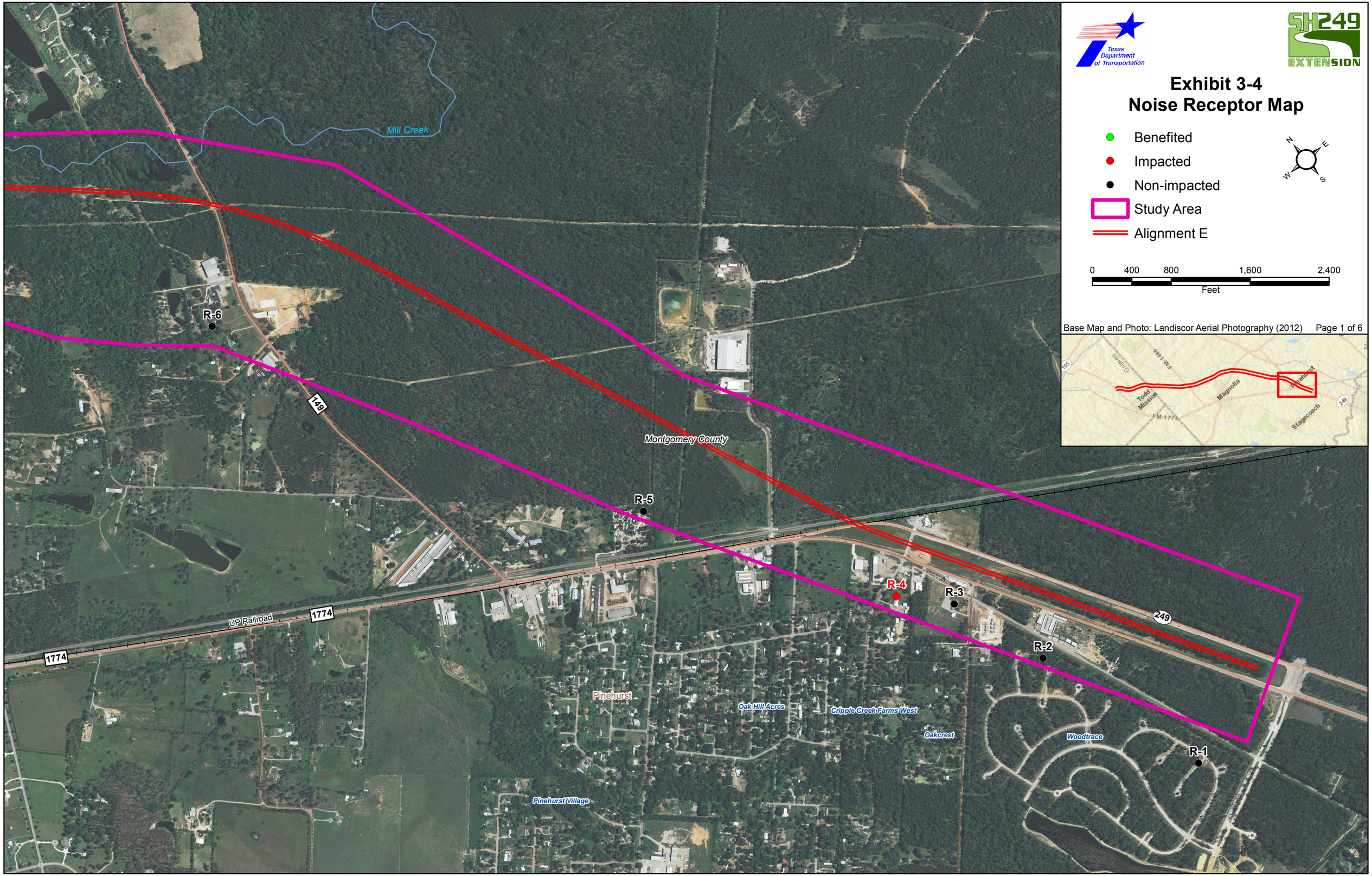

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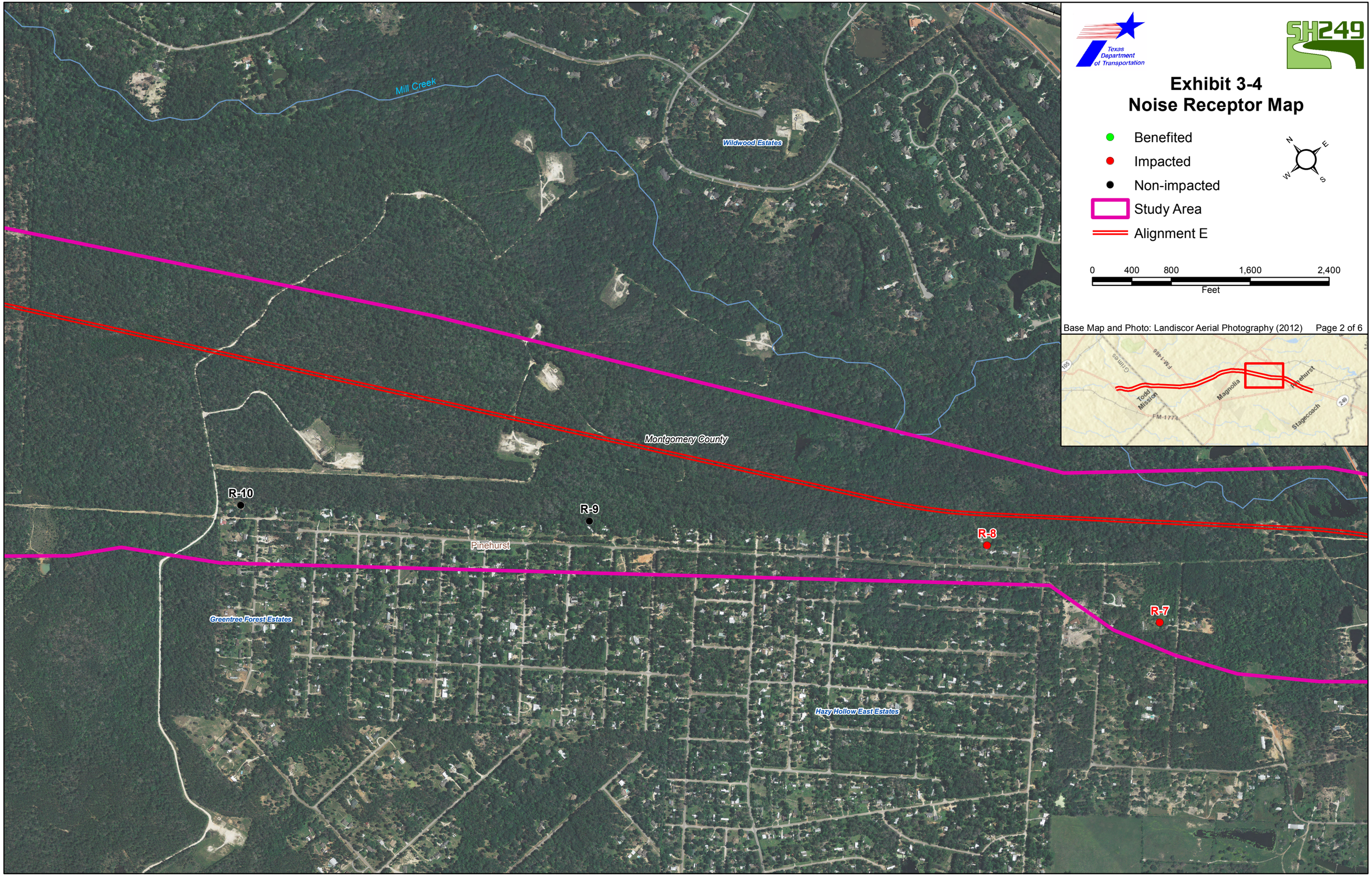

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Non-impacted
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Alignment E

0 400 800 1,600 2,400
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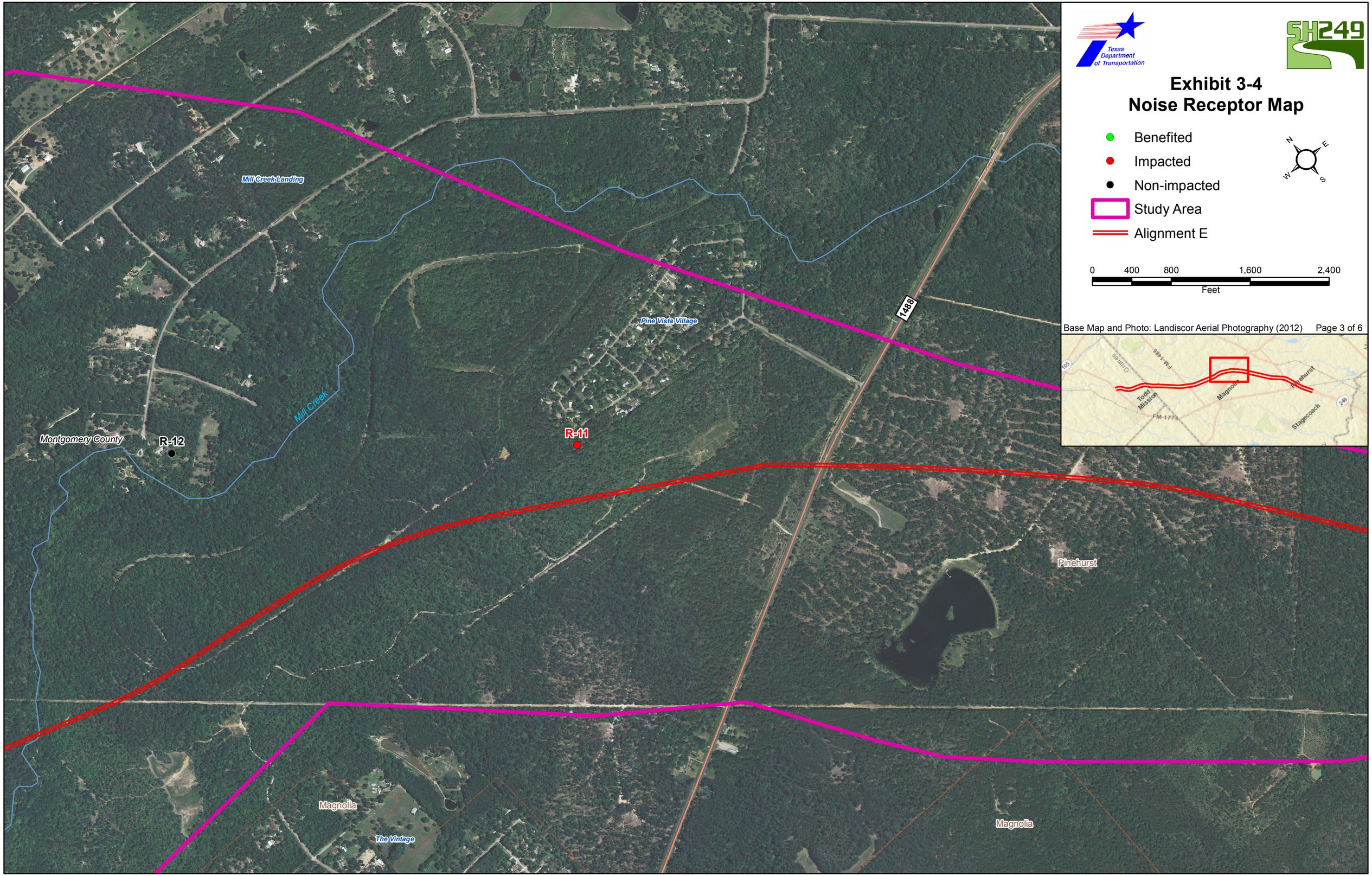

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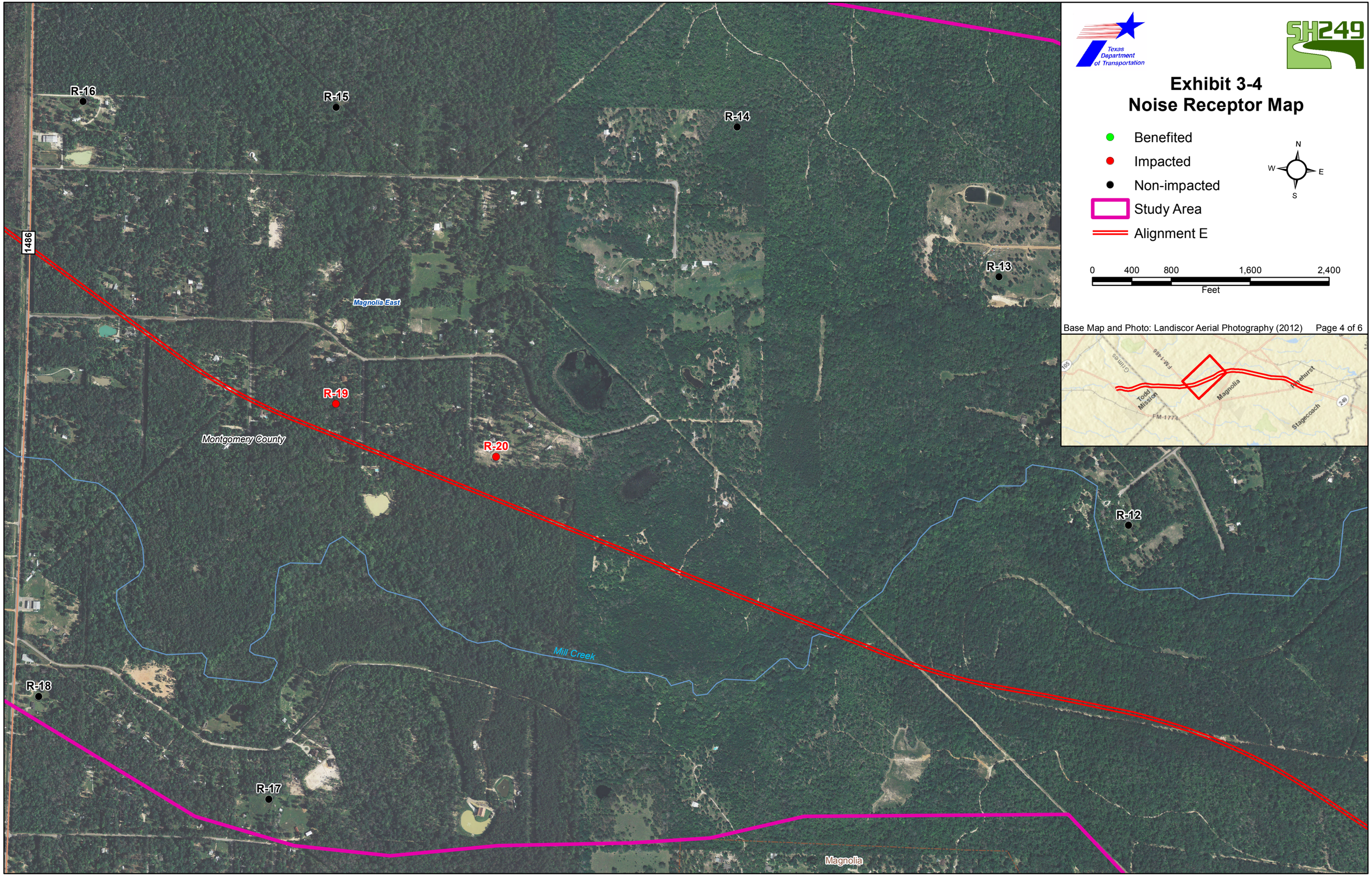

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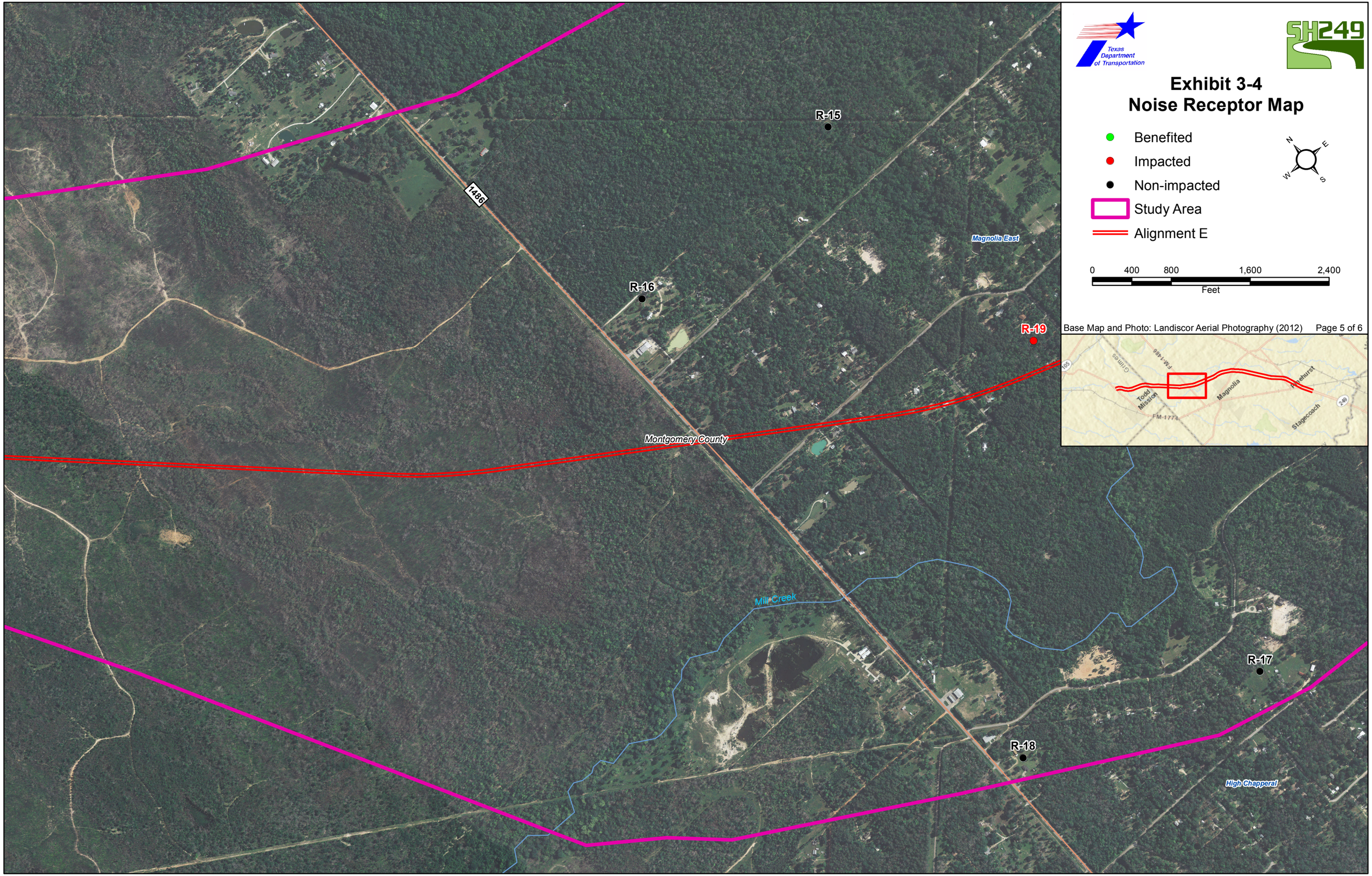

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Non-impacted
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0 400 800 1,600 2,400
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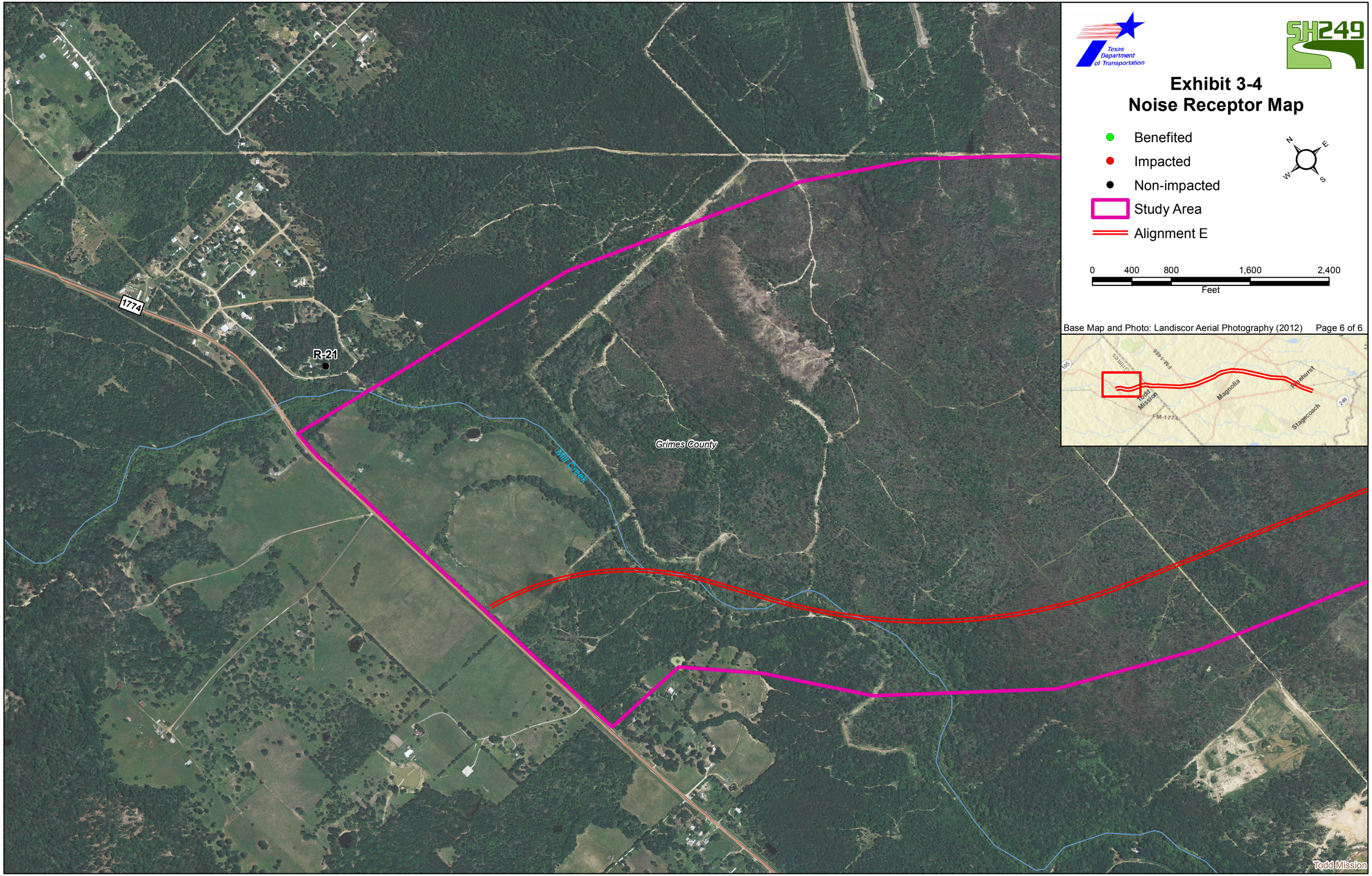
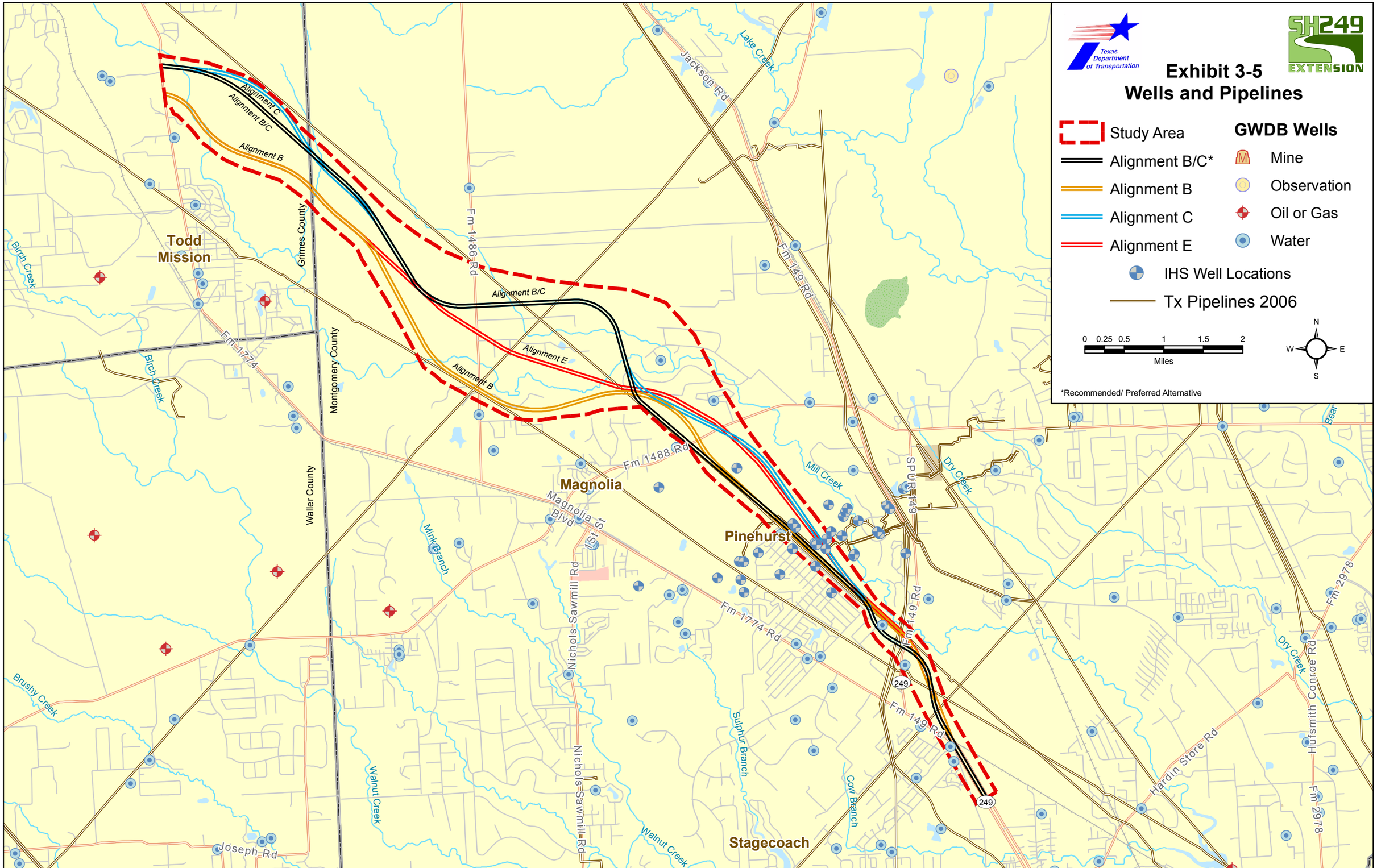
Base Map and Photo: Landiscor Aerial Photography (2012)





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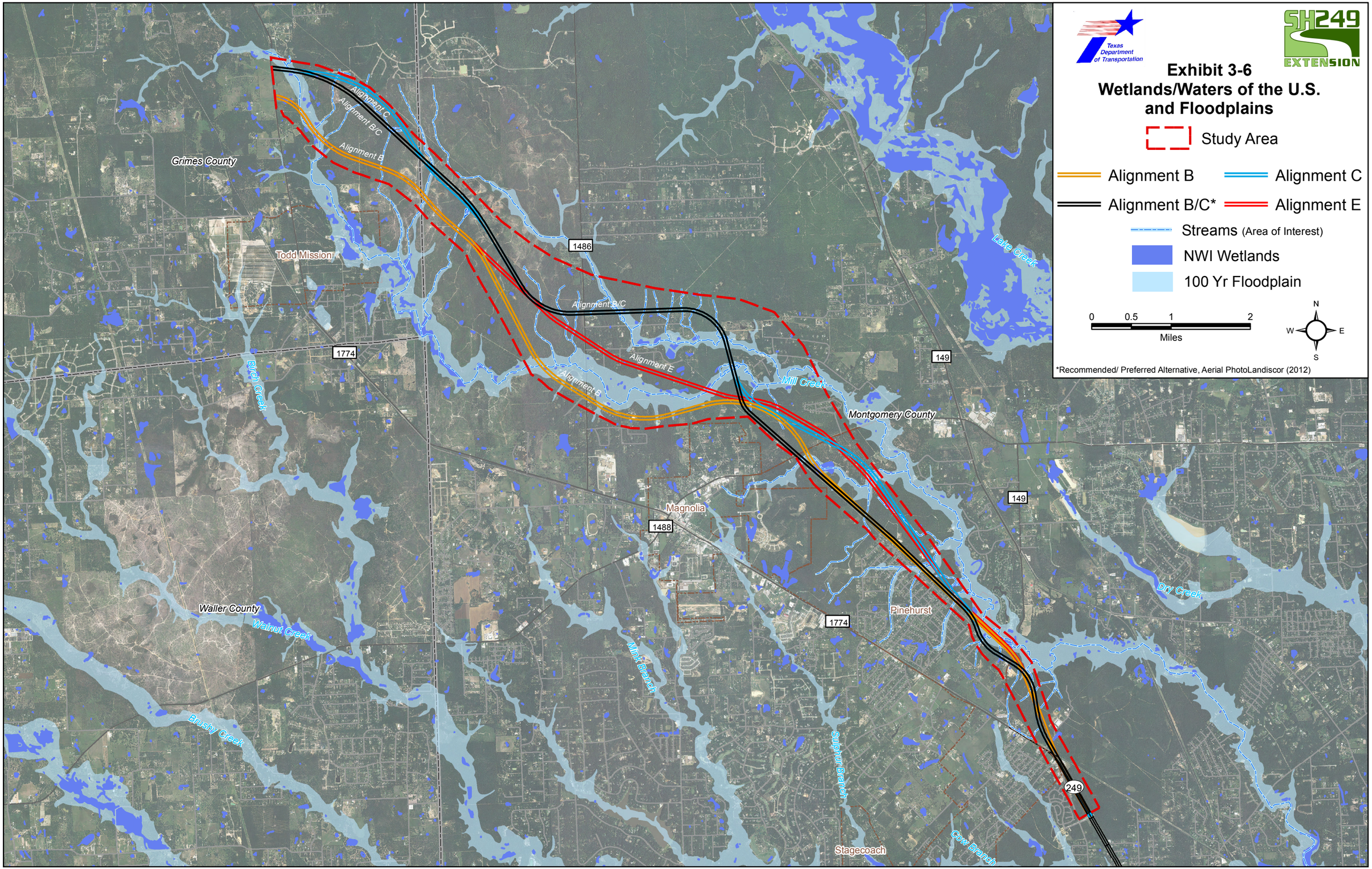
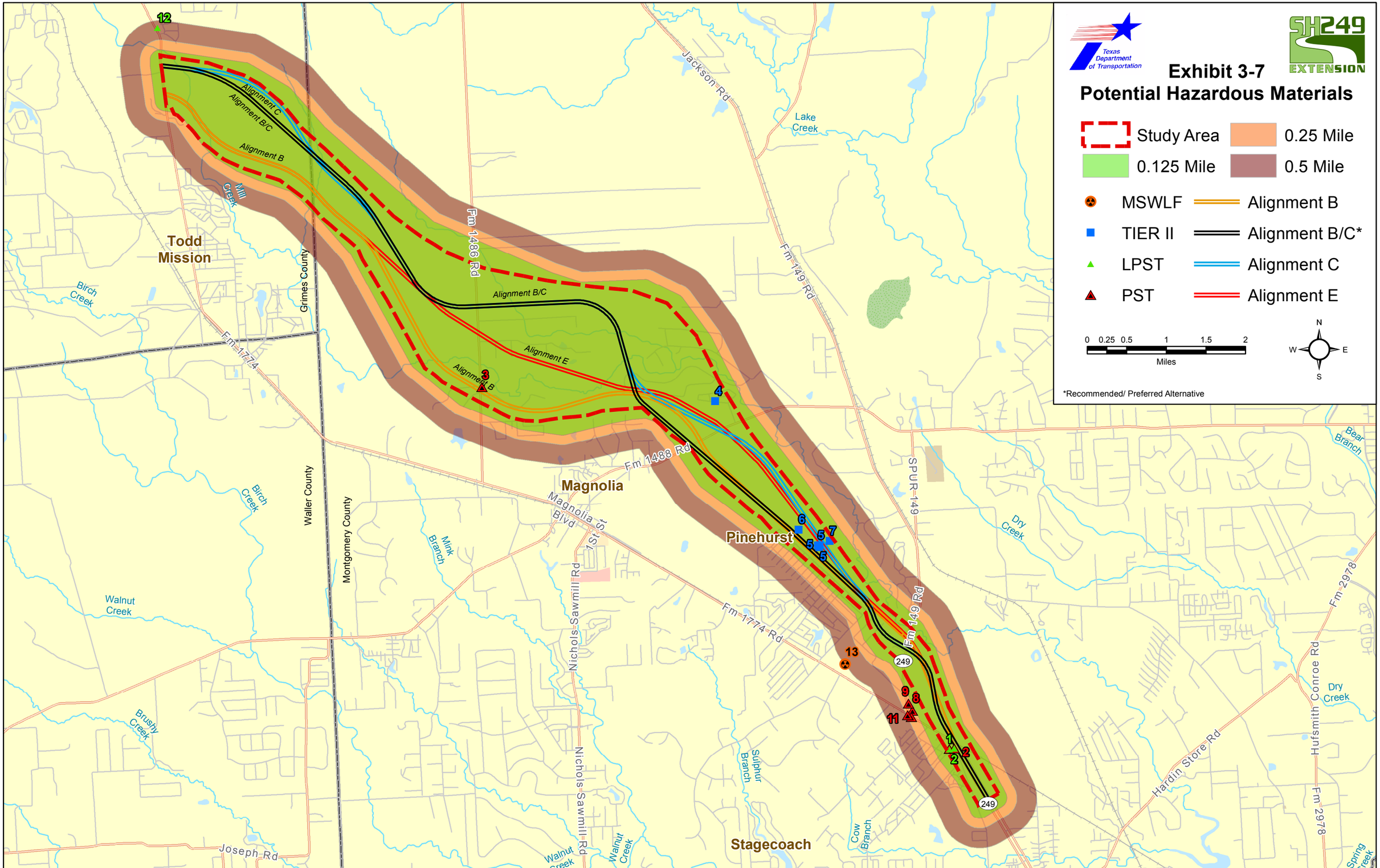


Document Path: P:\TxDOT\CB700904-SH249\700CADD\704env\GIS\ExhibitsNov2013\Fig 3.7 - Wetlands Waters Floodplains.mxd



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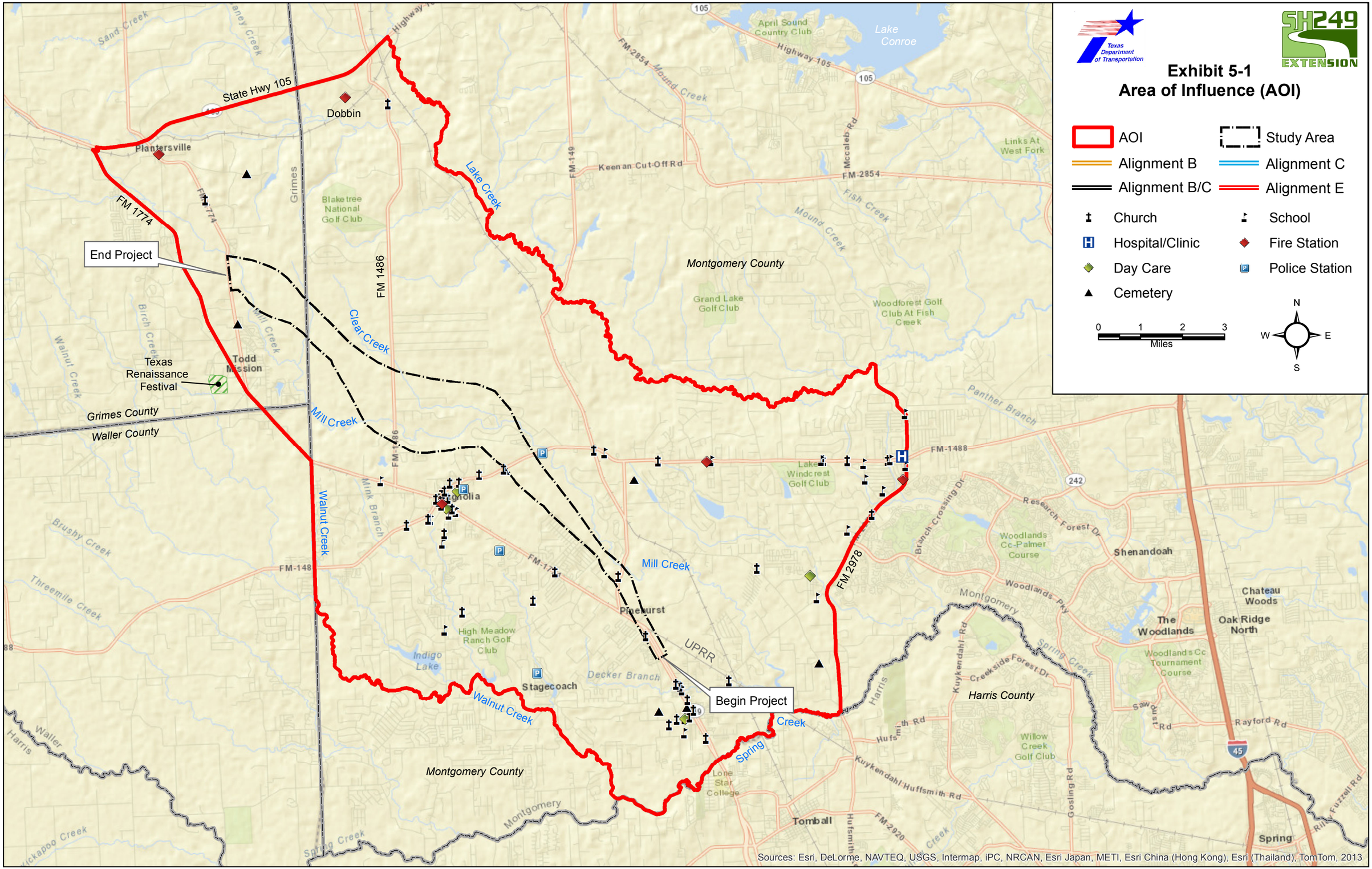

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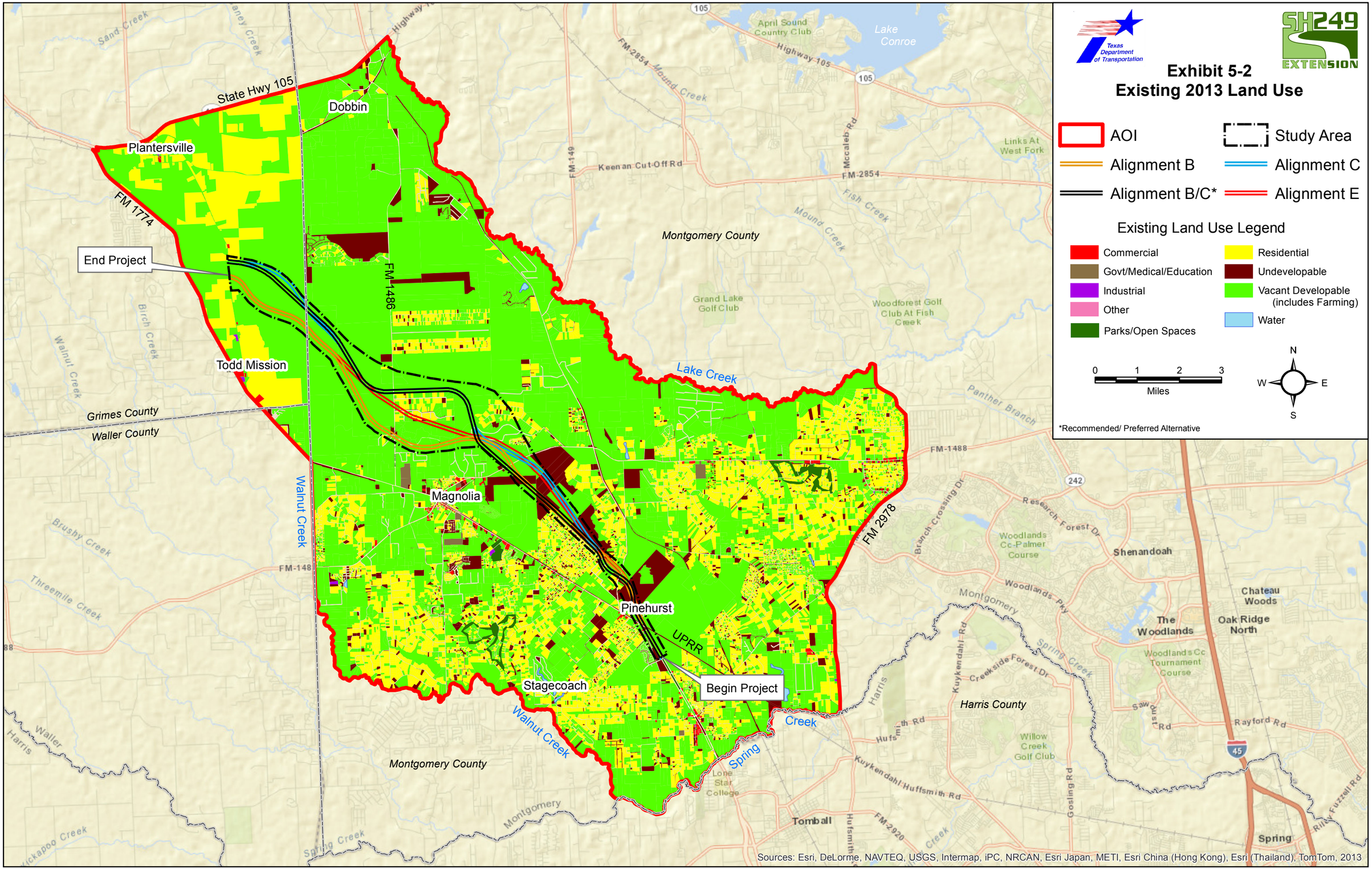

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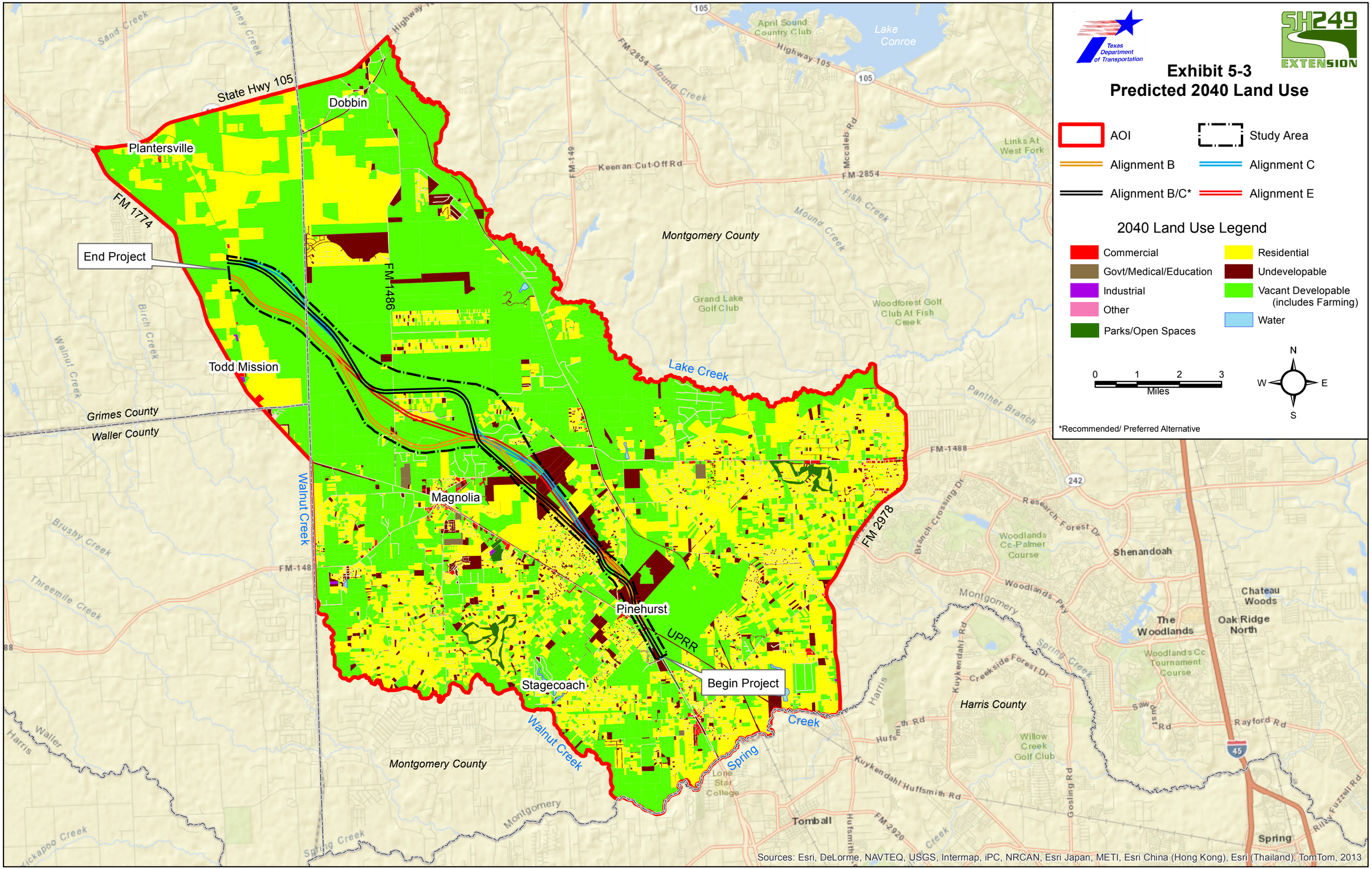

Document Path: P:\TxDOT\CB700904-SH249\700CADD\704env\GIS\ExhibitsNov2013\Fig 5.3 - 2040 Land Use.mxd

List of Appendices

Appendix A Site Photographs
Appendix B Excerpt from the *2035 RTP Update*
Appendix C Census Block Demographic Data
Appendix D Resource Coordination Letters
Appendix E Cultural Resource Reports
Appendix F Hazardous Material Database Summary
Appendix G Notice of Intent

Appendix A: Site Photographs

SH 249
SITE PHOTOGRAPHS

Viewing north on FM 1774 to the intersection with FM 149

Viewing south to Believers Fellowship Baptist Church sign on the west side of FM 149. This church is a displacement/relocation within Alternative Alignment B/C and C.

SH 249
SITE PHOTOGRAPHS

Viewing northwest to Believers Fellowship Baptist Church on the west side of FM 149. Playground equipment is located in front of the church. This church is a displacement/relocation within Alternative Alignment B/C and C.

Viewing southwest to additional building on church property. The building contains a second outdoor playground and basketball court in front of the church.

SH 249
SITE PHOTOGRAPHS

Viewing southeast to new warehouse construction; east of FM 149 across the street from Believers Fellowship Baptist Church. This new construction is outside of Alternative Alignment C, but is located within the study area boundary.

Viewing northeast at the end of Misty Meadow Lane and the intersection with Little Thorn in the Hazy Hollow East Estates subdivision. Alternative Alignment B is north of the residence in photograph.

SH 249
SITE PHOTOGRAPHS

Viewing east at the end of Misty Meadow Lane and the beginning of Hazy Meadow Lane. This residence is a displacement/relocation within Alternative Alignment C.

Viewing south to Montgomery County Hospital District Emergency Medical Service (EMS) location from FM 1488. This location is just south of the study area boundary.

SH 249
SITE PHOTOGRAPHS

Viewing east from EMS location to FM 1488 and Piney Grove Missionary Baptist Church and Cemetery.

Viewing southwest to Piney Grove Missionary Baptist Church, which is located just south of the study area boundary.

SH 249
SITE PHOTOGRAPHS

Viewing southwest to Piney Grove Missionary Baptist Church Cemetery, which is located just south of the study area boundary.

Viewing east to wooded area that represents the location of the proposed four Alternative Alignments traversing FM 1488.

SH 249
SITE PHOTOGRAPHS

Viewing west to wooded area that represents the location of the proposed four Alternative Alignments traversing FM 1488.

Viewing north to FM 1486 and the intersection of N. Brenda Lane, which is one entrance into the neighborhood of High Chapperal. Potions of N. Brenda Lane (to the east) are located in the study area boundary.

SH 249
SITE PHOTOGRAPHS

Viewing north to FM 1486 and the intersection of Woodway Drive, which is a second entrance into the neighborhood of High Chapperal. Potions of Woodway Drive (to the east) are located within Alternative Alignment B.

Viewing east on Woodway Drive at crossing of Mill Creek within the neighborhood.

SH 249
SITE PHOTOGRAPHS

Viewing south to residence representative of the High Chapperal and Magnolia East neighborhoods.

Appendix B: Excerpt from the *2035 RTP Update*

UNFUNDED PROJECTS								
RTP Phase	**Project IDs**	**County**	**Sponsor**	**Street**	**From Limit**	**To Limit**	**Project Description**	**Total Project Cost**
UNFUNDED	967 3538-01-034	MON	TXDOT HOUSTON DISTRICT	SH 242	FM 1488	IH 45 N	WIDEN FROM 4 TO 6-LANES	$ 277,769,205
UNFUNDED	968 3538-01-035	MON	TXDOT HOUSTON DISTRICT	SH 242	NEEDHAM DR	FM 1314	WIDEN FROM 2 TO 4-LANES	$ 98,939,993
UNFUNDED	12017	MON	UNSPONSORED (TBD)	SH 242	FM 1488	IH 45 N	SMART STREET IMPROVEMENTS	$ 6,512,000
UNFUNDED	12023	MON	UNSPONSORED (TBD)	SH 242	IH 45	FM 1314	SMART STREET IMPROVEMENTS	$ 8,880,000
UNFUNDED	12024	MON	UNSPONSORED (TBD)	SH 242	FM 1314	US 59	SMART STREET IMPROVEMENTS	$ 16,576,000
UNFUNDED	11570 0720-02-073	MON	TXDOT HOUSTON DISTRICT	SH 249	GRIMES COUNTY LINE	FM 1774/FM 149 IN PINEHURST	CONSTRUCT 4-LANE TOLLWAY IN SECTIONS	$ 346,384,856
UNFUNDED	914 0720-02-074	MON	TXDOT HOUSTON DISTRICT	SH 249	FM 1774/FM 149 IN PINEHURST	SPRING CREEK/HARRIS C/L	CONSTRUCT 6-LANE TOLLWAY WITH GRADE SEPARATIONS AT STAGECOACH RD AND WOODLANDS PARKWAY	$ 121,371,212
UNFUNDED	506 0110-03-033	MON	TXDOT HOUSTON DISTRICT	SH 75	FM 2432	TEAS NURSERY RD	CONSTRUCT 4-LANE DIVIDED	$ 31,344,687
UNFUNDED	507 0110-04-129	MON	TXDOT HOUSTON DISTRICT	SH 75	GLADSTELL ST	IH 45 UNDERPASS	WIDEN 2 LANE TO 4-LANE DIVIDED IN SECTIONS	$ 6,420,275
UNFUNDED	185	MON	UNSPONSORED (TBD)	TREASCHWIG	CYPRESSWOOD	SPRING CREEK	CONSTRUCT NEW 4-LANE ROAD	$ 26,580,960
UNFUNDED	9759	MON	UNSPONSORED (TBD)	TREASCHWIG/KINGWOOD	SPRING CREEK	SORTERS MCCLENNAN	CONSTRUCT NEW 4-LANE ROAD	$ 26,580,960
REPLACED (SEE 15300, 15301)	11910	MON	UNSPONSORED (TBD)	VA	VARIOUS		OTHER ROADWAY SYSTEM PRESERVATION/REHABILITATION (FY 2018-FY 2035)	$ 1,066,175,952
UNFUNDED	11927	MON	UNSPONSORED (TBD)	VA	VARIOUS		OTHER ROADWAY OPERATIONS & MAINTENANCE (TSM) (FY 2018-FY 2035)	$ 1,661,295,889
UNFUNDED	13406	MON	UNSPONSORED (TBD)	VARIOUS	VA	VA	OTHER ROADWAY COST VARIANCE (AC) (FY 2007-FY 2035)	$ 1,189,749,420
UNFUNDED	11215	MON	H-GAC	VARIOUS FREEWAY, ARTERIAL AND FRONTAGE SEGMENTS	VARIOUS	VA	CONDUCT MITIGATION OF 3 CRASH HOT SPOTS IN MONTGOMERY COUNTY	$ 1,878,234
UNFUNDED	12203	MON	UNSPONSORED (TBD)	WEST LAKE HOUSTON	SH 99	MONTGOMERY/HARRIS C/L	SMART STREET IMPROVEMENTS	$ 2,960,000
UNFUNDED	12334	MON	UNSPONSORED (TBD)	WOODLANDS PKWY	IH 45	SH 249	SMART STREET IMPROVEMENTS	$ 9,936,000
UNFUNDED	7386 0912-71-752	Multiple	TXDOT HOUSTON DISTRICT	FM 1093	ALONG FM 1093 CORRIDOR		CONDUCT TRAFFIC CIRCULATION STUDY (ALL ON-SYSTEM LOCATIONS)	$ 339,904
UNFUNDED	673	Multiple	TXDOT HOUSTON DISTRICT	FM 1462	FORT BEND C/L	SH 35	EXTEND FM 1462 TO FM 762 IN FORT BEND CO, REHAB EXISTING RDWY IN BRAZORIA COUNTY (2-LANE)	$ 28,827,345
UNFUNDED	2332	Multiple	TXDOT HOUSTON DISTRICT	FM 521	IH 610	CLEAR CREEK	IMPROVE DRAINAGE	$ 14,080,095

Appendix C: Census Block Demographic Data

County	Census Geography	Total	Minority	Non-Hispanic/Non-Latino						Hispanic/Latino						
				White	Black/ African American	Native American/ Alaska Native	Asian	Native Hawaiian/ Other Pacific Islander	Some Other Race	Total	White	Black/ African American	Native American/ Alaska Native	Asian	Native Hawaiian/ Other Pacific Islander	Some Other Race
	Census Tract 1801.01, Block	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grimes	Group 2, Block 2078	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Census Tract 1801.02, Block	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grimes	Group 1, Block 1002	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Census Tract 1801.02, Block	26	0	26	0	0	0	0	0	0	0	0	0	0	0	0
Grimes	Group 2, Block 2000	100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Census Tract 1801.02, Block	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grimes	Group 2, Block 2001	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Census Tract 1801.02, Block	6	6	0	6	0	0	0	0	0	0	0	0	0	0	0
Grimes	Group 2, Block 2002	100.0%	100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Census Tract 1801.02, Block	8	8	0	8	0	0	0	0	0	0	0	0	0	0	0
Grimes	Group 2, Block 2003	100.0%	100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Census Tract 1801.02, Block	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grimes	Group 2, Block 2004	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Census Tract 1801.02, Block	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Grimes	Group 2, Block 2005	100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Census Tract 1801.02, Block	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0
Grimes	Group 2, Block 2006	100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Census Tract 1801.02, Block	15	4	11	3	0	0	0	0	1	0	0	0	0	0	1
Grimes	Group 2, Block 2007	100.0%	26.7%	73.3%	20.0%	0.0%	0.0%	0.0%	0.0%	6.7%	0.0%	0.0%	0.0%	0.0%	0.0%	6.7%
	Census Tract 1801.02, Block	12	2	10	2	0	0	0	0	0	0	0	0	0	0	0
Grimes	Group 2, Block 2008	100.0%	16.7%	83.3%	16.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Census Tract 1801.02, Block	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grimes	Group 2, Block 2009	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Census Tract 1801.02, Block	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grimes	Group 2, Block 2010	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Census Tract 1801.02, Block	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grimes	Group 2, Block 2011	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Census Tract 1801.02, Block	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grimes	Group 2, Block 2012	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Census Tract 1801.02, Block	14	3	11	0	0	0	0	0	3	0	0	0	0	0	3
Grimes	Group 2, Block 2013	100.0%	21.4%	78.6%	0.0%	0.0%	0.0%	0.0%	0.0%	21.4%	0.0%	0.0%	0.0%	0.0%	0.0%	21.4%
	Census Tract 1801.02, Block	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grimes	Group 2, Block 2014	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Census Tract 1801.02, Block	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grimes	Group 2, Block 2015	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Census Tract 1801.02, Block	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grimes	Group 2, Block 2016	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Census Tract 1801.02, Block	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Grimes	Group 2, Block 2017	100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Census Tract 1801.02, Block	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grimes	Group 2, Block 2018	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Census Tract 1801.02, Block	464	135	329	31	9	2	0	5	88	33	8	3	0	0	44
Grimes	Group 2, Block 2019	100.0%	29.1%	70.9%	6.7%	1.9%	0.4%	0.0%	1.1%	19.0%	7.1%	1.7%	0.6%	0.0%	0.0%	9.5%
	Census Tract 1801.02, Block	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grimes	Group 2, Block 2020	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

County	Census Geography	Total	Minority	Non-Hispanic/Non-Latino						Hispanic/Latino						
				White	Black/ African American	Native American/ Alaska Native	Asian	Native Hawaiian/ Other Pacific Islander	Some Other Race	Total	White	Black/ African American	Native American/ Alaska Native	Asian	Native Hawaiian/ Other Pacific Islander	Some Other Race
Grimes	Census Tract 1801.02, Block Group 2, Block 2021	4	0	4	0	0	0	0	0	0	0	0	0	0	0	0
		100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 2, Block 2022	3	3	0	3	0	0	0	0	0	0	0	0	0	0	0
		100.0%	100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 2, Block 2023	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0
		100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 2, Block 2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 2, Block 2025	28	0	28	0	0	0	0	0	0	0	0	0	0	0	0
		100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 2, Block 2026	15	4	11	0	0	0	0	0	4	0	0	0	0	0	4
		100.0%	26.7%	73.3%	0.0%	0.0%	0.0%	0.0%	0.0%	26.7%	0.0%	0.0%	0.0%	0.0%	0.0%	26.7%
Grimes	Census Tract 1801.02, Block Group 2, Block 2027	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0
		100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 2, Block 2028	33	24	9	0	0	0	0	0	24	15	0	0	0	0	9
		100.0%	72.7%	27.3%	0.0%	0.0%	0.0%	0.0%	0.0%	72.7%	45.5%	0.0%	0.0%	0.0%	0.0%	27.3%
Grimes	Census Tract 1801.02, Block Group 2, Block 2029	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 2, Block 2030	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 2, Block 2031	16	0	16	0	0	0	0	0	0	0	0	0	0	0	0
		100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 2, Block 2032	10	3	7	0	0	0	0	0	3	0	0	0	0	0	3
		100.0%	30.0%	70.0%	0.0%	0.0%	0.0%	0.0%	0.0%	30.0%	0.0%	0.0%	0.0%	0.0%	0.0%	30.0%
Grimes	Census Tract 1801.02, Block Group 2, Block 2033	17	1	16	0	0	0	0	0	1	0	0	0	0	0	1
		100.0%	5.9%	94.1%	0.0%	0.0%	0.0%	0.0%	0.0%	5.9%	0.0%	0.0%	0.0%	0.0%	0.0%	5.9%
Grimes	Census Tract 1801.02, Block Group 2, Block 2034	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 2, Block 2035	28	11	17	4	0	0	0	0	7	3	1	0	0	0	3
		100.0%	39.3%	60.7%	14.3%	0.0%	0.0%	0.0%	0.0%	25.0%	10.7%	3.6%	0.0%	0.0%	0.0%	10.7%
Grimes	Census Tract 1801.02, Block Group 2, Block 2036	18	0	18	0	0	0	0	0	0	0	0	0	0	0	0
		100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 2, Block 2037	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 2, Block 2038	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 2, Block 2039	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 2, Block 2040	18	6	12	0	4	0	0	0	2	2	0	0	0	0	0
		100.0%	33.3%	66.7%	0.0%	22.2%	0.0%	0.0%	0.0%	11.1%	11.1%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 2, Block 2041	13	1	12	1	0	0	0	0	0	0	0	0	0	0	0
		100.0%	7.7%	92.3%	7.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 2, Block 2042	57	1	56	0	0	0	0	0	1	1	0	0	0	0	0
		100.0%	1.8%	98.2%	0.0%	0.0%	0.0%	0.0%	0.0%	1.8%	1.8%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 2, Block 2043	43	1	42	1	0	0	0	0	0	0	0	0	0	0	0
		100.0%	2.3%	97.7%	2.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 2, Block 2044	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

County	Census Geography	Total	Minority	Non-Hispanic/Non-Latino						Hispanic/Latino						
				White	Black/ African American	Native American/ Alaska Native	Asian	Native Hawaiian/ Other Pacific Islander	Some Other Race	Total	White	Black/ African American	Native American/ Alaska Native	Asian	Native Hawaiian/ Other Pacific Islander	Some Other Race
Grimes	Census Tract 1801.02, Block Group 2, Block 2045	6	2	4	0	0	0	0	0	2	1	0	0	0	0	1
		100.0%	33.3%	66.7%	0.0%	0.0%	0.0%	0.0%	0.0%	33.3%	16.7%	0.0%	0.0%	0.0%	0.0%	16.7%
Grimes	Census Tract 1801.02, Block Group 2, Block 2046	4	0	4	0	0	0	0	0	0	0	0	0	0	0	0
		100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 2, Block 2047	13	6	7	6	0	0	0	0	0	0	0	0	0	0	0
		100.0%	46.2%	53.8%	46.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 2, Block 2048	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0
		100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 2, Block 2049	46	5	41	3	0	0	0	0	2	2	0	0	0	0	0
		100.0%	10.9%	89.1%	6.5%	0.0%	0.0%	0.0%	0.0%	4.3%	4.3%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 2, Block 2050	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
		100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 2, Block 2051	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 2, Block 2052	39	5	34	0	1	0	0	0	4	1	0	0	0	0	3
		100.0%	12.8%	87.2%	0.0%	2.6%	0.0%	0.0%	0.0%	10.3%	2.6%	0.0%	0.0%	0.0%	0.0%	7.7%
Grimes	Census Tract 1801.02, Block Group 2, Block 2053	8	4	4	0	0	0	0	0	4	2	0	0	0	0	2
		100.0%	50.0%	50.0%	0.0%	0.0%	0.0%	0.0%	0.0%	50.0%	25.0%	0.0%	0.0%	0.0%	0.0%	25.0%
Grimes	Census Tract 1801.02, Block Group 2, Block 2054	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 2, Block 2055	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 2, Block 2056	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0
		100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 2, Block 2057	7	2	5	0	0	0	0	0	2	2	0	0	0	0	0
		100.0%	28.6%	71.4%	0.0%	0.0%	0.0%	0.0%	0.0%	28.6%	28.6%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 2, Block 2058	6	2	4	0	0	0	0	0	2	0	0	0	0	0	2
		100.0%	33.3%	66.7%	0.0%	0.0%	0.0%	0.0%	0.0%	33.3%	0.0%	0.0%	0.0%	0.0%	0.0%	33.3%
Grimes	Census Tract 1801.02, Block Group 2, Block 2059	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 2, Block 2060	92	14	78	0	1	0	0	0	13	5	0	2	0	0	6
		100.0%	15.2%	84.8%	0.0%	1.1%	0.0%	0.0%	0.0%	14.1%	5.4%	0.0%	2.2%	0.0%	0.0%	6.5%
Grimes	Census Tract 1801.02, Block Group 2, Block 2061	27	9	18	0	0	0	0	0	9	1	0	0	0	0	8
		100.0%	33.3%	66.7%	0.0%	0.0%	0.0%	0.0%	0.0%	33.3%	3.7%	0.0%	0.0%	0.0%	0.0%	29.6%
Grimes	Census Tract 1801.02, Block Group 2, Block 2062	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 2, Block 2063	73	25	48	1	0	0	0	3	21	11	0	0	0	0	10
		100.0%	34.2%	65.8%	1.4%	0.0%	0.0%	0.0%	4.1%	28.8%	15.1%	0.0%	0.0%	0.0%	0.0%	13.7%
Grimes	Census Tract 1801.02, Block Group 2, Block 2064	8	6	2	1	0	0	0	0	5	0	0	0	0	0	5
		100.0%	75.0%	25.0%	12.5%	0.0%	0.0%	0.0%	0.0%	62.5%	0.0%	0.0%	0.0%	0.0%	0.0%	62.5%
Grimes	Census Tract 1801.02, Block Group 2, Block 2065	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 2, Block 2066	15	3	12	3	0	0	0	0	0	0	0	0	0	0	0
		100.0%	20.0%	80.0%	20.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 2, Block 2067	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0
		100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 2, Block 2068	18	8	10	0	2	0	0	0	6	0	0	0	0	0	6
		100.0%	44.4%	55.6%	0.0%	11.1%	0.0%	0.0%	0.0%	33.3%	0.0%	0.0%	0.0%	0.0%	0.0%	33.3%

County	Census Geography	Total	Minority	Non-Hispanic/Non-Latino						Hispanic/Latino						
				White	Black/ African American	Native American/ Alaska Native	Asian	Native Hawaiian/ Other Pacific Islander	Some Other Race	Total	White	Black/ African American	Native American/ Alaska Native	Asian	Native Hawaiian/ Other Pacific Islander	Some Other Race
Grimes	Census Tract 1801.02, Block Group 2, Block 2069	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Grimes	Census Tract 1801.02, Block Group 2, Block 2070	6 100.0%	0 0.0%	6 100.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Grimes	Census Tract 1801.02, Block Group 2, Block 2071	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Grimes	Census Tract 1801.02, Block Group 2, Block 2072	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Grimes	Census Tract 1801.02, Block Group 2, Block 2073	13 100.0%	6 46.2%	7 53.8%	2 15.4%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	4 30.8%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	4 30.8%
Grimes	Census Tract 1801.02, Block Group 2, Block 2074	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Grimes	Census Tract 1801.02, Block Group 2, Block 2075	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Grimes	Census Tract 1801.02, Block Group 2, Block 2076	2 100.0%	0 0.0%	2 100.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Grimes	Census Tract 1801.02, Block Group 2, Block 2077	11 100.0%	0 0.0%	11 100.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Grimes	Census Tract 1801.02, Block Group 2, Block 2078	35 100.0%	2 5.7%	33 94.3%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	2 5.7%	1 2.9%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	1 2.9%
Grimes	Census Tract 1801.02, Block Group 2, Block 2079	1 100.0%	0 0.0%	1 100.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Grimes	Census Tract 1801.02, Block Group 2, Block 2080	2 100.0%	0 0.0%	2 100.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Grimes	Census Tract 1801.02, Block Group 2, Block 2081	7 100.0%	0 0.0%	7 100.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Grimes	Census Tract 1801.02, Block Group 2, Block 2082	6 100.0%	0 0.0%	6 100.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Grimes	Census Tract 1801.02, Block Group 2, Block 2083	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Grimes	Census Tract 1801.02, Block Group 2, Block 2084	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Grimes	Census Tract 1801.02, Block Group 2, Block 2085	6 100.0%	6 100.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	6 100.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	6 100.0%
Grimes	Census Tract 1801.02, Block Group 2, Block 2086	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Grimes	Census Tract 1801.02, Block Group 2, Block 2087	2 100.0%	0 0.0%	2 100.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Grimes	Census Tract 1801.02, Block Group 2, Block 2088	4 100.0%	0 0.0%	4 100.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Grimes	Census Tract 1801.02, Block Group 2, Block 2089	2 100.0%	0 0.0%	2 100.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Grimes	Census Tract 1801.02, Block Group 2, Block 2090	2 100.0%	0 0.0%	2 100.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Grimes	Census Tract 1801.02, Block Group 2, Block 2091	1 100.0%	0 0.0%	1 100.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Grimes	Census Tract 1801.02, Block Group 2, Block 2092	2 100.0%	0 0.0%	2 100.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%

County	Census Geography	Total	Minority	Non-Hispanic/Non-Latino White	Black/ African American	Native American/ Alaska Native	Asian	Native Hawaiian/ Other Pacific Islander	Some Other Race	Hispanic/Latino Total	White	Black/ African American	Native American/ Alaska Native	Asian	Native Hawaiian/ Other Pacific Islander	Some Other Race
Grimes	Census Tract 1801.02, Block Group 2, Block 2093	42	4	38	0	0	0	0	0	4	0	0	0	0	0	4
		100.0%	9.5%	90.5%	0.0%	0.0%	0.0%	0.0%	0.0%	9.5%	0.0%	0.0%	0.0%	0.0%	0.0%	9.5%
Grimes	Census Tract 1801.02, Block Group 2, Block 2094	16	0	16	0	0	0	0	0	0	0	0	0	0	0	0
		100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 2, Block 2095	5	5	0	0	0	0	0	0	5	0	0	0	0	0	5
		100.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Grimes	Census Tract 1801.02, Block Group 2, Block 2096	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 2, Block 2097	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0
		100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 2, Block 2098	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 2, Block 2099	42	4	38	0	0	0	0	0	4	4	0	0	0	0	0
		100.0%	9.5%	90.5%	0.0%	0.0%	0.0%	0.0%	0.0%	9.5%	9.5%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 2, Block 2100	18	3	15	3	0	0	0	0	0	0	0	0	0	0	0
		100.0%	16.7%	83.3%	16.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 2, Block 2101	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 2, Block 2102	35	2	33	0	1	0	0	0	1	0	0	1	0	0	0
		100.0%	5.7%	94.3%	0.0%	2.9%	0.0%	0.0%	0.0%	2.9%	0.0%	0.0%	2.9%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 2, Block 2103	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 2, Block 2104	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
		100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 2, Block 2105	5	0	5	0	0	0	0	0	0	0	0	0	0	0	0
		100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 2, Block 2106	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 2, Block 2107	31	0	31	0	0	0	0	0	0	0	0	0	0	0	0
		100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 2, Block 2108	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 2, Block 2109	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0
		100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 2, Block 2110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 2, Block 2111	5	5	0	0	0	0	0	0	5	5	0	0	0	0	0
		100.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 2, Block 2112	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 2, Block 2113	7	0	7	0	0	0	0	0	0	0	0	0	0	0	0
		100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 2, Block 2114	6	6	0	0	0	0	0	0	6	6	0	0	0	0	0
		100.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 2, Block 2115	21	5	16	0	0	0	2	0	3	3	0	0	0	0	0
		100.0%	23.8%	76.2%	0.0%	0.0%	0.0%	9.5%	0.0%	14.3%	14.3%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 2, Block 2116	35	4	31	0	0	0	0	0	4	2	0	0	0	0	2
		100.0%	11.4%	88.6%	0.0%	0.0%	0.0%	0.0%	0.0%	11.4%	5.7%	0.0%	0.0%	0.0%	0.0%	5.7%

County	Census Geography	Total	Minority	Non-Hispanic/Non-Latino White	Black/ African American	Native American/ Alaska Native	Asian	Native Hawaiian/ Other Pacific Islander	Some Other Race	Hispanic/Latino Total	White	Black/ African American	Native American/ Alaska Native	Asian	Native Hawaiian/ Other Pacific Islander	Some Other Race
Grimes	Census Tract 1801.02, Block Group 2, Block 2117	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 2, Block 2118	11	3	8	0	0	0	0	0	3	3	0	0	0	0	0
		100.0%	27.3%	72.7%	0.0%	0.0%	0.0%	0.0%	0.0%	27.3%	27.3%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 2, Block 2119	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 2, Block 2120	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 3, Block 3000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 3, Block 3001	28	0	28	0	0	0	0	0	0	0	0	0	0	0	0
		100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 3, Block 3002	25	0	25	0	0	0	0	0	0	0	0	0	0	0	0
		100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 3, Block 3003	7	0	7	0	0	0	0	0	0	0	0	0	0	0	0
		100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 3, Block 3004	330	68	262	40	5	0	1	0	22	15	0	0	0	0	7
		100.0%	20.6%	79.4%	12.1%	1.5%	0.0%	0.3%	0.0%	6.7%	4.5%	0.0%	0.0%	0.0%	0.0%	2.1%
Grimes	Census Tract 1801.02, Block Group 3, Block 3005	13	8	5	0	0	0	0	0	8	2	0	0	0	0	6
		100.0%	61.5%	38.5%	0.0%	0.0%	0.0%	0.0%	0.0%	61.5%	15.4%	0.0%	0.0%	0.0%	0.0%	46.2%
Grimes	Census Tract 1801.02, Block Group 3, Block 3006	20	1	19	1	0	0	0	0	0	0	0	0	0	0	0
		100.0%	5.0%	95.0%	5.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 3, Block 3007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 3, Block 3008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 3, Block 3009	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 3, Block 3010	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 3, Block 3011	11	6	5	0	0	0	0	0	6	6	0	0	0	0	0
		100.0%	54.5%	45.5%	0.0%	0.0%	0.0%	0.0%	0.0%	54.5%	54.5%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 3, Block 3012	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 3, Block 3013	45	21	24	0	0	0	0	0	21	17	0	0	0	0	4
		100.0%	46.7%	53.3%	0.0%	0.0%	0.0%	0.0%	0.0%	46.7%	37.8%	0.0%	0.0%	0.0%	0.0%	8.9%
Grimes	Census Tract 1801.02, Block Group 3, Block 3014	18	10	8	2	0	0	0	0	8	8	0	0	0	0	0
		100.0%	55.6%	44.4%	11.1%	0.0%	0.0%	0.0%	0.0%	44.4%	44.4%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 3, Block 3015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 3, Block 3016	3	0	3	0	0	0	0	0	0	0	0	0	0	0	0
		100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 3, Block 3017	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 3, Block 3018	55	5	50	3	0	0	2	0	0	0	0	0	0	0	0
		100.0%	9.1%	90.9%	5.5%	0.0%	0.0%	3.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 3, Block 3019	21	2	19	0	0	0	0	0	2	1	0	0	0	0	1
		100.0%	9.5%	90.5%	0.0%	0.0%	0.0%	0.0%	0.0%	9.5%	4.8%	0.0%	0.0%	0.0%	0.0%	4.8%

County	Census Geography	Total	Minority	Non-Hispanic/Non-Latino White	Black/ African American	Native American/ Alaska Native	Asian	Native Hawaiian/ Other Pacific Islander	Some Other Race	Hispanic/Latino Total	White	Black/ African American	Native American/ Alaska Native	Asian	Native Hawaiian/ Other Pacific Islander	Some Other Race
Grimes	Census Tract 1801.02, Block Group 3, Block 3020	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 3, Block 3021	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 3, Block 3022	22	0	22	0	0	0	0	0	0	0	0	0	0	0	0
		100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 3, Block 3023	4	0	4	0	0	0	0	0	0	0	0	0	0	0	0
		100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 3, Block 3024	13	0	13	0	0	0	0	0	0	0	0	0	0	0	0
		100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 3, Block 3025	5	2	3	0	2	0	0	0	0	0	0	0	0	0	0
		100.0%	40.0%	60.0%	0.0%	40.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 3, Block 3026	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 3, Block 3027	5	5	0	5	0	0	0	0	0	0	0	0	0	0	0
		100.0%	100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 3, Block 3028	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 3, Block 3029	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
		100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 3, Block 3030	14	1	13	0	1	0	0	0	0	0	0	0	0	0	0
		100.0%	7.1%	92.9%	0.0%	7.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 3, Block 3031	5	4	1	0	0	0	0	0	4	2	0	0	0	0	2
		100.0%	80.0%	20.0%	0.0%	0.0%	0.0%	0.0%	0.0%	80.0%	40.0%	0.0%	0.0%	0.0%	0.0%	40.0%
Grimes	Census Tract 1801.02, Block Group 3, Block 3032	8	4	4	0	0	0	0	0	4	4	0	0	0	0	0
		100.0%	50.0%	50.0%	0.0%	0.0%	0.0%	0.0%	0.0%	50.0%	50.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 3, Block 3033	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 3, Block 3034	6	4	2	0	0	0	0	0	4	0	0	0	0	0	4
		100.0%	66.7%	33.3%	0.0%	0.0%	0.0%	0.0%	0.0%	66.7%	0.0%	0.0%	0.0%	0.0%	0.0%	66.7%
Grimes	Census Tract 1801.02, Block Group 3, Block 3035	10	5	5	0	0	0	0	0	5	5	0	0	0	0	0
		100.0%	50.0%	50.0%	0.0%	0.0%	0.0%	0.0%	0.0%	50.0%	50.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 3, Block 3036	8	5	3	5	0	0	0	0	0	0	0	0	0	0	0
		100.0%	62.5%	37.5%	62.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 3, Block 3037	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 3, Block 3038	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 3, Block 3039	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 3, Block 3040	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 3, Block 3041	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 3, Block 3042	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 3, Block 3043	16	5	11	1	0	0	0	0	4	2	1	0	0	0	1
		100.0%	31.3%	68.8%	6.3%	0.0%	0.0%	0.0%	0.0%	25.0%	12.5%	6.3%	0.0%	0.0%	0.0%	6.3%

County	Census Geography	Total	Minority	Non-Hispanic/Non-Latino White	Black/ African American	Native American/ Alaska Native	Asian	Native Hawaiian/ Other Pacific Islander	Some Other Race	Hispanic/Latino Total	White	Black/ African American	Native American/ Alaska Native	Asian	Native Hawaiian/ Other Pacific Islander	Some Other Race
Grimes	Census Tract 1801.02, Block Group 3, Block 3044	4	0	4	0	0	0	0	0	0	0	0	0	0	0	0
		100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 3, Block 3045	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 3, Block 3046	9	1	8	0	0	0	0	0	1	1	0	0	0	0	0
		100.0%	11.1%	88.9%	0.0%	0.0%	0.0%	0.0%	0.0%	11.1%	11.1%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 3, Block 3047	8	0	8	0	0	0	0	0	0	0	0	0	0	0	0
		100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 3, Block 3048	10	0	10	0	0	0	0	0	0	0	0	0	0	0	0
		100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 3, Block 3049	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 3, Block 3050	13	4	9	0	0	0	0	0	4	4	0	0	0	0	0
		100.0%	30.8%	69.2%	0.0%	0.0%	0.0%	0.0%	0.0%	30.8%	30.8%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 3, Block 3051	8	0	8	0	0	0	0	0	0	0	0	0	0	0	0
		100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 3, Block 3052	19	1	18	0	0	1	0	0	0	0	0	0	0	0	0
		100.0%	5.3%	94.7%	0.0%	0.0%	5.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 3, Block 3053	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 3, Block 3054	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0
		100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 3, Block 3055	4	0	4	0	0	0	0	0	0	0	0	0	0	0	0
		100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 3, Block 3056	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 3, Block 3057	3	3	0	3	0	0	0	0	0	0	0	0	0	0	0
		100.0%	100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 3, Block 3058	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
		100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 3, Block 3059	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 3, Block 3060	26	0	26	0	0	0	0	0	0	0	0	0	0	0	0
		100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 3, Block 3061	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 3, Block 3062	51	20	31	0	1	0	0	0	19	14	0	2	0	0	3
		100.0%	39.2%	60.8%	0.0%	2.0%	0.0%	0.0%	0.0%	37.3%	27.5%	0.0%	3.9%	0.0%	0.0%	5.9%
Grimes	Census Tract 1801.02, Block Group 3, Block 3063	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 3, Block 3064	10	8	2	0	0	0	0	0	8	4	0	0	0	0	4
		100.0%	80.0%	20.0%	0.0%	0.0%	0.0%	0.0%	0.0%	80.0%	40.0%	0.0%	0.0%	0.0%	0.0%	40.0%
Grimes	Census Tract 1801.02, Block Group 3, Block 3065	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 3, Block 3066	12	3	9	3	0	0	0	0	0	0	0	0	0	0	0
		100.0%	25.0%	75.0%	25.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 3, Block 3067	35	3	32	2	0	0	0	0	1	1	0	0	0	0	0
		100.0%	8.6%	91.4%	5.7%	0.0%	0.0%	0.0%	0.0%	2.9%	2.9%	0.0%	0.0%	0.0%	0.0%	0.0%

County	Census Geography	Total	Minority	Non-Hispanic/Non-Latino White	Black/ African American	Native American/ Alaska Native	Asian	Native Hawaiian/ Other Pacific Islander	Some Other Race	Hispanic/Latino Total	White	Black/ African American	Native American/ Alaska Native	Asian	Native Hawaiian/ Other Pacific Islander	Some Other Race
Grimes	Census Tract 1801.02, Block Group 3, Block 3068	19	2	17	0	0	0	0	0	2	2	0	0	0	0	0
		100.0%	10.5%	89.5%	0.0%	0.0%	0.0%	0.0%	0.0%	10.5%	10.5%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 3, Block 3069	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 3, Block 3070	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grimes	Census Tract 1801.02, Block Group 3, Block 3071	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6902.01, Block Group 2, Block 2000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6902.01, Block Group 2, Block 2001	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6902.01, Block Group 4, Block 4000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6902.01, Block Group 4, Block 4001	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6902.01, Block Group 4, Block 4003	5	2	3	0	0	0	0	0	2	0	0	1	0	0	1
		100.0%	40.0%	60.0%	0.0%	0.0%	0.0%	0.0%	0.0%	40.0%	0.0%	0.0%	20.0%	0.0%	0.0%	20.0%
Montgomery	Census Tract 6902.01, Block Group 4, Block 4004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6902.02, Block Group 3, Block 3000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6902.02, Block Group 4, Block 4000	28	5	23	0	0	0	0	5	0	0	0	0	0	0	0
		100.0%	17.9%	82.1%	0.0%	0.0%	0.0%	0.0%	17.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6902.02, Block Group 4, Block 4001	238	96	142	0	0	0	0	0	96	61	0	2	0	0	33
		100.0%	40.3%	59.7%	0.0%	0.0%	0.0%	0.0%	0.0%	40.3%	25.6%	0.0%	0.8%	0.0%	0.0%	13.9%
Montgomery	Census Tract 6902.02, Block Group 4, Block 4002	75	54	21	0	0	4	0	0	50	16	0	2	0	0	32
		100.0%	72.0%	28.0%	0.0%	0.0%	5.3%	0.0%	0.0%	66.7%	21.3%	0.0%	2.7%	0.0%	0.0%	42.7%
Montgomery	Census Tract 6902.02, Block Group 4, Block 4003	41	16	25	0	0	0	0	0	16	4	0	0	0	0	12
		100.0%	39.0%	61.0%	0.0%	0.0%	0.0%	0.0%	0.0%	39.0%	9.8%	0.0%	0.0%	0.0%	0.0%	29.3%
Montgomery	Census Tract 6902.02, Block Group 4, Block 4004	6	4	2	0	0	0	0	0	4	4	0	0	0	0	0
		100.0%	66.7%	33.3%	0.0%	0.0%	0.0%	0.0%	0.0%	66.7%	66.7%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6902.02, Block Group 4, Block 4005	51	40	11	6	1	0	0	0	33	16	0	0	0	0	17
		100.0%	78.4%	21.6%	11.8%	2.0%	0.0%	0.0%	0.0%	64.7%	31.4%	0.0%	0.0%	0.0%	0.0%	33.3%
Montgomery	Census Tract 6902.02, Block Group 4, Block 4006	108	15	93	0	1	0	0	0	14	8	0	0	0	0	6
		100.0%	13.9%	86.1%	0.0%	0.9%	0.0%	0.0%	0.0%	13.0%	7.4%	0.0%	0.0%	0.0%	0.0%	5.6%
Montgomery	Census Tract 6902.02, Block Group 4, Block 4007	21	1	20	0	0	0	0	0	1	1	0	0	0	0	0
		100.0%	4.8%	95.2%	0.0%	0.0%	0.0%	0.0%	0.0%	4.8%	4.8%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6902.02, Block Group 4, Block 4008	22	0	22	0	0	0	0	0	0	0	0	0	0	0	0
		100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6902.02, Block Group 4, Block 4009	26	1	25	0	0	0	0	0	1	1	0	0	0	0	0
		100.0%	3.8%	96.2%	0.0%	0.0%	0.0%	0.0%	0.0%	3.8%	3.8%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6902.02, Block Group 4, Block 4010	4	0	4	0	0	0	0	0	0	0	0	0	0	0	0
		100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6902.02, Block Group 4, Block 4011	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6902.02, Block Group 4, Block 4012	8	3	5	0	0	0	0	0	3	3	0	0	0	0	0
		100.0%	37.5%	62.5%	0.0%	0.0%	0.0%	0.0%	0.0%	37.5%	37.5%	0.0%	0.0%	0.0%	0.0%	0.0%

County	Census Geography	Total	Minority	Non-Hispanic/Non-Latino						Hispanic/Latino						
				White	Black/ African American	Native American/ Alaska Native	Asian	Native Hawaiian/ Other Pacific Islander	Some Other Race	Total	White	Black/ African American	Native American/ Alaska Native	Asian	Native Hawaiian/ Other Pacific Islander	Some Other Race
Montgomery	Census Tract 6902.02, Block Group 4, Block 4013	16	4	12	0	1	0	0	0	3	3	0	0	0	0	0
		100.0%	25.0%	75.0%	0.0%	6.3%	0.0%	0.0%	0.0%	18.8%	18.8%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6902.02, Block Group 4, Block 4014	62	0	62	0	0	0	0	0	0	0	0	0	0	0	0
		100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6902.02, Block Group 4, Block 4015	41	0	41	0	0	0	0	0	0	0	0	0	0	0	0
		100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6902.02, Block Group 4, Block 4016	31	0	31	0	0	0	0	0	0	0	0	0	0	0	0
		100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6902.02, Block Group 4, Block 4017	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6902.02, Block Group 4, Block 4018	17	6	11	0	0	0	0	0	6	0	0	0	0	0	6
		100.0%	35.3%	64.7%	0.0%	0.0%	0.0%	0.0%	0.0%	35.3%	0.0%	0.0%	0.0%	0.0%	0.0%	35.3%
Montgomery	Census Tract 6902.02, Block Group 4, Block 4019	12	2	10	2	0	0	0	0	0	0	0	0	0	0	0
		100.0%	16.7%	83.3%	16.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6902.02, Block Group 4, Block 4020	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6902.02, Block Group 4, Block 4021	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6902.02, Block Group 4, Block 4022	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6902.02, Block Group 4, Block 4023	32	9	23	0	0	0	0	0	9	1	0	0	0	0	8
		100.0%	28.1%	71.9%	0.0%	0.0%	0.0%	0.0%	0.0%	28.1%	3.1%	0.0%	0.0%	0.0%	0.0%	25.0%
Montgomery	Census Tract 6902.02, Block Group 4, Block 4024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6902.02, Block Group 4, Block 4025	60	7	53	0	0	0	0	0	7	7	0	0	0	0	0
		100.0%	11.7%	88.3%	0.0%	0.0%	0.0%	0.0%	0.0%	11.7%	11.7%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6902.02, Block Group 4, Block 4026	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6902.02, Block Group 4, Block 4027	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6902.02, Block Group 4, Block 4028	3	0	3	0	0	0	0	0	0	0	0	0	0	0	0
		100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6902.02, Block Group 4, Block 4029	29	6	23	0	0	0	0	0	6	5	0	0	0	0	1
		100.0%	20.7%	79.3%	0.0%	0.0%	0.0%	0.0%	0.0%	20.7%	17.2%	0.0%	0.0%	0.0%	0.0%	3.4%
Montgomery	Census Tract 6902.02, Block Group 4, Block 4030	145	85	60	0	0	0	0	0	85	33	0	0	0	0	52
		100.0%	58.6%	41.4%	0.0%	0.0%	0.0%	0.0%	0.0%	58.6%	22.8%	0.0%	0.0%	0.0%	0.0%	35.9%
Montgomery	Census Tract 6902.02, Block Group 4, Block 4031	66	53	13	0	0	0	0	0	53	17	0	0	0	0	36
		100.0%	80.3%	19.7%	0.0%	0.0%	0.0%	0.0%	0.0%	80.3%	25.8%	0.0%	0.0%	0.0%	0.0%	54.5%
Montgomery	Census Tract 6902.02, Block Group 4, Block 4032	42	13	29	0	0	0	0	0	13	6	0	0	0	0	7
		100.0%	31.0%	69.0%	0.0%	0.0%	0.0%	0.0%	0.0%	31.0%	14.3%	0.0%	0.0%	0.0%	0.0%	16.7%
Montgomery	Census Tract 6902.02, Block Group 4, Block 4033	6	0	6	0	0	0	0	0	0	0	0	0	0	0	0
		100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6902.02, Block Group 5, Block 5009	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6903, Block Group 1, Block 1000	537	199	338	4	3	0	0	0	192	111	0	7	0	0	74
		100.0%	37.1%	62.9%	0.7%	0.6%	0.0%	0.0%	0.0%	35.8%	20.7%	0.0%	1.3%	0.0%	0.0%	13.8%
Montgomery	Census Tract 6903, Block Group 1, Block 1001	50	26	24	5	0	0	0	0	21	21	0	0	0	0	0
		100.0%	52.0%	48.0%	10.0%	0.0%	0.0%	0.0%	0.0%	42.0%	42.0%	0.0%	0.0%	0.0%	0.0%	0.0%

County	Census Geography	Total	Minority	Non-Hispanic/Non-Latino						Hispanic/Latino						
				White	Black/ African American	Native American/ Alaska Native	Asian	Native Hawaiian/ Other Pacific Islander	Some Other Race	Total	White	Black/ African American	Native American/ Alaska Native	Asian	Native Hawaiian/ Other Pacific Islander	Some Other Race
Montgomery	Census Tract 6903, Block Group 1, Block 1002	22	3	19	1	0	0	0	0	2	0	0	0	0	0	2
		100.0%	13.6%	86.4%	4.5%	0.0%	0.0%	0.0%	0.0%	9.1%	0.0%	0.0%	0.0%	0.0%	0.0%	9.1%
Montgomery	Census Tract 6903, Block Group 1, Block 1003	26	5	21	0	0	0	0	0	5	2	0	0	0	0	3
		100.0%	19.2%	80.8%	0.0%	0.0%	0.0%	0.0%	0.0%	19.2%	7.7%	0.0%	0.0%	0.0%	0.0%	11.5%
Montgomery	Census Tract 6903, Block Group 1, Block 1004	13	3	10	0	0	0	0	0	3	1	2	0	0	0	0
		100.0%	23.1%	76.9%	0.0%	0.0%	0.0%	0.0%	0.0%	23.1%	7.7%	15.4%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6903, Block Group 1, Block 1005	71	28	43	0	0	0	0	0	28	20	0	1	0	0	7
		100.0%	39.4%	60.6%	0.0%	0.0%	0.0%	0.0%	0.0%	39.4%	28.2%	0.0%	1.4%	0.0%	0.0%	9.9%
Montgomery	Census Tract 6903, Block Group 1, Block 1006	64	32	32	0	0	0	0	0	32	25	1	1	0	0	5
		100.0%	50.0%	50.0%	0.0%	0.0%	0.0%	0.0%	0.0%	50.0%	39.1%	1.6%	1.6%	0.0%	0.0%	7.8%
Montgomery	Census Tract 6903, Block Group 1, Block 1007	32	4	28	0	0	0	0	0	4	2	0	0	0	0	2
		100.0%	12.5%	87.5%	0.0%	0.0%	0.0%	0.0%	0.0%	12.5%	6.3%	0.0%	0.0%	0.0%	0.0%	6.3%
Montgomery	Census Tract 6903, Block Group 1, Block 1008	85	67	18	0	0	0	0	0	67	38	0	1	0	0	28
		100.0%	78.8%	21.2%	0.0%	0.0%	0.0%	0.0%	0.0%	78.8%	44.7%	0.0%	1.2%	0.0%	0.0%	32.9%
Montgomery	Census Tract 6903, Block Group 1, Block 1009	38	20	18	0	1	0	0	0	19	5	0	0	0	0	14
		100.0%	52.6%	47.4%	0.0%	2.6%	0.0%	0.0%	0.0%	50.0%	13.2%	0.0%	0.0%	0.0%	0.0%	36.8%
Montgomery	Census Tract 6903, Block Group 1, Block 1010	45	31	14	0	0	0	0	0	31	21	0	0	0	0	10
		100.0%	68.9%	31.1%	0.0%	0.0%	0.0%	0.0%	0.0%	68.9%	46.7%	0.0%	0.0%	0.0%	0.0%	22.2%
Montgomery	Census Tract 6903, Block Group 1, Block 1011	52	8	44	0	0	0	0	0	8	4	0	0	0	0	4
		100.0%	15.4%	84.6%	0.0%	0.0%	0.0%	0.0%	0.0%	15.4%	7.7%	0.0%	0.0%	0.0%	0.0%	7.7%
Montgomery	Census Tract 6903, Block Group 1, Block 1012	53	23	30	6	0	0	0	0	17	0	0	0	0	0	17
		100.0%	43.4%	56.6%	11.3%	0.0%	0.0%	0.0%	0.0%	32.1%	0.0%	0.0%	0.0%	0.0%	0.0%	32.1%
Montgomery	Census Tract 6903, Block Group 1, Block 1013	31	10	21	0	0	0	0	0	10	2	0	0	0	0	8
		100.0%	32.3%	67.7%	0.0%	0.0%	0.0%	0.0%	0.0%	32.3%	6.5%	0.0%	0.0%	0.0%	0.0%	25.8%
Montgomery	Census Tract 6903, Block Group 1, Block 1014	18	0	18	0	0	0	0	0	0	0	0	0	0	0	0
		100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6903, Block Group 1, Block 1015	54	33	21	8	0	0	0	0	25	19	0	4	0	0	2
		100.0%	61.1%	38.9%	14.8%	0.0%	0.0%	0.0%	0.0%	46.3%	35.2%	0.0%	7.4%	0.0%	0.0%	3.7%
Montgomery	Census Tract 6903, Block Group 1, Block 1016	22	11	11	0	0	1	0	0	10	10	0	0	0	0	0
		100.0%	50.0%	50.0%	0.0%	0.0%	4.5%	0.0%	0.0%	45.5%	45.5%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6903, Block Group 1, Block 1017	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6903, Block Group 1, Block 1018	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6903, Block Group 1, Block 1019	12	6	6	0	1	0	0	0	5	1	0	3	0	0	1
		100.0%	50.0%	50.0%	0.0%	8.3%	0.0%	0.0%	0.0%	41.7%	8.3%	0.0%	25.0%	0.0%	0.0%	8.3%
Montgomery	Census Tract 6903, Block Group 1, Block 1020	3	2	1	0	0	0	1	0	1	1	0	0	0	0	0
		100.0%	66.7%	33.3%	0.0%	0.0%	0.0%	33.3%	0.0%	33.3%	33.3%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6903, Block Group 1, Block 1021	16	0	16	0	0	0	0	0	0	0	0	0	0	0	0
		100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6903, Block Group 1, Block 1022	37	6	31	0	3	0	0	0	3	1	0	0	0	0	2
		100.0%	16.2%	83.8%	0.0%	8.1%	0.0%	0.0%	0.0%	8.1%	2.7%	0.0%	0.0%	0.0%	0.0%	5.4%
Montgomery	Census Tract 6903, Block Group 1, Block 1023	149	40	109	1	5	0	0	0	34	10	2	0	0	0	22
		100.0%	26.8%	73.2%	0.7%	3.4%	0.0%	0.0%	0.0%	22.8%	6.7%	1.3%	0.0%	0.0%	0.0%	14.8%
Montgomery	Census Tract 6903, Block Group 1, Block 1024	11	6	5	0	0	0	0	0	6	6	0	0	0	0	0
		100.0%	54.5%	45.5%	0.0%	0.0%	0.0%	0.0%	0.0%	54.5%	54.5%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6903, Block Group 1, Block 1025	46	20	26	0	0	0	0	0	20	1	0	0	0	0	19
		100.0%	43.5%	56.5%	0.0%	0.0%	0.0%	0.0%	0.0%	43.5%	2.2%	0.0%	0.0%	0.0%	0.0%	41.3%

County	Census Geography	Total	Minority	Non-Hispanic/Non-Latino						Hispanic/Latino						
				White	Black/ African American	Native American/ Alaska Native	Asian	Native Hawaiian/ Other Pacific Islander	Some Other Race	Total	White	Black/ African American	Native American/ Alaska Native	Asian	Native Hawaiian/ Other Pacific Islander	Some Other Race
Montgomery	Census Tract 6903, Block Group 1, Block 1026	37	12	25	0	0	0	0	0	12	4	0	0	0	0	8
		100.0%	32.4%	67.6%	0.0%	0.0%	0.0%	0.0%	0.0%	32.4%	10.8%	0.0%	0.0%	0.0%	0.0%	21.6%
Montgomery	Census Tract 6903, Block Group 1, Block 1027	58	24	34	2	4	0	0	0	18	7	1	1	0	0	9
		100.0%	41.4%	58.6%	3.4%	6.9%	0.0%	0.0%	0.0%	31.0%	12.1%	1.7%	1.7%	0.0%	0.0%	15.5%
Montgomery	Census Tract 6903, Block Group 1, Block 1028	12	4	8	0	0	0	0	0	4	4	0	0	0	0	0
		100.0%	33.3%	66.7%	0.0%	0.0%	0.0%	0.0%	0.0%	33.3%	33.3%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6903, Block Group 1, Block 1029	29	4	25	0	0	0	0	0	4	2	0	1	0	0	1
		100.0%	13.8%	86.2%	0.0%	0.0%	0.0%	0.0%	0.0%	13.8%	6.9%	0.0%	3.4%	0.0%	0.0%	3.4%
Montgomery	Census Tract 6903, Block Group 1, Block 1030	6	1	5	1	0	0	0	0	0	0	0	0	0	0	0
		100.0%	16.7%	83.3%	16.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6903, Block Group 1, Block 1031	11	0	11	0	0	0	0	0	0	0	0	0	0	0	0
		100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6903, Block Group 1, Block 1032	46	20	26	0	0	0	0	0	20	10	0	0	0	0	10
		100.0%	43.5%	56.5%	0.0%	0.0%	0.0%	0.0%	0.0%	43.5%	21.7%	0.0%	0.0%	0.0%	0.0%	21.7%
Montgomery	Census Tract 6903, Block Group 1, Block 1033	37	13	24	1	0	0	0	0	12	7	0	0	0	0	5
		100.0%	35.1%	64.9%	2.7%	0.0%	0.0%	0.0%	0.0%	32.4%	18.9%	0.0%	0.0%	0.0%	0.0%	13.5%
Montgomery	Census Tract 6903, Block Group 1, Block 1034	6	4	2	0	0	0	0	0	4	4	0	0	0	0	0
		100.0%	66.7%	33.3%	0.0%	0.0%	0.0%	0.0%	0.0%	66.7%	66.7%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6903, Block Group 1, Block 1035	56	17	39	0	0	0	0	0	17	2	0	0	0	0	15
		100.0%	30.4%	69.6%	0.0%	0.0%	0.0%	0.0%	0.0%	30.4%	3.6%	0.0%	0.0%	0.0%	0.0%	26.8%
Montgomery	Census Tract 6903, Block Group 1, Block 1036	88	58	30	6	0	0	0	0	52	22	0	5	0	0	25
		100.0%	65.9%	34.1%	6.8%	0.0%	0.0%	0.0%	0.0%	59.1%	25.0%	0.0%	5.7%	0.0%	0.0%	28.4%
Montgomery	Census Tract 6903, Block Group 1, Block 1037	70	23	47	0	1	1	0	0	21	12	0	0	0	0	9
		100.0%	32.9%	67.1%	0.0%	1.4%	1.4%	0.0%	0.0%	30.0%	17.1%	0.0%	0.0%	0.0%	0.0%	12.9%
Montgomery	Census Tract 6903, Block Group 1, Block 1038	14	9	5	0	0	0	0	0	9	9	0	0	0	0	0
		100.0%	64.3%	35.7%	0.0%	0.0%	0.0%	0.0%	0.0%	64.3%	64.3%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6903, Block Group 1, Block 1039	21	1	20	0	0	0	0	0	1	1	0	0	0	0	0
		100.0%	4.8%	95.2%	0.0%	0.0%	0.0%	0.0%	0.0%	4.8%	4.8%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6903, Block Group 1, Block 1040	37	8	29	0	0	0	0	0	8	0	0	0	0	0	8
		100.0%	21.6%	78.4%	0.0%	0.0%	0.0%	0.0%	0.0%	21.6%	0.0%	0.0%	0.0%	0.0%	0.0%	21.6%
Montgomery	Census Tract 6903, Block Group 1, Block 1041	22	2	20	1	0	0	0	0	1	1	0	0	0	0	0
		100.0%	9.1%	90.9%	4.5%	0.0%	0.0%	0.0%	0.0%	4.5%	4.5%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6903, Block Group 1, Block 1042	46	11	35	1	0	0	0	0	10	0	0	0	0	0	10
		100.0%	23.9%	76.1%	2.2%	0.0%	0.0%	0.0%	0.0%	21.7%	0.0%	0.0%	0.0%	0.0%	0.0%	21.7%
Montgomery	Census Tract 6903, Block Group 1, Block 1043	13	9	4	0	0	0	0	0	9	4	0	4	0	1	0
		100.0%	69.2%	30.8%	0.0%	0.0%	0.0%	0.0%	0.0%	69.2%	30.8%	0.0%	30.8%	0.0%	7.7%	0.0%
Montgomery	Census Tract 6903, Block Group 1, Block 1044	38	36	2	0	0	0	0	0	36	17	0	7	0	0	12
		100.0%	94.7%	5.3%	0.0%	0.0%	0.0%	0.0%	0.0%	94.7%	44.7%	0.0%	18.4%	0.0%	0.0%	31.6%
Montgomery	Census Tract 6903, Block Group 1, Block 1045	44	22	22	5	0	0	0	0	17	10	0	0	0	0	7
		100.0%	50.0%	50.0%	11.4%	0.0%	0.0%	0.0%	0.0%	38.6%	22.7%	0.0%	0.0%	0.0%	0.0%	15.9%
Montgomery	Census Tract 6903, Block Group 2, Block 2000	95	39	56	5	0	0	0	0	34	23	0	0	0	0	11
		100.0%	41.1%	58.9%	5.3%	0.0%	0.0%	0.0%	0.0%	35.8%	24.2%	0.0%	0.0%	0.0%	0.0%	11.6%
Montgomery	Census Tract 6903, Block Group 2, Block 2001	113	12	101	0	5	0	0	0	7	0	0	0	0	0	7
		100.0%	10.6%	89.4%	0.0%	4.4%	0.0%	0.0%	0.0%	6.2%	0.0%	0.0%	0.0%	0.0%	0.0%	6.2%
Montgomery	Census Tract 6903, Block Group 2, Block 2002	8	0	8	0	0	0	0	0	0	0	0	0	0	0	0
		100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6903, Block Group 2, Block 2003	74	37	37	4	0	0	0	0	33	15	0	7	0	0	11
		100.0%	50.0%	50.0%	5.4%	0.0%	0.0%	0.0%	0.0%	44.6%	20.3%	0.0%	9.5%	0.0%	0.0%	14.9%

County	Census Geography	Total	Minority	Non-Hispanic/Non-Latino						Hispanic/Latino						
				White	Black/ African American	Native American/ Alaska Native	Asian	Native Hawaiian/ Other Pacific Islander	Some Other Race	Total	White	Black/ African American	Native American/ Alaska Native	Asian	Native Hawaiian/ Other Pacific Islander	Some Other Race
Montgomery	Census Tract 6903, Block Group 2, Block 2004	27	18	9	9	0	0	0	0	9	3	0	0	0	0	6
		100.0%	66.7%	33.3%	33.3%	0.0%	0.0%	0.0%	0.0%	33.3%	11.1%	0.0%	0.0%	0.0%	0.0%	22.2%
Montgomery	Census Tract 6903, Block Group 2, Block 2005	39	10	29	0	0	0	0	0	10	10	0	0	0	0	0
		100.0%	25.6%	74.4%	0.0%	0.0%	0.0%	0.0%	0.0%	25.6%	25.6%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6903, Block Group 2, Block 2006	36	9	27	0	1	0	0	0	8	1	0	0	0	0	7
		100.0%	25.0%	75.0%	0.0%	2.8%	0.0%	0.0%	0.0%	22.2%	2.8%	0.0%	0.0%	0.0%	0.0%	19.4%
Montgomery	Census Tract 6903, Block Group 2, Block 2007	254	39	215	2	1	0	0	0	36	19	3	3	0	0	11
		100.0%	15.4%	84.6%	0.8%	0.4%	0.0%	0.0%	0.0%	14.2%	7.5%	1.2%	1.2%	0.0%	0.0%	4.3%
Montgomery	Census Tract 6903, Block Group 2, Block 2008	20	5	15	1	0	0	0	0	4	4	0	0	0	0	0
		100.0%	25.0%	75.0%	5.0%	0.0%	0.0%	0.0%	0.0%	20.0%	20.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6903, Block Group 2, Block 2009	33	1	32	0	0	0	0	0	1	0	0	0	0	0	1
		100.0%	3.0%	97.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3.0%
Montgomery	Census Tract 6903, Block Group 2, Block 2010	25	3	22	0	2	1	0	0	0	0	0	0	0	0	0
		100.0%	12.0%	88.0%	0.0%	8.0%	4.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6903, Block Group 2, Block 2011	43	0	43	0	0	0	0	0	0	0	0	0	0	0	0
		100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6903, Block Group 2, Block 2012	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6903, Block Group 2, Block 2013	133	22	111	6	0	0	0	0	16	10	0	0	0	0	6
		100.0%	16.5%	83.5%	4.5%	0.0%	0.0%	0.0%	0.0%	12.0%	7.5%	0.0%	0.0%	0.0%	0.0%	4.5%
Montgomery	Census Tract 6903, Block Group 2, Block 2014	55	4	51	1	0	0	0	0	3	2	0	0	0	0	1
		100.0%	7.3%	92.7%	1.8%	0.0%	0.0%	0.0%	0.0%	5.5%	3.6%	0.0%	0.0%	0.0%	0.0%	1.8%
Montgomery	Census Tract 6903, Block Group 2, Block 2015	73	11	62	0	0	0	0	0	11	7	0	1	0	0	3
		100.0%	15.1%	84.9%	0.0%	0.0%	0.0%	0.0%	0.0%	15.1%	9.6%	0.0%	1.4%	0.0%	0.0%	4.1%
Montgomery	Census Tract 6903, Block Group 2, Block 2016	46	39	7	33	0	0	0	0	6	0	0	0	0	0	6
		100.0%	84.8%	15.2%	71.7%	0.0%	0.0%	0.0%	0.0%	13.0%	0.0%	0.0%	0.0%	0.0%	0.0%	13.0%
Montgomery	Census Tract 6903, Block Group 2, Block 2017	53	34	19	27	0	0	0	0	7	4	0	0	0	0	3
		100.0%	64.2%	35.8%	50.9%	0.0%	0.0%	0.0%	0.0%	13.2%	7.5%	0.0%	0.0%	0.0%	0.0%	5.7%
Montgomery	Census Tract 6903, Block Group 2, Block 2018	18	18	0	18	0	0	0	0	0	0	0	0	0	0	0
		100.0%	100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6903, Block Group 2, Block 2019	83	9	74	1	2	1	0	0	5	4	0	0	0	0	1
		100.0%	10.8%	89.2%	1.2%	2.4%	1.2%	0.0%	0.0%	6.0%	4.8%	0.0%	0.0%	0.0%	0.0%	1.2%
Montgomery	Census Tract 6903, Block Group 2, Block 2020	19	7	12	2	1	0	0	0	4	4	0	0	0	0	0
		100.0%	36.8%	63.2%	10.5%	5.3%	0.0%	0.0%	0.0%	21.1%	21.1%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6903, Block Group 2, Block 2021	46	10	36	4	0	2	0	0	4	4	0	0	0	0	0
		100.0%	21.7%	78.3%	8.7%	0.0%	4.3%	0.0%	0.0%	8.7%	8.7%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6903, Block Group 2, Block 2022	6	3	3	0	0	0	0	0	3	0	0	0	0	0	3
		100.0%	50.0%	50.0%	0.0%	0.0%	0.0%	0.0%	0.0%	50.0%	0.0%	0.0%	0.0%	0.0%	0.0%	50.0%
Montgomery	Census Tract 6903, Block Group 2, Block 2023	8	0	8	0	0	0	0	0	0	0	0	0	0	0	0
		100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6903, Block Group 2, Block 2024	52	4	48	4	0	0	0	0	0	0	0	0	0	0	0
		100.0%	7.7%	92.3%	7.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6903, Block Group 2, Block 2025	30	0	30	0	0	0	0	0	0	0	0	0	0	0	0
		100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6903, Block Group 2, Block 2026	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6903, Block Group 2, Block 2027	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

County	Census Geography	Total	Minority	Non-Hispanic/Non-Latino White	Black/ African American	Native American/ Alaska Native	Asian	Native Hawaiian/ Other Pacific Islander	Some Other Race	Hispanic/Latino Total	White	Black/ African American	Native American/ Alaska Native	Asian	Native Hawaiian/ Other Pacific Islander	Some Other Race
Montgomery	Census Tract 6903, Block Group 2, Block 2028	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Montgomery	Census Tract 6903, Block Group 2, Block 2029	4 100.0%	0 0.0%	4 100.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Montgomery	Census Tract 6903, Block Group 2, Block 2030	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Montgomery	Census Tract 6903, Block Group 2, Block 2031	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Montgomery	Census Tract 6903, Block Group 2, Block 2032	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Montgomery	Census Tract 6903, Block Group 2, Block 2033	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Montgomery	Census Tract 6903, Block Group 2, Block 2034	13 100.0%	0 0.0%	13 100.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Montgomery	Census Tract 6903, Block Group 3, Block 3000	158 100.0%	50 31.6%	108 68.4%	44 27.8%	0 0.0%	1 0.6%	0 0.0%	1 0.6%	4 2.5%	2 1.3%	0 0.0%	0 0.0%	1 0.6%	0 0.0%	1 0.6%
Montgomery	Census Tract 6903, Block Group 3, Block 3001	53 100.0%	2 3.8%	51 96.2%	1 1.9%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	1 1.9%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	1 1.9%
Montgomery	Census Tract 6903, Block Group 3, Block 3002	504 100.0%	172 34.1%	332 65.9%	14 2.8%	6 1.2%	6 1.2%	5 1.0%	0 0.0%	141 28.0%	64 12.7%	4 0.8%	10 2.0%	0 0.0%	0 0.0%	63 12.5%
Montgomery	Census Tract 6903, Block Group 3, Block 3003	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Montgomery	Census Tract 6903, Block Group 3, Block 3004	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Montgomery	Census Tract 6903, Block Group 3, Block 3005	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Montgomery	Census Tract 6903, Block Group 3, Block 3006	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Montgomery	Census Tract 6903, Block Group 3, Block 3007	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Montgomery	Census Tract 6903, Block Group 3, Block 3008	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Montgomery	Census Tract 6903, Block Group 3, Block 3009	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Montgomery	Census Tract 6903, Block Group 3, Block 3010	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Montgomery	Census Tract 6903, Block Group 3, Block 3011	101 100.0%	38 37.6%	63 62.4%	26 25.7%	1 1.0%	0 0.0%	0 0.0%	0 0.0%	11 10.9%	6 5.9%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	5 5.0%
Montgomery	Census Tract 6903, Block Group 3, Block 3012	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Montgomery	Census Tract 6903, Block Group 3, Block 3013	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Montgomery	Census Tract 6903, Block Group 3, Block 3014	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Montgomery	Census Tract 6903, Block Group 3, Block 3015	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Montgomery	Census Tract 6903, Block Group 3, Block 3016	3 100.0%	1 33.3%	2 66.7%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	1 33.3%	1 33.3%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%

County	Census Geography	Total	Minority	Non-Hispanic/Non-Latino						Hispanic/Latino						
				White	Black/ African American	Native American/ Alaska Native	Asian	Native Hawaiian/ Other Pacific Islander	Some Other Race	Total	White	Black/ African American	Native American/ Alaska Native	Asian	Native Hawaiian/ Other Pacific Islander	Some Other Race
Montgomery	Census Tract 6903, Block Group 3, Block 3017	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6903, Block Group 3, Block 3018	91	14	77	3	1	0	0	0	10	10	0	0	0	0	0
		100.0%	15.4%	84.6%	3.3%	1.1%	0.0%	0.0%	0.0%	11.0%	11.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6903, Block Group 3, Block 3020	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6903, Block Group 3, Block 3021	6	4	2	0	2	0	0	1	1	1	0	0	0	0	0
		100.0%	66.7%	33.3%	0.0%	33.3%	0.0%	0.0%	16.7%	16.7%	16.7%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6903, Block Group 3, Block 3022	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6903, Block Group 3, Block 3023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6903, Block Group 3, Block 3024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6903, Block Group 3, Block 3025	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6903, Block Group 3, Block 3026	232	20	212	11	0	3	0	0	6	6	0	0	0	0	0
		100.0%	8.6%	91.4%	4.7%	0.0%	1.3%	0.0%	0.0%	2.6%	2.6%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6903, Block Group 3, Block 3027	42	1	41	0	0	0	0	0	1	0	0	0	0	0	1
		100.0%	2.4%	97.6%	0.0%	0.0%	0.0%	0.0%	0.0%	2.4%	0.0%	0.0%	0.0%	0.0%	0.0%	2.4%
Montgomery	Census Tract 6903, Block Group 3, Block 3028	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6903, Block Group 3, Block 3029	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6903, Block Group 3, Block 3030	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6904.01, Block Group 2, Block 2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6904.01, Block Group 2, Block 2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6904.01, Block Group 2, Block 2009	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6904.02, Block Group 1, Block 1000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6904.02, Block Group 1, Block 1001	45	6	39	0	0	0	0	0	6	5	0	0	0	0	1
		100.0%	13.3%	86.7%	0.0%	0.0%	0.0%	0.0%	0.0%	13.3%	11.1%	0.0%	0.0%	0.0%	0.0%	2.2%
Montgomery	Census Tract 6904.02, Block Group 1, Block 1002	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6904.02, Block Group 1, Block 1003	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6904.02, Block Group 1, Block 1004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6904.02, Block Group 1, Block 1005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6904.02, Block Group 1, Block 1006	138	27	111	0	2	0	0	0	25	13	0	1	0	0	11
		100.0%	19.6%	80.4%	0.0%	1.4%	0.0%	0.0%	0.0%	18.1%	9.4%	0.0%	0.7%	0.0%	0.0%	8.0%
Montgomery	Census Tract 6904.02, Block Group 1, Block 1007	147	48	99	1	1	2	0	0	44	32	2	0	0	0	10
		100.0%	32.7%	67.3%	0.7%	0.7%	1.4%	0.0%	0.0%	29.9%	21.8%	1.4%	0.0%	0.0%	0.0%	6.8%

County	Census Geography	Total	Minority	Non-Hispanic/Non-Latino White	Black/ African American	Native American/ Alaska Native	Asian	Native Hawaiian/ Other Pacific Islander	Some Other Race	Hispanic/Latino Total	White	Black/ African American	Native American/ Alaska Native	Asian	Native Hawaiian/ Other Pacific Islander	Some Other Race
Montgomery	Census Tract 6904.02, Block Group 1, Block 1008	10	1	9	0	0	0	0	0	1	1	0	0	0	0	0
		100.0%	10.0%	90.0%	0.0%	0.0%	0.0%	0.0%	0.0%	10.0%	10.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6904.02, Block Group 1, Block 1009	35	0	35	0	0	0	0	0	0	0	0	0	0	0	0
		100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6904.02, Block Group 1, Block 1010	8	1	7	0	0	0	0	0	1	0	0	0	0	0	1
		100.0%	12.5%	87.5%	0.0%	0.0%	0.0%	0.0%	0.0%	12.5%	0.0%	0.0%	0.0%	0.0%	0.0%	12.5%
Montgomery	Census Tract 6904.02, Block Group 1, Block 1011	4	0	4	0	0	0	0	0	0	0	0	0	0	0	0
		100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6904.02, Block Group 1, Block 1012	435	73	362	3	8	7	0	0	55	33	3	3	3	0	13
		100.0%	16.8%	83.2%	0.7%	1.8%	1.6%	0.0%	0.0%	12.6%	7.6%	0.7%	0.7%	0.7%	0.0%	3.0%
Montgomery	Census Tract 6904.02, Block Group 1, Block 1013	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6904.02, Block Group 1, Block 1014	113	15	98	0	1	0	0	0	14	14	0	0	0	0	0
		100.0%	13.3%	86.7%	0.0%	0.9%	0.0%	0.0%	0.0%	12.4%	12.4%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6904.02, Block Group 1, Block 1015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6904.02, Block Group 1, Block 1016	47	6	41	2	0	0	0	0	4	4	0	0	0	0	0
		100.0%	12.8%	87.2%	4.3%	0.0%	0.0%	0.0%	0.0%	8.5%	8.5%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6904.02, Block Group 1, Block 1017	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6904.02, Block Group 1, Block 1018	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6904.02, Block Group 1, Block 1019	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6904.02, Block Group 1, Block 1020	121	28	93	8	1	3	1	0	15	3	0	0	0	0	12
		100.0%	23.1%	76.9%	6.6%	0.8%	2.5%	0.8%	0.0%	12.4%	2.5%	0.0%	0.0%	0.0%	0.0%	9.9%
Montgomery	Census Tract 6904.02, Block Group 1, Block 1021	131	47	84	0	5	13	3	3	23	8	0	0	0	0	15
		100.0%	35.9%	64.1%	0.0%	3.8%	9.9%	2.3%	2.3%	17.6%	6.1%	0.0%	0.0%	0.0%	0.0%	11.5%
Montgomery	Census Tract 6904.02, Block Group 1, Block 1022	705	265	440	14	9	5	0	1	236	76	0	8	3	2	147
		100.0%	37.6%	62.4%	2.0%	1.3%	0.7%	0.0%	0.1%	33.5%	10.8%	0.0%	1.1%	0.4%	0.3%	20.9%
Montgomery	Census Tract 6904.02, Block Group 1, Block 1023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6904.02, Block Group 1, Block 1024	37	17	20	5	0	0	0	0	12	8	0	0	2	0	2
		100.0%	45.9%	54.1%	13.5%	0.0%	0.0%	0.0%	0.0%	32.4%	21.6%	0.0%	0.0%	5.4%	0.0%	5.4%
Montgomery	Census Tract 6904.02, Block Group 1, Block 1025	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6904.02, Block Group 1, Block 1026	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6904.02, Block Group 1, Block 1027	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6904.02, Block Group 1, Block 1028	105	64	41	2	3	0	0	0	59	19	2	0	0	0	38
		100.0%	61.0%	39.0%	1.9%	2.9%	0.0%	0.0%	0.0%	56.2%	18.1%	1.9%	0.0%	0.0%	0.0%	36.2%
Montgomery	Census Tract 6904.02, Block Group 1, Block 1029	42	29	13	0	0	0	0	0	29	10	0	0	0	0	19
		100.0%	69.0%	31.0%	0.0%	0.0%	0.0%	0.0%	0.0%	69.0%	23.8%	0.0%	0.0%	0.0%	0.0%	45.2%
Montgomery	Census Tract 6904.02, Block Group 1, Block 1030	10	3	7	0	0	0	0	0	3	0	0	0	0	0	3
		100.0%	30.0%	70.0%	0.0%	0.0%	0.0%	0.0%	0.0%	30.0%	0.0%	0.0%	0.0%	0.0%	0.0%	30.0%
Montgomery	Census Tract 6904.02, Block Group 1, Block 1031	108	25	83	1	0	1	0	0	23	20	0	0	0	0	3
		100.0%	23.1%	76.9%	0.9%	0.0%	0.9%	0.0%	0.0%	21.3%	18.5%	0.0%	0.0%	0.0%	0.0%	2.8%

County	Census Geography	Total	Minority	Non-Hispanic/Non-Latino						Hispanic/Latino						
				White	Black/ African American	Native American/ Alaska Native	Asian	Native Hawaiian/ Other Pacific Islander	Some Other Race	Total	White	Black/ African American	Native American/ Alaska Native	Asian	Native Hawaiian/ Other Pacific Islander	Some Other Race
Montgomery	Census Tract 6904.02, Block Group 1, Block 1032	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6904.02, Block Group 1, Block 1033	120	22	98	7	0	1	1	0	13	12	0	0	0	0	1
		100.0%	18.3%	81.7%	5.8%	0.0%	0.8%	0.8%	0.0%	10.8%	10.0%	0.0%	0.0%	0.0%	0.0%	0.8%
Montgomery	Census Tract 6904.02, Block Group 1, Block 1034	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6904.02, Block Group 1, Block 1035	40	15	25	10	0	0	0	0	5	0	0	0	0	0	5
		100.0%	37.5%	62.5%	25.0%	0.0%	0.0%	0.0%	0.0%	12.5%	0.0%	0.0%	0.0%	0.0%	0.0%	12.5%
Montgomery	Census Tract 6904.02, Block Group 1, Block 1036	14	1	13	0	0	0	0	1	0	0	0	0	0	0	0
		100.0%	7.1%	92.9%	0.0%	0.0%	0.0%	0.0%	7.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6904.02, Block Group 1, Block 1037	3	0	3	0	0	0	0	0	0	0	0	0	0	0	0
		100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6904.02, Block Group 1, Block 1038	32	4	28	0	0	0	0	0	4	0	0	0	0	0	4
		100.0%	12.5%	87.5%	0.0%	0.0%	0.0%	0.0%	0.0%	12.5%	0.0%	0.0%	0.0%	0.0%	0.0%	12.5%
Montgomery	Census Tract 6904.02, Block Group 2, Block 2000	1,583	634	949	22	13	8	3	1	587	289	1	13	0	0	284
		100.0%	40.1%	59.9%	1.4%	0.8%	0.5%	0.2%	0.1%	37.1%	18.3%	0.1%	0.8%	0.0%	0.0%	17.9%
Montgomery	Census Tract 6904.02, Block Group 2, Block 2001	283	77	206	2	2	0	0	0	73	37	0	6	0	0	30
		100.0%	27.2%	72.8%	0.7%	0.7%	0.0%	0.0%	0.0%	25.8%	13.1%	0.0%	2.1%	0.0%	0.0%	10.6%
Montgomery	Census Tract 6904.02, Block Group 2, Block 2002	34	2	32	0	0	0	0	0	2	2	0	0	0	0	0
		100.0%	5.9%	94.1%	0.0%	0.0%	0.0%	0.0%	0.0%	5.9%	5.9%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6904.02, Block Group 2, Block 2003	17	0	17	0	0	0	0	0	0	0	0	0	0	0	0
		100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6904.02, Block Group 2, Block 2004	77	33	44	7	0	0	0	0	26	11	2	0	0	0	13
		100.0%	42.9%	57.1%	9.1%	0.0%	0.0%	0.0%	0.0%	33.8%	14.3%	2.6%	0.0%	0.0%	0.0%	16.9%
Montgomery	Census Tract 6904.02, Block Group 2, Block 2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6904.02, Block Group 2, Block 2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6904.02, Block Group 2, Block 2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6904.02, Block Group 2, Block 2008	26	4	22	0	0	0	0	0	4	3	0	0	0	0	1
		100.0%	15.4%	84.6%	0.0%	0.0%	0.0%	0.0%	0.0%	15.4%	11.5%	0.0%	0.0%	0.0%	0.0%	3.8%
Montgomery	Census Tract 6904.02, Block Group 2, Block 2009	92	9	83	0	1	0	0	0	8	1	0	0	0	0	7
		100.0%	9.8%	90.2%	0.0%	1.1%	0.0%	0.0%	0.0%	8.7%	1.1%	0.0%	0.0%	0.0%	0.0%	7.6%
Montgomery	Census Tract 6904.02, Block Group 2, Block 2010	26	0	26	0	0	0	0	0	0	0	0	0	0	0	0
		100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6904.02, Block Group 2, Block 2011	109	14	95	0	3	0	0	0	11	7	1	0	0	0	3
		100.0%	12.8%	87.2%	0.0%	2.8%	0.0%	0.0%	0.0%	10.1%	6.4%	0.9%	0.0%	0.0%	0.0%	2.8%
Montgomery	Census Tract 6904.02, Block Group 2, Block 2012	82	0	82	0	0	0	0	0	0	0	0	0	0	0	0
		100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6904.02, Block Group 2, Block 2013	3	0	3	0	0	0	0	0	0	0	0	0	0	0	0
		100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6904.02, Block Group 2, Block 2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6904.02, Block Group 2, Block 2015	38	4	34	0	0	0	0	0	4	4	0	0	0	0	0
		100.0%	10.5%	89.5%	0.0%	0.0%	0.0%	0.0%	0.0%	10.5%	10.5%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6904.02, Block Group 2, Block 2016	12	4	8	0	0	0	0	0	4	2	0	0	0	0	2
		100.0%	33.3%	66.7%	0.0%	0.0%	0.0%	0.0%	0.0%	33.3%	16.7%	0.0%	0.0%	0.0%	0.0%	16.7%

County	Census Geography	Total	Minority	Non-Hispanic/Non-Latino White	Black/ African American	Native American/ Alaska Native	Asian	Native Hawaiian/ Other Pacific Islander	Some Other Race	Hispanic/Latino Total	White	Black/ African American	Native American/ Alaska Native	Asian	Native Hawaiian/ Other Pacific Islander	Some Other Race
Montgomery	Census Tract 6904.02, Block Group 2, Block 2017	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
		100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6904.02, Block Group 2, Block 2018	106	39	67	0	0	0	0	0	39	21	0	0	0	0	18
		100.0%	36.8%	63.2%	0.0%	0.0%	0.0%	0.0%	0.0%	36.8%	19.8%	0.0%	0.0%	0.0%	0.0%	17.0%
Montgomery	Census Tract 6904.02, Block Group 2, Block 2019	65	22	43	0	8	0	0	0	14	13	0	1	0	0	0
		100.0%	33.8%	66.2%	0.0%	12.3%	0.0%	0.0%	0.0%	21.5%	20.0%	0.0%	1.5%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6904.02, Block Group 2, Block 2020	232	84	148	2	1	3	0	0	78	56	4	0	0	5	13
		100.0%	36.2%	63.8%	0.9%	0.4%	1.3%	0.0%	0.0%	33.6%	24.1%	1.7%	0.0%	0.0%	2.2%	5.6%
Montgomery	Census Tract 6904.02, Block Group 2, Block 2021	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6946, Block Group 2, Block 2000	27	2	25	2	0	0	0	0	0	0	0	0	0	0	0
		100.0%	7.4%	92.6%	7.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6946, Block Group 2, Block 2001	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0
		100.0%	100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6946, Block Group 2, Block 2002	3	0	3	0	0	0	0	0	0	0	0	0	0	0	0
		100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6946, Block Group 2, Block 2003	40	9	31	2	1	0	0	0	6	4	1	1	0	0	0
		100.0%	22.5%	77.5%	5.0%	2.5%	0.0%	0.0%	0.0%	15.0%	10.0%	2.5%	2.5%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6946, Block Group 2, Block 2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6946, Block Group 2, Block 2005	8	0	8	0	0	0	0	0	0	0	0	0	0	0	0
		100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6946, Block Group 2, Block 2006	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0
		100.0%	100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6946, Block Group 2, Block 2007	5	0	5	0	0	0	0	0	0	0	0	0	0	0	0
		100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6946, Block Group 2, Block 2008	3	0	3	0	0	0	0	0	0	0	0	0	0	0	0
		100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6946, Block Group 2, Block 2009	6	3	3	0	0	0	0	0	3	0	0	0	0	0	3
		100.0%	50.0%	50.0%	0.0%	0.0%	0.0%	0.0%	0.0%	50.0%	0.0%	0.0%	0.0%	0.0%	0.0%	50.0%
Montgomery	Census Tract 6946, Block Group 2, Block 2010	4	0	4	0	0	0	0	0	0	0	0	0	0	0	0
		100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6946, Block Group 2, Block 2011	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6946, Block Group 2, Block 2012	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6946, Block Group 2, Block 2013	13	7	6	0	0	0	0	0	7	0	0	0	0	0	7
		100.0%	53.8%	46.2%	0.0%	0.0%	0.0%	0.0%	0.0%	53.8%	0.0%	0.0%	0.0%	0.0%	0.0%	53.8%
Montgomery	Census Tract 6946, Block Group 2, Block 2014	34	26	8	26	0	0	0	0	0	0	0	0	0	0	0
		100.0%	76.5%	23.5%	76.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6946, Block Group 2, Block 2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6946, Block Group 2, Block 2016	4	4	0	4	0	0	0	0	0	0	0	0	0	0	0
		100.0%	100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6946, Block Group 2, Block 2017	4	0	4	0	0	0	0	0	0	0	0	0	0	0	0
		100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6946, Block Group 2, Block 2018	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

County	Census Geography	Total	Minority	Non-Hispanic/Non-Latino						Hispanic/Latino						
				White	Black/ African American	Native American/ Alaska Native	Asian	Native Hawaiian/ Other Pacific Islander	Some Other Race	Total	White	Black/ African American	Native American/ Alaska Native	Asian	Native Hawaiian/ Other Pacific Islander	Some Other Race
Montgomery	Census Tract 6946, Block Group 2, Block 2019	54	4	50	4	0	0	0	0	0	0	0	0	0	0	0
		100.0%	7.4%	92.6%	7.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6946, Block Group 2, Block 2020	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6946, Block Group 2, Block 2021	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6946, Block Group 2, Block 2022	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6946, Block Group 2, Block 2023	21	0	21	0	0	0	0	0	0	0	0	0	0	0	0
		100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6946, Block Group 2, Block 2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6946, Block Group 2, Block 2025	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6946, Block Group 2, Block 2026	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6946, Block Group 2, Block 2027	10	0	10	0	0	0	0	0	0	0	0	0	0	0	0
		100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6946, Block Group 2, Block 2028	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6946, Block Group 2, Block 2029	309	31	278	7	2	2	0	0	20	12	0	0	0	0	8
		100.0%	10.0%	90.0%	2.3%	0.6%	0.6%	0.0%	0.0%	6.5%	3.9%	0.0%	0.0%	0.0%	0.0%	2.6%
Montgomery	Census Tract 6946, Block Group 2, Block 2030	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
		100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6946, Block Group 2, Block 2031	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6946, Block Group 2, Block 2032	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6946, Block Group 2, Block 2033	103	8	95	0	1	4	0	0	3	0	0	2	0	0	1
		100.0%	7.8%	92.2%	0.0%	1.0%	3.9%	0.0%	0.0%	2.9%	0.0%	0.0%	1.9%	0.0%	0.0%	1.0%
Montgomery	Census Tract 6946, Block Group 2, Block 2034	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6946, Block Group 2, Block 2035	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6946, Block Group 2, Block 2036	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6946, Block Group 2, Block 2037	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6946, Block Group 2, Block 2038	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6946, Block Group 2, Block 2039	24	2	22	0	1	0	0	0	1	0	0	0	0	0	1
		100.0%	8.3%	91.7%	0.0%	4.2%	0.0%	0.0%	0.0%	4.2%	0.0%	0.0%	0.0%	0.0%	0.0%	4.2%
Montgomery	Census Tract 6946, Block Group 2, Block 2040	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6946, Block Group 2, Block 2041	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6946, Block Group 2, Block 2042	624	126	498	10	6	2	0	3	105	62	0	0	0	0	43
		100.0%	20.2%	79.8%	1.6%	1.0%	0.3%	0.0%	0.5%	16.8%	9.9%	0.0%	0.0%	0.0%	0.0%	6.9%

County	Census Geography	Total	Minority	Non-Hispanic/Non-Latino						Hispanic/Latino						
				White	Black/ African American	Native American/ Alaska Native	Asian	Native Hawaiian/ Other Pacific Islander	Some Other Race	Total	White	Black/ African American	Native American/ Alaska Native	Asian	Native Hawaiian/ Other Pacific Islander	Some Other Race
Montgomery	Census Tract 6946, Block Group 2, Block 2043	255	63	192	14	5	0	1	1	42	23	1	0	0	0	18
		100.0%	24.7%	75.3%	5.5%	2.0%	0.0%	0.4%	0.4%	16.5%	9.0%	0.4%	0.0%	0.0%	0.0%	7.1%
Montgomery	Census Tract 6946, Block Group 2, Block 2044	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6946, Block Group 2, Block 2045	28	1	27	0	0	0	0	0	1	1	0	0	0	0	0
		100.0%	3.6%	96.4%	0.0%	0.0%	0.0%	0.0%	0.0%	3.6%	3.6%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6946, Block Group 2, Block 2046	108	16	92	5	3	1	0	0	7	7	0	0	0	0	0
		100.0%	14.8%	85.2%	4.6%	2.8%	0.9%	0.0%	0.0%	6.5%	6.5%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6946, Block Group 2, Block 2047	319	132	187	22	1	0	0	0	109	68	0	11	0	0	30
		100.0%	41.4%	58.6%	6.9%	0.3%	0.0%	0.0%	0.0%	34.2%	21.3%	0.0%	3.4%	0.0%	0.0%	9.4%
Montgomery	Census Tract 6946, Block Group 2, Block 2048	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0
		100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6946, Block Group 2, Block 2049	137	24	113	3	4	1	0	1	15	12	0	0	0	0	3
		100.0%	17.5%	82.5%	2.2%	2.9%	0.7%	0.0%	0.7%	10.9%	8.8%	0.0%	0.0%	0.0%	0.0%	2.2%
Montgomery	Census Tract 6946, Block Group 2, Block 2050	46	7	39	0	0	0	0	0	7	7	0	0	0	0	0
		100.0%	15.2%	84.8%	0.0%	0.0%	0.0%	0.0%	0.0%	15.2%	15.2%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6946, Block Group 2, Block 2051	53	7	46	7	0	0	0	0	0	0	0	0	0	0	0
		100.0%	13.2%	86.8%	13.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6946, Block Group 2, Block 2052	57	9	48	6	0	0	0	0	3	1	0	0	0	0	2
		100.0%	15.8%	84.2%	10.5%	0.0%	0.0%	0.0%	0.0%	5.3%	1.8%	0.0%	0.0%	0.0%	0.0%	3.5%
Montgomery	Census Tract 6946, Block Group 2, Block 2053	420	67	353	6	0	0	0	0	61	35	0	2	0	0	24
		100.0%	16.0%	84.0%	1.4%	0.0%	0.0%	0.0%	0.0%	14.5%	8.3%	0.0%	0.5%	0.0%	0.0%	5.7%
Montgomery	Census Tract 6946, Block Group 2, Block 2054	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6946, Block Group 2, Block 2055	54	9	45	0	0	0	0	0	9	5	0	0	0	0	4
		100.0%	16.7%	83.3%	0.0%	0.0%	0.0%	0.0%	0.0%	16.7%	9.3%	0.0%	0.0%	0.0%	0.0%	7.4%
Montgomery	Census Tract 6946, Block Group 2, Block 2056	43	1	42	0	0	1	0	0	0	0	0	0	0	0	0
		100.0%	2.3%	97.7%	0.0%	0.0%	2.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6946, Block Group 2, Block 2057	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6946, Block Group 2, Block 2058	86	51	35	37	0	0	0	0	14	14	0	0	0	0	0
		100.0%	59.3%	40.7%	43.0%	0.0%	0.0%	0.0%	0.0%	16.3%	16.3%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6946, Block Group 2, Block 2059	13	0	13	0	0	0	0	0	0	0	0	0	0	0	0
		100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6946, Block Group 2, Block 2060	16	4	12	4	0	0	0	0	0	0	0	0	0	0	0
		100.0%	25.0%	75.0%	25.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6946, Block Group 2, Block 2061	12	1	11	1	0	0	0	0	0	0	0	0	0	0	0
		100.0%	8.3%	91.7%	8.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6946, Block Group 2, Block 2062	154	6	148	0	1	0	0	0	5	5	0	0	0	0	0
		100.0%	3.9%	96.1%	0.0%	0.6%	0.0%	0.0%	0.0%	3.2%	3.2%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6946, Block Group 2, Block 2063	13	1	12	0	0	0	0	0	1	0	0	0	0	0	1
		100.0%	7.7%	92.3%	0.0%	0.0%	0.0%	0.0%	0.0%	7.7%	0.0%	0.0%	0.0%	0.0%	0.0%	7.7%
Montgomery	Census Tract 6946, Block Group 2, Block 2064	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6946, Block Group 2, Block 2065	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6946, Block Group 3, Block 3026	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

County	Census Geography	Total	Minority	Non-Hispanic/Non-Latino						Hispanic/Latino						
				White	Black/ African American	Native American/ Alaska Native	Asian	Native Hawaiian/ Other Pacific Islander	Some Other Race	Total	White	Black/ African American	Native American/ Alaska Native	Asian	Native Hawaiian/ Other Pacific Islander	Some Other Race
Montgomery	Census Tract 6946, Block Group 3, Block 3027	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6946, Block Group 3, Block 3041	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6946, Block Group 3, Block 3057	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6946, Block Group 3, Block 3058	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6946, Block Group 3, Block 3061	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Montgomery	Census Tract 6946, Block Group 3, Block 3062	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Study Area Total		16,964	4,749	12,215	664	154	77	20	26	3,808	1,962	40	117	9	8	1,672
		100.0%	28.0%	72.0%	3.9%	0.9%	0.5%	0.1%	0.2%	22.4%	11.6%	0.2%	0.7%	0.1%	0.0%	9.9%

Source: U.S. Census Bureau, 2010 Census

Appendix D: Resource Coordination Letters

Texas Department of Transportation®
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November 12, 2013

Ms. Kathy Boydston
Texas Parks and Wildlife Department
Resource Protection Division
Environmental Assessment Branch
4200 Smith School Road
Austin, Texas 78744

RE: Draft Environmental Impact Statement
Montgomery and Grimes Counties
SH 249: From FM 1774 in Pinehurst to FM 1774 in Todd Mission
Control 0912-00-144

Dear Ms. Boydston:

The Texas Department of Transportation (TxDOT) is proposing the extension of SH 249 on new location for approximately 15 miles, from FM 1774 in Pinehurst, Montgomery County to FM 1774 in Todd Mission, Grimes County. The proposed SH 249 Extension is planned as a four mainlane controlled access toll road, with intermittent frontage roads, located within a typical 400 foot right-of-way. TxDOT is facilitating environmental reviews required under the National Environmental Policy Act.

A Major Investment Study for the proposed project was completed in 2002. A Notice of Intent was published in the Federal Register on October 30, 2003, and again in the Texas Register on October 31, 2003, announcing the intent of the Federal Highway Administration and TxDOT to prepare an Environmental Impact Statement (EIS) for the subject project. The EIS is authorized pursuant to the Texas Transportation Commission Minute Order No. 104908 issued January 26, 1995. The Draft EIS would evaluate the No Build Alternative and four Build Alternative Alignments, including the Recommended B/C Alternative Alignment, depicted in Figure 1.

To help determine the environmental significance of this project and identify any specific concerns regarding the alternative route corridors, we are requesting your input and any comments pertaining to potential impacts to threatened and endangered species within the study area, the possible impacts to wildlife resources resulting from the proposed project, and any measures that should be adopted to prevent or minimize impacts to these resources. We are also requesting guidance on the area of potential effects that should be addressed in the EIS in terms of secondary and cumulative impacts for these resources.

We would like to incorporate your comments into the Draft EIS; therefore, your prompt attention regarding this request is appreciated.

If you should need further information concerning this project, please contact James A. Roscher at (713) 802-5246.

Sincerely,

Pat Henry, P.E.
Director of Project Development
Houston District

Attachments
cc: Mr. Jim Roscher, Project Manager, Texas Department of Transportation
Ms. Lisa De La Cruz, Project Manager, Jacobs

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November 12, 2013

Ms. Celeste Brancel-Brown
Texas Parks and Wildlife Department
Endangered Resources Branch
3000 South I-35, Suite 100
Austin, Texas 78704

RE: Draft Environmental Impact Statement
Montgomery and Grimes Counties
SH 249: From FM 1774 in Pinehurst to FM 1774 in Todd Mission
Control 0912-00-144

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cc: Mr. Jim Roscher, Project Manager, Texas Department of Transportation
Ms. Lisa De La Cruz, Project Manager, Jacobs

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Executive Director

December 3, 2013

Pat Henry, P.E.
Environmental Affairs Division
Texas Department of Transportation
125 E. 11th Street
Austin, Texas 78701-2483

RE: Draft Environmental Impact Statement
SH 249: From 1774 in Pinehurst to FM 1774 in Todd Mission
Montgomery and Grimes County (CSJ:0912-00-144)

Dear Mr. Henry:

Under section 12.0011 of the Texas Parks and Wildlife Code, Texas Parks and Wildlife Department (TPWD) is charged with "providing recommendations that will protect fish and wildlife resources to local, state, and federal agencies that approve, permit, license, or construct developmental projects" and "providing information on fish and wildlife resources to any local, state, and federal agencies or private organizations that make decisions affecting those resources."

Please be aware that a written response to a TPWD recommendation or informational comment received by a state governmental agency may be required by state law. For further guidance, see the Texas Parks and Wildlife Code, Section 12.0011, which can be found online at http://www.statutes.legis.state.tx.us/Docs/PW/htm/PW.12.htm#12.0011. For tracking purposes, please refer to TPWD project number ERCS-8215 in any return correspondence regarding this project.

TxDOT proposes the extension of SH 249 on new location for approximately 15 miles, from FM 1774 in Pinehurst, Montgomery County to FM 1774 in Todd Mission, Grimes County. The proposed SH 249 extension is planned as a four main lane controlled access toll road, with intermittent frontage roads, located within a typical 400 foot right-of-way (ROW).

TPWD has previously provided comments on this project on March 20, 2006 and April 21, 2005 (attached). TPWD requests that TxDOT utilize the recommendations provided in the previous comment letters and provide TPWD with an opportunity to review the Draft Environmental Impact Statement.

Parks and Wildlife Code

Texas has listed additional animal species not protected by the Endangered Species Act as "State-Threatened" (ST). Any take (incidental or otherwise) of ST animals is prohibited. However, state law only protects the species, and not its habitat. The ST species may only

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be handled/relocated by permitted individuals authorized by TPWD. There are penalties and restitution values associated with unauthorized take of state-listed species.

Determining the actual presence of a species in a given area depends on many variables including daily and seasonal activity cycles, environmental activity cues, preferred habitat, transiency and population density (both wildlife and human). The absence of a species can be demonstrated only with great difficulty and then only with repeated negative observations, taking into account all the variable factors contributing to the lack of detectable presence.

The Texas Natural Diversity Database (TXNDD) is intended to assist users in avoiding harm to rare species or significant ecological features. Given the small proportion of public versus private land in Texas, the TXNDD does not include a representative inventory of rare resources in the state. Absence of information in the database does not imply that a species is absent from that area. Although it is based on the best data available to TPWD regarding rare species, the data from the TXNDD do not provide a definitive statement as to the presences, absence or condition of special species, natural communities, or other significant features within your project area. These data are not inclusive and **cannot be used as presence/absence data**. They represent species that could potentially be in your project area. This information cannot be substituted for on-the-ground surveys. The TXNDD is updated continuously based on new, updated and undigitized records; for questions regarding a record, please contact TexasNatural.DiversityDatabase@tpwd.texas.gov.

Review of the TXNDD revealed the following occurrences of rare and protected species within 5 miles of the proposed project:

Federal and State Listed Endangered
Red-cockaded Woodpecker (*Picoides borealis*)

Natural Communities or Special Features
Colonial Waterbird Rookery

TPWD County Lists

The TPWD county lists for rare species may be obtained from the following link: http://www.tpwd.state.tx.us/landwater/land/maps/gis/ris/endangered_species/. These lists provide information regarding rare species that have potential to occur within each county. Rare species could potentially be impacted if suitable habitat is present at or near the project site.

> **Recommendation:** TPWD recommends using the county lists of rare species, the portions of the proposed project with potential to support rare species should be field surveyed to determine the extent and quality of the suspect habitat and potential impacts.

Recommendation: If rare species or their habitat would be impacted by the proposed project, TPWD recommends that the applicant should coordinate with TPWD and the USFWS, as appropriate, to determine avoidance, minimization, and mitigation strategies.

Recommendation: TPWD recommends that construction crews should be informed of the rare species that have potential to occur in the project county and should avoid disturbance to sensitive species if encountered during construction. Only personnel with a TPWD scientific collection permit are allowed to handle and move state listed species. For further information on the required permit please contact Chris Maldonado at (512) 389-4647.

Comment: Further consultation with TPWD would be warranted upon detection of a Texas listed rare, threatened, or endangered species within or near the proposed project at any time prior to or during construction.

Please contact TPWD staff, Amy Turner, Ph.D., Wildlife Habitat Assessment Biologist, at (361) 576-0022 if you have any questions or need additional assistance.

Sincerely,

Amy Turner, Ph.D.

Amy Turner, Ph.D.
Wildlife Habitat Assessment Program
Wildlife Division

AJT:ERS-8215

Attachments

TEXAS PARKS & WILDLIFE

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ROBERT L. COOK
EXECUTIVE DIRECTOR

April 21, 2005

Ms. Lisa De La Cruz
Environmental Planner
Carter & Burgess, Inc.
55 Waugh Drive, Suite 800
Houston, Texas 77007-5833

RE: Proposed extension of State Highway 249, CSJ: 0912-00-144, Montgomery and Grimes Counties.

Dear Ms. De La Cruz:

Texas Parks and Wildlife received your request for environmental clearance for the project referenced above. Department staff reviewed the information provided and offers the following comments to assist you in minimizing the impact of your project on the State's natural resources.

Carter & Burgess, Inc. and the Texas Department of Transportation (TxDOT) is proposing the extension of an approximate 14-mile alignment, primarily on new location, from State Highway (SH) 249 just south of the Farm to Market Road (FM) 149/FM 1774 intersection in Pinehurst, Montgomery County to FM 1774, just north of the community of Todd Mission, Grimes County. The proposed project would be constructed as a four-main lane controlled access highway facility consisting of two main lanes in each direction within a 400-foot wide right-of-way (ROW), to include auxiliary lanes between on-ramps and off-ramps where appropriate.

In general, an inventory of existing natural resources should be made of the project area. Additionally, specific evaluations should be designed to predict project impacts upon these natural resources. Sufficient documentation should be supplied to accurately interpret the value of the natural resources involved and the extent to which the project will impact these resources. This can often be accomplished best with aerial and ground photography, terrain maps, charts and tables, and narrative descriptions of these data. More detailed information outlining the requirements and expectations of this Department concerning

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environmental assessments are attached in a document entitled, "***Texas Parks and Wildlife Suggested Guidelines for Preparation of Environmental Assessment Documents.***"

Plans to revegetate disturbed areas in the right-of-way with native grasses and forbs should also be included. Native grass seed is a valuable resource, and TxDOT should consider collecting and transplanting native grasses for placement in mitigation areas or areas set aside for a future seed source. To enhance native grasses available to wildlife in the project area, TPWD recommends that Bermuda grass be avoided to the extent possible in reseeding efforts, though TPWD understands that slopes may require certain grasses to control erosion.

The Department recommends that TxDOT avoid clearing old timber and mature, native trees. The Department typically recommends a replacement ratio of 3 trees for each tree lost and development of a maintenance plan to ensure 80% survival of the trees for the first five years. When possible consider planting landscape vegetation to link existing shrub thickets or groves of trees to allow wildlife to travel across developed areas. Planting a high diversity of vegetation would provide a high variability of flowers and fruits for wildlife food throughout the year. Trees that produce nuts, acorns, or berries are particularly valuable as food sources and places of refuge.

The Texas Parks and Wildlife Department's Land and Water Resources Conservation and Recreation Plan (LWRCRP) establishes priority habitat types and ecoregions based on the conserved status, threat and biological value. Every ecosystem in Texas is home to important game species, threatened and endangered species, significant habitats and communities. The Priority Ecoregion Analysis showed that native prairies, grasslands, and riparian habitats across the state are the most important wildlife habitats, contain the highest numbers of rare species, and are often the most threatened. These habitat types are listed as the highest priority to be conserved by TPWD. Riparian habitats and corridors in urban areas are of extreme interest to TPWD as they are the most threatened subset of riparian habitat and are often the only wildlife habitat left.

Riparian corridors improve water quality and quantity and provide important nutrients to the streams and rivers. Riparian vegetation also holds water by slowing the rate at which water moves from the land into streams and shaded waterways lose much less water to evaporation. These areas also intercept surface runoff, wastewater, subsurface flow and deeper groundwater flows from upland sources for the purpose of removing or buffering the effects of associated

nutrients, sediment, organic matter, pesticides or other pollutants prior to entry into surface waters and groundwater recharge areas. They are extremely complex ecosystems that help provide optimum food and habitat for stream communities as well as being useful in mitigating or controlling nonpoint source pollution.

Also, clearing riparian vegetation can potentially adversely affect aquatic systems. Because the root systems of riparian vegetation help stabilize soils and minimize erosion, TPWD recommends that if riparian vegetation, including mature trees and shrubs, must be removed, the root systems should be left to stabilize the sediment thus reducing erosion potential. This method of vegetation clearing in riparian zones is also endorsed by the Federal Highway Administration and preferred over the traditional method of clearing and pushing entire trees over with a bulldozer. Staff recommends seeding the area with native grasses and forbs and allowing native vegetation to reestablish along Mill Creek, Clear Creek, and associated tributaries after construction has been completed. Avoid maintenance activities like mowing in the riparian buffer zone. Attached are the ***Texas Parks and Wildlife Guidelines for Construction and Clearing within Riparian Areas*** which should assist you in your planning process to further reduce the likelihood your project will impact fish, wildlife, and plant resources.

The Migratory Bird Treaty Act (MBTA) provides for a year round closed season for non-game birds and prohibits the taking of migratory bird nests and eggs, except as permitted by the U.S. Fish and Wildlife Service. Construction activities such as, but not limited to, tree felling as well as vegetation clearing, trampling, or maintenance should occur outside the April 1- July 15 migratory bird nesting season of each year the project is authorized and lasting for the life of the project. To comply with the MTBA, the proposed site should be surveyed for migratory bird nest sites prior to construction or future maintenance activities. In addition, since raptors nest in late winter and early spring, all construction activities as identified above should be excluded from a minimum zone of 100 meters around any raptor next during the period of February 1- July 15. Please contact the U.S. Fish and Wildlife Service Southwest Regional Office (Region 2) at (505) 248-6879 for further information.

The Clean Water Act (CWA) sets the basic regulatory framework for regulating discharges of pollutants to U.S. waters. Section 404 of the CWA establishes a federal program to regulate the discharge of dredge and fill material into waters of the U.S., including wetlands. The U.S. Army Corps of Engineers (COE) and the Environmental Protection Agency (EPA) are primarily responsible for making jurisdictional determinations and regulating wetlands under Section 404 of the

CWA. The COE also makes jurisdictional determinations under Section 10 of the Rivers and Harbors Act of 1899. If the proposed construction would impact aquatic resources then the project sponsor should contact the U.S. Army Corp of Engineers for determination of jurisdictional wetlands and for permitting requirements. Compensation may be required for any encroachment into these areas.

Please find the list of special species that occur in Montgomery and Grimes Counties. Measures should be taken to ensure that rare species are not present along the route and are not subject to adverse impacts. ROW and access easements often display exceptional biotic diversity and quality by representing isolated areas free from agricultural grazing and cultivation impacts. Consequently, caution should be taken to avoid any unique and rare plant communities that may occur. More site-specific information from a search of the Natural Diversity Database (NDD) database and review of potential project impacts to endangered and threatened species can be obtained for a $50 fee. For more information about the NDD or threatened and endangered species in the project area please contact Celeste Brancel at (512) 912-7021.

If any proposed route would affect area wildlife refuges, management areas, or parks, please include that information in the environmental document and coordinate with area managers.

Thank you for providing the opportunity to comment on this project. Future coordination of this project should be addressed to Kathy Boydston, TPWD Wildlife Division, Wildlife Habitat Assessment Program, 4200 Smith School Road, Austin, TX 78744. Please contact me if we may be of further assistance.

Sincerely,

Amy Hanna

Amy Hanna
Wildlife Habitat Assessment Program
Wildlife Division

/ajh:10981

Attachment(s)

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ROBERT L. COOK
EXECUTIVE DIRECTOR

March 20, 2006

Charlotte Kucera
Environmental Affairs Division
Texas Department of Transportation
125 E. 11th Street
Austin, Texas 78701-2483

RE: Proposed extension of State Highway 249 from Farm-to-Market Road 149 in Pinehurst to Farm-to-Market Road 1774 in Todd Mission, Harris County. CSJ: 0912-00-144.

Dear Ms. Kucera:

This letter is in response to your request for review of the Draft Environmental Impact Statement (DEIS) prepared by the Texas Department of Transportation (TxDOT) regarding the project referenced above. Texas Parks and Wildlife Department (TPWD) staff reviewed the information provided and offers the following comments and recommendations regarding this project.

The Texas Department of Transportation (TxDOT) proposes to extend the existing State Highway (SH) 249, as a four lane divided highway, from Farm-to-Market Road (FM) 149 in Pinehurst to FM 1774 in Todd Mission, Harris County. Three alternatives were presented for review, the alternatives consist of: Alignment B, Alignment C, and Alignment E. Alignment B is approximately 13.9 miles in length, could impact 8.8 acres of wetlands, crosses 13,705 linear feet of floodplains, consists of 27 stream crossings, and contains 595 acres of vegetation that would be impacted. Alignment C, the preferred alternative, is approximately 14.3 miles in length, could impact 7.8 acres of wetlands, crosses 11,363 linear feet of floodplains, consists of 22 stream crossings, and contains 637 acres of vegetation that would be impacted. Alignment E is approximately 13.5 miles in length, could impact 7.5 acres of wetlands, crosses 10,786 linear feet of floodplains, consists of 19 stream crossings, and contains 596 acres of vegetation that would be impacted. The Alignments B, C, and E will also increase the amount of impermeable surface area in the county by 189 acres, 194 acres, and 183 acres, respectively.

The proposed project alignments would cross Mill Creek, its tributaries, and Clear Creek. TPWD supports alternatives that avoid and minimize acreage impacts to waters of the U.S. and wetlands. However, to enable a more complete review of impacts to habitats, the quality of wetland (isolated and jurisdictional), stream and

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riparian habitats for fish and wildlife species, and mitigation plans should be detailed in the final EIS.

The roadway, its attendant system of drainage ditches, and the facilitated secondary residential development would cause the loss of large amounts of forested land and the fragmentation of habitats. According to the DEIS, Alignment B, C, and E would impact approximately 470, 533, and 497 acres of Loblolly Pine-Oak Forest and 125, 104, and 99 acres of mixed Bottomland Hardwoods, respectively. Impacts upon existing native vegetation, especially woody species, should be strictly minimized as much as practical. TPWD requests that all impacts to woody vegetation be mitigated, if TxDOT considers mitigation for permanent impacts to woody vegetation to be unfeasible, TPWD requests an explanation be provided.

The Texas Parks and Wildlife Department's Land and Water Resources Conservation and Recreation Plan (LWRCRP) establishes priority habitat types and ecoregions based on the conserved status, threat and biological value. Every ecosystem in Texas is home to important game species, threatened and endangered species, significant habitats and communities. The Priority Ecoregion Analysis showed that native prairies, grasslands, and riparian habitats across the state are the most important wildlife habitats, contain the highest numbers of rare species, and are often the most threatened. These habitat types are listed as the highest priority to be conserved by TPWD. Riparian habitats and corridors in urban areas are of extreme interest to TPWD as they are the most threatened subset of riparian habitat and are often the only wildlife habitat left.

Research shows that riparian vegetation improves water quality by removing or ameliorating the effects of pollutants in runoff and increases the biological diversity and productivity of stream communities by improving habitat and adding to the organic food base. Therefore the impacts would be more than minimal and meet the criteria for compensatory mitigation to be considered. If the number of trees planned to be removed can not be avoided or minimized, TPWD recommends compensatory mitigation. Per Provision (4)(B) of the TxDOT-TPWD MOU, if TxDOT considers mitigation for permanent impacts to riparian vegetation to be unfeasible, TPWD requests an explanation be provided.

Also, clearing riparian vegetation can potentially adversely affect aquatic systems. Because the root systems of riparian vegetation help stabilize soils and minimize erosion, TPWD recommends that if riparian vegetation, including mature trees and shrubs, must be removed, the root systems should be left to stabilize the

sediment thus reducing erosion potential. This method of vegetation clearing in riparian zones is also endorsed by the Federal Highway Administration and preferred over the traditional method of clearing and pushing entire trees over with a bulldozer. Attached are the ***Texas Parks and Wildlife Guidelines for Construction and Clearing within Riparian Areas*** which should assist you in your planning process to further reduce the likelihood your project will impact fish, wildlife, and plant resources.

TPWD strongly discourages activities that lead to direct or indirect loss of wildlife resources and habitat. The proposed project area occurs within large wooded tracts of land and several water bodies including Mill Creek, its tributaries, and Clear Creek, all of which may provide suitable wildlife habitat. Vegetation throughout this area may be utilized by wildlife, particularly birds, including migratory birds, for sources of cover and food. Migratory birds are protected under the Migratory Bird Treaty Act and impacts to their habitat should be coordinated with the U.S. Fish and Wildlife Service. Unavoidable clearing of vegetation in the ROW should occur outside the migratory bird nesting season (April 1-July 15). If tree felling or vegetation clearing or trampling must occur during the migratory bird nesting season, the vegetation should be surveyed prior to removal. If migratory birds or nests are present, they should not be disturbed and the U.S. Fish and Wildlife Service should be contacted.

Erosion from disturbed areas has the potential to seriously adversely impact downstream water quality (*i.e.*, increase turbidity, depress dissolved oxygen concentrations) and smother benthic fauna and flora. Properly installed and maintained runoff control measures should be implemented to prevent erosion until areas disturbed by construction have been revegetated. Suitable techniques include the use of hay bale dikes, silt screens or similar soil erosion prevention methods. Additionally, the EIS should address the additional runoff from the new roadway which will increase the amount of impervious cover in the area. Studies indicate that runoff from impervious cover increases the amount of pollutants to adjacent water bodies by as much as 20 percent.

In order to avoid or minimize the occurrence of these impacts, disturbed areas within the project limits should be revegetated as quickly as practical. The EIS should include project plans for re-vegetating disturbed areas following construction. TPWD recommends the exclusive use of site specific native grasses, forbs, shrubs and trees in order to comply with Executive Order 13112 on Invasive Species and the Executive Memorandum on Environmentally Beneficial Landscaping. Additionally, native species are more drought and disease tolerant

than introduced species and are more adapted to the local climate, therefore require less maintenance.

Staging areas required for construction materials, petroleum products and machinery should be located in previously disturbed areas with little or no vegetation. These sites should also be reviewed for potential occurrences of listed species and their habitats

Please be aware that may rare, threatened, and endangered species can occur within road right-of-ways and efforts should be made to avoid adversely impacting any sensitive species found during constructions activities. Staff recommends that you contact Celeste Brancel at (512) 912-7021 to determine if any species of concern are found within or near the project area and if so, what precautions should be taken to avoid adverse impacts to them.

I appreciate the opportunity to review and comment on your project. If we may be of further assistance, please contact me at (361) 576-0022.

Sincerely,

Amy Hanna

Amy Hanna
Wildlife Habitat Assessment Program
Wildlife Division

/ajh

Attachment

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November 12, 2013

Ms. Denise Upchurch
Grimes County Historical Commission Chair
9927 FM 1696
Bedias, TX 77831

RE: Draft Environmental Impact Statement
Montgomery and Grimes Counties
SH 249: From FM 1774 in Pinehurst to FM 1774 in Todd Mission
Control 0912-00-144

Dear Ms. Upchurch:

The Texas Department of Transportation (TxDOT) is proposing the extension of SH 249 on new location for approximately 15 miles, from FM 1774 in Pinehurst, Montgomery County to FM 1774 in Todd Mission, Grimes County. The proposed SH 249 Extension is planned as a four main lane controlled access toll road, with intermittent frontage roads, located within a typical 400 foot right-of-way (ROW). TxDOT is facilitating environmental reviews required under the National Environmental Policy Act.

A Major Investment Study for the proposed project was completed in 2002. A Notice of Intent was published in the Federal Register on October 30, 2003, and again in the Texas Register on October 31, 2003, announcing the intent of the Federal Highway Administration and TxDOT to prepare an Environmental Impact Statement (EIS) for the subject project. The EIS is authorized pursuant to the Texas Transportation Commission Minute Order No. 104908 issued January 26, 1995. The Draft EIS would evaluate the No Build Alternative and four Build Alternative Alignments, including the Recommended B/C Alternative Alignment, depicted in Figure 1.

If you have information concerning the location of any historically or archaeologically significant properties within the subject area, which might be eligible for inclusion in, or under nomination to, the *National Register of Historic Places*, it would be appreciated to have that information for addressing impacts for the proposed project. If the project area under consideration contains no known historical or archaeological sites, your signature below will be sufficient verification.

SCANNED
NOV 21 2013
PROJECT DEVELOPMENT

If you should need further information concerning this project, please contact James A. Roscher at (713) 802-5246.

Sincerely,

Pat Henry, P.E.
Director of Project Development
Houston District

Attachments
cc: Mr. Jim Roscher, Project Manager
Ms. Lisa De La Cruz, Project Manager, Jacobs

_____ _____
Grimes County Historical Commissioner Date

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November 12, 2013

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DEC 04 2013
MAIL OPERATIONS HOUSTON

Mr. Larry Foerster
Montgomery County Historical Commission Chair
1663 White Oak Creek Dr.
Conroe, Texas 77304

RE: Draft Environmental Impact Statement
Montgomery and Grimes Counties
SH 249: From FM 1774 in Pinehurst to FM 1774 in Todd Mission
Control 0912-00-144

Dear Mr. Foerster:

The Texas Department of Transportation (TxDOT) is proposing the extension of SH 249 on new location for approximately 15 miles, from FM 1774 in Pinehurst, Montgomery County to FM 1774 in Todd Mission, Grimes County. The proposed SH 249 Extension is planned as a four mainlane controlled access toll road, with intermittent frontage roads, located within a typical 400 foot right-of-way. TxDOT is facilitating environmental reviews required under the National Environmental Policy Act.

A Major Investment Study for the proposed project was completed in 2002. A Notice of Intent was published in the Federal Register on October 30, 2003, and again in the Texas Register on October 31, 2003, announcing the intent of the Federal Highway Administration and TxDOT to prepare an Environmental Impact Statement (EIS) for the subject project. The EIS is authorized pursuant to the Texas Transportation Commission Minute Order No. 104908 issued January 26, 1995. The Draft EIS would evaluate the No Build Alternative and four Build Alternative Alignments, including the Recommended B/C Alternative Alignment, depicted in Figure 1.

If you have information concerning the location of any historically or archaeologically significant properties within the subject area, which might be eligible for inclusion in, or under nomination to, the *National Register of Historic Places*, it would be appreciated to have that information for addressing impacts for the proposed project. If the project area under consideration contains no known historical or archaeological sites, your signature below will be sufficient verification.

If you should need further information concerning this project, please contact James A. Roscher at (713) 802-5246.

Sincerely,

Pat Henry, P.E.
Director of Project Development
Houston District

Attachments
cc: Mr. Jim Roscher, Project Manager, Texas Department of Transportation
Ms. Lisa De La Cruz, Project Manager, Jacobs

Montgomery County Historical Commissioner

11-24-2013
Date

United States Department of Agriculture
NRCS
Natural Resources Conservation Service

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Temple, TX 76501-6624
Phone: 254-742-9826
FAX: 254-742-9859

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December 2, 2013

Texas Department of Transportation
P.O. Box 1386
Houston, TX 77251

Attention: Pat Henry

Subject: LNU-Farmland Protection
Proposed SH 249 Extension
Montgomery and Grimes Counties, Texas

We have reviewed the information provided in your correspondence dated November 15, 2013 concerning the proposed roadway extension in Montgomery and Grimes Counties, Texas. This review is part of the National Environmental Policy Act (NEPA) evaluation for Federal Highway Administration (FHWA). We have evaluated the proposed site as required by the Farmland Protection Policy Act (FPPA).

The proposed project does contain soils classified as Important Farmland Soils. We have completed Parts II, IV, and V of the Farmland Conversion Impact Rating for Corridor Type Projects (Form CPA-106). The relative value of farmland in Part V should be used in your calculation for Part VII.

To meet reporting requirements of section 1546 of the Act, 7 U.S.C 4207, and for data collection purposes, after your agency has made a final decision on a project in which one or more of the alternative sites contain farmland subject to the FPPA, NRCS is requesting a return copy of the (Form CPA-106), which indicates the final decision. We encourage the use of accepted erosion control methods during the construction of this project.

If you have any questions, please contact me at (254) 742-9854, Fax (254) 742-9859 or by email at drew.kinney@tx.usda.gov.

Sincerely,

Drew Kinney

Drew Kinney
NRCS GIS Specialist

Attachment

U.S. DEPARTMENT OF AGRICULTURE
Natural Resources Conservation Service

NRCS-CPA-106
(Rev. 1-91)

FARMLAND CONVERSION IMPACT RATING FOR CORRIDOR TYPE PROJECTS

PART I *(To be completed by Federal Agency)*	3. Date of Land Evaluation Request 10/31/13	4. Sheet 1 of 2
1. Name of Project **SH 249**	5. Federal Agency Involved **TxDOT/FHWA**	
2. Type of Project **Extension of SH 249 on new location**	6. County and State **Montgomery and Grimes Counties**	

PART II *(To be completed by NRCS)*	1. Date Request Received by NRCS	2. Person Completing Form	
3. Does the corridor contain prime, unique, statewide or local important farmland? (If no, the FPPA does not apply - Do not complete additional parts of this form) YES ☑ NO ☐		4. Acres Irrigated 7991	5. Average Farm Size 223
6. Major Crop(s) Cotton, Hay, Pasture	7. Farmable Land In Government Jurisdiction Acres: 173,668 85%	8. Amount of Farmland As Defined in FPPA Acres: 84,102 76%	
9. Name Of Land Evaluation System Used LESA	10. Name Of Local Site Assessment System NA	11. Date Land Evaluation Returned by NRCS 12-2-2013	

PART III *(To be completed by Federal Agency)*	Alternative Corridor For Segment			
	Corridor A	Corridor B	Corridor C	Corridor D
A. Total Acres To Be Converted Directly	107	69	84	103
B. Total Acres To Be Converted Indirectly, Or To Receive Services				
C. Total Acres In Corridor	107	69	84	103
PART IV *(To be completed by NRCS) Land Evaluation Information*				
A. Total Acres Prime And Unique Farmland	[illegible]	69.3	[illegible]	93.3
B. Total Acres Statewide And Local Important Farmland	[illegible]	69.3	[illegible]	93.3
C. Percentage Of Farmland In County Or Local Govt. Unit To Be Converted	.0737	.0737	[illegible]	.0737
D. Percentage Of Farmland In Govt. Jurisdiction With Same Or Higher Relative Value	34	[illegible]	40	40
PART V *(To be completed by NRCS) Land Evaluation Information Criterion Relative Value of Farmland to Be Serviced or Converted (Scale of 0 - 100 Points)*	60	58	56	56

PART VI *(To be completed by Federal Agency) Corridor Assessment Criteria (These criteria are explained in 7 CFR 658.5(c))*	Maximum Points				
1. Area in Nonurban Use	15	11	11	11	11
2. Perimeter in Nonurban Use	10	10	10	10	10
3. Percent Of Corridor Being Farmed	20	5	5	5	5
4. Protection Provided By State And Local Government	20	0	0	0	0
5. Size of Present Farm Unit Compared To Average	10	1	1	1	1
6. Creation Of Nonfarmable Farmland	25	0	0	0	0
7. Availability Of Farm Support Services	5	5	5	5	5
8. On-Farm Investments	20	10	10	10	10
9. Effects Of Conversion On Farm Support Services	25	0	0	0	0
10. Compatibility With-Existing Agricultural Use	10	9	9	9	9
TOTAL CORRIDOR ASSESSMENT POINTS	160	51	51	51	51
PART VII *(To be completed by Federal Agency)*					
Relative Value Of Farmland (From Part V)	100				
Total Corridor Assessment (From Part VI above or a local site assessment)	160				
TOTAL POINTS *(Total of above 2 lines)*	260				

1. Corridor Selected:	2. Total Acres of Farmlands to be Converted by Project:	3. Date Of Selection:	4. Was A Local Site Assessment Used?
Corridor B	69	10/31/13	YES ☐ NO ☑

5. Reason For Selection:

Note: Corridor A is Alternative Alignment B, Corridor B is Alternative Alignment B/C, Corridor C is Alternative Alignment C and Corridor D is Alternative Alignment E.

Signature of Person Completing this Part: [signature] DATE 10/31/13

NOTE: Complete a form for each segment with more than one Alternate Corridor

United States Department of the Interior

Office of the Secretary
Washington, D.C. 20240

Re: HB-TX

FEB 1 1 2014

Mr. Daniel Mott, Houston Major Projects Engineer
Federal Highway Administration
300 E. 8th Street, Suite 826
Austin, Texas 78701-3233

Dear Mr. Mott:

In response to your letter of January 31, 2014, the Department of the Interior accepts your request to become a cooperating agency in the preparation of an environmental impact statement for the proposed extension of SH 249 in Texas.

Please include Mr. Stephen Spencer, U.S. Department of the Interior, Office of Environmental Policy and Compliance, 1001 Indian School Road NW, Suite 348, Albuquerque, NM 87104, Stephen_Spencer@ios.doi.gov, (505) 563-3572 of my staff as an additional point of contact for this project.

Sincerely,

Willie R. Taylor
Director, Office of Environmental
Policy and Compliance

TRANSMITTED ELECTRONICALLY – NO HARDCOPY TO FOLLOW

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
1445 ROSS AVENUE, SUITE 1200
DALLAS, TX 75202-2733

FEB 19 2014

RECEIVED ON
FEB 24 2014
TEXAS DIVISION
FHWA

Gregory Punske, P.E.
District Engineer
Texas Division
Federal Highway Administration
300 E. 8th Street, Suite 826
Austin, TX 78701-3233

Dear Mr. Punske:

This letter is in response to the Federal Highway Administration (FHWA) request, dated January 31, 2014, for the Environmental Protection Agency (EPA) to be a Cooperating Agency in the development of a National Environmental Policy Act (NEPA) Environmental Impact Statement (EIS) for the proposed extension of SH 249 on new location for approximately 14-15 miles. The project limits are from FM 1774 in Pinehurst, Texas in Montgomery County, to FM 1774 in Todd Mission, Texas in Grimes County. The EIS will analyze the impacts of the proposed project to the human and natural environment.

The EPA agrees to participate in this proposed project as a Cooperating Agency. As a Cooperating Agency, the EPA will:

- provide expertise on NEPA compliance and other subject matter such as wetlands, water quality, air quality, and environmental justice, during EIS planning and development;
- provide timely technical reviews and comments on preliminary documents, reports, analyses, and sections of the Draft EIS;
- participate in meetings and provide information as requested by FHWA, as resources allow;
- provide sources for information or support in the analysis of such information, when known, during preparation of the Draft EIS in areas in which EPA has expertise;
- review and comment on the Draft EIS pursuant to EPA's regulatory responsibilities under Section 309 of the Clean Air Act.

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Re: Cooperating Agency Request
SH-249 Extension

The EPA anticipates that a cooperative team approach will streamline the environmental process and result in a high quality EIS. We look forward to continued involvement and cooperation in the EIS development for the project. If you have any further questions, please contact Rhonda Smith at (214) 665-8006 or smith.rhonda@epa.gov.

Sincerely,

John Blevins
Director
Compliance Assurance and
Enforcement Division

United States Department of Agriculture

NRCS

Natural Resources Conservation Service
101 South Main Street
Temple, Texas 76501-7602
Telephone: 254-742-9800 Fax: 254-742-9819

February 12, 2014

Texas Department of Transportation
300 E 8th Street
Room 826
Austin, Texas 78701

Attention: Daniel Mott

Subject: LNU-Farmland Protection
Proposed SH 249 Extension
Montgomery and Grimes Counties, Texas

We have reviewed the request to be a Participating and/or Cooperating Agency in the development of the Environmental Impact Statement (EIS) for the proposed SH 249 project in Montgomery and Grimes Counties, Texas.

NRCS does not intend to submit comments on the proposed project. When the exact location of the proposed SH 249 project is known, NRCS will respond to any Farmland Protection Policy Act request and provide the necessary information regarding the Food Security Act of 1985, Part 12, Highly Erodible Land and Wetland Conservation.

Thank you for considering NRCS as a Participating and/or Cooperating Agency in the Environmental Impact Statement for the proposed SH 249 project.

If you have any questions, please contact the State Soil Scientist at (254) 742-9856, Fax (254) 742-9859.

Sincerely,

Drew Kinney

Drew Kinney
NRCS GIS Specialist

Attachment

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

101 S. Main Street
Temple, TX 76501-6624
Phone: 254-742-9960
FAX: 254-742-9859

For Informational Purposes

To Whom It May Concern:

The official source for current soil survey information is Web Soil Survey at http://websoilsurvey.nrcs.usda.gov. Enclosed is a pamphlet about the website.

Farmland Classification maps can be obtained by following the steps below:

Delineate your area of interest (AOI) and create an AOI, or create an AOI from a zipped shape file. Go to the Soil Data Explorer tab, then the Suitability's and Limitations for Use tab, and then under the Land Classifications list of reports, run the Farmland Classification report. Print or save the report to a file, or add it to the shopping cart and produce a Custom Soil Resource Report to submit to us electronically, or print it out for mailing.

NRCS Farmland Policy Protection Act Form AD-1006 or NRCS-CPA-106 can be obtained at the following URL's respectively:
http://www.usda.gov/rus/water/ees/pdf/ad1006.pdf
http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb1045395.pdf

NRCS Conservation Easements for Texas can be obtained at the following URL to determine if your project overlaps with any conservation easements:
http://www.tx.nrcs.usda.gov/easements.html

NRCS Conservation Easements by state can be obtained at the following URL:http://datagateway.nrcs.usda.gov/GDGOrder.aspx

If you have any questions, please contact the Texas State Soil Scientist at (254) 742-9863.

Appendix E: Cultural Resource Reports

ARCHEOLOGICAL AND HISTORICAL RESOURCES STUDIES: CONSTRAINTS ANALYSIS ALONG PROPOSED ALTERNATE ROUTES FOR STATE HIGHWAY 249 EXTENSION, MONTGOMERY AND GRIMES COUNTIES, TEXAS

by

Amy E. Dase and Damon Burden

Principal Investigators: Amy E. Dase and Ross C. Fields

submitted to

Jacobs Engineering Group, Inc.
Houston, Texas

by

Prewitt and Associates, Inc.
Cultural Resources Services
Austin, Texas

PAI No. 213010 (Phase 1)

December 2013

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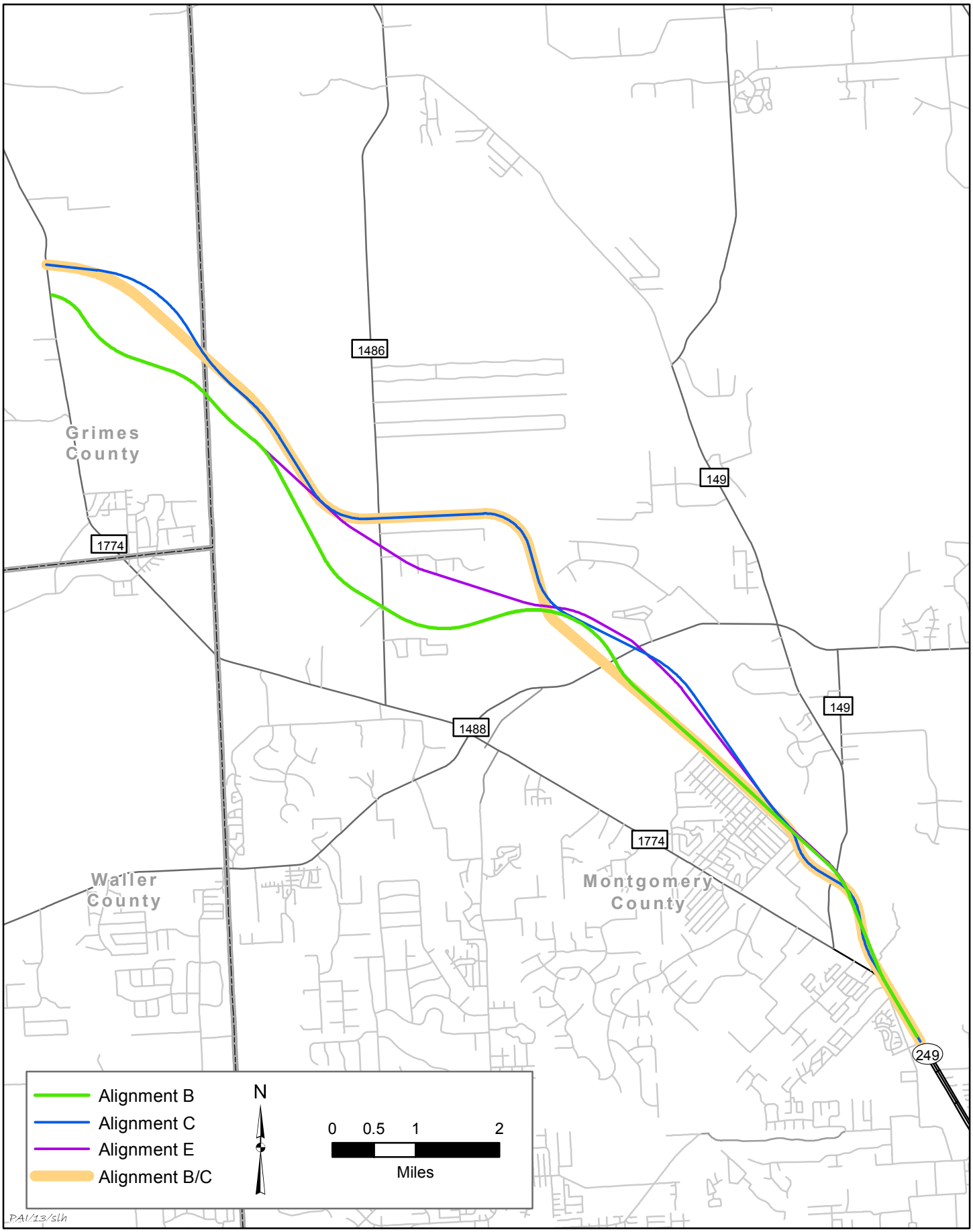
INTRODUCTION

This file search and literature review assesses potential impacts to archeological and historical resources along proposed alternate routes for a State Highway 249 extension in Grimes and Montgomery Counties, Texas, for constraints analysis (Figure 1). In general, the project area extends between FM 1774 in Grimes County and southeast of Pinehurst along existing State Highway 249 in Montgomery County. The proposed improvements would be constructed along new location as a four-mainlane, controlled-access toll road with auxiliary lanes between on- and off-ramps (where appropriate) and intermittent frontage roads, all within a typical 400-ft-wide right of way. The road will be at-grade for the most part, but raised to accommodating crossing existing roads (FMs 149, 1488, 1486, and 1774), the railroad at FM 149, and tributaries with associated floodplains. Two detention ponds will likely be placed in the northern half of the project area; drainage studies conducted for subsequent environmental review will evaluate their placement. Alternative B is 15.3 miles long and would require 741 acres of new right of way, Alternative B/C is 15.0 miles long and would require 727 acres of new right of way, Alternative C is 15.3 miles long and would require 741 acres of new right of way, and Alternative E is 14.2 miles long and would require 688 acres of new right of way.

Figure 1. Location of proposed routes for State Highway 249 extension in Grimes and Montgomery Counties, Texas.

These archeological and historical resources studies are in accordance with the *Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation* (48 Federal Regulation 44716–42) and take into consideration the National

Figure 1


1486
Grimes County
149
1774
149
1488
1774
Waller County
Montgomery County
249
Alignment B
Alignment C
Alignment E
Alignment B/C
N
0 0.5 1 2
Miles
PAI/13/slh

Historic Preservation Act of 1966, as amended (Public Law 96–515); the National Environmental Policy Act of 1969 (Public Law 90–190); the Archeological and Historical Preservation Act of 1974 (Public Law 93–291); Executive Order No. 11593 ("Protection and Enhancement of the Cultural Environment"); and the Antiquities Code of Texas (Texas Natural Resources Code of 1977, Title 9, Heritage, Chapter 191). This historical resources studies report presents documentation in accordance with 36 Code of Federal Regulations Part 60 for informing Section 106 of the National Historic Preservation Act and the Antiquities Code of Texas, and provides documentation for consultation with the Texas Historical Commission, the state historic preservation office.

File searches and literature reviews for archeological and historical resources performed in 2004 for constraints analysis were for a different proposed project area (Dase 2004; Mehalchick and Fields 2004). The current effort updates the previous work to accommodate the revised project area and to meet current standards of the Texas Department of Transportation and the Texas Historical Commission.

ARCHEOLOGICAL RESOURCES

This study involved review of the Plantersville, Magnolia East, and Magnolia West USGS 7.5-minute topographic quadrangles; the Beaumont Sheet of the Geologic Atlas of Texas (Bureau of Economic Geology 1992); the USDA soil surveys for Grimes and Montgomery Counties (Greenwade 1996; McClintock et al. 1972); the Houston District PALM (Potential Archeological Liability Mapping) Study (Abbott 2001); the Texas Historical Commission's (THC) Archeological Sites Atlas (Atlas); maps contained in the Texas Department of Transportation's (TxDOT) Texas Historic Overlay; historic county highway maps; aerial photographs; and Google Earth satellite imagery. Data on

landforms, drainage crossings, depositional environments, and development derived from these resources were used to determine each route's archeological potential and to establish archeological survey plans based on the most-current information.

Known Archeological Sites and Previous Investigations

Review of the THC's Archeological Sites Atlas on April 22, 2013, revealed no recorded archeological sites and only three previous archeological investigations within 1.0 km of the alignment alternatives. The closest recorded sites are 41MQ214 and 41MQ219, which are 1.1 to 1.2 km southwest of Alignment B.

Prehistoric sites 41MQ214 and 41MQ219 were recorded in 2006 and 2007 during surveys by Moore Archeological Consulting, Inc., on two five-acre tracts on the south side of Mill Creek in west Montgomery County (Driver 2010:18). These investigations were conducted in anticipation of permit application submission to the U.S. Corps of Engineers, Galveston District, for construction of a proposed wastewater treatment plant. Site 41MQ214 is at the end of a low ridge forming a sharp bend in Mill Creek, and 41MQ219 is upslope on the same landform. Shovel testing recovered lithic debitage at 20–60 cm below the ground surface at 41MQ214, and one sandy paste prehistoric ceramic sherd and lithic debitage at 0–110 cm below the surface at 41MQ219. Driver (2010:18–19) recommended further archeological investigations at both sites to assess their significance and National Register of Historic Places eligibility prior to any future construction impacts. Gulf Coast Archaeology Group, LLP, conducted test excavations at 41MQ214 in 2008. This effort involved the excavation of three 1x1-m units to depths of 70–90 cm below the surface, which yielded the distal tip of a projectile point, 3 microblades, 115 flakes, a scraper, a hammerstone, and a piece of red ochre. No diagnostic artifacts were recovered, and no cultural features were identified. The

authors surmised that 41MQ214 is a Middle Archaic campsite and recommended that the site is not eligible for National Register listing (Garcia-Herreros and Enderli 2008:31–32).

Three archeological surveys overlap parts of the study area. A 1992 survey along the existing State Highway 249 alignment, south of its intersection with FM 1774 in Pinehurst, overlaps the south ends of Alignments B, C, B/C, and E. In 2005, Moore Archeological Consulting, Inc., conducted two archeological surveys for TxDOT along FM 1774 between the community of Todd Mission and FM 149 in Pinehurst. The southeast ends of these survey areas are within 1 km of the alternative alignments. These three surveys identified no new archeological sites.

Assessment of Alternate Alignments

Alignments B, C, B/C, and E overlap about 0.9 miles of the existing State Highway 249 corridor just east of the Pinehurst municipal limits and continue northwestward past the State Highway 249-FM 1774 intersection and the adjacent 100–200-ft-wide Missouri Pacific Railroad right of way. In general, each of the alignments follows a northwesterly path north of a similarly aligned segment of FM 1774, skirting residential areas in the towns of Pinehurst and Magnolia before intersecting a north-south segment of FM 1774 between the communities of Todd Mission and Plantersville. The proposed alignments also cross, from east to west, FM 149, FM 1488, FM 1486, and an old railroad grade. Aside from the above-noted highways and railways, development along the alignments includes numerous improved and unimproved roadways, the Pinehurst Gas and Oil Field, some sand and gravel operations, and municipal and residential development in and on the edges of the towns of Pinehurst and Magnolia.

The alignments also traverse pine plantations along FM 1488 and a large mostly logged area between FM 1486 and FM 1774.

Alignment B

Alignment B is approximately 15.3 miles long and stretches from existing State Highway 249 in the town of Pinehurst to FM 1774 about 2 miles north of the Todd Mission community. The south end of Alignment B follows or parallels Alignment E northwest for about 3.2 miles before diverging on the northeast side of a residential area within the Pinehurst municipal limits. The central 8.8 miles of Alignment B trends south of the other alignment alternatives before merging with Alignment E on upland terrain north of Mill Creek for the final 3.3 miles of its route. Alignment B skirts a residential property just west of FM 149, passes the northeast edge of a Pinehurst neighborhood, and loops around the northern outskirts of Magnolia before crossing about 1.0 mile of pine plantation and an associated reservoir south of FM 1488. The alignment then passes through a rural residential area along Woodway Street east of FM 1486 and commercial and residential properties along the highway. Approximately 4.7 miles of Alignment B traverse a logged and burned area west of FM 1486. Although wooded segments cover portions of this tract, much of the original forest vegetation is gone, and disturbance appears most severe along a 0.9-mile-long segment of this part of Alignment B. The alignment merges with Alignment E west of FM 1486. The last 0.2 miles of the alignment crosses cleared pasture east of FM 1774. Review of aerial photographs, Google Earth satellite imagery, and the USGS quadrangles suggests that as much as 46 percent of Alignment B crosses areas that have been impacted by various forms of modern disturbance.

The southernmost 1.7 miles of Alignment B traverses a major interfluve between the Mill Creek and Decker Branch watersheds. The next 8.2 miles of the alignment crosses numerous upland interfluves, sections of valley wall, and occasional terraces and floodplain segments on the south side of Mill Creek before crossing the stream and traversing uplands for approximately the next 4 miles. The next 0.7 miles of the alignment trends northwestward across the Mill Creek floodplain, crossing the creek three times before climbing out of the floodplain to meet FM 1744 in its last 0.3 mile.

The Geologic Atlas of Texas (Bureau of Economic Geology 1992) depicts Lower Pleistocene-age Willis Formation deposits along most of Alignment B. The alignment comes close to discrete fluviatile terrace deposits along Mill Creek north-northwest of Magnolia and at the first creek crossing west of FM 1486. The alignment traverses undifferentiated Holocene alluvium on the Mill Creek floodplain east of FM 1774. Soil associations mapped along the proposed alignment include Conroe in Montgomery County (McClintock et al. 1972) and Depcor-Fetzer-Huntsburg and Conroe-Depcor in Grimes County (Greenwade 1996). Conroe association soils are deep, somewhat poorly to somewhat excessively well-drained soils characterized by 60–80+-cm-thick mantles of sand, loamy sand, and sandy loam over sandy clay loam and clay containing indurated ironstone concretions and plinthite. Blanton series soils in this association can have fine sands that extend to more than 230 cm in depth. Soils in the Grimes County segment of the alignment are very deep and somewhat poorly to moderately well drained. Representative profiles consist of 25–70-cm-thick loamy sand underlain by clay loam, sandy clay loam, sandy clay, and clay with occasional plinthite nodules.

Almost 85 percent of Alignment B is in Montgomery County, which is included in the Houston District PALM model coverage developed by Abbott (2001). The majority of

this alignment (71 percent) crosses areas identified as Map Unit 2, for which surface survey typically is recommended. About a quarter of the Montgomery County segment (24 percent) is in areas designated as Map Unit 4, where survey usually is not recommended because they are lacking Holocene deposits or are disturbed. Areas mapped as the latter include upland landforms on both sides of Mill Creek and developed areas around the existing FM 1744–State Highway 249 intersection. Highway segments followed or crossed by the proposed alignment also were designated as Map Unit 4 for the purposes of this study. Five percent of Alignment B crosses areas of Map Unit 1, where surface survey and deep reconnaissance usually are recommended. These include the Mill Creek crossing west of FM 1486 and two areas where the alignment crosses a Mill Creek meander and an intermittent tributary northwest of FM 149.

Most of the 2.4-mile-long segment of Alignment B in Grimes County crosses upland terrain north and west of Mill Creek. Based on PALM map unit designations on similar landforms in Montgomery County, most of the Grimes County segment probably is characteristic of Map Unit 2 with scattered areas of Map Unit 4 (including the FM 1774 highway corridor). Low-lying terrain on the Mill Creek floodplain east of FM 1774, traversed by about 0.7 miles of Alignment B, would be included in Map Unit 1.

Overall, Alignment B is considered to have a moderate to high potential for archeological sites. Nearly 60 percent of it runs south of Mill Creek, crossing a valley margin composed of numerous small to medium-sized interfluves separated by many intermittent tributaries. The alignment crosses similar terrain on parts of the upland margin north and east of the creek. Topographic settings overlooking and providing access to perennial drainages are considered to have a moderate potential for Native

American archeological sites. Known prehistoric sites 41MQ214 and 41MQ219 are in this geomorphological setting 1.1 to 1.2 km southwest of Alignment B.

Alignment B skirts a meander of Mill Creek near its southeast end, crosses the stream northwest of Magnolia, and crosses the stream three more times as it traverses the Mill Creek floodplain near its northwest end. Mill Creek is a perennial stream with 100-year floodplain mapped along its entire length within the project area. Undifferentiated Holocene alluvium is mapped on the Mill Creek floodplain east of FM 1774. Additionally, the Houston PALM identifies the course of Mill Creek and the lower ends of many adjoining tributaries as Map Unit 1. Floodplain alluvium, particularly along larger streams, has the potential to contain deeply buried, intact archeological deposits, and intensive survey with mechanical trenching would be needed where Alignment B crosses the floodplain of this stream. Adjoining terraces (if present), valley walls, and valley margins could be investigated with a combination of trenching and shovel testing. The three intersects between Alignment B and Mill Creek would require a total of 4 miles of survey.

Alignment B also crosses 16 small to medium-sized intermittent tributaries south of Mill Creek and 2 large and 5 small-medium-sized intermittent tributaries north and east of the creek. Crossings at or near the heads of intermittent tributaries are considered to have a low potential for Native American archeological sites and thus may be excluded from survey, whereas crossings downstream from the headwaters of these tributaries are considered to have at least a moderate potential for Native American archeological sites and would require investigation. Fifteen of the crossings on the south side of the creek are on the middle or lower stretches of intersected tributaries, and 11 of those pass over mapped 100-year floodplains segments. Three of the crossings on the

opposite side of the creek are at middle and lower stream sections, and each traverses a mapped 100-year floodplain segment. Tributary crossings with mapped 100-year floodplain segments have the potential for deeply buried archeological deposits and may require trenching in addition to shovel testing. Archeological deposits are expected to be more shallowly buried in settings without mapped floodplain deposits, and survey with shovel testing is considered sufficient in those areas. Based on topography, areas ca. 1,500–2,000 ft long would need to be surveyed at each of 18 crossings, for a total of 5.1–6.8 miles, depending on the extent of disturbances.

Alignment C

Alignment C is approximately 15.1 miles long, and will stretch from existing State Highway 249 in the town of Pinehurst to FM 1774 about 2.4 miles north of the Todd Mission community. The south end of Alignment C is the same as Alignments B and E for approximately 0.9 miles before diverging just north of the Missouri Pacific Railroad right of way. The alignment closely follows the other alignments for roughly 1.2 miles before trending on a more southerly route east of FM 149 and curving northwest to avoid a Pinehurst neighborhood. Alignment C angles northwestward through the Pinehurst Gas and Oil Field, overlapping or running adjacent to Alignment E for about 1 mile. Alignment C closely follows Alignment E for an additional 3 miles before curving north to cross Mill Creek. Save for a another short overlap in Alignments C and E north of the creek, the remainder of Alignment C passes north of the other alternatives, intersecting FM 1774 about 0.4 miles north of the other two. Alignment C passes through about 1.3 miles of pine plantation, along the west edge of a park north of Mill Creek, and near the north edge of a rural residential area along Sandy Hill Road east of FM 1486. The alignment traverses about 4.7 miles of a logged and burned area west of

FM 1486. The last 0.2 miles crosses cleared pasture east of FM 1774. Review of aerial photographs, Google Earth satellite imagery, and the USGS quadrangles suggests as much as 40 percent of Alignment C crosses areas that have been impacted by various forms of modern disturbance.

The southernmost 1.7 miles of Alignment C traverses a major interfluve between the Mill Creek and Decker Branch watersheds. The next 5.7 miles cross numerous upland interfluves, sections of valley wall, and occasional terraces and floodplain segments on the south side of Mill Creek before crossing the stream. North of the creek, the alignment traverses a narrow interfluve and the 0.2-mile-wide floodplain of an adjacent perennial Mill Creek tributary (Clear Creek) and then traverses uplands for approximately the next 7 miles. Alignment C traverses about 0.3 miles of Mill Creek floodplain at a second crossing before climbing out of the floodplain to meet FM 1744 in its last 0.2 miles.

A short segment of Alignment C crosses undifferentiated Holocene alluvium along Mill Creek just east of FM 1774. Lower Pleistocene-age Willis Formation deposits are mapped along the remainder of the proposed alignment (Bureau of Economic Geology 1992). Mapped soil associations include Conroe in Montgomery County (McClintock et al. 1972) and the Depcor-Fetzer-Huntsburg and Conroe-Depcor in Grimes County (Greenwade 1996). Characteristics of the associated soils are presented in the Alignment B discussion.

Almost 85 percent of Alignment C is in Montgomery County, which is included in the Houston District PALM model coverage developed by Abbott (2001). Three-quarters of the Montgomery County segment crosses areas identified as Map Unit 2, for which surface survey typically is recommended. Eighteen percent of the Montgomery County

segment traverses areas designated as Map Unit 4, where survey usually is not recommended. Areas mapped as the latter include upland landforms on both sides of Mill Creek and developed areas around the existing FM 1744-State Highway 249 intersection. Highway segments followed or crossed by the proposed alignment also were designated as Map Unit 4 for the purposes of this study. Five percent of the Montgomery County segment crosses areas of Map Unit 1, where surface survey and deep reconnaissance usually are recommended. These include the Mill Creek crossing northeast of Magnolia and three tributary crossings south of the creek between FM 149 and FM 1488. Two percent of the Montgomery County segment crosses the floodplain of a large perennial tributary (Clear Creek) north of Mill Creek, which is designated as Map Unit 3. Typically, no surface survey is recommended in Map Unit 3 areas, but deep reconnaissance is needed in anticipation of deep impacts.

Most of the 2.4-mile-long segment of Alignment C in Grimes County crosses upland terrain east and west of Mill Creek. Based on PALM map unit designations on similar landforms in Montgomery County, most of the Grimes County segment probably is characteristic of Map Unit 2 with scattered areas identifiable as Map Unit 4 (including the FM 1774 highway corridor). Low-lying terrain at a second Mill Creek crossing (about 0.3 mile) would be included in Map Unit 1.

Overall, Alignment C has a moderate to high potential for Native American archeological sites. Almost 70 percent of the alignment crosses valley margins composed of numerous small to medium-sized interfluves on both sides of Mill Creek. These topographic settings are considered to have a moderate potential for Native American archeological sites. In addition, Alignment C crosses Mill Creek once northeast of Magnolia and again near its northwest end. Mill Creek is a perennial stream with 100-

year floodplain mapped along its entire length within the project area. Undifferentiated Holocene alluvium is mapped on the Mill Creek floodplain east of FM 1774. Additionally, the Houston PALM identifies the course of Mill Creek and the lower ends of many adjoining tributaries as Map Unit 1. Floodplain alluvium, particularly along larger streams, has the potential to contain deeply buried, intact archeological deposits, and intensive survey with mechanical trenching would be needed where Alignment C crosses the Mill Creek floodplain. Adjoining terraces (if present), valley walls, and valley margins could be investigated with a combination of trenching and shovel testing as warranted. The two crossings may require a total of 1.5 miles of survey.

Alignment C also crosses one large and seven small-medium-sized intermittent tributaries south of Mill Creek and a large perennial tributary and two large and seven small-medium-sized intermittent tributaries north and east of the stream. Crossings at or near the heads of intermittent tributaries are considered to have a low potential for Native American archeological sites and thus may be excluded from survey, whereas crossings downstream from the headwaters of these tributaries are considered to have at least a moderate potential for Native American archeological sites and would require investigation. Crossings at perennial tributaries may be similarly evaluated, but such settings are typically investigated since consistent water supply raises the potential for Native American archeological sites. Six of the crossings on the south side of the creek are on the middle or lower stretches of intersected tributaries, and three of those are on mapped 100-year floodplain segments. Alignment C crosses lower and middle portions of the large perennial tributary (Clear Creek) on the north side of the creek. Both crossings are on mapped 100-year floodplain, and the downstream and upstream crossings are designated as Map Units 3 and 4 in the Houston PALM. Four of the intermittent

tributary crossings north and east of Mill Creek are at middle and lower drainage segments, and one of those traverses a mapped 100-year floodplain. Tributary crossings with mapped 100-year floodplain segments have the potential for deeply buried archeological deposits and may require trenching in addition to shovel testing. Archeological deposits are expected to be more shallowly buried in settings without mapped floodplain deposits, and survey with shovel testing is considered sufficient in those areas. In addition to an expanded investigation area on the lower crossing of the perennial tributary north of Mill Creek, topography indicates areas ca. 1,500–2,000 ft long would need to be surveyed at the 11 other crossings. These areas account for an additional 3.7–4.8 miles of survey, depending on the extent of disturbances.

Alignment B/C

Alignment B/C utilizes segments of Alignments B and C described above and is about 15.1 miles long. Its southern end is the same as Alignment C for 3.2 miles to west of FM 149, beyond which is follows the Alignment B route for 2.6 miles to just south of FM 1488. From there, it continues northwest for 1.1 miles running southwest of the other alignments before turning north for 0.2 miles and then joining the Alignment C route, which it follows for almost the full distance to the northwest end of the project area at FM 1774; it diverges from Alignment C only for a ditance of 1.7 miles just northwest of the Montgomery-Grimes County line. As with Alignments B and C, about 40–45 percent of Alignment B/C crosses areas that have been impacted modern disturbance, based on aerial photographs, Google Earth satellite imagery, and the USGS quadrangles.

The southernmost 1.7 miles of Alignment B/C traverses a major interfluve between the Mill Creek and Decker Branch watersheds. The next 5.7 miles cross

numerous upland interfluves, sections of valley wall, and terraces and floodplain segments on the south side of Mill Creek before crossing the stream. North of the creek, the alignment traverses a narrow interfluve and the 0.2-mile-wide floodplain of an adjacent perennial Mill Creek tributary (Clear Creek) and then traverses uplands for approximately the next 7 miles. Alignment B/C traverses about 0.3 miles of Mill Creek floodplain at a second crossing before climbing out of the floodplain to meet FM 1744 in its last 0.2 miles.

A short segment of Alignment B/C crosses undifferentiated Holocene alluvium along Mill Creek just east of FM 1774. Lower Pleistocene-age Willis Formation deposits are mapped along the remainder of the proposed alignment (Bureau of Economic Geology 1992). Mapped soil associations include Conroe in Montgomery County (McClintock et al. 1972) and the Depcor-Fetzer-Huntsburg and Conroe-Depcor in Grimes County (Greenwade 1996). Characteristics of the associated soils are presented in the Alignment B discussion.

About 85 percent of Alignment B/C is in Montgomery County, which is included in the Houston District PALM model coverage developed by Abbott (2001). Almost three-quarters of the Montgomery County segment crosses areas identified as Map Unit 2, for which surface survey typically is recommended. Twenty-one percent of the Montgomery County segment traverses areas designated as Map Unit 4, where survey usually is not recommended. Areas mapped as the latter include upland landforms on both sides of Mill Creek and developed areas around the existing FM 1744-State Highway 249 intersection. Five percent of the Montgomery County segment crosses areas of Map Unit 1, where surface survey and deep reconnaissance usually are recommended. These include the Mill Creek crossing northeast of Magnolia and three tributary crossings

south of the creek between FM 149 and FM 1488. Two percent of the Montgomery County segment crosses the floodplain of a large perennial tributary (Clear Creek) north of Mill Creek, which is designated as Map Unit 3. Typically, no surface survey is recommended in Map Unit 3 areas, but deep reconnaissance is needed in anticipation of deep impacts.

Most of the 2.2-mile-long segment of Alignment C in Grimes County crosses upland terrain east and west of Mill Creek. Based on PALM map unit designations on similar landforms in Montgomery County, most of the Grimes County segment probably is characteristic of Map Unit 2 with scattered areas identifiable as Map Unit 4 (including the FM 1774 highway corridor). Low-lying terrain at a second Mill Creek crossing (about 0.3 mile) would be included in Map Unit 1.

Overall, Alignment B/C has a moderate to high potential for Native American archeological sites. About 70 percent of the alignment crosses valley margins composed of numerous small to medium-sized interfluves on both sides of Mill Creek. These topographic settings are considered to have a moderate potential for Native American archeological sites. In addition, it crosses Mill Creek once northeast of Magnolia and again near its northwest end. Mill Creek is a perennial stream with 100-year floodplain mapped along its entire length within the project area. Undifferentiated Holocene alluvium is mapped on the Mill Creek floodplain east of FM 1774. Additionally, the Houston PALM identifies the course of Mill Creek and the lower ends of many adjoining tributaries as Map Unit 1. Floodplain alluvium, particularly along larger streams, has the potential to contain deeply buried, intact archeological deposits, and intensive survey with mechanical trenching would be needed where Alignment B/C crosses the Mill Creek floodplain. Adjoining terraces (if present), valley walls, and valley margins

could be investigated with a combination of trenching and shovel testing as warranted. The two crossings may require a total of 1.5 miles of survey.

Alignment B/C also crosses eight intermittent tributaries south of Mill Creek and a large perennial tributary and nine intermittent tributaries north and east of the stream. Crossings at or near the heads of intermittent tributaries are considered to have a low potential for Native American archeological sites and thus may be excluded from survey, whereas crossings downstream from the headwaters of these tributaries are considered to have at least a moderate potential for Native American archeological sites and would require investigation. Crossings at perennial tributaries may be similarly evaluated, but such settings are typically investigated since consistent water supply raises the potential for Native American archeological sites. Five of the crossings on the south side of the creek are on the middle or lower stretches of intersected tributaries, and two of those are on mapped 100-year floodplain segments. Alignment B/C crosses the lower and middle portions of the large perennial tributary (Clear Creek) on the north side of the creek. Both crossings are on mapped 100-year floodplain, and the downstream and upstream crossings are designated as Map Units 3 and 4 in the Houston PALM. Four of the intermittent tributary crossings north and east of Mill Creek are at middle and lower drainage segments, and one of those traverses a mapped 100-year floodplain. Tributary crossings with mapped 100-year floodplain segments have the potential for deeply buried archeological deposits and may require trenching in addition to shovel testing. Archeological deposits are expected to be more shallowly buried in settings without mapped floodplain deposits, and survey with shovel testing is considered sufficient in those areas. In addition to an expanded investigation area on the lower crossing of the perennial tributary north of Mill Creek, topography indicates

areas ca. 1,500–2,000 ft long would need to be surveyed at least 11 other crossings. These areas account for an additional 3.7–4.8 miles of survey, depending on the extent of disturbances.

Alignment E

Alignment E is approximately 14.2 miles long and stretches from existing State Highway 249 in the town of Pinehurst to FM 1774 about 2 miles north of the Todd Mission community. The south end of Alignment E follows or parallels Alignment B northwest for about 3.2 miles before diverging on the northeast side of a Pinehurst neighborhood. The central 7.7 miles of Alignment E trends slightly north of Alignment B before merging with that alignment on upland terrain north of Mill Creek for the final 3.3 miles of its route. Alignment E is the more direct of the two alternatives, and its central segment is about 1 mile shorter. Alignment E skirts the edge of a residential property west of FM 149 and briefly parallels Alignment B before it angles northwestward to overlap or run adjacent to Alignment C through the Pinehurst Gas and Oil Field for about 1 mile. Alignment E closely follows Alignment C for an additional 3 miles, cutting a broad arc around the northeast side of Magnolia, and passing through about 1.2 miles of pine plantation along FM 1488 before crossing Mill Creek northeast of the town. The alignment crosses a rural residential area along Friartuck Drive east of FM 1486 before traversing approximately 4.6 miles of a logged and burned area west of the highway. Alignment E merges with Alignment B about 1.8 miles west of FM 1486. The last 0.2 miles of the route crosses cleared pasture east of FM 1774. Review of aerial photographs, Google Earth satellite imagery, and the USGS quadrangles indicates that as much as 44 percent of Alignment E crosses areas that have been various forms of modern disturbance.

The southernmost 1.7 miles of Alignment E traverses a major interfluve between the Mill Creek and Decker Branch watersheds. The next 5.7 miles cross numerous upland interfluves, sections of valley wall, and occasional terraces and floodplain segments on the south side of Mill Creek before crossing the stream and traversing uplands for approximately the next 6 miles. The next 0.7 miles trend northwestward across the Mill Creek floodplain, crossing the stream three times before climbing out of the floodplain to meet FM 1744 in its last 0.3 miles.

Almost all of Alignment E crosses geologic deposits mapped as the Lower Pleistocene-age Willis Formation. The central segment north of Mill Creek passes close to or crosses discrete fluviatile terrace deposits scattered along the tributary. The alignment traverses undifferentiated Holocene alluvium on the Mill Creek floodplain east of FM 1774 (Bureau of Economic Geology 1992). Mapped soil associations include Conroe in Montgomery County (McClintock et al. 1972) and Depcor-Fetzer-Huntsburg and Conroe-Depcor in Grimes County (Greenwade 1996). Characteristics of the associated soils are presented in the Alignment B discussion.

Almost 85 percent of Alignment E is in Montgomery County, which is included in the Houston District PALM model coverage developed by Abbott (2001). Most of the Montgomery County segment (70 percent) crosses areas identified as Map Unit 2, for which surface survey typically is recommended. Twenty-one percent of the Montgomery County segment traverses areas designated as Map Unit 4, where survey usually is not recommended. Areas mapped as the latter include upland landforms on both sides of Mill Creek and developed areas around the existing FM 1744-State Highway 249 intersection. Highway segments followed or crossed by the proposed alignment also were designated as Map Unit 4 for the purposes of this study. Nine percent of the

Montgomery County segment crosses areas of Map Unit 1, where surface survey and deep reconnaissance usually are recommended. These include the Mill Creek crossing northeast of Magnolia, a tributary crossing west of FM 1486 on the north side of Mill Creek, and the crossings of a Mill Creek channel meander and three tributaries between FM 149 and FM 1488 on the south side of creek.

Most of the 2.4-mile-long segment of Alignment E in Grimes County crosses upland terrain north and west of Mill Creek. Based on PALM map unit designations on similar landforms in Montgomery County, most of the Grimes County segment probably is characteristic of Map Unit 2 with scattered areas of Map Unit 4 (including the FM 1774 highway corridor). Low-lying terrain on the Mill Creek floodplain east of FM 1774, traversed by about 0.7 miles of Alignment E, would be included in Map Unit 1.

Overall, Alignment E has a moderate to high potential for Native American archeological sites. About 40 percent of the alignment runs south of Mill Creek, crossing a valley margin composed of numerous small to medium-sized interfluves. The alignment crosses similar terrain on parts of the upland margin north and east of the creek. Topographic settings overlooking and providing access to a perennial drainage have a moderate potential for Native American archeological sites. In addition, Alignment E skirts a meander of Mill Creek near its southeast end, crosses the stream northeast of Magnolia, and crosses the stream three more times as it traverses the Mill Creek floodplain near its northwest end. Mill Creek is a perennial stream with 100-year floodplain mapped along its entire length within the project area. Undifferentiated Holocene alluvium is mapped on the Mill Creek floodplain east of FM 1774. Additionally, the Houston PALM identifies the course of Mill Creek and the lower ends of many adjoining tributaries as Map Unit 1. Floodplain alluvium, particularly along

larger streams, has the potential to contain deeply buried, intact archeological deposits, and intensive survey with mechanical trenching would be needed where Alignment E crosses the Mill Creek floodplain. Adjoining terraces (if present), valley walls, and valley margins could be investigated with a combination of trenching and shovel testing as warranted. The three intersects between Alignment E and Mill Creek may require a total of 3.5 miles of survey.

Alignment E also crosses one large and eight small-medium-sized intermittent tributaries south of Mill Creek and two large and eight small-medium-sized tributaries north and east of the creek. Crossings at or near the heads of intermittent tributaries are considered to have a low potential for Native American archeological sites and thus may be excluded from surveys, whereas crossings downstream from the headwaters of these tributaries are considered to have at least a moderate potential for Native American archeological sites and would require investigation. Eight of the crossings on the south side of the creek are at the middle or lower stretches of intersected tributaries, and three of those pass over mapped 100-year floodplains. Five of the crossings on the opposite side of the creek are at middle and lower stream sections, and three of those traverse mapped 100-year floodplains. Tributary crossings with mapped 100-year floodplain segments have the potential for deeply buried archeological deposits and may require trenching in addition to shovel testing. Archeological deposits are expected to be more shallowly buried in settings without mapped floodplain deposits, and survey with shovel testing is considered sufficient in those areas. Based on topography, areas ca. 1,500–2,000 ft long would need to be surveyed at each of 13 crossings, for a total of 3.7–4.9 miles, depending on the extent of disturbances.

Summary

In summary, Alignments B, C, B/C, and E each has a moderate to high potential for Native American archeological sites. The longest—Alignment B—would require 9.1–10.8 miles of survey, with mechanical trenching on as much as 8.0 to 9.3 miles. Alignment E would require at least 7.2–8.4 miles of survey, with trenching on up to 5.2–5.8 miles. Alignments C and B/C intersect the same number of tributaries as Alignment E, but the shorter, more-direct Mill Creek crossing east of FM 1774 results in the shortest required survey distance of the four alternatives. At least 5.2–6.3 miles of Alignments C and B/C would require survey, with trenching needed on as much as 3.2–3.6 miles.

Drainage crossings may be focal points during archeological survey of the selected alternative, but investigation should not be limited to these segments. Most of each alignment crosses areas classed as Map Unit 2 on the Houston PALM, and surface surveys with shovel testing typically are recommended in these settings. Given this, the number of tributary crossings that would require archeological investigation on each alignment, the likelihood of overlap between various survey segments, and the potential historic sites at unpredictable locations, it may be most sensible to survey all of the selected alternative.

Less attention has been given to modeling historic site locations for the region, and thus it is hard to identify areas where historic sites would be most likely. However, research completed to date suggests the project area never was densely settled historically, and the 1939 and 1940 general highway maps for Montgomery and Grimes Counties and 1962 USGS topographic quadrangles show widely scattered buildings with occasional concentrations in Magnolia, Pinehurst, and other communities along area

highways. These maps indicate pockets of development and residential loci in the following areas, which carry the potential for historic archeological sites: (1) along the existing FM 1774-State Highway 249 intersection in Pinehurst (Alignments B, C, B/C, and E); (2) along FM 149 between Pinehurst and Mill Creek (Alignments B, C, B/C, and E); (3) along FM 1488 in the vicinity of the extant Missionary Church and cemetery (Alignments B and B/C and possibly Alignments C and E); and (4) along the east side of FM 1774 (Alignments B, C, B/C, and E). The above listing suggests that historic archeological sites may be more frequent along Alignments B and B/C than on Alignments C and E.

HISTORICAL RESOURCES

File Searches and Results

File searches for historical resources have been conducted as the project corridor evolved. The initial effort, conducted in 2002 for a major investment study, examined the Texas Historical Commission's Texas Historic Sites Atlas in the vicinity of the 14-mile long project corridor, which extended northwest to southeast from Todd Mission in Grimes County to Pinehurst in Montgomery County (Wilbur Smith Associates 2002:1-1). There were no National Register properties in the project corridor, but 12 historic-age resources and 9 cemeteries had been recorded as part of earlier survey efforts (Table 1 and Figure 2) (Wilbur Smith Associates 2002:3-17–3-19). The results of this file search helped guide elimination of several alternatives where the likelihood of negatively impacting or displacing historic properties was probable (Wilbur Smith Associates 2002:5-10).

Table 1. Previously identified historic-age resources and cemeteries in the vicinity of the project area with their file search affiliations.

Table 1. Previously identified historic-age resources and cemeteries in the vicinity of the project area with their file search affiliations.

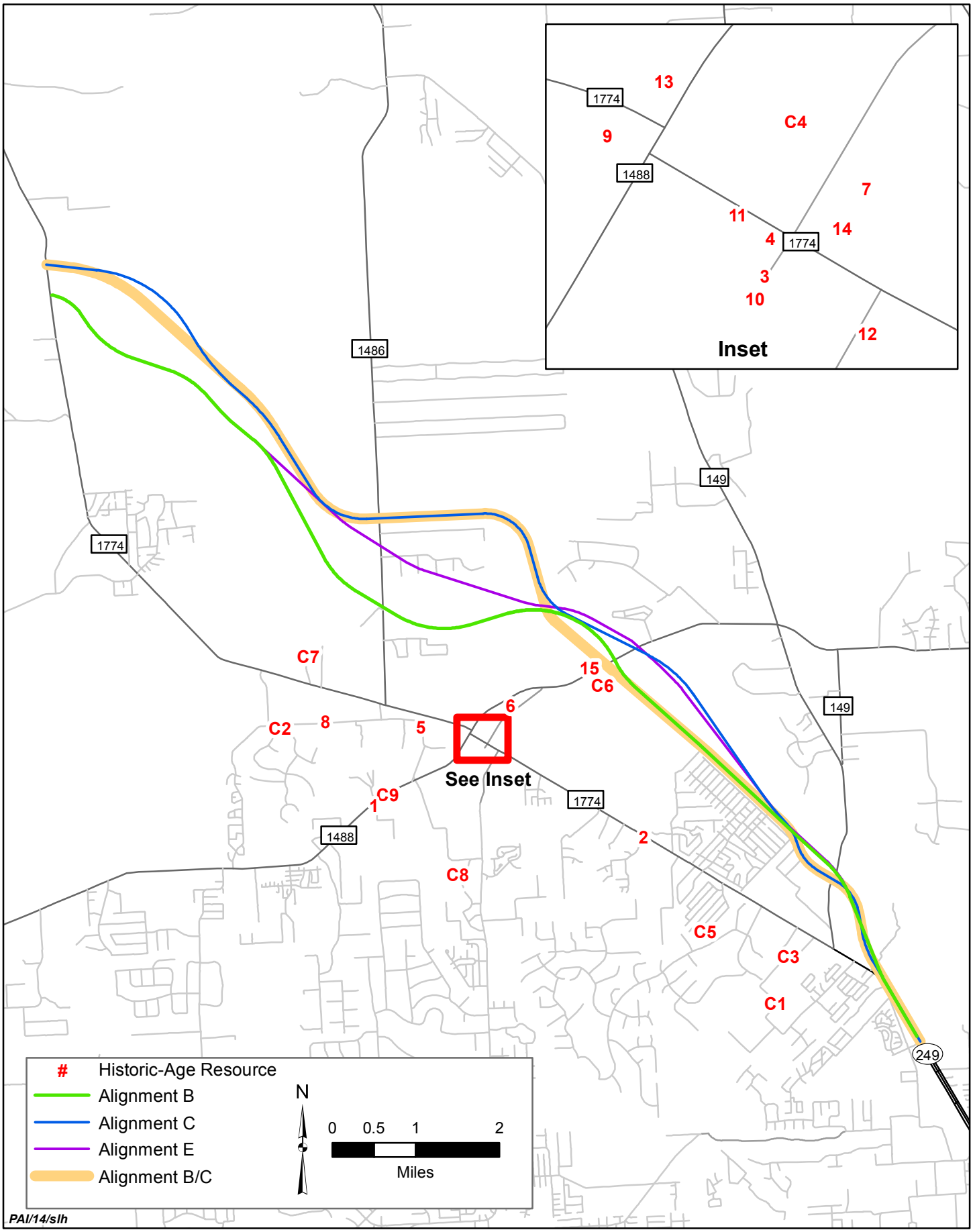
Number	Name	Location	File Search
1	Abney House	FM 1488, Magnolia	2002, 2004
2	Campus House	38023 FM 1774, Pinehurst	2002, 2004
3	Dean House	503 Commerce, Magnolia	2002, 2004
4	Dean Store	511 Magnolia Boulevard, Magnolia	2002, 2004
5	Lee House	32215 Old Hempstead Road, Magnolia	2002, 2004
6	Magnolia High School	Magnolia-Conroe Road, Magnolia	2002, 2004
7	Sanders House	Acker Street, Magnolia	2002, 2004
8	Suter House	Old Hempstead Road, Magnolia	2002, 2004
9	Telephone Office	407 Magnolia Boulevard, Magnolia	2002, 2004
10	Ware House	Commerce Street, Magnolia	2002, 2004
11	Ware Office	118 Sixth Street, Magnolia	2002, 2004
12	Yon House	Nichols Sawmill Road/Commerce Street, Magnolia	2002, 2004
13	Magnolia (Official Texas Historical Marker-subject marker)	Magnolia Boulevard/ Magnolia Parkway, Magnolia	2004
14	Magnolia Depot	Melton Street, Magnolia	2004
15	Piney Grove Missionary Baptist Church	FM 1488, northeast of Magnolia	2013
C1	Corgey Cemetery	Goodson Loop, Pinehurst	2002, 2004
C2	Goodson Cemetery	Old Hempstead Rd, Magnolia	2002, 2004
C3	Goodson Cemetery	Goodson Loop, Pinehurst	2002, 2004
C4	Magnolia Cemetery	416 Magnolia Boulevard, Magnolia	2002, 2004
C5	Mount Zion Cemetery	Naomi Road, between Pinehurst and Magnolia	2002, 2004
C6	Piney Grove Cemetery	FM 1488, northeast of Magnolia	2002, 2004
C7	Sanders Cemetery	O'Neal Lane, Magnolia	2002, 2004
C8	Steiger Cemetery	Shady Brook Road, Magnolia	2002, 2004
C9	Turner-Thomas Cemetery	FM 1488, Magnolia	2002, 2004

Figure 2. The locations of previously identified historic-age resources and cemeteries in the vicinity of the current project area.

The Texas Historic Sites Atlas and other sources were reviewed for a second file search conducted in 2004 for constraints analysis (Dase 2004). The study area for this research included a wide swath surrounding several alternatives that began 2 miles north of Todd Mission at FM 1774 in Grimes County and extended to the FM 1774/State Highway 249 intersection southeast of Pinehurst; a short segment of one route traversed the northeast corner of Waller County. This research confirmed the absence of National Register properties in the study area, and the presence of the 12 historic-age resources and 9 cemeteries; it also noted 1 Official State Historical Marker and the Magnolia Depot (see Table 1 and Figure 2). Since each alternative traverses rural land, historic-age resources are few and scattered. As a result, no single route appeared to be more sensitive for historic properties, and the selection of a preferred alternative could be established with the likelihood of minimal negative impact to or displacement of historic properties. These findings were incorporated into a draft environmental impact statement produced in 2011.

The third file search and literature review further refined selection of a preferred alternative within a specifically delineated study area for the draft environmental impact statement. The study area for this research is defined as 1,300 ft beyond the proposed rights of way for Alternatives B, B/C, C, and E. Information was gathered from the Texas Historic Sites Atlas documentation on National Historic Landmarks, National Register properties, State Antiquities Landmarks, Official Texas Historical Markers (Recorded Texas Historic Landmarks, subject markers, and Texas Centennial markers), cemetery, neighborhood, and museum surveys; the East Texas Sawmill Database of the

Figure 2


Inset
13
1774
C4
9
1488
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14
4
1774
3
10
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149
1774
C7
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6
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249
Historic-Age Resource
Alignment B
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Alignment E
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Miles
PAI/14/slh

Texas Forestry Museum; the National Park Service's Historic American Buildings Survey, Historic American Landscapes Survey, and Historic American Engineering Record; and the Texas Department of Agriculture's Family Land Heritage Program. No resources in the study area have National Historic Landmark, National Register, Official Texas Historical Marker (of any kind), State Antiquities Landmark, or local landmark designation. No resources have been documented as part of neighborhood or museum surveys, or as part of the Historic American Buildings Survey, Historic American Landscapes Survey, or Historic American Engineering Record. In fact, because this study area is considerably refined, only one previously documented resource, a cemetery, is in this study area (see Table 1 and Figure 2). The cemetery, variously known as the Piney Grove Cemetery, Missionary Church Cemetery, and unnamed cemetery #5, was documented as part of a cemetery survey. The Piney Grove Missionary Baptist Church is associated with the cemetery, but has not been previously documented. At least three sawmills were once in the vicinity of Magnolia, but information about their locations is vague and not reliable enough to accurately plot (Johnson 1996a, 1996b, 1996c). These sawmills are unlikely to be extant and, based on current aerial photographs any evidence of them would be represented as historic archeological sites.

Literature Review and Results

An updated literature review identified pertinent historic contexts for the study area. Maps, aerial images, appraisal district records, and primary and secondary sources were useful for detecting potential locations of previously undocumented historic-age resources. They especially aided tracing mid- to late-twentieth-century development in the study area. Maps that include the study area were reviewed (Hale

and Armstrong 1993; Texas State Highway Department 1939, 1940, 1961a, 1961b). A series of aerial images that include the study area was analyzed (U.S. Department of Agriculture, Agricultural Stabilization and Conservation Service 1952a, 1952b, 1958, 1967, 1968; U.S. Department of Agriculture, National Agriculture Imagery Program 2010a, 2010b; U.S. Geological Survey 1962a, 1962b, 1962c, 1962d). Secondary sources available on the Internet provided information on the history of the study area, particularly The Handbook of Texas Online, local newspapers, highway designation files, and cemetery records (Bassent 2008; Branch 2010a, 2010b; Cagle 2009; Graves 2004; Graves and Brouse 1986; Stone 2011; Texas Department of Transportation 2013a, 2013b, 2013c, 2013d, 2013e; The Handbook of Texas Online 2010; Walzel 2012).

Maps and aerial images that encompass the project area show the project corridor to be relatively undeveloped for many decades. The small towns of Magnolia and Pinehurst excepted, by the late 1930s and as late as the early 1960s, the project corridor north of Magnolia remained particularly undeveloped. No development was present along Mill Creek, the north-south FM 1486, or along an east-west road linking FM 1486 to FM 149. This east-west route was no longer extant by the early 1960s. A few houses, businesses, and churches were along the three highways—FMs 1488, FM 1744, and State Highway 149—in the project corridor south of Magnolia in the 1930s, and several businesses were constructed, especially along FM 1744, through the early 1960s. No development was apparent along Mill Creek in this southern portion. The small towns of Todd Mission, Magnolia, Pinehurst, and Piney Grove underwent only modest change in the mid-twentieth century. In the last 50 years, both the northern and southern portions have experienced residential building booms, and many industrial pipelines crisscross the area.

Based on these sources, the context of industrial extraction and processing accommodates both the lumber and oil and natural gas industries. Settlers held patented land grants along Mill Creek, which wends northwesterly to southeasterly through the study area, and its several small drainages before the Civil War. The small towns of Magnolia, established in the 1840s at the junction of present-day FMs 1488 and 1774, and Pinehurst, established by about 1860 at the present-day crossroads of FMs 149, 1774, and State Highway 249, served as community centers. Several railroads traversed the region by the end of the nineteenth century, and farmers had access to the market economy by transporting their goods to nearby railroad communities such as Plantersville, Montgomery, and Conroe. The first railroad in the study area was the International & Great Northern Railroad constructed from Bryan to Spring, via Magnolia and Pinehurst, in 1902 (Branch 2010a). This expanded local access to the market economy for local farmers who raised cotton, corn, and truck gardens.

Commercial lumbering, begun in the vicinity before the Civil War, was the primary beneficiary of local railroad improvements for decades. Mill Creek had a number of early sawmills (The Handbook of Texas Online 2010). Pinehurst's sawmill industry declined over time, with six sawmills in 1895, four in 1890, and only one by 1914 (Branch 2010a). But lumber camps and sawmills remained plentiful throughout southern Montgomery County as workers, housed in lumber camps, constantly relocated to virgin timber sites to cut raw materials and transport them along local vehicular and tram roads (Cagle 2009). The 1918 Grogan-Cochran sawmill was southeast of downtown Magnolia, and later expanded to the location of a present-day shopping center where the facility could operate 24 hours a day. Fires ravaged the buildings, and the mill at

Magnolia closed in 1960 (Stone 2011). Today, a modern sawmill is in the study area, a remnant property type of a bygone era (Figure 3).

Figure 3. This ca. 2012 sawmill is on Circle Lake Drive, northeast of the FM 1774/State Highway 249 intersection (facing north).

The influences of the oil and natural gas industries are also in the study area. Local oil was discovered during the Great Depression of the 1930s. Two northwest-to-southeast pipelines intersected the study area by 1952 (U.S. Department of Agriculture, Agricultural Stabilization and Conservation Service 1952a, 1952b). The Pinehurst oil and natural gas field operated north of the small town. By the mid 1950s, two more pipelines, extending southwest to northeast, intersected the study area (Texas State Highway Department 1961a, 1961b).

Other contexts that may be pertinent to the study area include community planning and development and ethnic heritage. By the mid-nineteenth century, large landholdings in the study area were along Mill Creek and its many smaller drainages. Plantation culture developed on these large parcels of land. Within the study area, however, land grants were typically smaller and patented after the Civil War. Several parcels in and near the study area were patented to railroads, although most went to individuals. Fertile river and creek bottoms were settled relatively early, and a few small towns developed as community centers. The two earliest towns near the study area were Magnolia, established in the 1840s, and Pinehurst, established by about 1860. A Methodist church was established in the vicinity of Piney Grove in the late 1880s (Graves 2004:315). Several railroads traversed the region by the end of the nineteenth century, and farmers had access to the market economy by transporting their goods to

Figure 3

PRIVATE PROPERTY
NO TRESPASSING
GATE
1
BROADVIEW
SECURITY
800.229.9200

nearby railroad communities, such as Plantersville, Montgomery, and Conroe. The first railroad in the study area was the International & Great Northern Railroad constructed from Bryan to Spring in 1902.

The study area experienced moderate population growth and related development in the early decades of the twentieth century. An African American community established by the late 1920s along present-day FM 1488 had a church, school, cemetery, and several houses in the mid 1920s and 1930s (Bassent 2008; Graves 2004; Graves and Brouse 1986; Texas State Highway Department 1939, 1940) (Figure 4). The earliest known burial at the cemetery dates to 1929 (Graves and Brouse 1986). The church and cemetery remain extant. A few houses, possibly including the present-day Sassy Lady Boutique, were along FM 149 by the mid 1930s, north of Pinehurst and south of the bridge over Mill Creek (Texas State Highway Department 1939, 1941). Roads present by the mid 1930s had become online farm-to-market roads by the early 1950s, with FM 149, FM 1486, and FM 1774 traversing the study area north to south, and FM 1488 extending southwesterly to northeasterly. FM 149 intersected FM 1774 at Pinehurst and headed southeasterly to Decker Prairie; by about 1988, this leg of the roadway had been redesignated State Highway 249 (Texas Department of Transportation 2013a, 2013b, 2013c, 2013d, 2013e). Each of these roadways remain extant with bridges over Mill Creek and its tributaries.

Figure 4. The Piney Grove Church and Cemetery along FM 1488 is about 1.7 miles northeast of Magnolia (facing southeast).

After mid-century, new development in the study area was sparse, and most of the study area remains heavily forested. By the early 1950s, the study area remained

Figure 4

largely unimproved and second-growth timber had filled the Mill Creek valley. Exceptions were development along the railroad/FM 1774 corridor (U.S. Department of Agriculture, Agricultural Stabilization and Conservation Service 1952a, 1952b). In the 1960s and later, a few residential developments subdivided acreage for suburban housing serving the far northwest reaches of Houston. These include Hazy Hollow north of Pinehurst, Magnolia East north of Magnolia, Convenient Country Estates, and Pine Vista Mobile Home Village among others, and more recent subdivisions like Old Mill Lake.

A site visit on April 23, 2013, and subsequent appraisal district research guided recommendations for constraints analysis (Grimes Central Appraisal District 2013; Montgomery Central Appraisal District 2013). The site visit consisted of driving each public road surrounding and within the project corridor. This included the state highway, farm-to-market, county, and neighborhood roads. With very few exceptions, resources noted during the site visit were almost exclusively nonhistoric, and appraisal district research confirmed that post-1970–constructed resources are typical. Current photographs of previously identified historic-age resources are not provided since, apart from the cemetery and church at Piney Grove, they are well outside the project corridor. The site visit confirmed that the project corridor has little potential for historic properties. No apparent concentration of historic properties is within the project corridor, and overall, the potential for direct impacts to historic properties is minimal.

Public Involvement

To date, public involvement has not identified historic properties in the study area. Locally distributed newsletters, three public meetings, and a website made information about the proposed improvements available during the major investment

study process, which was completed in 2002. Representatives from local, state, and federal agencies and the Texas Department of Transportation comprised a steering committee that met three times. The subsequent environmental impact study has included a scoping meeting and three additional public meetings. In 2013, inquiries were sent to the local historical commissions requesting information about properties that may be eligible for the National Register in the study area. The Montgomery County Historical Commission replied that the study area has no known properties eligible for the National Register; the Grimes County Historical Commission did not respond.

Recommendations for Historical Resources

As a result, reconnaissance survey is recommended for whichever alternative is selected. Project personnel who meet the Secretary of the Interior's professional qualifications standards should conduct the reconnaissance survey in accordance with the standards of the Texas Historical Commission and the Texas Department of Transportation. The Area of Potential Effects for the reconnaissance survey is likely to be defined as 300 ft beyond the proposed right of way and all land parcels partially or wholly therein for new location, and 150 ft beyond the proposed right of way and all land parcels partially or wholly therein along existing transportation corridors. The reconnaissance survey should include digital photographs and resource-specific documentation for each building, structure, and object extant by 1971 to accommodate the proposed construction-letting date of 2016. Information about each historic-age resource should be recorded to develop an inventory by resource number that includes name, location by street address or Universal Transverse Mercator coordinates, property type and subtype, stylistic influence or form, known or estimated construction date,

integrity issues, and National Register eligibility recommendation. Although none are anticipated, if potential historic districts are documented in the Areas of Potential Effects, photographs of representative nonhistoric resources, streetscapes, and view sheds should be taken that will illustratively portray integrity. The documented properties should be presented in an inventory, map, and corresponding historical resources survey forms with documentation information and photographs.

After synthesizing the research and field investigations, project personnel should evaluate each historic-age resource in the Area of Potential Effects to assess National Register eligibility and effects to significant historic properties. This will require preparation of a brief historical background and additional secondary source consultation to guide interpretation of property types and stylistic influences. Registration requirements applied to the Area of Potential Effects will be developed to guide examination of each resource's integrity, which will inform recommendations regarding eligibility for the National Register. Those resources recommended as eligible for the National Register will also undergo an evaluation of direct, indirect, visual, and cumulative effects based on the proposed improvements. The results of the survey should be reported in accordance with 36 Code of Federal Regulations Part 60 for informing Section 106 of the National Historic Preservation Act and the Antiquities Code of Texas to provide sufficient documentation for determining the presence of historically significant properties, and effects to such properties, for consultation with the Texas Historical Commission, the state historic preservation office.

Summary

In summary, historical resources studies conducted for a major investment study, constraints analysis, and the draft environmental impact statement each guided

selection of potential alignments that would have the least negative impact on historic properties in the project corridor. The area remains heavily forested, and most development has been constructed in the last 50 years and is considered nonhistoric. Public involvement to date has not identified historic properties in the project corridor. Previously identified historic-age resources and cemeteries are all south of the project corridor near Magnolia and Pinehurst; none were noted to the north. One exception is a church and cemetery at Piney Grove; these resources will likely fall within the historical resources study area for the preferred alignment but outside the probable Area of Potential Effects. Another possible exception are potential sawmill locations along Mill Creek but, based on current aerial photographs, these will only be evident as historic archeological sites and, if discovered, will be documented as part of archeological resources studies. Nevertheless, to meet federal guidelines, a reconnaissance survey is recommended for the preferred alignment to determine the presence of historic properties and effects to such properties.

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Appendix F: Hazardous Material Database Summary

GeoPlus Oil & Gas Report

http://www.geo-search.net/QuickMap/index.htm?DataID=Standard0000066686

Click on link above to access the map and satellite view of current property

Target Property:

SH 249

Grimes County, Texas 77363

Prepared For:

Jacobs -San Antonio

Order #: 29981

Job #: 66686

Date: 11/12/2013

phone: 888-396-0042 · fax: 512-472-9967 · www.geo-search.com

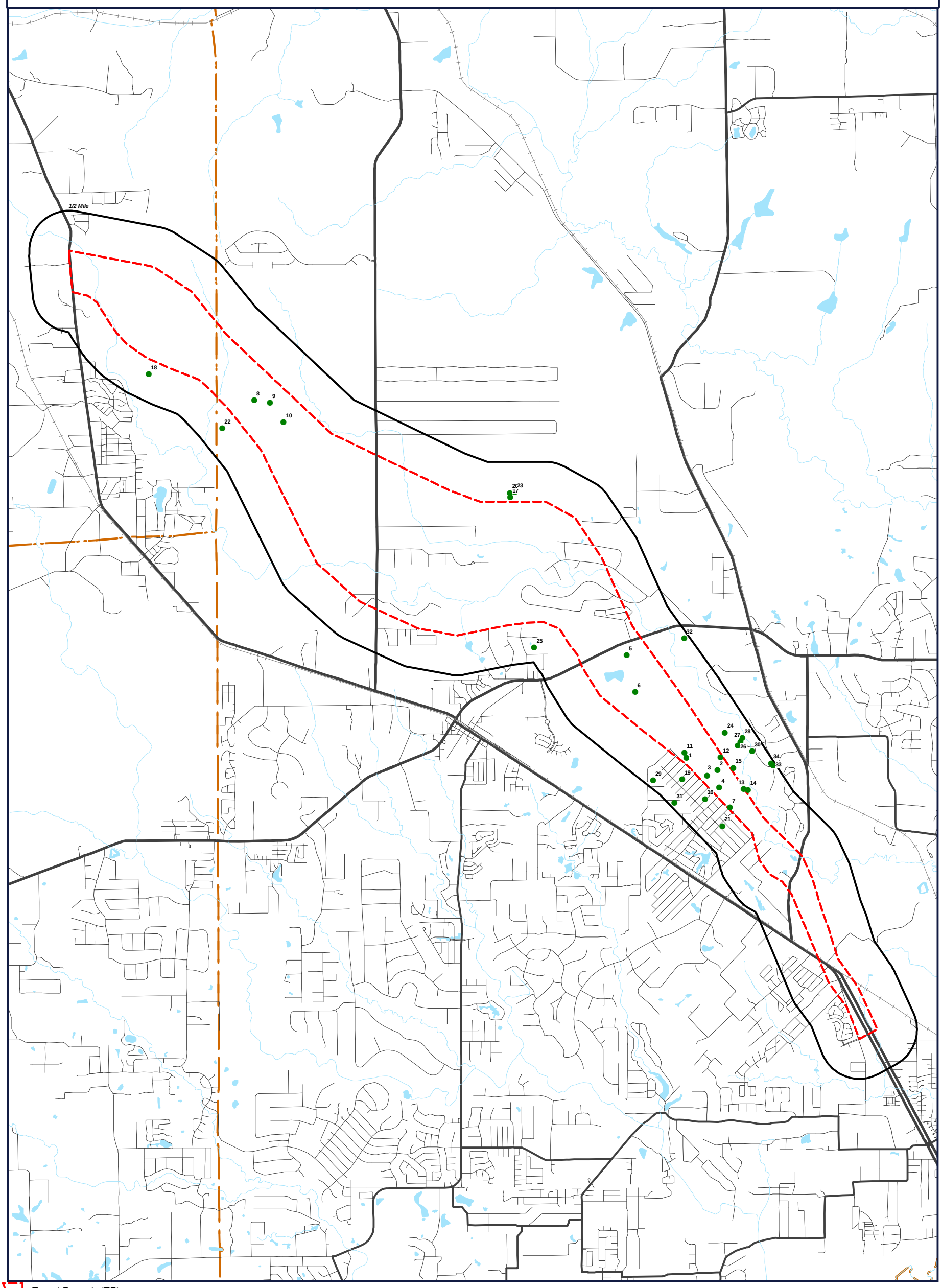
LOCATABLE DATABASE FINDINGS

ACRONYM	SEARCH RADIUS (miles)	Target Property	1/8 Mile (> TP)	1/4 Mile (> 1/8)	1/2 Mile (> 1/4)	1 Mile (> 1/2)	> 1 Mile	Total
STATE (TX)								
OGWELLS	.5000	14	5	7	10	NS	NS	36
SUB-TOTAL		**14**	**5**	**7**	**10**	**0**	**0**	**36**
TOTAL		**14**	**5**	**7**	**10**	**0**	**0**	**36**

NOTES:
NS = NOT SEARCHED

GeoSearch *www.geo-search.com · phone: 888-396-0042 · fax: 512-472-9967*

OIL / GAS WELL MAP



Target Property (TP)

WELL LOCATION

SURVEY LINE

SH 249
Grimes County, Texas
77363

N
W E
S

0' 3250' 6500' 9750'

SCALE: 1" = 6500'

GeoSearch www.geo-search.com - phone: 866-396-0042 - fax: 512-472-9967

JOB #: 66686 - 11/12/2013

OIL & GAS WELL REPORT

MAP ID	SURFACE ID	API #	WELL TYPE	LATITUDE	LONGITUDE
1	1132801	33931074	NR	30.205450680	-95.705430840
2	307071	33930918	OIL/GAS WELL	30.203170850	-95.698895660
3	307067	33930897	NR	30.202468600	-95.701037800
3	307041	33930809	GAS WELL	30.202174360	-95.701105210
3	307059	33930886	GAS WELL	30.202504990	-95.701420280
4	306954	33901054	PLUGGED OIL/GAS WELL	30.200062940	-95.698574300
5	306937	339	DRY HOLE	30.224096910	-95.718027110
6	306939	339	DRY HOLE	30.217378690	-95.716211080
7	306952	339	PERMITTED LOCATION	30.196401150	-95.696262550
8	307481	33930950	DRY HOLE	30.270399170	-95.796313290
9	307450	33930102	PLUGGED GAS WELL	30.269942250	-95.792993690
10	307443	339	DRY HOLE	30.266406800	-95.790156040
11	307066	33930899	OIL/GAS WELL	30.206343780	-95.705823070
12	306955	33901051	OIL/GAS WELL	30.205509810	-95.698241720
13	307058	33930884	GAS WELL	30.199746920	-95.693361380
14	306953	33930403	GAS WELL	30.199645860	-95.692503220
15	307068	33930911	GAS WELL	30.203587380	-95.695611880
16	306950	33901055	PLUGGED OIL/GAS WELL	30.197957120	-95.701525310
17	307697	33930701	INJECTION/DISPOSAL WELL	30.252777750	-95.742500040
18	307451	185	DRY HOLE	30.275147060	-95.818489940
19	306949	33930075	PLUGGED GAS WELL	30.201500510	-95.706303180
20	307698	33930629	DRY HOLE	30.253541760	-95.742522740

OIL & GAS WELL REPORT

MAP ID	SURFACE ID	API #	WELL TYPE	LATITUDE	LONGITUDE
21	306951	339	DRY HOLE	30.193043460	-95.697852130
22	307444	339	DRY HOLE	30.265284490	-95.803027980
23	307699	33930651	GAS WELL	30.253708970	-95.741525120
24	307097	33901057	INJECTION/DISPOSAL WELL	30.210044110	-95.697357620
25	306938	339	DRY HOLE	30.225447830	-95.737420130
26	307055	33930875	GAS WELL	30.207625740	-95.694596380
27	1131944	33931071	NR	30.208310570	-95.694053330
28	307061	33930888	GAS WELL	30.209077560	-95.693671910
29	306947	33930098	PLUGGED GAS WELL	30.201329190	-95.712424130
30	306956	33901052	OIL/GAS WELL	30.206637490	-95.691604320
31	306948	33930806	PLUGGED GAS WELL	30.197238640	-95.707971090
32	306936	33930529	DRY HOLE	30.227129620	-95.705896860
33	306957	33901053	OIL/GAS WELL	30.203993480	-95.687202510
34	307042	33930858	OIL/GAS WELL	30.204432780	-95.687612720

Radius Report

Satellite view

Target Property:

SH 249

Grimes County, Texas 77363

Prepared For:

Jacobs -San Antonio

Order #: 29981

Job #: 66684

Date: 11/12/2013

Target Property Summary

SH 249
Grimes County, Texas 77363

USGS Quadrangle: ***Keenan, TX***
Target Property Geometry: ***Area***

Target Property Longitude(s)/Latitude(s):
(-95.835258, 30.295702), (-95.835258, 30.295702), (-95.835258, 30.295702), (-95.834510, 30.289163), (-95.831309, 30.288537), (-95.829360, 30.287313), (-95.827146, 30.284175), (-95.825285, 30.281802), (-95.823071, 30.279736), (-95.818873, 30.277242), (-95.814347, 30.275442), (-95.810545, 30.274191), (-95.807920, 30.273252), (-95.805295, 30.271218), (-95.801674, 30.267855), (-95.794884, 30.260580), (-95.783076, 30.239907), (-95.774000, 30.232914), (-95.761987, 30.228151), (-95.753623, 30.226844), (-95.743467, 30.228586), (-95.739031, 30.229133), (-95.735591, 30.229290), (-95.732060, 30.228038), (-95.730069, 30.225222), (-95.728439, 30.223423), (-95.727353, 30.221076), (-95.723641, 30.215913), (-95.713935, 30.209094), (-95.705304, 30.203254), (-95.691686, 30.190960), (-95.690057, 30.186032), (-95.688065, 30.183528), (-95.685259, 30.182120), (-95.683325, 30.179817), (-95.675494, 30.163757), (-95.671757, 30.159377), (-95.669087, 30.153536), (-95.665350, 30.155304), (-95.669418, 30.162956), (-95.673582, 30.168119), (-95.675664, 30.173907), (-95.676750, 30.176410), (-95.678923, 30.182668), (-95.681186, 30.186814), (-95.689423, 30.193854), (-95.705265, 30.214584), (-95.716762, 30.228507), (-95.723280, 30.241023), (-95.728885, 30.248207), (-95.735025, 30.251127), (-95.748818, 30.251127), (-95.755224, 30.253201), (-95.780128, 30.263552), (-95.802126, 30.281465), (-95.809459, 30.289288), (-95.817515, 30.293825), (-95.835206, 30.296727), (-95.835258, 30.295702), (-95.835258, 30.295702), (-95.835258, 30.295702)

County/Parish Covered:
Grimes (TX) , Montgomery (TX) , Waller (TX)

Zipcode(s) Covered:
Montgomery TX: 77316
Magnolia TX: 77354, 77355
Pinehurst TX: 77362
Plantersville TX: 77363
Waller TX: 77484

State(s) Covered:
TX

****Target property is located in Radon Zone 3. Zone 3 areas have a predicted average indoor radon screening level less than 2 pCi/L (picocuries per liter).***

This report was designed by GeoSearch to meet or exceed the records search requirements of the All Appropriate Inquires Rule (40 CFR §312.26) and the current version of the ASTM International E1527, Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process or, if applicable, the custom requirements requested by the entity that ordered this report. The records and databases of records used to compile this report were collected from various federal,state and local governmental entities. It is the goal of GeoSearch to meet or exceed the 40 CFR §312.26 and E1527 requirements for updating records by using the best available technology. GeoSearch contacts the appropriate governmental entities on a recurring basis. Depending on the frequency with which a record source or database of records is updated by the governmental entity, the data used to prepare this report may be updated monthly, quarterly, semi-annually, or annually.

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Database Findings Summary

FEDERAL LISTING

Database	Acronym	Locatable	Unlocatable	Search Radius (miles)
AEROMETRIC INFORMATION RETRIEVAL SYSTEM / AIR FACILITY SUBSYSTEM	AIRSAFS	0	0	TP
BIENNIAL REPORTING SYSTEM	BRS	0	0	TP
CLANDESTINE DRUG LABORATORY LOCATIONS	CDL	0	0	TP
EPA DOCKET DATA	DOCKETS	0	0	TP
FEDERAL ENGINEERING INSTITUTIONAL CONTROL SITES	EC	0	0	TP
EMERGENCY RESPONSE NOTIFICATION SYSTEM	ERNSTX	0	0	TP
FACILITY REGISTRY SYSTEM	FRSTX	2	0	TP
HAZARDOUS MATERIALS INCIDENT REPORTING SYSTEM	HMIRSR06	0	0	TP
INTEGRATED COMPLIANCE INFORMATION SYSTEM (FORMERLY DOCKETS)	ICIS	0	0	TP
INTEGRATED COMPLIANCE INFORMATION SYSTEM NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM	ICISNPDES	0	0	TP
LAND USE CONTROL INFORMATION SYSTEM	LUCIS	0	0	TP
MATERIAL LICENSING TRACKING SYSTEM	MLTS	0	0	TP
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM	NPDESR06	0	0	TP
PCB ACTIVITY DATABASE SYSTEM	PADS	0	0	TP
PERMIT COMPLIANCE SYSTEM	PCSR06	0	0	TP
RCRA SITES WITH CONTROLS	RCRASC	0	0	TP
CERCLIS LIENS	SFLIENS	0	0	TP
SECTION SEVEN TRACKING SYSTEM	SSTS	0	0	TP
TOXICS RELEASE INVENTORY	TRI	0	0	TP
TOXIC SUBSTANCE CONTROL ACT INVENTORY	TSCA	0	0	TP
NO LONGER REGULATED RCRA GENERATOR FACILITIES	NLRRCRAG	0	0	0.1250
RESOURCE CONSERVATION & RECOVERY ACT - GENERATOR FACILITIES	RCRAGR06	0	0	0.1250
HISTORICAL GAS STATIONS	HISTPST	0	0	0.2500
BROWNFIELDS MANAGEMENT SYSTEM	BF	0	0	0.5000
COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION & LIABILITY INFORMATION SYSTEM	CERCLIS	0	0	0.5000
DELISTED NATIONAL PRIORITIES LIST	DNPL	0	0	0.5000
NO FURTHER REMEDIAL ACTION PLANNED SITES	NFRAP	0	0	0.5000
NO LONGER REGULATED RCRA NON-CORRACTS TSD FACILITIES	NLRRCRAT	0	0	0.5000
OPEN DUMP INVENTORY	ODI	0	0	0.5000
RESOURCE CONSERVATION & RECOVERY ACT - TREATMENT, STORAGE & DISPOSAL FACILITIES	RCRAT	0	0	0.5000
DEPARTMENT OF DEFENSE SITES	DOD	0	0	1.0000
FORMERLY USED DEFENSE SITES	FUDS	0	0	1.0000

Database Findings Summary

Database	Acronym	Locatable	Unlocatable	Search Radius (miles)
NO LONGER REGULATED RCRA CORRECTIVE ACTION FACILITIES	NLRRCRAC	0	0	1.0000
NATIONAL PRIORITIES LIST	NPL	0	0	1.0000
PROPOSED NATIONAL PRIORITIES LIST	PNPL	0	0	1.0000
RESOURCE CONSERVATION & RECOVERY ACT - CORRECTIVE ACTION FACILITIES	RCRAC	0	0	1.0000
RECORD OF DECISION SYSTEM	RODS	0	0	1.0000

SUB-TOTAL		2	0	

Database Findings Summary

STATE (TX) LISTING

Database	Acronym	Locatable	Unlocatable	Search Radius (miles)
GROUNDWATER CONTAMINATION CASES	GWCC	1	0	TP
HISTORIC GROUNDWATER CONTAMINATION CASES	HISTGWCC	0	0	TP
TCEQ LIENS	LIENS	0	0	TP
MUNICIPAL SETTING DESIGNATIONS	MSD	0	0	TP
NOTICE OF VIOLATIONS	NOV	1	0	TP
STATE INSTITUTIONAL/ENGINEERING CONTROL SITES	SIEC01	0	0	TP
SPILLS LISTING	SPILLS	0	0	TP
TIER I I CHEMICAL REPORTING PROGRAM FACILITIES	TIERII	6	4	TP
DRY CLEANER REGISTRATION DATABASE	DCR	0	0	0.2500
INDUSTRIAL AND HAZARDOUS WASTE SITES	IHW	0	0	0.2500
PERMITTED INDUSTRIAL HAZARDOUS WASTE SITES	PIHW	0	0	0.2500
PETROLEUM STORAGE TANKS	PST	7	0	0.2500
AFFECTED PROPERTY ASSESSMENT REPORTS	APAR	0	0	0.5000
BROWNFIELDS SITE ASSESSMENTS	BSA	0	0	0.5000
CLOSED & ABANDONED LANDFILL INVENTORY	CALF	0	0	0.5000
DRY CLEANER REMEDIATION PROGRAM SITES	DCRPS	0	0	0.5000
INNOCENT OWNER / OPERATOR DATABASE	IOP	0	0	0.5000
LEAKING PETROLEUM STORAGE TANKS	LPST	4	0	0.5000
MUNICIPAL SOLID WASTE LANDFILL SITES	MSWLF	1	0	0.5000
RAILROAD COMMISSION VCP AND BROWNFIELD SITES	RRCVCP	0	0	0.5000
RADIOACTIVE WASTE SITES	RWS	0	0	0.5000
VOLUNTARY CLEANUP PROGRAM SITES	VCP	0	0	0.5000
RECYCLING FACILITIES	WMRF	0	0	0.5000
INDUSTRIAL AND HAZARDOUS WASTE CORRECTIVE ACTION SITES	IHWCA	0	0	1.0000
STATE SUPERFUND SITES	SF	0	0	1.0000

SUB-TOTAL		20	4	

Database Findings Summary

TRIBAL LISTING

Database	Acronym	Locatable	Unlocatable	Search Radius (miles)
UNDERGROUND STORAGE TANKS ON TRIBAL LANDS	USTR06	0	0	0.2500
LEAKING UNDERGROUND STORAGE TANKS ON TRIBAL LANDS	LUSTR06	0	0	0.5000
OPEN DUMP INVENTORY ON TRIBAL LANDS	ODINDIAN	0	0	0.5000
INDIAN RESERVATIONS	INDIANRES	0	0	1.0000

SUB-TOTAL		0	0	

TOTAL		22	4	

Locatable Database Findings

FEDERAL LISTING

Acronym	Search Radius (miles)	Target Property	1/8 Mile (> TP)	1/4 Mile (> 1/8)	1/2 Mile (> 1/4)	1 Mile (> 1/2)	> 1 Mile	Total
AIRSAFS	0.0200		NS	NS	NS	NS	NS	0
BRS	0.0200		NS	NS	NS	NS	NS	0
CDL	0.0200		NS	NS	NS	NS	NS	0
DOCKETS	0.0200		NS	NS	NS	NS	NS	0
EC	0.0200		NS	NS	NS	NS	NS	0
ERNSTX	0.0200		NS	NS	NS	NS	NS	0
FRSTX	0.0200	2	NS	NS	NS	NS	NS	2
HMIRSR06	0.0200		NS	NS	NS	NS	NS	0
ICIS	0.0200		NS	NS	NS	NS	NS	0
ICISNPDES	0.0200		NS	NS	NS	NS	NS	0
LUCIS	0.0200		NS	NS	NS	NS	NS	0
MLTS	0.0200		NS	NS	NS	NS	NS	0
NPDESR06	0.0200		NS	NS	NS	NS	NS	0
PADS	0.0200		NS	NS	NS	NS	NS	0
PCSR06	0.0200		NS	NS	NS	NS	NS	0
RCRASC	0.0200		NS	NS	NS	NS	NS	0
SFLIENS	0.0200		NS	NS	NS	NS	NS	0
SSTS	0.0200		NS	NS	NS	NS	NS	0
TRI	0.0200		NS	NS	NS	NS	NS	0
TSCA	0.0200		NS	NS	NS	NS	NS	0
NLRRCRAG	0.1250		0	NS	NS	NS	NS	0
RCRAGR06	0.1250		0	NS	NS	NS	NS	0
HISTPST	0.2500		0	0	NS	NS	NS	0
BF	0.5000		0	0	0	NS	NS	0
CERCLIS	0.5000		0	0	0	NS	NS	0
DNPL	0.5000		0	0	0	NS	NS	0
NFRAP	0.5000		0	0	0	NS	NS	0
NLRRCRAT	0.5000		0	0	0	NS	NS	0
ODI	0.5000		0	0	0	NS	NS	0
RCRAT	0.5000		0	0	0	NS	NS	0
DOD	1.0000		0	0	0	0	NS	0
FUDS	1.0000		0	0	0	0	NS	0
NLRRCRAC	1.0000		0	0	0	0	NS	0
NPL	1.0000		0	0	0	0	NS	0
PNPL	1.0000		0	0	0	0	NS	0
RCRAC	1.0000		0	0	0	0	NS	0

Locatable Database Findings

Acronym	Search Radius (miles)	Target Property	1/8 Mile (> TP)	1/4 Mile (> 1/8)	1/2 Mile (> 1/4)	1 Mile (> 1/2)	> 1 Mile	Total
RODS	1.0000		0	0	0	0	NS	0
SUB-TOTAL		2	0	0	0	0	0	2

Locatable Database Findings

STATE (TX) LISTING

Acronym	Search Radius (miles)	Target Property	1/8 Mile (> TP)	1/4 Mile (> 1/8)	1/2 Mile (> 1/4)	1 Mile (> 1/2)	> 1 Mile	Total
GWCC	0.0200	1	NS	NS	NS	NS	NS	1
HISTGWCC	0.0200		NS	NS	NS	NS	NS	0
LIENS	0.0200		NS	NS	NS	NS	NS	0
MSD	0.0200		NS	NS	NS	NS	NS	0
NOV	0.0200	1	NS	NS	NS	NS	NS	1
SIEC01	0.0200		NS	NS	NS	NS	NS	0
SPILLS	0.0200		NS	NS	NS	NS	NS	0
TIERII	0.0200	6	NS	NS	NS	NS	NS	6
DCR	0.2500		0	0	NS	NS	NS	0
IHW	0.2500		0	0	NS	NS	NS	0
PIHW	0.2500		0	0	NS	NS	NS	0
PST	0.2500	3	0	4	NS	NS	NS	7
APAR	0.5000		0	0	0	NS	NS	0
BSA	0.5000		0	0	0	NS	NS	0
CALF	0.5000		0	0	0	NS	NS	0
DCRPS	0.5000		0	0	0	NS	NS	0
IOP	0.5000		0	0	0	NS	NS	0
LPST	0.5000	3	0	0	1	NS	NS	4
MSWLF	0.5000		0	0	1	NS	NS	1
RRCVCP	0.5000		0	0	0	NS	NS	0
RWS	0.5000		0	0	0	NS	NS	0
VCP	0.5000		0	0	0	NS	NS	0
WMRF	0.5000		0	0	0	NS	NS	0
IHWCA	1.0000		0	0	0	0	NS	0
SF	1.0000		0	0	0	0	NS	0
SUB-TOTAL		14	0	4	2	0	0	20

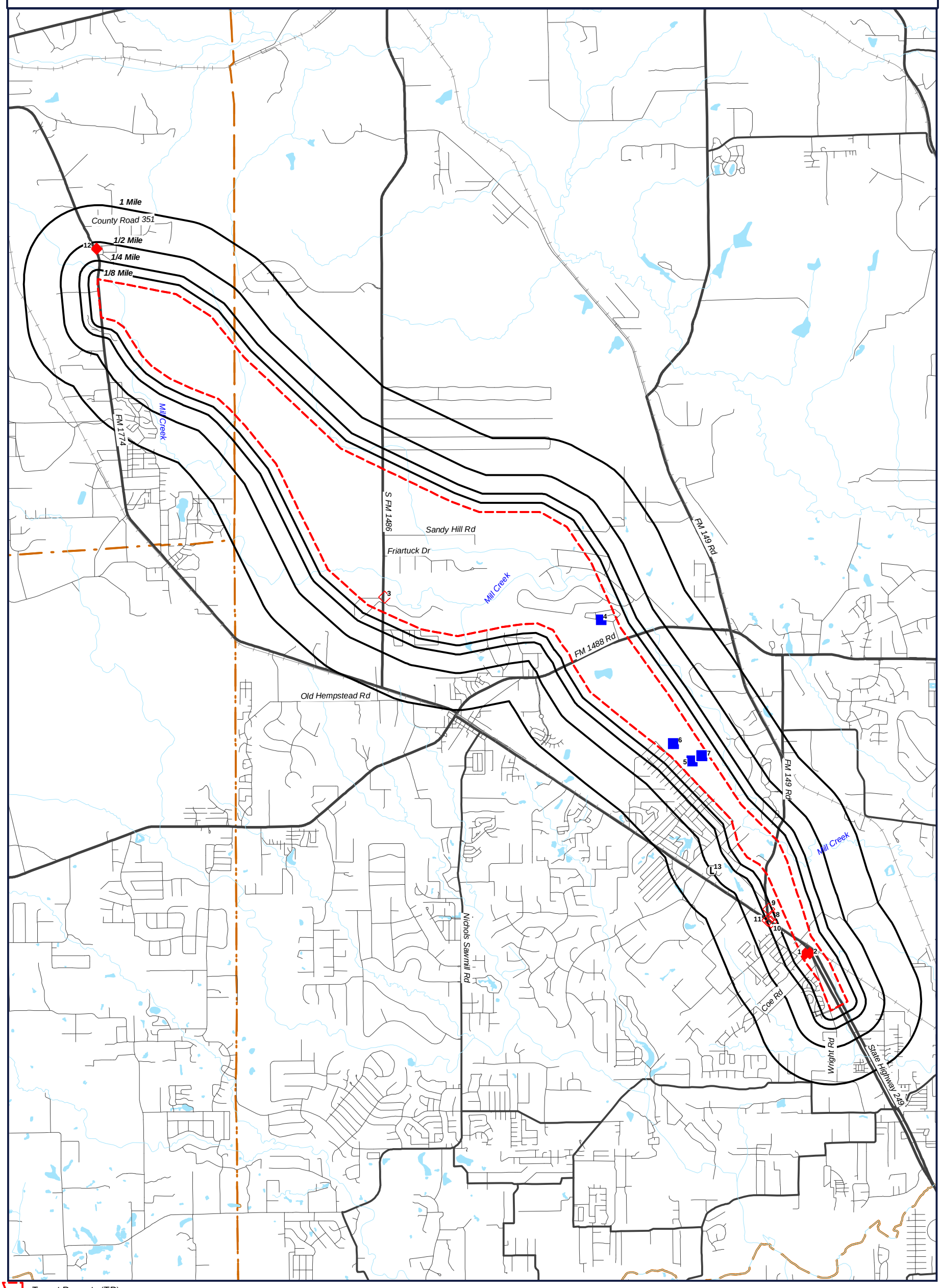
Locatable Database Findings

TRIBAL LISTING

Acronym	Search Radius (miles)	Target Property	1/8 Mile (> TP)	1/4 Mile (> 1/8)	1/2 Mile (> 1/4)	1 Mile (> 1/2)	> 1 Mile	Total
USTR06	0.2500		0	0	NS	NS	NS	0
LUSTR06	0.5000		0	0	0	NS	NS	0
ODINDIAN	0.5000		0	0	0	NS	NS	0
INDIANRES	1.0000		0	0	0	0	NS	0
SUB-TOTAL			0	0	0	0	0	0
TOTAL		16	0	4	2	0	0	22

NOTES:
NS = NOT SEARCHED

RADIUS MAP



Target Property (TP)
LPST
PST
TIERII
MSWLF

SH 249
Grimes County, Texas
77363

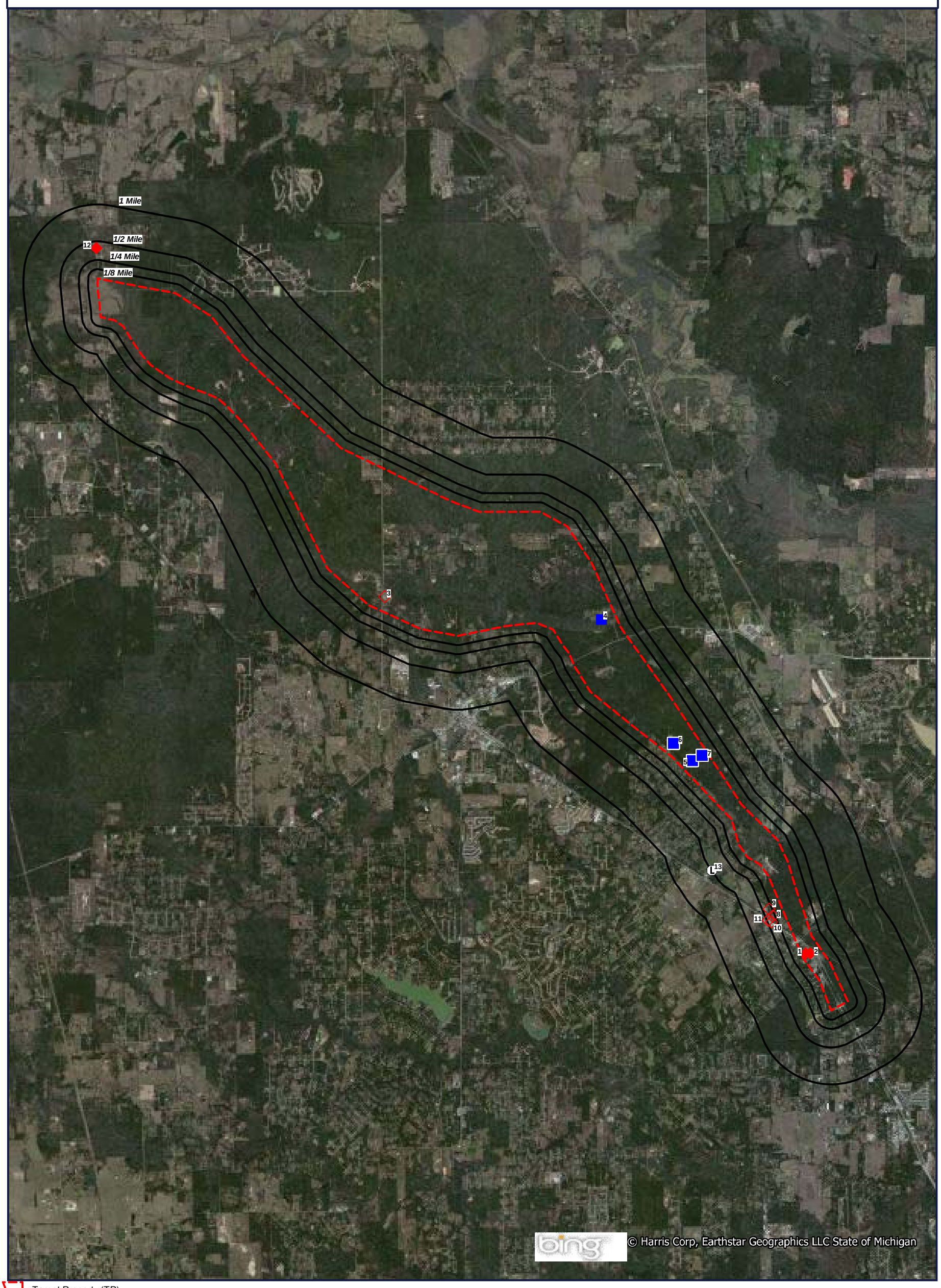
N
W E
S

0' 3500' 7000' 10500'
SCALE: 1" = 7000'

GeoSearch www.geo-search.com - phone: 866-396-0042 - fax: 512-472-9967

JOB #: 66684 - 11/12/2013

ORTHOPHOTO MAP



Target Property (TP)
LPST
PST
TIERII
MSWLF

Quadrangle(s): Keenan, Plantersville, Magnolia West, Magnolia East
SH 249
Grimes County, Texas
77363

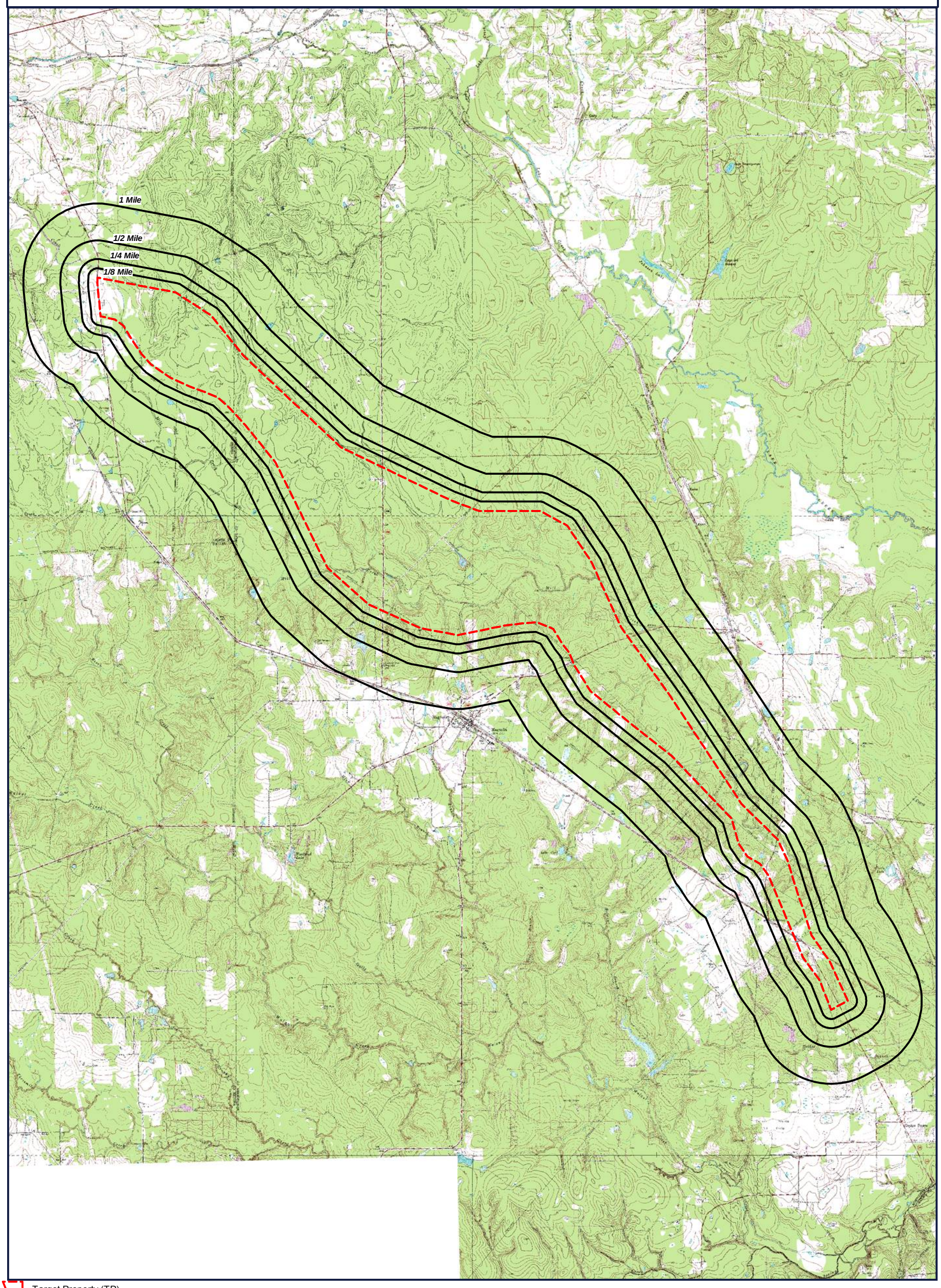
N
W E
S

0' 3500' 7000' 10500'
SCALE: 1" = 7000'

GeoSearch www.geo-search.com - phone: 866-396-0042 - fax: 512-472-9967

JOB #: 66684 - 11/12/2013

TOPOGRAPHIC MAP



Target Property (TP)

Quadrangle(s): Keenan, Plantersville, Magnolia West, Magnolia East
Source: USGS, 1980
SH 249
Grimes County, Texas
77363

N
W E
S

0' 3500' 7000' 10500'
SCALE: 1" = 7000'

GeoSearch www.geo-search.com - phone: 866-396-0042 - fax: 512-472-9967

JOB #: 66684 - 11/12/2013

Report Summary of Locatable Sites

Map ID#	Database Name	Site ID#	Distance From Site	Site Name	Address	City, Zip Code
1	PST	20156	0.001 SE	ADKISON READY-MIX CONCRETE	106 W ROLLINGWOOD ST	PINEHURST, 77362
1	LPST	110087	0.001 SE	ADKISON READY MIX CONCRETE INC	106 W ROLLING WOOD	PINEHURST, 77362
2	LPST	112623	0.001 SE	KENS BREAD & BUTTER	34703 HWY 249	PINEHURST, 77362
2	LPST	093975	0.001 SE	KENS BREAD & BUTTER	FM 249	PINEHURST, 77362
2	NOV	RN102270485	0.001 SE	KENS BREAD & BUTTER	34703 STATE HIGHWAY 249	PINEHURST, 77362
2	PST	30620	0.001 SE	KENS BREAD & BUTTER	34703 STATE HIGHWAY 249	PINEHURST, 77362
2	FRSTX	110034102619	0.001 SE	KENS BREAD & BUTTER	34703 STATE HIGHWAY 249	PINEHURST, 77362
2	GWCC	112623	0.001 SE	NEW YAM ENTERPRISES	34703 HWY 249, PINEHURST	PINEHURST, 77355
3	FRSTX	110034618484	0.001 SE	M-N-M GROCERY INC	1510 FM 1486 RD	MAGNOLIA, 77354
3	PST	75264	0.001 SE	M-N-M GROCERY	1510 FM 1486 RD	MAGNOLIA, 77354
4	TIERII	51EVLM02LDMV	0.001 SE	PINE VISTA WATER PLANT	16310 S RAVENSWOOD	MAGNOLIA, 77355
5	TIERII	930B1YASC51P	0.001 SE	DEVON ENERGY - PINEHURST 13	SEE LAT/LONG	MAGNOLIA, 77354
5	TIERII	930B1ZATJ668	0.001 SE	DEVON ENERGY - PINEHURST 7	SEE LAT/LONG	MAGNOLIA, 77354
5	TIERII	930AUP3ZSVU8	0.001 SE	DEVON ENERGY - DEAN, W A A 4	SEE LAT/LONG	MAGNOLIA, 77354
6	TIERII	930AUP402W2G	0.001 SE	DEVON ENERGY - DEAN, W A A 5	SEE LAT/LONG	MAGNOLIA, 77354
7	TIERII	930B1YASY5LY	0.001 SE	DEVON ENERGY - PINEHURST 16	SEE LAT/LONG	MAGNOLIA, 77354
8	PST	75110	0.16 SE	HANDI STOP 90	32344 HIGHWAY 149	PINEHURST, 77362
9	PST	40679	0.17 SE	FORMER PINEHURST GRAVEL FACILITY	35614 FM 149 RD	PINEHURST, 77362
10	PST	19442	0.21 SE	PINEHURST	35439 FM 149	PINEHURST, 77362
11	PST	45134	0.24 SE	PINEHURST COUNTRY STORE	35427 STATE HIGHWAY 249	PINEHURST, 77362
12	LPST	114309	0.41 N	EASY SHOP	505 FM 1774	PLANTERSVILLE, 77363
13	MSWLF	100133	0.5 SE	IN THE GARDEN LANDSCAPING MATERIALS	36530 FM 1774 RD MAGNOLIA, TX 7735	MAGNOLIA, 77355

Appendix G: Notice of Intent

Room 410E, Teacher Retirement System of Texas, 1000 Red River Street, Austin, Texas 78701.

The award of the contract will be on the basis of demonstrated competence and qualifications to perform the services. Cost of the services will be a factor but may not be the determining factor.

TRD-200306259
Ronnie Jung
Interim Executive Director
Teacher Retirement System of Texas
Filed: September 24, 2003

♦ ♦ ♦

Texas State University-San Marcos

Request for Proposals

(Editor's Note: Texas State University-San Marcos published a Request for Proposals in the September 26, 2003, issue of the Texas Register (28 TexReg 8452). Due to an error by the university the last three paragraphs were omitted. The Request for Proposals is republished in its entirety.)

Texas State University-San Marcos has created a preliminary university marketing plan and positioning statement and is now seeking a firm with the expertise to provide professional services in the following two areas:

1. Conduct a tuition pricing study that will provide our institution a sound, empirical foundation for making price decisions for student tuition. The study should answer the following questions:

What are the enrollment consequences of various price points in terms of the quality, size, and composition of the applicant and matriculant pools?

How can the impact of a price increase on particular groups of interest (such as high-ability students, low-income families, and underrepresented minorities) be managed?

What is the magnitude of the net revenue gains that can be realized at various price points, taking into account necessary investments in increased financial aid?

2. Use sound qualitative and quantitative measures to evaluate current marketing plan and positioning statement and provide information to position the university as an institution of choice and improve its image as a leading public university by answering the following questions:

How should the university position itself, based on its strengths and directions, to achieve further gains in student markets?

How can the university's name change be used in this effort?

Which university directions and initiatives will do most to strengthen the university's position?

The firm will use this information to frame the basis for an integrated brand-marketing campaign, including creative toolkit, templates, thematic copy, materials and training.

Cost of contract not to exceed $250,000.

Please contact Dr. Cathy A. Fleuriet, Associate Vice President for Institutional Effectiveness at (512) 245-8113.

Deadline: October 15, 2003

TRD-200306261

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Texas Department of Transportation

Notice of Intent, SH 249 Expansion

Pursuant to 43 TAC §2.43 (e)(3), the Texas Department of Transportation (TxDOT) is issuing this notice to advise the public that an Environmental Impact Statement (EIS) will be prepared for a proposed project in the SH 249 corridor within Montgomery and Grimes Counties, Texas.

TxDOT, in cooperation with the Federal Highway Administration (FHWA), is considering improvements in the SH 249 corridor within Montgomery and Grimes Counties, Texas. The project study area is approximately 15 miles in length from FM 149 in Montgomery County to FM 1774 in Grimes County. Cities within the study area include Pinehurst, Magnolia, and Todd Mission.

A Major Investment Study (MIS) for the project was completed in 2002. The MIS evaluated modal, configuration, and route corridor alternatives within the overall study area and recommended an alternative which was the most feasible modal, configuration, and route corridor that met the regions transportation needs, while minimizing impacts to the surrounding environment. The most feasible corridor alternative studied in the MIS was selected based on the detailed evaluation of the viable alternatives, as well as public input. This alternative encompasses two general-purpose lanes in each direction, including auxiliary lanes between on-ramps and off-ramps where appropriate. The EIS will study in detail the preferred route corridor that was selected in the MIS and recommend a preferred alternative alignment within this corridor. The EIS is authorized pursuant to the Texas Transportation Commission Minute Order No. 104908 issued January 26, 1995.

A public scoping meeting will be held in the fall of 2003. The purpose of the public scoping meeting is to request comments and identify issues that will be considered during the evaluation of alignment alternatives and preparation of the EIS. All interested citizens are encouraged to attend this meeting. Persons who have special communication or accommodation needs, and who plan to attend the public meeting are asked to contact TxDOT at 713-802-5072 at least two business days prior to the meeting so that accommodations may be made. Large-scale maps of the project area will be displayed at the meeting. This will be the first in a series of meetings to solicit public comments on the proposed action. In addition, a public hearing will be held. Public notice will be given regarding the time and place of the public hearing as well as any future public meetings. The Draft EIS will be available for public agency review and comment prior to the public hearing.

The EIS will evaluate potential impacts from construction and operation of the proposed roadway including, but not limited to, the following: transportation impacts (construction detours, construction traffic, mobility improvement and evacuation improvement), air, and noise impacts from construction equipment and operation of the facilities, water quality impacts from construction area and roadway storm water runoff, impacts to water of the United States including wetlands from right-of-way encroachment, impacts to historic and archeological resources, impacts to floodplains, and impacts and/or potential displacements to residents and businesses.

Letters describing the proposed action and soliciting comments will be sent to appropriate federal, state, and local agencies, and private organizations and citizens who have previously expressed or are known to have interest in this proposal. To ensure that the full range of issues related to this proposed action are addressed and all significant issues identified, comments and suggestions are invited from all interested parties. Comments or questions concerning this proposed action and the EIS should be directed to TxDOT at the address provided.

Agency Contact: Comments or questions concerning this proposed action and the EIS should be directed to Dianna F. Noble, P.E., Texas

Department of Transportation, Environmental Affairs Division, 125 E. 11th Street, Austin, Texas 78701, telephone 512-416-2734.

TRD-200306236
Bob Jackson
Deputy General Counsel
Texas Department of Transportation
Filed: September 23, 2003

♦ ♦ ♦

Public Notice--Aviation

Pursuant to Transportation Code, §21.111, and Title 43, Texas Administrative Code, §30.209, the Texas Department of Transportation conducts public hearings to receive comments from interested parties concerning proposed approval of various aviation projects.

For information regarding actions and times for aviation public hearings, please go to the following web site:

http://www.dot.state.tx.us

Click on Aviation, click on Aviation Public Hearing. Or, contact Karon Wiedemann, Aviation Division, 150 East Riverside, Austin, Texas 78704, (512) 416-4520 or 800 68 PILOT.

TRD-200306235
Bob Jackson
Deputy General Counsel
Texas Department of Transportation
Filed: September 23, 2003

♦ ♦ ♦

Request for Proposals--Highway Safety Plan

In accordance with 43 TAC §25.901, et seq., the Texas Department of Transportation is requesting project proposals, including proposals to participate in Selective Traffic Enforcement Program Wave projects (STEP), to support the traffic safety goals and strategies listed in this request. These goals and strategies will form the basis for the Fiscal Year (FY) 2005 Highway Safety Plan (HSP). As alcohol-related crashes are the leading cause of traffic fatalities in Texas, proposals to reduce driving while impaired (DWI) are especially sought. Proposals to improve occupant protection use are also highly desired. All proposals must include a minimum of 10% local cost share in the first three years of an approved project. Proposals for a second or subsequent year of funding must include a Cost Assumption Plan, demonstrating how the proposal will be funded after federal funding ends. Proposals for a fourth or fifth year must contain a 35% and 50% cost share respectively. Each proposal must state which goal(s) and strategy(ies) included in this RFP it will support. Eligible organizations are state and local governments, educational institutions, and non-profit organizations. Eligible, non-governmental organizations are subject to a pre-award audit prior to any grant execution.

Project Selection Process: The Texas HSP is developed through a strategic performance planning process, with the selection of projects based on problem identification and project solution offered in the proposals. Traffic safety managers will review and evaluate each proposal for applicability to Texas' traffic safety problems. Each qualifying project proposal will be scored against a number of selected criteria. Criteria include strength of problem identification supported with verifiable, current, and applicable documentation of the state or local traffic safety problem; quality of the proposed solution plan; realistic performance objectives and measures; time-framed action plan; cost eligibility; percent of matching funding proposed; and the necessity and reasonableness of the budget. Proposals including the purchase and distribution of child passenger safety seats or other occupant protection devices and supplies require a 50% cost share. Proposals for Selective Traffic Enforcement Program (STEPs) are limited to one or more of the following: Driving While Intoxicated, Occupant Protection, Speed, or Intersection Traffic Control. STEP proposals to specifically address these problems related to commercial motor vehicles will also be considered. Education, training, or presentation proposals using public schools must include written support from target schools or school districts that the product will be included in the curriculum. Proposals for immediate or potential statewide projects in public schools must also have verification of coordination and commitment from the Texas Education Agency. Proposals must be submitted by the responsible entity or have the written support from an authorized representative of that agency. Separate documents with information pertaining to the submitting agency's qualifications, commitment, availability of external resources, task force associations, or previous traffic safety or related experience may also be included with the proposal. Once the scoring process is complete, proposed projects are assigned priority for available funding. Selected proposals will be recommended for inclusion in the Texas HSP expected to begin in federal fiscal year 2005 (October 1, 2004). Eligible and worthwhile projects may be initiated prior to this date if sufficient funding is available. Proposals selected for inclusion in the FY 2005 HSP become cost reimbursable grant-in-aid agreements. Contracts with vendors will be made through the state purchasing process, not through this request for proposal process. All information resource-related activities will be subject to TxDOT information resource procurement procedures. Federal and state grant funds cannot be used for lobbying.

HSP Review and Approval: The HSP will be submitted to the Texas Transportation Commission for approval. Upon approval, the HSP is submitted to the Governor's Office and forwarded to the federal government for review and comment.

HSP Implementation: The HSP becomes operational on October 1 of every year if federal appropriations allow. Funds are to be used to support state problem identification, planning and implementation of a program to reduce crashes, deaths, and injuries on Texas roadways. The traffic safety program is designed to implement worthwhile projects to be assumed by the sponsoring agency, not as financial support for continuing operation. Texas Traffic Safety Program project grant agreements supported with non-dedicated federal funds are limited to the length of the proposed grant period and usually do not receive extended funding beyond three years. Also, "supplanting" (use of federal funds to support personnel or an activity that is already supported by local or state funds) is prohibited. Funding is also provided from state, local, and private sources.

HSP Program Areas and Goals: Proposals are being solicited for the following goals and strategies:

GOAL: Reduce the number of motor vehicle crashes, injuries, and fatalities in Texas

STRATEGIES:

•Increase enforcement of traffic laws

•Increase public education and information campaigns, including employer-based traffic safety

•Lower number of people driving while impaired

•Improve emergency medical services in rural areas

applications for a racetrack license may be filed. On October 21, 2003, the Commission established one 60-day application period. The application period begins at 8:00 a.m., December 1, 2003, and ends at 5:00 p.m., January 29, 2004.

For more information, contact Paula C. Flowerday, Texas Racing Commission, P.O. Box 12080, Austin, Texas 78711-2080, (512) 833-6699, fax (512) 833-6907, or 8505 Cross Park Dr., #110, Austin, Texas 78754-4594.

TRD-200306964
Nicole Galwardi
General Counsel
Texas Racing Commission
Filed: October 21, 2003

♦ ♦ ♦

Office of the Secretary of State

Notice of Submission of Texas Congressional Districts Plan to the U.S Department of Justice

The State of Texas has submitted its redistricting plans for Texas Congressional Districts, to the United States Department of Justice for its review under Section 5 of the federal Voting Rights Act, 42 USC §1973c.

A complete duplicate copy of the submission is available for public review in the Office of the Secretary of State, Elections Division, 208 East 10th Street, Suite 309, Austin, Texas 78701, (800) 252-VOTE (8683). The information will be available from 8:00 a.m. to 5:00 p.m., Monday through Friday. Any comments regarding the submission may be sent to:

Chief, Voting Section

Civil Rights Division

Department of Justice

Room 7254-NWB

950 Pennsylvania Avenue, N.W.

Washington, D.C. 20530

TRD-200306958
Ann McGeehan
Director of Elections Division
Office of the Secretary of State
Filed: October 21, 2003

♦ ♦ ♦

Texas Department of Transportation

Notice of Correction - Notice of Intent, SH 249 Expansion

The Texas Department of Transportation (TxDOT) published a Notice of Intent regarding the issuance of an Environmental Impact State for the SH 249 expansion, in the October 3, 2003, issue of the *Texas Register* (28 TexReg 8712). The following is a corrected version of the Notice of Intent.

Pursuant to 43 TAC §2.43 (e)(3), the Texas Department of Transportation (TxDOT) is issuing this notice to advise the public that an Environmental Impact Statement (EIS) will be prepared for a proposed project in the SH 249 corridor within Montgomery and Grimes Counties, Texas.

TxDOT, in cooperation with the Federal Highway Administration (FHWA), is considering improvements in the SH 249 corridor within Montgomery and Grimes Counties, Texas. The project study area is approximately 15 miles in length from SH 249 in Montgomery County to FM 1774 in Grimes County. Cities within the study area include Pinehurst, Magnolia, and Todd Mission.

A Major Investment Study (MIS) for the project was completed in 2002. The MIS evaluated modal, configuration, and route corridor alternatives within the overall study area and recommended an alternative which was the most feasible modal, configuration, and route corridor that met the regions transportation needs, while minimizing impacts to the surrounding environment. The most feasible corridor alternative studied in the MIS was selected based on the detailed evaluation of the viable alternatives, as well as public input. This corridor alternative encompasses two general-purpose lanes in each direction, including auxiliary lanes between on-ramps and off-ramps where appropriate. The EIS will study the overall SH 249 corridor with all corridor alternatives considered in detail and recommend the most feasible corridor. The EIS will also recommend a preferred alternative alignment within the most feasible corridor. The EIS is authorized pursuant to the Texas Transportation Commission Minute Order No. 104908 issued January 26, 1995.

A public scoping meeting will be held in December 2003. The purpose of the public scoping meeting is to request comments and identify issues that will be considered during the evaluation of alignment alternatives and preparation of the EIS. Persons who have special communication or accommodation needs, and who plan to attend the public meeting are asked to contact TxDOT at 713-802-5072 at least two business days prior to the meeting so that accommodations may be made. Large-scale maps of the project area will be displayed at the meeting. This will be the first in a series of meetings to solicit public comments on the proposed action. All interested citizens are encouraged to attend these meetings. In addition, a public hearing will be held. Public notice will be given regarding the time and place of the public hearing as well as any future public meetings. The Draft EIS will be available for public agency review and comment prior to the public hearing.

The EIS will evaluate potential impacts from construction and operation of the proposed roadway including, but not limited to, the following: transportation impacts (construction detours, construction traffic, mobility improvement and evacuation improvement), air, and noise impacts from construction equipment and operation of the facilities, water quality impacts from construction area and roadway storm water runoff, impacts to waters of the United States including wetlands from right-of-way encroachment, impacts to historic and archeological resources, impacts to floodplains, and impacts and/or potential displacements to residents and businesses.

Letters describing the proposed action and soliciting comments will be sent to appropriate agencies, and private organizations as well as citizens who have previously expressed or are known to have interest in this proposal. To ensure that the full range of issues related to this proposed action are addressed and all significant issues identified, comments and suggestions are invited from all interested parties. Comments or questions concerning this proposed action and the EIS should be directed to TxDOT at the address provided.

Agency Contact: Comments or questions concerning this proposed action and the EIS should be directed to Ms. Dianna F. Noble, P.E., Texas Department of Transportation, Environmental Affairs Division, 125 E. 11th Street, Austin, Texas 78701, Telephone (512) 416-2734.

TRD-200306971
Bob Jackson
Deputy General Counsel
Texas Department of Transportation
Filed: October 22, 2003

potential impacts from construction and operation of the proposed transportation improvements including, but not limited to, the following: transportation impacts (construction detours, construction traffic, mobility improvement and evacuation route improvements), air and noise impacts from construction equipment and operation of the facility, water quality impacts from construction area and roadway storm water runoff, impacts to waters of the United States including wetlands from right of way encroachment, impacts to historic and archeological resources, impacts to floodplains, and impacts and/or potential displacements to residents and businesses.

Letters describing the proposed action and soliciting comments will be sent to appropriate Federal, State and local agencies, and to private organizations and citizens who have previously expressed or are known to have interest in this proposal. Public meetings will be held on dates to be determined at a later time. A formal scoping meeting will be held in January 2004. In addition, a public hearing will be held. Public notice will be given of the time and place of the meetings and hearing. A copy of the Draft EIS will be made available for public review prior to the public hearing. To ensure that the full range of issues related to this proposed action are addressed and all significant issues identified, comments and suggestions are invited from all interested parties. Comments or questions concerning this proposed action and the EIS should be directed to FHWA at the address provided above.

(Catalog of Federal Domestic Assistance Program Number 20.205 Highway Planning and Construction. The regulations implementing Executive Order 12372 regarding governmental consultation on federal programs and activities apply to this program.)

John R. Mack,

District Engineer.

[FR Doc. 03–27364 Filed 10–22–03; 8:45 am]

BILLING CODE 4910–22–M

DEPARTMENT OF TRANSPORTATION

Federal Highway Administration

Environmental Impact Statement: Montgomery and Grimes Counties, TX

AGENCY: Federal Highway Administration (FHWA), DOT.

ACTION: Notice of intent (revised).

SUMMARY: The FHWA is issuing this notice to advise the public that an environmental impact statement will be prepared for a proposed transportation project in Montgomery and Grimes Counties, Texas.

FOR FURTHER INFORMATION CONTACT: Mr. John Mack, P.E., Federal Highway Administration, Texas Division, 826 Federal Building, 300 East 8th Street, Austin, Texas 78701, Telephone 512–536–5960.

SUPPLEMENTARY INFORMATION: The FHWA, in cooperation with the Texas Department of Transportation (TxDOT) will prepare an environmental impact statement (EIS) for improvements in the SH 249 corridor within Montgomery and Grimes Counties, Texas. The project study area is approximately 15 miles in length from FM 149 in Montgomery County to FM 1774 in Grimes County. Cities within the study area include Pinehurst, Magnolia, and Todd Mission.

A Major Investment Study (MIS) for the project was completed in 2002. The MIS evaluated modal, configuration, and route corridor alternatives within the overall study area and recommended an alternative which was the most feasible modal, configuration, and route corridor that met the regions transportation needs, while minimizing impacts to the surrounding environment. The most feasible corridor alternative studied in the MIS was selected based on the detailed evaluation of the viable alternatives, as well as public input. This alternative encompasses two (2) general-purpose lanes in each direction, including auxiliary lanes between on-ramps and off-ramps where appropriate. The EIS will study the overall SH 249 corridor with all corridor alternatives considered in detail and recommend the most feasible corridor. The EIS is authorized pursuant to the Texas Transportation Commission Minute Order No. 104908 issued January 26, 1995.

A public scoping meeting will be held in December of 2003. The purpose of the public scoping meeting is to request comments and identify issues that will be considered during the evaluation of alignment alternatives and preparation of the EIS. All interested citizens are encouraged to attend these meetings. Large-scale maps of the project area will be displayed at the meeting. This will be the first in a series of meetings to solicit public comments on the proposed action. In addition, a public hearing will be held.

The EIS will evaluate potential impacts from construction and operation of the proposed roadway including, but not limited to, the following: transportation impacts (construction detours, construction traffic, mobility improvement and evacuation improvement), air, and noise impacts from construction equipment and operation of the facilities, water quality impacts from construction area and roadway storm water runoff, impacts to water of the United States including wetlands from right-of-way encroachment, impacts to historic and archeological resources, impacts to floodplains, and impacts and/or potential displacements to residents and businesses.

Letters describing the proposed action and soliciting comments will be sent to appropriate agencies, and private organizations and citizens who have previously expressed or are known to have interest in this proposal. To ensure that the full range of issues related to this proposed action are addressed and all significant issues identified, comments and suggestions are invited from all interested parties. Comments or questions concerning this proposed action and the EIS should be directed to FHWA at the address above.

(Catalog of Federal Domestic Assistance Program Number 20.205 Highway Planning and Construction. The regulations implementing Executive Order 12372 regarding governmental consultation on Federal Programs and activities apply to this program.)

John R. Mack,

District Engineer.

[FR Doc. 03–27365 Filed 10–29–03; 8:45 am]

BILLING CODE 4910–22–M

DEPARTMENT OF TRANSPORTATION

Federal Motor Carrier Safety Administration

[Docket No. FMCSA–2003–16241]

Qualification of Drivers; Exemption Applications; Vision

AGENCY: Federal Motor Carrier Safety Administration (FMCSA), DOT.

ACTION: Notice of applications for exemption from the vision standard; request for comments.

SUMMARY: This notice publishes the FMCSA's receipt of applications from 24 individuals for an exemption from the vision requirement in the Federal Motor Carrier Safety Regulations. If granted, the exemptions will enable these individuals to qualify as drivers of commercial motor vehicles (CMVs) in interstate commerce without meeting the vision standard prescribed in 49 CFR 391.41(b)(10).

DATES: Comments must be received on or before December 1, 2003.

ADDRESSES: You may submit comments identified by any of the following