EXECUTIVE SUMMARY

ES.1 What is the purpose of this Executive Summary?

This section briefly summarizes information contained in the Draft Environmental Impact Statement (DEIS) for the U.S. Highway 290/State Highway 71 (US 290/SH 71) project through Oak Hill (Oak Hill Parkway) in Austin, Travis County, Texas. Specifically, this section provides a summary of the proposed project, a summary of the alternatives considered, and a summary of social and environmental impacts associated with the Oak Hill Parkway Project (OHP Project).

ES.2 What is the Oak Hill Parkway Project?

The OHP Project is a combined effort by the Texas Department of Transportation (TxDOT) and the Central Texas Regional Mobility Authority (Mobility Authority), in conjunction with the City of Austin (COA), Travis County, and other local experts (collectively referred to as the project team), to address traffic congestion along the US 290 corridor through Oak Hill. The project team has been charged by Capitol Area Metropolitan Planning Organization (CAMPO) to thoroughly analyze the corridor and determine the best approach for improving mobility. Through extensive analysis and community outreach, the project sponsors will identify a recommended solution, or "preferred alternative." The analysis and public involvement efforts have been documented through the preparation of this Draft EIS (DEIS). The DEIS evaluates the environmental, social, and economic impacts potentially resulting from the proposed construction of the OHP Project.

WHY PREPARE AN EIS?

The National Environmental Policy Act of 1969 (NEPA) requires federal agencies to take a "hard look" at the environmental impacts of and alternatives to a proposed action. The EIS serves as documentation for the NEPA process and thoroughly analyzes the *Build Alternatives* for potential impacts on the human and natural environment.

ES.2.1 What are the project limits and why were they selected?

The limits of the proposed project would extend from State Loop 1 (locally known as MoPac) to Ranch-to-Market Road (RM) 1826 on US 290 with a transition to the west of Circle Drive and on SH 71 to Silvermine Drive in southwestern Travis County (**Figure ES.2-1**). The proposed three- to four-lane, controlled access facility would be approximately 6.16 miles long along US 290 and approximately 1.2 miles long along SH 71 and is identified in the current CAMPO 2040 Regional Transportation Plan (RTP). Several bridge structures would be replaced (US 290 at Williamson Creek, Old Bee Cave Road and SH 71 at Williamson Creek) and multiple stormwater detention and water quality treatment ponds would be constructed. The proposed improvements include considering direct connectors at the intersection of US 290 and SH 71

(locally known as the "Y"). These study boundaries were designated and given to the project team by CAMPO as part of its mandate to thoroughly analyze the corridor and determine the best approach for improving mobility throughout the Oak Hill area.

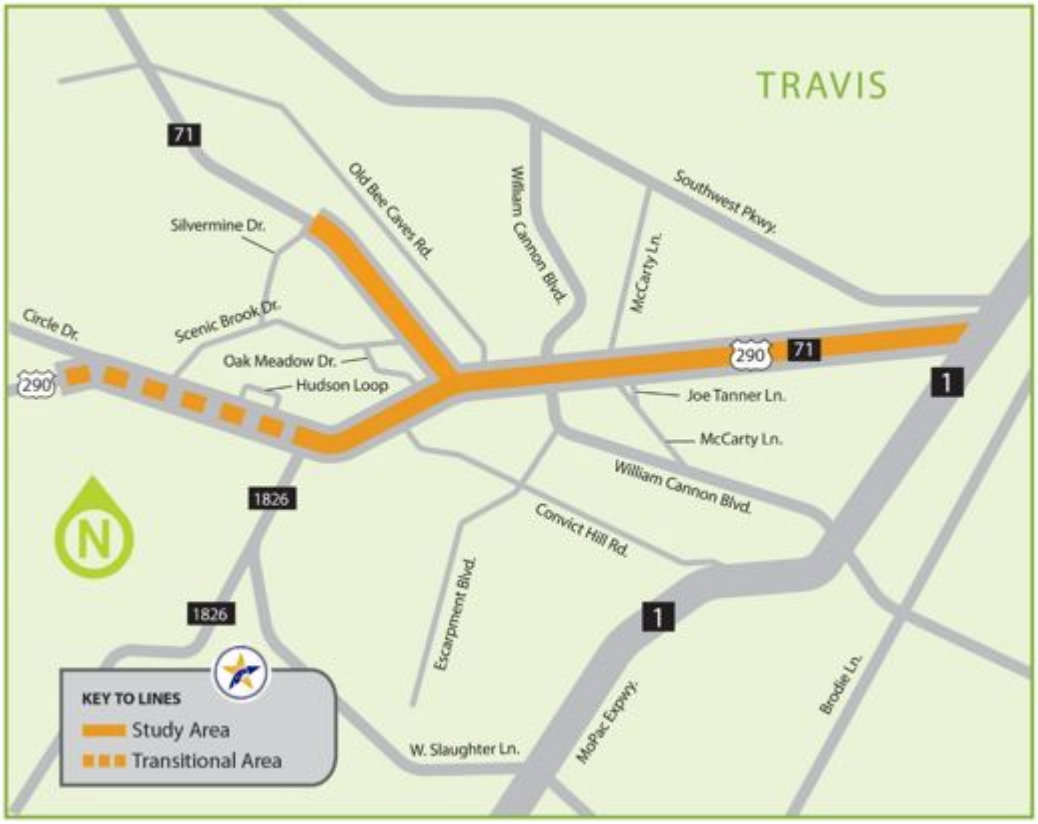

Figure ES.2-1. OHP Project area.

ES.2.2 Are pedestrian and bicycle facilities proposed as part of this project?

Yes. The *Build Alternatives* would include construction of approximately 7 miles of 10-foot-wide shared-use paths along the Oak Hill Parkway corridor, connecting from MoPac to Circle Drive on US 290 and along SH 71 between US 290 and Silvermine Drive. Improvements are envisioned to connect the proposed project area to the Barton Creek Trail under study by the COA. Pedestrian underpasses/bridges at US 290/SH 71 and US 290/William Cannon Drive intersections are also being considered in the *Build Alternatives*. Striped bicycle lanes on cross streets would be implemented to allow for safe travel across US 290 at Circle Drive, Scenic Brook Drive, Convict Hill Road, William Cannon Drive, and RM 1826. There would be a similar bicycle lane at SH 71 and Scenic Brook Drive. Additionally, the project would provide approximately 7 miles of 6-foot-wide continuous sidewalks along the corridor; these sidewalks would be compliant with requirements in the Americans with Disabilities Act (ADA).

ES.2.3 What is the history of the project?

The intersection of US 290 and SH 71 has long been identified as a heavily congested intersection in need of solutions. In fact, improvements for this intersection have been included in the CAMPO Long Range Transportation Plan for over 25 years. The proposed project evolved from efforts that began in the mid-1980s. The proposed improvements were originally considered and approved in a final EIS (FEIS) and Record of Decision (ROD), which covered improvements to US 290/SH 71 from RM 1826 to Farm-to-Market Road (FM) 973. Since the issuance of the ROD in 1988, partial construction of the original project (between Joe Tanner Lane and Riverside Drive) has been completed; however, changes in adjacent land use, state and federal species listings, funding mechanisms, and public input have resulted in a new proposed design concept for this project. The original EIS has been reevaluated four times, but the entire project has never been constructed. Environmental and traffic-related studies and reports, as well as public involvement activities, have continued since the issuance of the 1988 ROD. In 2012, a Notice of Intent (NOI) was published in both the *Texas Register* and the *Federal Register* announcing TxDOT's intent to prepare a new EIS for the US 290/SH 71 OHP Project.

CONSIDER THESE FACTS:

- Travis County's population has grown from 212,000 in 1960 to almost 1,200,000 in 2016, increasing congestion (US Census Data, 2016).
- 1,208 crashes occurred on US 290/SH 71 between 2010 and 2016, resulting in 5 fatalities, 30 incapacitating injuries, and other injuries and property damage (TxDOT, 2015, 2017).
- Drivers wasted more than 454,000 hours per year stuck in traffic on US 290/SH 71 in 2014 (TTI, 2015).
- US 290/SHI 71 is identified as the 64th most congested roadway in Texas (TTI, 2017).

ES.3 What problems are we trying to solve?

Congestion has reduced mobility and the quality of life in Oak Hill and surrounding communities. The intersection of two major state highways, US 290 and SH 71 in Oak Hill, is a gateway to southwest Travis County and serves as a key route between Central Austin and fast-growing suburban and rural communities such as Lakeway, Bee Cave, Dripping Springs, and Johnson City. US 290 is one of Texas' most congested highway corridors, and due to a lack of reliable connectivity, US 290 has also become an unreliable route for both transit and emergency vehicles. The proposed project is needed because population growth in Travis County has increased roadway congestion, which causes a decreased level of service and increase in travel time throughout the US 290/SH 71 project area. The proposed project is also needed to increase safety for the traveling public and create a more reliable connection through the corridor for citizens, transit, and emergency vehicles.

The purpose of the proposed project is to improve mobility and operational efficiency, facilitate long-term congestion management in the corridor by accommodating the movement of people and goods for multiple modes of travel, and improve safety and emergency response

throughout the project area. See **Section 2** in the DEIS for a detailed discussion of the proposed project's purpose and need.

ES.4 How do we decide if a road is constructed?

The alternative analysis approach developed for the DEIS allowed for a full comparison and evaluation of alternatives through an iterative series of phases. The process led to the selection of a single *Recommended Alternative* that would best meet the need and purpose of the proposed OHP Project and would best avoid or minimize environmental impacts in the project area.

ES.4.1 How were the current build alternatives determined?

Stakeholder input and environmental analyses since the study launched in 2012 show that congestion is reducing mobility and quality of life in Oak Hill and surrounding communities. The project team developed mobility improvement concepts and a methodology for screening the concepts through a collaborative approach with the public. The concepts represented a range of reasonable alternatives as required by NEPA. The preliminary concepts were presented to the public during numerous public involvement activities. This iterative process involved initial scoping discussions, collaboration regarding concepts to be evaluated and the project's purpose and need, evaluation of the concepts through a screening process, and carrying forward for further study the concepts that best meet the project purpose and need. Since 2012, the project team has held six open houses as well as numerous workshops and stakeholder meetings to ensure that two-way communication has been ongoing between the team and the community. Through this collaborative process with the community as well as ongoing technical analysis, the mobility concepts were narrowed from 12 to 2. *Alternatives A* and *C* are evaluated in detail in this DEIS. The *No Build Alternative*, or "Do Nothing Alternative," is also carried forward and serves as a baseline for analysis.

ES.4.2 What is the No Build Alternative?

The *No Build Alternative* is still an option on the table for approval and is being carried forward as a baseline for comparison. At the end of this environmental study, if the TxDOT Environmental Affairs Division decides that the *No Build Alternative* is the preferred alternative, US 290 and SH 71 would continue to exist as they do today and would continue to have standard, routine maintenance over the next 30 years. Travel times would increase approximately 25 to 35 minutes over what they are today as congestion increases, and safety and mobility would continue to decline in the Oak Hill area as population increases. In addition, the proposed bicycle/pedestrian facilities and the upstream detention ponds would not be constructed. Although it does not meet the need and purpose of the project, the *No Build Alternative* was carried through the environmental impact analysis to assess the impacts of no action as a comparison to the *Build Alternatives*, as required by NEPA.

ES.4.3 What other alternatives were considered?

Beginning in 2012, TxDOT and the Mobility Authority held a series of public meetings, online open houses, stakeholder meetings, and workshops to encourage the public to provide input concerning the development of concepts for the proposed project and to ensure that the screening criteria for selecting alternatives were appropriate. An initial 12 concepts and the draft screening criteria were presented to the public during an open house in October 2013. See **Table ES.4-1** below for a summary of the concepts that were developed as possible alternatives for the proposed project.

Table ES.4-1. Initial US 290/SH 71 Transportation Concepts and Evaluation Results

Concept Name	Description	Evaluation Results
NEPA-Required No Build Alternative		
No Build Alternative	Includes the continuous flow intersections constructed by the COA and TxDOT and all other projects in the CAMPO 2040 transportation plan.	Carried forward through all phases as required under NEPA.
2007 Alternative		
2007 Alternative	Conventional highway with frontage roads and direct connectors at the "Y" developed from the Mediation Process.	Eliminated from consideration in Phase 2.
Non-Capital-Intensive Strategies		
Transportation System Management (TSM)	Includes a collection of low-cost (non-capital-intensive) strategies to enhance safety, reduce congestion, and improve traffic flow. Specific strategies include traffic signal synchronization, freeway operations improvements (changeable message signs and ramp metering), and incident management (clearing accidents and breakdowns quickly to allow traffic to move more smoothly). Other methods can include bus pullouts (to remove stopped buses from the traffic stream), intersection improvements (signal priority for transit vehicles), and queue jumper lanes (to get transit vehicles to the front of the line at intersections).	Eliminated from consideration in Phase 1.
	Would not increase the overall capacity of US 290 or SH 71, although it would address some access/egress issues and other minor safety and operational issues. TSM could be incorporated as an enhancement into any of the other build concepts.	

Concept Name	Description	Evaluation Results
Transportation Demand Management (TDM)	Includes managing or decreasing the demand for auto-related travel by using a variety of measures to increase the operating efficiency of transportation facilities. This typically includes alternatives to single-occupant vehicles (transit, carpool, vanpool, bicycle), incentives/disincentives (congestion pricing, High Occupancy Vehicle ([HOV] lanes, travel time advantages for HOVs), alternative work environments (telecommuting and flex time), and parking management. Includes improving the existing transportation system to include TDM strategies. This concept would not increase the overall capacity of US 290 and SH 71 though it would address some issues associated with access/egress and other minor safety and operational issues. TDM could be incorporated as an enhancement in any of the other build concepts.	Eliminated from consideration in Phase 1.
Controlled-Access Concepts		
Concept A	US 290 depressed mainlanes • Conventional controlled-access highway with frontage roads • Westbound US 290 frontage road west of William Cannon Drive on the north side of Williamson Creek • Depressed US 290 mainlanes under SH 71 • Direct connector ramps at the "Y" • Single-point flying-T intersection for the frontage roads at the "Y"	Carried forward through all phases. One of two concepts that best meets all aspects of the project's purpose and need.
Concept B	US 290 mainlanes north of creek without direct connectors • Conventional controlled-access highway with frontage roads • US 290 mainlanes west of William Cannon Drive on the north side of Williamson Creek • US 290 frontage roads between William Cannon Drive and the "Y" along existing US 290 • The continuous flow intersection at William Cannon Drive and US 290 would remain • No direct connector ramps at the "Y" • Single-point flying-T intersection for the frontage roads at the "Y"	Eliminated from consideration in Phase 2.
Concept C	US 290 mainlanes north of creek with direct connector ramps • Same as Concept B except direct connector ramps are added at the "Y"	Carried forward through all phases. One of two concepts that best meets all aspects of the project's purpose and need.

Concept Name	Description	Evaluation Results
Concept D	US 290 express lanes with frontage roads • Two lanes in each direction constructed in the center of what would ultimately be a controlled-access facility • The express lanes would extend from MoPac to the west end of the project with access limited to each end and possibly one other location for special use, such as access for Capital Metro's new park and ride, Austin Community College (ACC), and Seton Southwest Hospital in the vicinity of RM 1826/Convict Hill Road • Express lanes would be grade separated from the crossing streets • Single-point flying-T intersection for the frontage roads at the "Y"	Eliminated from consideration in Phase 2.
Minimum Improvement Concepts		
Concept E-1	Focus on providing US 290 grade separations at William Cannon Drive and improvements for SH 71. Would include studying William Cannon Drive over US 290.	Eliminated from consideration in Phase 1.
Concept E-2	Focus on providing US 290 grade separations at William Cannon Drive and would include studying William Cannon Drive over US 290.	Eliminated from consideration in Phase 1.
Parkway Concept		
Concept F	Developed based on input from the public • Non-continuous frontage roads • An at-grade intersection at SH71	Eliminated from consideration in Phase 2.
Localized Design Options		
Option 1	Extend west transition past Circle Drive • Can be included with Concepts A through D and Concept F	Incorporated into the design concepts carried forward.
Option 2	Provide a westbound US 290 exit ramp to RM 1826 that is braided with an entrance from SH 71 • Would provide better access for ACC • Can be included with Concepts A, B, C, and F	Incorporated into the design concepts carried forward.

Source: Project Team, 2017

The project team utilized a three-phased approach to narrow the initial 12 concepts down to the *Recommended Alternative*. Phase 1 evaluation criteria focused on whether or not a concept met the project's purpose and need. These criteria included three major performance criteria: (1) improve mobility and operational efficiency, (2) increase multimodal travel options for people and goods, and (3) improve safety and emergency response. Based on input from the public, four of the initial 12 concepts evaluated were eliminated from further study because they did not meet the project's purpose and need (**Table ES.4-1**).

The Phase 2 evaluation criteria assessed the eight remaining concepts carried forward after the Phase 1 evaluation. This second evaluation, utilizing detailed traffic modeling techniques,

included a deeper analysis of how well each concept met the project's purpose and need. Phase 2 screening also evaluated quantifiable impacts such as the number of residential and commercial displacements, impacts on transit, access modifications, preliminary cost and the amount of additional right-of-way that would be required for each concept. In June 2014, all of the remaining concepts were screened using the Phase 2 criteria with input from the public. This effort resulted in the reduction of the remaining concepts from eight to three (**Table ES.4-1**). Concept A, Concept C (hereafter referred to as *Alternative A* and *Alternative C*), and the *No Build Alternative* were carried forward into schematic development and environmental evaluation.

ES.5 What evaluation criteria were used to select a recommended alternative?

In Phase 3, a third set of evaluation criteria was developed during the DEIS process to evaluate and compare *Alternative A*, *Alternative C*, and the *No Build Alternative* using equivalent levels of detail. This third set of criteria was presented to the public and the participating agencies for comment in June 2014 and January 2015. The project team further refined the third set of criteria once the technical studies had been completed and utilized this information to aid in their selection of the recommended alternative. The Phase 3 criteria included performance measures to address mobility, cost, human environment, cultural, and natural resource impacts by comparing evaluation parameters such as travel time, change in access, pedestrian and bicyclist connectivity, and water quality treatment measures.

ES.6 What would be the permanent effects on the social, economic, and natural resources within the project area?

ES.6.1 How would properties or land use be affected?

Alternatives A and *C* would require the acquisition of approximately 75 acres of additional right-of-way, resulting in five displacements: four commercial properties and one residential property. Two of the commercial displacements would occur due to removal of access. Access to and from some area roadways and neighborhoods onto US 290 and SH 71 would change with implementation of either *Build Alternative*, and the function of some driveways would be eliminated or changed (such as two-way access to a facility changing to one-way access). It is anticipated that land uses on remaining affected parcels would not be impacted.

Properties adjacent to the proposed project limits may experience direct impacts due to construction and operation of the OHP. Access for residents and travelers to community facilities and resources would be maintained throughout the transportation corridor. Though traffic patterns would be modified, overall congestion would be reduced and mobility and travel times improved such that land use resources would be more easily accessible.

Under the *No Build Alternative*, the proposed project would not be built and changes to existing land uses associated with right-of-way acquisition would not occur. Without the

proposed project, resulting level of service across the transportation system would potentially be lower than planned under the CAMPO 2040 RTP, potentially delaying anticipated development patterns discussed in various COA planning documents.

Land uses throughout the proposed project's corridor include residences, educational facilities, recreation, manufacturing, employment nodes, and businesses. Under the *No Build Alternative*, congestion within the corridor would increase and travel times would likely continue to escalate, potentially impeding access to existing land uses. In addition, anticipated congestion and unreliable travel times through the corridor could make future land use development less desirable.

ES.6.2 How would transportation systems and travel patterns within the project area change?

Travel conditions along US 290 and SH 71 through the corridor are projected to improve with the selection of a *Build Alternative*. Proposed mainlanes combined with other roadway improvements would alleviate some of the traffic volume along existing frontage roads and make accessing businesses and offices throughout the project corridor easier. *Build Alternatives* would be implemented with input from Capital Metro to implement appropriate transit options within the corridor. Under *Alternatives A* and *C*, the Oak Hill Park & Ride would no longer operate and provide service at its existing location at US 290/SH 71 and William Cannon Drive. However, a new park and ride location is being identified by the Mobility Authority, Capital Metro, and CAMPO as part of their initiative to develop park and ride facilities for express service on the Mobility Authority's transportation corridors.

Alternatives A and *C* include improvements to bicycle and pedestrian facilities. This is consistent with planning efforts in the study area, which anticipate additional growth and plan for it in terms of multimodal transportation improvements.

Access to and from some area roadways and neighborhoods onto US 290 and SH 71 would change with implementation of a *Build Alternative*, and the function of some driveways would be eliminated or changed (two-way access to the facility changing to one-way access). Local travel times are not anticipated to increase by more than two to three minutes at certain locations. Overall travel times through the corridor are anticipated to decrease due to the increase of roadway capacity and reduction of traffic congestion.

Under the *No Build Alternative*, neighborhoods and community facilities within the study area could be negatively affected over time. As the region continues to grow, more vehicles would be on the roadway, increasing congestion and reducing mobility for those who live and work within the study area, as well as for those commuting through it. Increased congestion along the US 290/SH 71 corridor may encourage drivers to seek alternate routes through neighborhoods using local streets, thereby increasing congestion on local streets.

ES.6.3 Geology and Soils

A Geological Assessment (GA) was conducted for the project area in 2009 and updated in 2016 (TxDOT, 2009; HDR, 2016) (**Appendix D**). Six features were found in the general vicinity of Williamson Creek at the US 290/SH71 crossing (see **Section 4.4, Figure 4-17**). These features included one fault, one small outcrop of limestone, one karst zone displaying multiple fractures, and three solution cavities. Each was characterized using the methodology presented in the guidelines for geologic assessments on the Edwards Aquifer Recharge Zone (Texas Commission on Environmental Quality [TCEQ], 2004). In all, four of the features were evaluated as sensitive (i.e., they have the potential to provide aquifer recharge pathways).

Construction activities may expose geologic units encountered during construction to erosion, but erosion would be minimized to the extent practicable by using proper techniques and Best Management Practices (BMPs) during construction. Impacts from the *Build Alternatives* would be largely consistent with the *No Build Alternative*, but due to the higher Total Suspended Solids (TSS) removal, some water quality impacts could be mitigated. A Water Pollution Abatement Plan (WPAP) would be required for the proposed project and would address potential impacts to water quality and quantity associated with karst features. Approval of the WPAP by the Texas Commission on Environmental Quality (TCEQ) would be required before initiation of project construction. In addition, Gaines Sink, an important Edwards Aquifer recharge feature, would not be impacted by the *Build Alternatives* as it is outside the construction boundaries of this project. Under the *No Build Alternative*, there would be no anticipated additional impact or potential improvement to the study area's topography, geologic resources, or soils.

Although no farmlands of statewide importance exist within the project area, several prime farmland soils are mapped within the proposed alignment of both alternatives. The OHP Project area is located within a census-designated urbanized area (U.S. Census Bureau, 2010); therefore, this project is not subject to the conditions of the Farmland Protection Policy Act (FPPA) and no regulatory protection of prime farmlands is afforded. Project area soils could be affected by soil compaction, erosion, or sedimentation, but BMPs would minimize these impacts. *Alternative A* and *Alternative C* would have comparable impacts to soils, which would be minimized to the extent practicable through engineering and design considerations. The proposed project would not result in any impact to hydric soils.

ES.6.4 What would be the effects to the community, social services, and low-income or minority populations?

The project would require the acquisition of right-of-way (approximately 74.58 acres for *Alternative A* and approximately 75.19 acres for *Alternative C*), and each of the *Build Alternatives* would displace four businesses and one residence. Based on the analysis of impacts and benefits, the OHP Project would provide overall benefits to the socioeconomic resources in the project area. Access to and from some area roadways and neighborhoods onto US 290 and SH 71 would change with implementation of a *Build Alternative*, and the function of some driveways would be eliminated or changed (such as two-way access to the

facility changing to one-way access). These changes would occur with both *Build Alternatives* and would change traffic patterns in the area. Under *Alternatives A* and *C*, the Oak Hill Park & Ride would be relocated. There would be no direct effects to any other community facilities within the study area including the Southwest Branch of the YMCA, the U.S. Post Office, Travis County Community Center, or Oak Hill Health Center. These facilities would continue to operate and the services they provide would not be adversely affected. Travelers through the corridor would still have access to community facilities and resources, and even though traffic patterns would change, overall congestion would be reduced and mobility and travel times would be improved such that these resources would be more easily accessible.

The OHP Project would not be expected to negatively affect community cohesion. The addition of a shared-use path throughout the corridor would improve access for pedestrians and bicyclists. The proposed project would not be expected to change the demographics of the project study area or disproportionately or adversely affect environmental justice (EJ) communities.

The neighborhoods and community facilities within the study area would experience temporary effects related to construction activities, such as temporary changes in traffic patterns. A traffic control plan would be developed prior to construction to manage and route traffic safely and efficiently, and maintain access to local streets, businesses, and other facilities. The traffic control plan would detail how motorists would be alerted to the time and day of lane closures. Furthermore, construction activities would be scheduled accordingly to minimize traffic disruption within the corridor.

Under the *No Build Alternative*, neighborhoods and community facilities within the study area could be negatively affected over time as congestion increases and mobility is reduced. Increased congestion along the US 290/SH 71 corridor may encourage drivers to seek alternate routes through neighborhoods using local streets, thereby increasing congestion on local streets. Increased congestion may also affect travel times for emergency responders or the time it takes for citizens to access medical facilities within the study area. It would be expected that travel times to and from community resources (schools, places of worship, parks, etc.), businesses, and commercial locations would increase with the *No Build Alternative*.

ES.6.5 Would there be an effect on the air quality in the Oak Hill community?

Because the design-year Average Annual Daily Traffic (AADT) for the project would exceed 140,000 trips, a Carbon Monoxide Traffic Air Quality Analysis (CO TAQA) and a quantitative Mobile Source Air Toxics (MSAT) analysis were required for the project. An air quality analysis was completed and is included in the *Air Quality Impacts Assessment Technical Report* (**Appendix E**). Based on the analysis, local concentrations of CO are not expected to exceed national standards at any time. The analysis also indicates that a decrease in MSAT emissions can be expected for both the *Build* and *No Build Alternatives* in 2040 when compared with the existing year of 2015. Under *Build Alternatives A* and *C*, emissions of total MSAT are

predicted to decrease by 70 percent from 2015 to 2040. This decrease is prevalent throughout the highest priority MSATs and the analyzed alternatives. Although the *Build Alternatives* would increase the vehicle miles traveled (VMT) by more than 150,000, when compared to the *No Build* conditions, the total MSAT emissions decrease by 13 percent.

During the construction phase of this project, construction activities may cause temporary increases in particulate matter (PM) and MSAT emissions. The primary construction-related emissions of PM are fugitive dust from site preparation, and the primary construction-related emissions of MSAT are diesel particulate matter from diesel-powered construction equipment and vehicles. The potential impacts of PM emissions would be minimized by using fugitive dust control measures contained in standard specifications, as appropriate. The Texas Emissions Reduction Plan (TERP) provides financial incentives to reduce emissions from vehicles and equipment. TxDOT encourages construction contractors to use this and other local and federal incentive programs to the fullest extent possible to minimize diesel emissions.

ES.6.6 Would noise levels permanently change?

A *Noise Analysis Technical Report* was completed for the proposed project in October 2017 (**Appendix F**). Existing and predicted traffic noise levels were modeled at receiver locations that represent the land use activity areas adjacent to the OHP Project that might be impacted by traffic noise and potentially benefit from feasible and reasonable noise abatement. Of 456 noise receivers analyzed, *Alternative A* would impact 128. Four traffic noise barriers for 52 of the 128 impacted receivers would be proposed for incorporation into the project. For the remaining 76 impacted receivers, it was determined that noise barriers would not be feasible and reasonable and, therefore, would not be incorporated into the project at those locations. *Alternative C* would impact 113 of the 456 noise receivers analyzed. Four traffic noise barriers for 39 of the 113 impacted receivers would be proposed for incorporation under *Alternative C*. For the remaining 74 impacted receivers, it was determined that noise barriers would not be feasible and reasonable and, therefore, noise barriers would not be incorporated into the project at those locations. Noise contours were developed for the proposed 2040 *Build Alternatives* as guidelines for local officials responsible for land use and zoning. The noise contours showed that future development of Activity Category B and C lands (residential and campgrounds, hospitals, recreational areas, playgrounds, etc.) should be farther than 495 feet from the proposed right-of-way, and future development of Activity Category E (hotels, offices, restaurants/bars, etc.) should be more than 335 feet from the proposed right-of-way, so predicted noise levels would not interfere with those types of land use. If the *No Build Alternative* were implemented, noise levels would still be expected to increase, with an associated increase in traffic volumes over time.

Any subsequent project design changes may require a reevaluation of proposed traffic noise barriers. The final decision to construct traffic noise barriers would not be made until completion of the project design, utility evaluation, and polling of adjacent property owners.

Prior to construction, noise workshops would be conducted with affected stakeholders to discuss noise mitigation measures.

WHAT IS A NOISE RECEIVER? WHAT IS AN IMPACTED RECEIVER?

A noise receiver is a discrete or representative location of a noise sensitive area. Different land uses may have different levels of acceptable noise. An impacted receiver is a location where build condition noise levels approach or exceed the acceptable level, or create a substantial increase over existing noise levels.

WHAT IS A TRAFFIC NOISE BARRIER?

A traffic noise barrier is a physical obstruction, such as a noise wall or berm, constructed between the traffic noise and the impacted receiver to lower the noise level.

ES.7 Water Resources

ES.7.1 How would the Build Alternatives affect surface and groundwater resources?

The watersheds for Slaughter Creek, Williamson Creek, and Lake Austin–Town Lake, which includes Barton Creek, are intersected by the OHP Project area. Several surface streams including Wheeler Branch, Williamson Creek, Scenic Brook tributary, five unnamed tributaries to Williamson Creek, and Devil's Pen Creek are crossed by the existing US 290 and SH 71 roadways. The OHP Project area intersects the Federal Emergency Management Agency (FEMA) designated 100-year floodplains associated with Devil's Pen Creek and Williamson Creek and its tributaries. Additionally, the OHP Project area includes portions of the Contributing and Recharge Zones over the Edwards Aquifer. In total, approximately 64 percent of the project area is located over the Contributing Zone and 36 percent is located over the Recharge Zone.

Potential impacts on surface water quality related to roadway construction and operation can quickly translate to the aquifer and springflow environments due to the interconnected nature of surface and groundwater in karstic regions. If contaminants, such as heavy metals, oil, nutrients, or pesticides, are mobilized by stormwater, they could flow into Williamson Creek or downstream to Slaughter Creek via tributaries and enter the aquifer through faults, fractures, or other unidentified recharge features. Although the proposed OHP Project area does not occur within the mapped subsurface drainage basin for any caves, several sensitive recharge features were noted during the GA in the vicinity of Williamson Creek. One of these features would be permanently filled to construct either *Build Alternative*. Buffers would be established to prevent impacts to the other known recharge features in Williamson Creek during the construction phase of the project. BMPs, such as avoidance flagging or fencing, rock filter dams, and sediment control fencing, would be included to prevent impacts to these features and downstream water quality.

The proposed OHP Project would strictly adhere to the TCEQ standards for BMPs over the Edwards Aquifer and would commit to removing a minimum of 80 percent of the incremental increase in TSS that results from the project's additions of impervious cover in the Edwards

Aquifer Recharge Zone. Approximately 74.0 and 73.6 acres of impervious cover would be added to the project area as a result of *Alternatives A* and *C*, respectively. Additionally, the *Build Alternatives* would incorporate 2 upstream detention ponds and up to 17 water quality ponds to mitigate for the increased impervious cover throughout the OHP Project area. These permanent ponds would be designed to improve the quality of stormwater runoff as well as the flow characteristics (e.g., rate, velocity) of discharged stormwater, which would decrease flood potential and reduce channel scouring downstream. It is anticipated that the upstream detention ponds and the US 290 bridge improvements at Old Bee Cave Road, William Cannon Drive, and US 290 would reduce 10-year flood levels (0.5 feet) in Williamson Creek which would slightly reduce overland flow into the Barton Creek watershed.

ES.7.2 Would there be any effects to Waters of the U.S. and Wetlands?

Investigations to identify the general types of wetlands and other potential waters of the U.S. that occur in the OHP Project corridor included a review of background information such as aerial photography, topographic maps, soil maps, National Wetland Inventory (NWI) maps, and FEMA floodplain maps. Field reconnaissance was conducted in July 2015 to preliminarily verify the presence of jurisdictional areas. The project area includes 3.40 acres of streams or water bodies for *Alternative A* and 4.78 acres for *Alternative C*. Additionally, approximately 0.03 acres of wetlands would be impacted as a result of either *Build Alternative*. Field delineation was restricted to areas where right-of-entry was granted; therefore, additional surveys would be required once right-of-way has been purchased prior to the commencement of construction activities. Impacts to these waters would occur from extending existing culverts, placing fill for concrete aprons and/or rock rip rap at bridges, and from placing temporary fills during construction. Exact fill types and amounts would be determined once design is finalized and, based on current design, would be authorized under a nationwide permit from the U.S. Army Corps of Engineers (USACE).

ES.8 Ecological Resources

ES.8.1 Would there be any impacts to the wildlife and vegetation of Oak Hill?

Potential impacts to wildlife can be attributed to the interaction of wildlife with construction machinery, the loss of wildlife habitat, habitat fragmentation, and wildlife/vehicle collision mortalities. Wildlife communities would be impacted by the permanent loss of habitat within the project area. Impacts to non-rare fish and wildlife would be minimized through initial project design considerations and through the avoidance and minimization of vegetation removal and stream channel disturbance. Construction activities would disturb only that which is necessary to construct the proposed project and would minimize disturbance to inert microhabitats (e.g., snags, brush piles). The removal of native vegetation would be avoided to the greatest extent practicable, and BMPs would be utilized to avoid impacts to fish and wildlife within the project area during construction activities.

The primary impact to vegetation would be the removal of vegetation to accommodate the additional roadway right-of-way, shared-use paths, and water quality ponds required for either *Build Alternative*. Field surveys conducted in 2016 documented the following vegetation types within the project area: "Urban," "Edwards Plateau Savannah, Woodland, and Shrubland," "Riparian," and "Disturbed Prairie." *Alternative A* would impact approximately 0.88 acres more vegetation than *Alternative C*. No remnant vegetation communities were identified within the existing or proposed right-of-way during field investigations.

In addition to the vegetation described above, preliminary design indicates that approximately 281 trees greater than 10 inches diameter at breast height (DBH) would be removed as a result of either *Build Alternative*. During the early public involvement stages of this project, trees were identified as an important resource by community members. Therefore, additional survey effort was expended to identify and attempt to minimize impacts to large trees within the project area. Under *Alternative A*, 29 trees with a DBH greater than 35 inches would be removed; under *Alternative C*, 26 such trees would be removed. During the early stages of this project, members of the public identified several iconic trees that held a higher community value due to their size, location, or local history (**Figure ES. 9-1**).

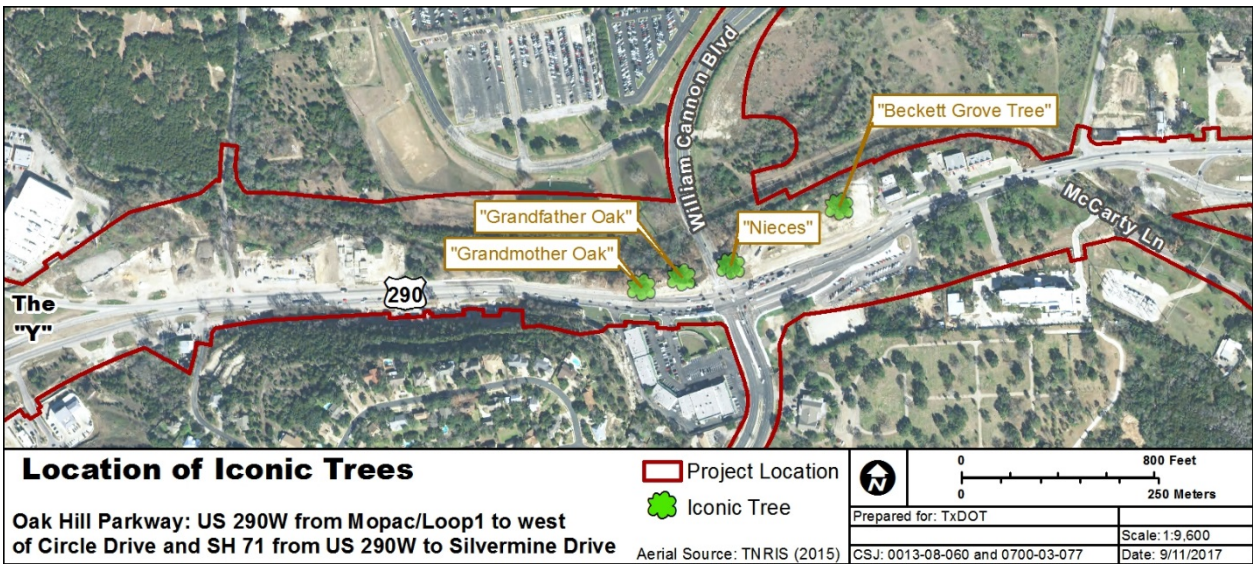

Figure ES.9-1. Location of iconic trees.

With that knowledge, the project team prioritized these trees for protection during project development. Neither *Build Alternative* would remove the following iconic trees: "Beckett Grove Tree," "Grandmother Oak," "Grandfather Oak," or "the Nieces."

Due to the anticipated impacts to vegetation, coordination with Texas Parks and Wildlife Department (TPWD) in accordance with the TxDOT-TPWD Memorandum of Understanding (MOU) was be conducted. Additionally, various landscaping enhancements including tree plantings, native seeding, and tree relocations will be included with the final project design in response to public input regarding the loss of trees within the OHP project area.

ES.8.2 How would the proposed project affect threatened, endangered, and other protected species?

Although the OHP Project area is primarily a suburban community of residential and commercial properties, it has fragmented patches of native vegetation along US 290 from west of William Cannon Drive to the project terminus and along SH 71 north of Scenic Brook Drive at the creek crossings and detention pond locations. These patches of native or intact vegetation provide suitable habitat for a range of species including several species designated by TPWD as species of greatest conservation need (SGCN). Habitat for 19 plants (including the federal candidate bracted twistflower), two mammals (cave myotis bat and plains spotted skunk), one fish (Guadalupe bass), and one reptile (Texas garter snake) has the potential to occur within the project area; however, field investigations in 2016 did not identify the presence of these species. Right-of-entry was not granted for the entire proposed right-of-way; therefore, additional field studies would be conducted to assess these remaining areas for suitability once the right-of-way is acquired and prior to construction.

In addition to the SGCNs mentioned above, the construction and operational phases could cause potential effects to aquatic resources, including the federally listed Barton Springs salamander (BSS) and Austin blind salamander (ABS). Although no surface habitat for these species occur within the OHP Project area, impacts from altered hydrology and impacts from roadway-associated pollution have the potential to affect downstream habitat through degraded water quality. Pollutants can enter the aquatic environment via untreated stormwater runoff or spills, and the addition of impervious cover can affect the volume and quality of runoff leaving the project area. Based on the project's location over the Recharge Zone of the Edwards Aquifer and the known aquifer flow paths to Barton Springs from the impacted watersheds, this project may have indirect effects on the BSS and ABS. Coordination with the U.S. Fish and Wildlife Service (USFWS) was initiated in September 2017 and concluded in December 2017.

TxDOT and the Mobility Authority have determined that the proposed *Build Alternatives* may affect, but are not likely to adversely affect, the federally endangered BSS and ABS. While the OHP Project area is within range of these species, there are no recorded occurrences of the species in close proximity to the project area, suitable surface habitat is lacking in the project area, and the population of the salamanders is diffuse relative to the entire area of the Edwards Aquifer. The project would strictly adhere to the TCEQ standards for BMPs over the Edwards Aquifer and would commit to removing 80 percent of the incremental increase in TSS that results from the project's additions of impervious cover in the Edwards Aquifer Recharge Zone. The proposed BMPs would protect surface water and groundwater in the OHP Project area by minimizing erosion, reducing TSS, and reducing the rate and velocity of discharged stormwater, which would decrease flood potential and thus reduce the amount of roadway contaminants potentially reaching the Barton Creek watershed during storm events. Void mitigation measures would further protect the Edwards Aquifer from TSS during construction.

ES.9 Cultural Resources

ES.9.1 Would there be any effects to archeological sites?

Review of the Texas Historical Commission's (THC) Archeological Sites Atlas revealed 54 archeological sites within the 1-kilometer (0.62-mile) archeological study area (including four sites within the area of potential effects [APE]), six cemeteries, and two historical markers (THC, 1969, 2016). During field investigation of areas where right-of-entry was granted, no cultural materials were observed within the existing right-of-way at the locations of previously documented sites. According to THC's Archeological Sites Atlas, no State Antiquities Landmarks are located within the project's APE or the 1-kilometer (0.62-mile) study area. In accordance with the Antiquities Code of Texas (9 TNRC 191) and Section 106 of the National Historic Preservation Act (NHPA), as amended (16 U.S.C. 470; 36 Code of Federal Regulations [CFR] 800), project archeologists conducted an intensive archeological investigation, roughly centered on the "Y" in Oak Hill, as part of the analysis of the proposed improvements to US 290 and SH 71. These intensive investigations indicated that, because of extensive modern disturbances, there is little to no potential for encountering intact archeological deposits within the existing right-of-way or accessible portions of proposed right-of-way. Disturbances caused by roadway construction and maintenance activities, utility installation, commercial, and residential development were noted throughout the APE.

Although *Alternatives A* and *C* would have a roughly equal moderate to high potential for historical or Native American archeological sites, based on the extensive disturbances noted during the recent surveys no additional archeological investigation is recommended for the existing TxDOT right-of-way or surveyed portions of proposed right-of-way prior to construction activities. However, the project team recommends the completion of pedestrian survey with subsurface testing as needed for the portion of the proposed right-of-way that was not accessible or observable from the existing right-of-way at the time of survey.

Multiple archeological investigations and multiple instances of Section 106 consultation have been previously conducted for this undertaking. The Texas State Historic Preservation Office (SHPO) has concurred with TxDOT recommendations that no further work or consultation is required for all but 53.58 acres of the undertaking's APE. Due to right-of-entry issues, these 53.58 acres still require an archeological assessment and Section 106 consultation. Within the previously assessed areas, the sites located wholly or partially within the APE have been determined by the SHPO not to contribute to any of the sites' eligibility for listing on the National Register of Historic Places (NRHP).

The Programmatic Agreement for Transportation Undertakings among TxDOT, the THC, the Federal Highway Administration (FHWA), and the Advisory Council on Historic Preservation allows the undertaking to proceed with the NEPA process in the event of denial of right-of-entry. Denial of right-of-entry has occurred for the 53.58 acres recommended for assessment. Therefore, the TxDOT Environmental Affairs Archeological Studies Branch allowed the undertaking to proceed with the NEPA process; this decision is documented in an internal

TxDOT memo dated October 18, 2017. That memo is attached in **Appendix K**. TxDOT shall ensure that all archeological assessments as well as Section 106 and Antiquities Code of Texas consultation are completed prior to the commencement of construction within the 53.58 acres of proposed new right-of-way/easements that still require assessment if a Build Alternative is selected.

ES.9.2 Would any historic resources be permanently affected?

A reconnaissance survey was conducted of a variable APE for the proposed project area. In all, 50 historic-age resources (constructed prior to 1974) were documented during the survey. Of these 50 resources, 4 are recommended eligible for listing on the NRHP. One historic district (encompassing the resources associated with Oak Hill's early development period) has also been identified and recommended eligible for NRHP listing. The proposed project would have no direct effects and no adverse indirect effects on any of the NRHP-eligible properties or on the historic district. Because the proposed project would pose no direct or adverse indirect effects to the characteristics for which each NRHP-eligible resource is significant, the approval requirements of the U.S. Department of Transportation Act Section 4(f) regulations (23 CFR 774) do not apply to the proposed project.

SECTION 4(F) AND PROTECTION OF HISTORIC AND ARCHEOLOGICAL RESOURCES:

Section 4(f) refers to a federal law that protects public parks and recreational lands, wildlife and waterfowl refuges, and historic sites. There are no properties within the project area that would require a 4(f) evaluation.

ES.10 How could hazardous materials impact the project?

Several hazardous materials sites with potential to impact the project corridor during construction were identified. Further analysis of potential sites of concern would be warranted, based upon the proposed project design.

Alternative A and *Alternative C* would require the acquisition of right-of-way. In addition to small slivers of property along the existing facility, the acquisition also includes four commercial properties and one residential property. One of the commercial properties, the Speedy Stop gas station and convenience store (Circle K 3276), is listed in the Petroleum Storage Tank (PST) and Leaking Petroleum Storage Tank (LPST) databases. It is anticipated that contaminated soil and/or contaminated groundwater could be encountered during construction. Special provisions or contingency language would be included in the project's plans, specifications, and estimates (PS&E) to handle hazardous materials and/or petroleum contamination according to applicable federal and state regulations. The underground storage tanks would be addressed during the right-of-way acquisition process following normal TxDOT right-of-way procedures. It is recommended that an ASTM-conforming Phase I Environmental Site Assessment be completed prior to any property acquisition.

The proposed project includes the demolition of buildings. The buildings may contain asbestos-containing materials. Asbestos inspections, specification, notification, license, accreditation, abatement, and disposal, as applicable, would comply with federal and state regulations. Asbestos issues would be addressed during the right-of-way process prior to construction.

No construction or property acquisition would occur with the *No Build Alternative*, and no impacts to or from hazardous materials would be anticipated.

ES.11 How would my view change in the Oak Hill area if one of the Build Alternatives is constructed?

Certain design characteristics (e.g., elevated structures/bridges, signs, and lights) could have a visual/aesthetic impact on the surrounding area. Both *Alternatives A* and *C* would alter the appearance of the wooded and suburban setting of the study area. On an individual scale, visual intrusion would be most obvious on sections where the alternative alignments would be elevated and/or within proximity to existing residences or sensitive community facilities. In general, the visual impacts of both alternatives are neutral; however, in one of the Landscape Units (LU 3), *Alternative C* would degrade visual quality because of the collective bulk and mass of the elevated roadways in relation to topography and existing land development patterns in the area.

The most visually significant difference between the designs of the two *Build Alternatives* is depicted in the artistic renderings below of the US 290/SH 71 interchange: the US 290 mainlanes would be depressed in *Alternative A* (**Figure ES.11-1**) and elevated for *Alternative C* (**Figure ES.11-2**). Overall, the proposed OHP Project would be as aesthetically pleasing as possible to minimize any perceived visual intrusion. Design and construction of the *Recommended Alternative* would be consistent with TxDOT design standards and would incorporate several context sensitive solutions identified during public outreach opportunities.

Figure ES.11-1. Artistic rendering of Alternative A at the US 290/SH 71 interchange.

Figure ES.11-2. Artistic rendering of Alternative C at the US 290/SH 71 interchange.

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 qualities of the local and regional roadway network.

ES.12 Climate Change and Greenhouse Gasses

Climate change relates to transportation in two ways: first, transportation emissions may contribute to climate change (U.S. Global Change Research Program [USGCRP], 2014) and second, the changing climate has the potential to affect the transportation system (EPA, 2017). Because climate change is a global issue, it is difficult to examine on an individual project level. Therefore, TxDOT has prepared a statewide *Greenhouse Gas and Climate Change Technical Report* (Appendix O), which includes a climate change assessment, how TxDOT is responding to a changing climate, and greenhouse gas (GHG) analysis for the entire on-road transportation system in Texas. This is attached as Appendix O.

ES.13 Construction Impacts

ES.13.1 How would the alternatives be constructed?

Construction of either *Alternative A* or *C* could follow the usual method for reconstructing and upgrading a rural highway to an urban freeway with frontage roads, as follows:

1. Construct the new frontage roads and detours between the existing and new roadway. Traffic would be located on existing highways.
2. Move traffic to the new frontage roads.
3. Construct the new mainlanes.

If funding were not available for the entire project, construction could be phased as funding became available. The frontage roads could be constructed first, which would improve some traffic and safety issues in the corridor. Should additional funding become available, the construction of the mainlanes could be constructed next, followed by the direct connector ramps between US 290 and SH 71. These options apply to both *Alternatives A* and *C*. See Section 3.3.3.2 for illustrated construction phases.

Construction activities would temporarily affect vehicular traffic along US 290, SH 71, RM 1826, all intersecting and adjacent roadways, and driveways.

ES.13.2 What would happen to the existing utilities?

Alternative A or *C* may affect utilities (i.e., water, sewer, electrical, and natural gas lines) during construction. The contractor would contact the appropriate local officials to identify and locate all utility lines within the right-of-way 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.13.3 Would the project cause delays in my daily commute?

As part of the construction contract requirements, the contractor would be required to maintain the necessary number of barricades, signs, flags, and traffic barriers to direct vehicular traffic away from construction areas. Changes in traffic patterns would be communicated by roadside signs and displays; these changes would be communicated to emergency responders (police, fire, EMS, and others) and public service providers prior to implementing the change. A detailed traffic control plan would be developed to minimize traffic disruption and describe how access would be maintained for vehicles, pedestrians, and bicyclists using the facility during construction.

Temporary increases in traffic congestion would be expected; however, access to adjacent properties would remain open through all phases of construction. During construction of the proposed project and its connections to US 290, SH 71, MoPac, RM 1826, and all local roadways, existing traffic lanes would remain open at all times with the exception of short-term, off-peak periods as necessary to provide for the safe implementation of traffic control devices or short-term construction activities. Expedited bridge building techniques such as prefabrication and night-time working hours can be used if necessary to minimize impacts in the corridor. At this time, only minor detours between existing roadways and new pavement are anticipated to be required during the construction of the proposed project. However, if extensive detours are determined to be necessary, approval from TxDOT would be obtained prior to implementing traffic control measures. Traffic control during construction would

proceed in accordance with the Texas Manual on Uniform Traffic Control Devices and TxDOT's Work Zone Standards.

ES.13.4 How would TxDOT and the Mobility Authority control dust, noise, and other construction-related impacts?

TxDOT would require the contractor to respond appropriately 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. 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.

Excavation or grading activities have the potential to create construction-related impacts to existing and unreported hazardous waste sites. Further investigation would assist in identifying sites that could be affected because of proximity to the *Recommended 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 OHP Project would not be constructed.

ES.14 Indirect Impacts

ES.14.1 What was the result of the indirect impacts analysis?

Based on the amount of developable land within the indirect impacts area of influence (AOI), the pace of documented development in the municipalities represented in the AOI, and the response of local planning experts, the proposed project is not anticipated to generate significant induced development. Factors, such as the large amount of land protected from development and local regulations that limit impervious cover, would constrain the amount of induced growth possible in the AOI. The degree to which that development is specifically attributable to construction of the proposed project is limited for several reasons: the general area already has a high growth rate, there is limited development potential nearby due to undevelopable lands, and the area is surrounded by developments that are already underway.

WHAT ARE INDIRECT IMPACTS?

As defined by the Council on Environmental Quality (CEQ), indirect effects are "caused by an action and occur 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).

Induced growth could have some effect on water resources because induced development would result in increased impervious cover, which could in turn have an effect on water quality. However, the proposed project would not have a substantial adverse effect on water quality in the AOI because of the high percentage of managed areas and the implementation of state and local regulations and BMPs.

The indirect effects that have been described in the *Indirect Impacts Analysis Technical Report* (**Appendix P**) do not conflict with the various goals of planning and conservation entities in the AOI; are not expected to substantially worsen the condition of a sensitive resource; would not delay or interfere with habitat conservation planning efforts or species recovery efforts for sensitive species; would not eliminate a valued, unique, or vulnerable feature; and are not inconsistent with applicable laws.

ES.15 Cumulative Impacts

ES.15.1 What cumulative impacts were studied for the proposed project?

The scoping process, in addition to the direct and indirect impacts analyses, led to the identification of key resources for detailed cumulative impacts analysis. The cumulative impacts analysis considered the ABS and the BSS and their habitats, in addition to groundwater and surface water resources; discussed the health of these resources and relevant trends; and identified specific resource study area (RSA) boundaries and appropriate temporal boundaries for the analysis.

Direct and potential indirect impacts are summarized for each sensitive resource. Past, present, and reasonably foreseeable actions are identified through research, interviews, and cartographic analysis. The construction of the proposed project was considered in conjunction with these other actions to consider cumulative impacts. The analysis provided detailed information about sensitive resources within the RSAs for the OHP Project and described the extensive controls that have evolved over time to help protect these resources.

WHAT ARE CUMULATIVE IMPACTS?

Cumulative effects are defined as effects "on the environment which result 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." (NEPA, 40 CFR § 1508.7)

Direct impacts that would be caused by the proposed project would be limited in part by the implementation of extensive BMPs before, during, and after construction. Given the conservation initiatives underway within the RSAs and the incremental contribution the proposed project would make toward induced development in the AOI, within the context of the continuing development trends the proposed project is not anticipated to result in substantial adverse indirect impacts to sensitive resources. The proposed project, in

conjunction with other past, present, and reasonably foreseeable future projects, may contribute to cumulative impacts but is not likely to cause significant cumulative impacts to the resources assessed in this analysis.

ES.16 What opportunities have been provided for the public and agencies to engage with the project?

Public involvement has been an ongoing and critical component of the proposed OHP Project and will continue throughout the environmental document preparation process. Efforts to date have included public and agency scoping meetings, technical working group meetings, individual stakeholder meetings, public open houses, and environmental workshops. Additionally, the project team has maintained a public website and distributed electronic newsletters, informational flyers, and social media posts to keep the public informed and engaged throughout the project's environmental process.

The public's participation in workshops and open houses has allowed for the project team to make improvements to the proposed alternatives to improve mobility along US 290/SH 71 and shape the environmental screening criteria to reflect the concerns of the Oak Hill community.

PUBLIC OUTREACH ACTIVITIES TO DATE HAVE INCLUDED:

- 6 open houses
- 6 virtual open houses
- 669 official comments
- 14 issue-specific workshops
- 80 stakeholder meetings

Summary reports for all public involvement activities on this project are available for review at the TxDOT Austin District.

In addition to the six open houses conducted from November 2012 to October 2015, there have been workshops focusing on water quality, finance, bicycle and pedestrian facilities, evaluation criteria, design, mobility, and several context sensitive solutions available for public and agency attendance.

Public and agency involvement is ongoing, with a public hearing to be scheduled subsequent to approval of the DEIS.

ES.17 What is the recommended alternative?

Alternative A, *Alternative C*, and the *No Build Alternative* are evaluated throughout the DEIS in terms of their effects on the natural and human environments, as well as their ability to meet the proposed project's need and purpose. The following criteria were utilized to evaluate the alternatives:

- Ability to meet the proposed project's need and purpose
- Ability to improve mobility and operational efficiency
- Potential property, noise, and air quality impacts
- Community impacts
- Aesthetics and visual impacts
- Cultural, water, and ecological resource impacts

A RECOMMENDED ALTERNATIVE MUST:

- Best manage the projected CAMPO traffic projections in 2040
- Best meet the purpose and need of the project
- Must not have adverse effects on historical properties, endangered species, or parkland
- Meet state water quality standards
- Abate noise where it is reasonable and feasible
- Meet safety standards set by FHWA

Alternative A meets the purpose and need of the proposed project by facilitating long-term congestion management along the US 290/SH71 corridor by accommodating the movement of people and goods via multiple modes of travel. *Alternative A* also meets the purpose and need of the proposed project by improving mobility and operational efficiency as well as safety and emergency response time. In addition to meeting the purpose and need, *Alternative A* also has fewer social, economic, and environmental impacts. Measures of effectiveness are identified by alternative in **Section 3.3**. In summary, *Alternative A*

- adds 19 at-grade crossings of shared-use path and streets, which is 4 fewer than *Alternative C*;
- adds 7,200 linear feet of total change in the length of access points in/out, which is 5,520 linear feet less than *Alternative C*;
- proposes 10,840 linear feet of elevated structures, which is 3,160 less than *Alternative C*; and
- includes approximately 3.40 acres of streams and water bodies within the right-of-way compared to 4.78 under *Alternative C*.

For these reasons, *Alternative A* was selected as the *Recommended Alternative* for the OHP Project.