

9. ENVIRONMENTAL PERMITS, ISSUES, AND COMMITMENTS

9.1 Introduction

The proposed OHP Project would result in physical, social, and economic impacts regardless of the alternative selected. Efforts have been made in the planning process to avoid adverse impacts to the natural and human environment. When impacts are unavoidable, steps are taken to minimize and mitigate impacts, as required under NEPA, FHWA, and TxDOT guidelines. According to CEQ regulations (40 CFR 1508.20), mitigation efforts include

- avoiding an impact altogether;
- minimizing the impact by limiting the degree or magnitude of the action;
- rectifying the impact by repairing, rehabilitating, or restoring the resource;
- reducing or eliminating the impact over time by preservation and maintenance activities; and,
- compensating for the impact by replacing or providing substitutes to the impacted resource.

Efforts were made when selecting and analyzing the project alternatives and when identifying the *Recommended Alternative* to avoid or minimize adverse effects where possible. Where impacts to resources would require coordination and permitting, processes in accordance with state and federal regulations would be followed with the appropriate jurisdictional agency.

The following sections identify mitigation and permitting that would likely be required for the implementation of the *Recommended Alternative*.

9.2 Soils and Geology

Construction activities proposed for the *Build Alternatives* within the project area would result in a range of effects to existing soils. The potential for soil compaction, erosion, or sedimentation would increase along with most construction activities. BMPs along with other erosion and sediment control measures would be utilized to minimize erosion and soil loss during these activities. These proposed actions would result in a reduction of project impacts to area soils.

Geologic resources within the project area would receive impacts from *Build Alternative* construction activities. Geologic units located near the ground surface may be exposed, resulting in erosion of those areas. Erosion effects would be minimized by utilizing preventive BMPs including dikes, berms, mulching, erosion control blankets, and other protective measures.

Four sensitive features occur within the project right-of-way and are described below.

- F1 is a solution cavity of about 2 square feet which is exposed in the bedrock. This feature was evaluated as sensitive with a moderate potential for infiltration.
- F4 is a karst zone that encompasses an approximately 100-by-30-foot area on a gently sloping hillside covered with live oak trees and Ashe juniper. As a result of the zone classification of this feature and its similarity with the regional structural trend, it was evaluated as sensitive.
- F5 is identified as the surface expression of the Mount Bonnell Fault within Williamson Creek which shows little evidence of solution enlargement. It was evaluated as sensitive with a moderate potential for infiltration.
- F6 is a solution cavity of about 2 square feet located along the southern limits of the TxDOT right-of-way south of US290. The feature was evaluated as sensitive with a moderate potential for infiltration.

Proposed protection measures for these sensitive features would include preventive BMPs including dikes, berms, mulching, erosion control blankets, and other protective measures.

Because the project area has been heavily modified by long-term development, impacts to geology and soils resulting from the *No Build Alternative* would remain the same. Impacts from the *Build Alternatives* would be largely consistent with the *No Build Alternative*, but due to the higher TSS removal some water quality impacts could be mitigated. Gaines Sink will not be impacted by the *Build Alternatives* as it is outside the construction boundaries of this project. Construction impacts, erosion, and sedimentation issues would be minimized by the use of BMPs both during and after project construction.

The following commitments would be required:

1. Prepare a SW3P (including erosion control, sedimentation control, and post-construction TSS removal requirements).
2. Prepare a WPAP.

9.3 Community Resources

Efforts were made during the planning stages of evaluating and selecting the proposed project to minimize adverse impacts to neighborhoods, adjacent residential areas, and community facilities. Both alternatives generally follow the existing roadway, and would not serve to further divide, separate, or isolate any neighborhood or community facilities, and would not affect community cohesion.

During construction there would be temporary changes in traffic patterns which may affect emergency responders in the short-term. Emergency service providers would receive notification prior to construction and/or temporary roadway closures or detours.

During construction, access to the Cook-Walden/Forest Oaks Funeral Home and Memorial Park may be temporarily affected. TxDOT and the Mobility Authority would work with the funeral home to ensure their operations would be ongoing during construction.

9.3.1 Landscaping

Landscaping disturbed by construction of a highway would be reestablished for environmental and aesthetic reasons. During design, a project-specific landscaping plan would be developed incorporating appropriate native and adapted species.

9.3.2 Right-of-Way Design

Potential adverse impacts to community, public, and other sensitive resources would be reduced by minimizing right-of-way acquisition where feasible.

9.4 Pedestrian and Bicycle Paths

In accordance with the federal *Policy Statement on Bicycle and Pedestrian Accommodations Regulations and Recommendations* by the USDOT (March 2010), both *Build Alternatives* would include a shared-use path designed to facilitate safe bicycle and pedestrian accommodations within the project area. All intersections would be designed in compliance with the ADA per federal requirements. Temporary impacts during construction would be minimized as much as possible.

9.5 Displacements and Relocations

One residential and four commercial displacements would occur in both *Build Alternatives*, and several businesses on the south side of US 290 just east of the “Y” may be affected due to changes in access; however, these displacements would not be expected to affect community cohesion.

Consistent with the USDOT policy as mandated by the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 as amended, all property owners from whom property is needed are entitled to receive just compensation for their land. Just compensation is based on fair market value of the property. TxDOT would provide information and resources to the affected property owners.

9.6 Transportation Facilities

TxDOT would coordinate with the COA and Capital Metro during project design to minimize the temporary and permanent impacts to transportation and bicycle facilities to provide the same level of connectivity as the existing conditions. The proposed project would provide continuity of sidewalks and shared-use lanes along the frontage road by adding sidewalks and pathways in areas as needed. New pedestrian crossings would be added at the major intersections and designed in accordance with ADA requirements.

9.7 Air Quality

During the construction phase of this project, temporary increases in PM and MSAT emissions may occur from construction activities. The primary construction-related emissions of PM are fugitive dust from site preparation, and the primary construction-related emissions of MSAT are diesel PM 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 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.

However, considering the temporary and transient nature of construction-related emissions, the use of fugitive dust control measures, the encouragement of the use of TERP, and compliance with applicable regulatory requirements, it is not anticipated that emissions from construction of this project would have any significant impact on air quality in the area.

9.8 Noise Abatement Measures

Existing and predicted traffic noise levels were modeled at receiver locations that represent the land use activity areas adjacent to the proposed project that might be impacted by traffic noise and that could potentially benefit from feasible and reasonable noise abatement. The proposed project would result in traffic noise impacts. Therefore, the following noise abatement measures were considered: traffic management, alteration of horizontal and/or vertical alignments, acquisition of undeveloped property to act as a buffer zone, and the construction of traffic noise barriers.

Traffic noise barriers were the only noise abatement measure that was deemed feasible and reasonable for the project. Noise barriers are proposed for incorporation into the project at several receivers. TxDOT would conduct meetings with the owners of the affected receiver properties and determine whether they want traffic noise barriers. The final decision to construct the proposed traffic noise barrier would not be made until completion of the project design, utility evaluation, and polling of property owners who are adjacent to the proposed noise barrier locations where abatement was determined to be reasonable and feasible.

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.

9.9 Water Resources

9.9.1 Ground Water

Placement of the roadway could encroach on the surface or subsurface drainage areas of unknown adjacent caves/sensitive recharge features, altering the hydrologic regime in those features. Additionally, any features that are uncovered during construction operations would be closed in accordance with TCEQ regulations.

Proposed water quality protection measures and BMPs to be utilized under either *Build Alternative* would remove at least 80 percent of the incremental increase in TSS that results from the project's addition of impervious cover in the Edwards Aquifer Recharge Zone, in compliance with the TCEQ's Edwards Aquifer Rules. In addition, the proposed water control facilities for both alternatives are anticipated to exceed the total TSS removal required by TCEQ. The potential for pollutants in stormwater runoff from the construction site and completed roadway to enter the aquifer and the potential for changes in recharge rates to the aquifer resulting from increases in impervious cover would be minor. Impacts would be minimized by the use of robust BMPs during roadway construction and operation. These BMPs (outlined in the *Oak Hill Parkway (US 290/SH 71) Preliminary Water Quality Analysis and Design Report*, attached as **Appendix H**) include multiple levels of water quality treatment measures, water quality ponds, VFS, and a hazmat trap at Williamson Creek. Stormwater runoff would also be treated by BMPs over the Recharge and Contributing Zone.

9.9.2 Surface Water

Water quality impacts from the proposed project would include highway and bridge runoff, construction-related impacts, and maintenance-related impacts. Long-term operational effects on surface water quality would alter the volume of storm water runoff and constituents carried in the runoff. Runoff from the proposed OHP Project area could contain sediment or pollutants in quantities that could impact water quality. Impacts to surface waters in the project area would also be minimized using BMPs during both construction and operation of the proposed project. Over 5 acres of earth would be disturbed as a result of either *Build Alternative*, requiring preparation and implementation of a SW3P; an NOI for coverage under the TPDES Construction General Permit would also be required for the project. Stormwater runoff would be addressed through compliance with the TPDES and Edwards Aquifer Protection Plan.

Once construction has been completed, a Notice of Termination would be filed per permit requirements. Guidance documents, such as TxDOT's *Storm Water Management Guidelines for Construction Activities*, discuss temporary erosion control measures to be implemented to minimize impacts to water quality during construction (TxDOT, 2002).

During construction, project activities would be guided by an Environmental Compliance Management Plan, which would include protocols designed to avoid environmental impacts. The contractor would also take appropriate measures to prevent or minimize harm and control

hazardous material spills in the construction assembly area. Removal and disposal of all waste materials by the contractor would be in compliance with applicable federal and state guidelines and laws.

Discharges of dredged or fill material into waters of the U.S. regulated by the USACE would require authorization through evaluation of a NWP 14. Under Section 401 of the CWA, the TCEQ regulates water quality for waters of the state. Additionally, this project would require individual coordination with the TCEQ under the TxDOT-TCEQ MOU due to the project's classification as an EIS.

9.10 Floodplains

Section 60.3 (d)(3) of the National Flood Insurance Program regulations states that a community is to

prohibit encroachments, including fill, new construction, substantial improvements, and other development within the adopted regulatory floodway unless it has been demonstrated through hydrologic and hydraulic analyses performed in accordance with standard engineering practice that the proposed encroachment would not result in any increase in flood levels within the community during the occurrence of the base (100-year) flood discharge." (FEMA, 2000)

Based on National Flood Insurance Program regulations, prior to issuance of any construction permits involving activities in a regulated floodway, an engineering or "no-rise" certification would be obtained. The request for certification must be supported by technical data stating that construction of the proposed project would not impact the base flood elevations, floodway elevations, or floodway data widths that are present prior to construction. Coordination with the local floodplain administrator would be required prior to construction of the proposed *Build Alternative*. A conditional letter of map revision will be required and will be submitted to FEMA once final design is complete.

9.11 Wetlands and Other Waters of the U.S.

When evaluating and selecting the alternative alignments, efforts were made to avoid impacts to waters of the U.S. After the recommended alternative is selected, a detailed identification and delineation of potential jurisdictional waters of the U.S. would be performed.

An assessment of impacts to jurisdictional waters of the U.S., including wetlands, would be performed for each stream and drainage channel crossing for the recommended alternative. Dependent on the findings of the level of impacts to waters of the U.S., a NWP would be submitted to the USACE. A functional assessment and mitigation plan would be prepared for the level of impact determined for each type of permit to compensate for unavoidable adverse impacts to jurisdictional waters of the US, including wetlands. The USACE's wetland and stream assessment procedures would be used to identify wetland and stream functions and

services, which served as the basis to develop compensatory mitigation to be considered as part of the permit evaluation. Mitigation for wetland or stream impacts would likely be accomplished through the purchase of wetland or stream credits from an approved mitigation bank.

9.12 Vegetation and Wildlife

Construction of the *Recommended Alternative* would unavoidably impact vegetative communities. An analysis of the vegetation types as mapped by the TPWD's EMST revealed approximately 50 percent of the proposed OHP Project area is listed as Urban and 50 percent is a mixture of mixed woodlands, grassland, riparian vegetation, and native invasive shrublands. Construction activities would permanently remove both the urban and non-urban vegetation communities within the limits of construction and replace each with additional impervious surface and maintained herbaceous species. In addition to the removal of vegetation communities, a number of large trees throughout the existing and proposed right-of-way would be removed in order to accommodate the *Build Alternative*. As discussed in **Section 4.10.2.2** above, TxDOT and the Mobility Authority are committed to protecting the following iconic trees: "Beckett Grove Tree," "Grandmother Oak," "Grandfather Oak," and "the Nieces" during construction of the *Recommended Alternative*. TxDOT and the Mobility Authority are committed to identifying options and presenting potential solutions for landscaping enhancements that can offset the loss of these trees throughout the OHP Project area once the *Recommended Alternative* is presented to the public. The Oak Hill community has expressed continued interest and support for developing landscaping enhancements that would help shape the future aesthetic quality of the corridor following construction. These efforts would continue throughout the development of the DEIS, FEIS, and ROD.

During construction, areas of exposed soil within the project right-of-way would be revegetated with herbaceous species to minimize the introduction of eroded materials into receiving waters. Following construction, landscaping of the area would be in accordance with Executive Order 13112 on invasive species and the Executive Memorandum on beneficial landscaping. Vegetation within the project right-of-way would be maintained according to standard TxDOT practices.

Potential impacts to wildlife would be mitigated through the construction of bridge structures over streams and drainage channels or the installation of culverts to provide wildlife the opportunity to travel under the roadway, rather than pass over the roadway and be exposed to possible predation or vehicle collisions. Landscaping would use native vegetation and a maintenance mowing schedule would be developed that would allow for the reseeding of native species that would benefit wildlife species that use the herbaceous habitat outside the paved areas of the right-of-way.

Impacts to wildlife and habitat resources can be minimized through the use of a combination of any of the following generally recommended methods, as well as other BMPs not specifically identified below but which may be appropriate to address unanticipated site conditions.

- Minimize the crossing of flowing streams and use bridge spans to the greatest extent practicable (as opposed to fill) to minimize impacts on riparian and aquatic communities.
- Design and construction of the *Build Alternative* would include construction and post-construction BMPs to manage stormwater runoff and control sediments.
- Limit the use of herbicides and other chemicals for right-of-way maintenance.
- In accordance with Executive Order 13112 on invasive species and the Executive Memorandum on beneficial landscaping, seed and/or plant the right-of-way with native species of grasses, shrubs, or trees. Soil disturbance would be minimized to ensure invasive species do not establish in the right-of-way.
- Schedule mowing for right-of-way maintenance to facilitate the natural reseeding of indigenous spring and autumnal herbaceous communities.
- Because of safety requirements, do not leave any trees within 30 feet of the roadway without roadside protection. Trees outside the safety zone that are not affected by construction would be preserved.
- If nesting or wintering migratory bird species or rookeries are identified in the immediate vicinity of the right-of-way, defer especially loud or noisy activities in the adjacent areas until after the birds have left the area to reduce negative impacts to the species. Additionally, during the nesting season, birds and their nests are protected under the Migratory Bird Treaty Act from being taken, captured, or killed and from attempts to be taken, captured, killed, and/or possessed.

9.13 Threatened and Endangered Species

The project is likely to have an insignificant and discountable effect on two federally listed species (ABS and BSS). Consultation with the USFWS for indirect impacts to these species was completed in December 2017 with the issuance of a Biological Opinion. The following BMPs would be utilized to minimize impacts to water quality:

Permanent BMPs

- **Upstream Stormwater Detention Ponds**—Upstream stormwater detention basins or ponds are stormwater management facilities that passively collect stormwater upstream of the OHP Project area and would mitigate any increase in downstream flooding risks associated with the changes to drainage patterns as a result of increases in impervious cover. Two upstream stormwater detention ponds are proposed for the OHP Project.
- **Bioretention Ponds**—Bioretention ponds are stormwater storage facilities that passively collect stormwater and thus delay its conveyance downstream. The ponds also filter the stormwater, typically using sand or vegetative media.

- Multiple (between 15 to 17, depending on alternative) bioretention ponds utilizing classic sand filter systems, biofiltration, or extended detention would be incorporated throughout undeveloped portions of the project right-of-way. Ponds would be a mixture of vegetated and non-vegetated systems depending on location (e.g., non-vegetated under roadway overpass). Pond depths would vary but are expected to be approximately 2 to 3 feet deep.
- VFS—A VFS is a section of land located adjacent to the roadway shoulder or median that has moderate slopes designed to accept runoff as overland sheet flow. Pollutant removal is achieved through velocity reduction, filtration by vegetation, and infiltration. Optimal performance of a VFS relies on maintaining a dense mix of erosion-resistant vegetation. VFS would be utilized along pavement edges, within the medians as practicable, and along the shared-use path of the OHP Project.
 - HMT—An HMT is a detention pond that captures and contains liquid hazardous material spills or stormwater runoff. The pond is built to operate in an open-close cycle to allow particulates to settle prior to releasing the less turbid water. HMTs are being considered at the Williamson Creek crossings within the project area.

The following BMPs may be applied to the OHP Project to minimize downstream impacts to water quality and sensitive aquatic resources as practicable throughout the construction and operation phases of the project:

General BMPs

- Erosion Control—The project would incorporate temporary erosion control structures to minimize erosion. Erosion control measures, such as temporary seeding and mulching, hydro-mulch, and erosion control blankets, would be incorporated as a first step in construction and would be maintained throughout active construction activities. In addition, permanent stormwater quality BMPs, such as stormwater ponds, wetlands, or detention basins, may be required for projects that require coverage under the TPDES General Permit.
- Sediment Control—The SW3P would describe the temporary and permanent structural and vegetative measures for soil stabilization, runoff control, and sediment control for each stage of the project from initial land clearing and grubbing to project close-out. The SW3P would include a description of structural practices to divert flows from exposed soils, store flows, or otherwise limit runoff and the discharge of pollutants from exposed areas of the site to the degree attainable.
- Roadside Drainage—Where feasible, vegetated swales would be used to assist with filtering sediment and other pollutants from stormwater before it reaches streams and adjacent wetlands.

- Revegetation—All temporarily disturbed areas created by construction activities would be revegetated following TxDOT specifications. Permanent revegetation would occur after sections are completed and would consist of a variety of grasses and forbs, including legumes, wildflowers, and cereals. The species used shall be suitable to the area and should not compete with permanently planted grasses. Temporary stabilization methods would include seeding and mulch consisting of hay, straw, wood fiber, or other suitable material that would be placed evenly after applying the seed mix.
- Equipment Service/Maintenance—The SW3P and TxDOT Environmental Permits, Issues, and Commitments (EPIC) form will require that any areas used for servicing or maintaining construction equipment be located away from streams, wetlands, and ponds and outside the 100-year floodplain. The contractor would submit a proposed plan designating staging areas, and this plan would be reviewed and approved by the engineer prior to construction. Fuel tanks located on-site would have double containment systems, and any fuels or other spills must be cleaned up immediately and in accordance with an approved spill response plan. Concrete or other material wash outs would be located in designated areas away from aquatic resources. All construction equipment would be maintained in proper mechanical condition so fuel, oil, and other pollutants do not get into water bodies during construction activities.

Wetland/Stream Protection

- Establish and/or maintain buffers around known or discovered recharge features.
- Locate, design, construct, and maintain stream crossings to provide maximum erosion protection.
- Maintain existing road ditches, culverts, and turnouts to ensure proper drainage and minimize the potential for the development of ruts and mud holes and other erosion-related problems.
- Stabilize, seed, and mulch eroded roadsides and new road cuts with native grasses and legumes, where feasible, in a timely manner to minimize impacts to water bodies.
- Implement erosion and sediment controls where appropriate. Maintain protective vegetative covers over all compatible areas, especially on steep slopes. Where necessary, gravel, fabrics, mulch, riprap, or other materials that are environmentally safe and compatible with the location may be used, as appropriate, for erosion control in problem areas.
- Water quality protection BMPs would have multiple levels of oversight to ensure their continued proper function. In addition to contractor inspectors who are responsible for daily monitoring of BMPs, TxDOT inspectors would conduct weekly inspections and would submit compliance reports to the project engineer.

Additional oversight would be provided by the TxDOT project manager (who would be on site each day) and staff from the District Environmental Office, including the district environmental quality coordinator.

Bridge Construction and Geotechnical Drilling Protection

- Monitor drill shafts for voids and leave steel casings in place if water is encountered during drilling activities.
- Provide bridge deck drains that would capture bridge deck runoff and direct it to stormwater ponds.
- A specific karst void discovery protocol would be developed for the project for all excavation phases.

Several sensitive recharge features were identified; however, no features exhibited habitat characteristics required for listed karst invertebrates. Although the project would minimize the need for excavation activities to the extent practicable, the potential for impacting an undiscovered cave or void remains. Excavation, geotechnical boreholes, and bridge pier drilling have the potential to alter a cave’s ecosystem. However, due to the lack of suitable karst features identified during the GA and the location of the OHP Project in areas mapped as Karst Zone 3 (i.e., areas that probably do not contain endangered cave fauna), neither alternative is anticipated to have an effect on listed karst invertebrates. Void mitigation and protection BMPs would be utilized if a void were discovered during project construction.

Habitat for 18 plants, 2 mammals (cave myotis bat and plains spotted skunk), 1 fish (Guadalupe bass), and 1 reptile (Texas garter snake) has the potential to occur within the OHP Project area; however, field investigation 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 once the right-of-way is acquired and prior to construction to assess these remaining areas for suitability. In accordance with the TxDOT–TPWD MOU, the BMPs listed in **Table 9-1** would be utilized to minimize impacts to SGCN species within the project area. No BMPs are provided for the SGCN plants.

Table 9-1. BMPs to Be Used to Minimize Impacts on SGCN Species

| Species | BMP |
|----------------------|--|
| Plains spotted skunk | <ul style="list-style-type: none"> • Contractors would be advised of potential occurrence in the project area, to avoid harming the species if encountered, and to avoid unnecessary impacts to dens. |
| Guadalupe bass | <ul style="list-style-type: none"> • TPWD coordination required for projects within the range of a SGCN or state-listed fish and for which work is in the water. |

| Species | BMP |
|-----------------|---|
| Cave myotis bat | <p>All bat surveys and other activities that include direct contact with bats shall comply with TPWD-recommended white-nose syndrome protocols located on the TPWD Wildlife Habitat Assessment Program website under “Project Design and Construction.”</p> <p>The following survey and exclusion protocols should be followed prior to commencement of construction activities. For the purposes of this document, structures are defined as bridges, culverts (concrete or metal), wells, and buildings.</p> <ul style="list-style-type: none"> • For activities that have the potential to impact structures, cliffs or caves, or trees, a qualified biologist would perform a habitat assessment and occupancy survey of the feature(s) with roost potential as early in the planning process as possible or within one year before project letting. • For roosts where occupancy is strongly suspected but unconfirmed during the initial survey, revisit feature(s) at most four weeks prior to scheduled disturbance to confirm absence of bats. • If bats are present or recent signs of occupation (i.e., piles of guano, distinct musky odor, or staining and rub marks at potential entry points) are observed, take appropriate measures to ensure that bats are not harmed, such as implementing non-lethal exclusion activities or timing or phasing of construction. • Exclusion devices can be installed by a qualified individual between September 1 and March 31. Exclusion devices should be used for a minimum of seven days when minimum nighttime temperatures are above 50 ° F AND minimum daytime temperatures are above 70 ° F. Prior to exclusion, ensure that alternate roosting habitat is available in the immediate area. If no suitable roosting habitat is available, installation of alternate roosts is recommended to replace the loss of an occupied roost. If alternate roost sites are not provided, bats may seek shelter in other inappropriate sites, such as buildings, in the surrounding area. See Section 2: Standard Recommendations for recommended acceptable methods for excluding bats from structures. • If feature(s) used by bats are removed as a result of construction, replacement structures should incorporate bat-friendly design or artificial roosts should be constructed to replace these features, as practicable. • Conversion of property containing cave or cliff features to transportation purposes should be avoided where feasible. • Large hollow trees, snags (dead standing trees), and trees with shaggy bark should be surveyed for colonies and, if found, should not be disturbed until the bats are no longer occupying these features. Post-occupancy surveys should be conducted by a qualified biologist prior to tree removal from the landscape. • Retain mature, large-diameter hardwood forest species and native/ornamental palm trees where feasible. • In all instances, avoid harm or death to bats. Bats should only be handled as a last resort and after communication with TPWD. |

| Species | BMP |
|--------------------|--|
| Texas garter snake | <ul style="list-style-type: none"> • Apply hydromulching and/or hydroseeding in areas for soil stabilization and/or revegetation of disturbed areas where feasible. If hydromulching and/or hydroseeding are not feasible due to site conditions, utilize erosion control blankets or mats that contain no netting or contain the preferred loosely woven, natural fiber netting. Plastic netting should be avoided to the extent practicable. • Inform contractors that if reptiles are found on project site, they should allow the species to safely leave the project area. • Avoid or minimize disturbing or removing downed trees, rotting stumps, and leaf litter where feasible. • Contractors should be advised of potential occurrence in the project area, and to avoid harming the species if encountered. |

Source: TxDOT-TPWD MOU September 2013.

In addition to the above mentioned BMPs, appropriate measures, including the measures listed below, would be taken to avoid adverse impacts on migratory birds.

- Between September 15 and February 1, the contractor would remove all inactive migratory bird nests from any structures that would be affected by the proposed project and complete any necessary vegetation clearing.
- The disturbance, destruction, or removal of active nests, including ground nesting birds, during the nesting season would be prohibited.
- The removal of unoccupied, inactive nests would be avoided as practicable.
- The establishment of active nests during the nesting season (between February 15 and September 15) on TxDOT-owned and -operated facilities and structures proposed for replacement or repair would be prevented.
- The collection, capture, relocation, or transportation of birds, eggs, young, or active nests without a permit would be prohibited.

TPWD’s review of the DEIS would serve as Early Coordination with TPWD for the proposed OHP Project. Should a federally or state-listed species be identified within the *Recommended Alternative* right-of-way, coordination with the USFWS or TPWD would be initiated, and species-specific mitigation strategies would be developed to avoid, minimize, and/or compensate for potential impacts to a threatened or endangered species.

9.14 Archeological Resources

Project archeologists evaluated the potential for the proposed project to affect archeological historic properties or SALs within the APE. Although two new archeological sites were documented within the existing US 290 right-of-way, neither site is recommended as eligible for listing as a SAL or on the NRHP. No archeological resources that could provide new or important data concerning prehistory or history would be impacted by either *Alternative A* or *C*. Based on the extensive disturbance noted in the project area, no additional archeological

investigation is recommended within the existing right-of-way or the surveyed portions of the proposed right-of-way. However, approximately 53.58 acres of proposed right-of-way could not be accessed due to lack of right-of-entry. These areas require additional survey when right-of-entry is obtained or upon acquisition of the properties by TxDOT. In the event that unanticipated archeological deposits are encountered during construction, work in the immediate area would cease, and TxDOT archeological staff would be contacted to initiate post-review discovery procedures.

9.15 Hazardous Materials

In all, 190 findings were included in databases within the ASTM search radius. Of those, 16 sites (including primarily LPST and VCP sites) were determined to have the potential to impact the project corridor. Twelve orphan or unlocatable sites were also included in the database search. One CERCLIS site was listed as an unlocatable site: the IMC Chemical Group. Homefacts.com plots the location of this site on US 290 between Oak Meadow Drive and Convict Hill Road. This site was archived by the EPA in 1980 and no further clean up action or investigation at the site is required.

If hazardous constituents are unexpectedly encountered in the soil and/or shallow groundwater during construction operations, appropriate measures for the proper assessment, remediation, and management of the contamination would be initiated in accordance with applicable federal, state, and local regulations. In the event of an accidental spill of hazardous materials, TxDOT would work with other agencies and its contractors to secure the scene and implement appropriate spill response measures. Standard spill response procedures are outlined in 30 TAC 327. The following general recommendations were made relating to the project corridor.

- An ASTM-conforming Phase I environmental site assessment would be conducted prior to property acquisition.
- All construction contractors would be instructed to immediately stop all subsurface activities in the event that potentially hazardous materials are encountered, an odor is identified, or significantly stained soil is visible. Contractors and maintenance personnel would be instructed to follow all applicable regulations regarding discovery and response for hazardous materials encountered during the construction process.
- Special provisions or contingency language would be included in the proposed project's PS&E to handle hazardous materials and/or petroleum contamination according to applicable state, federal, and local regulations per TxDOT Standard Specifications. Hazardous items that require special handling would be removed only by certified and licensed abatement contractors having documentation of prior acceptable work.

- Further analysis of identified potential sites of concern and their proximity in the project area would occur during preliminary design development.

9.16 Visual and Aesthetic Resources

If nighttime work occurs, the construction contractor would minimize project-related light and glare, consistent with safety considerations. Portable lights may be operated at the lowest practicable wattage and height would be minimized. Lights would be screened and directed downward toward work activities and away from the night sky and nearby residents. The number of nighttime lights used would be minimized.

Potential mitigation measures include landscaping treatments to enhance the visual character of *Build Alternatives*. Such treatments would include incorporating landscaping along the transportation corridor, as appropriate, to diversify the visual landscape. Landscaping would include regionally native plants for landscaping and implementing design and construction practices that minimize adverse effects on the natural habitat. To the extent possible, the proposed project would continue to be designed to create an aesthetically and visually pleasing experience for both roadway users and roadway viewers.

Other elements may include treatment of walls, incorporation of a variety of architectural finishes and lighting treatments. These measures would help to enhance the local character, improve aesthetics, and reduce the visual scale of proposed project. The project designers and contractors would adhere to the landscape guidelines in TxDOT's *Standard Specifications for Construction and Maintenance of Highways, Streets, and Bridges* (June 2004). Context-sensitive design elements could include the following items:

- Landscaping at the perimeter of the *Build Alternative* sites.
- Streetscape elements along adjacent frontage streets, such as sidewalks, street trees, and other aesthetic features.
- Architectural features on the columns and retaining walls, including varying materials.

All lighting would be in accordance with the Texas Health and Safety Code Title 5 §425.002 regarding light pollution. To the extent possible, outdoor lighting fixtures would only be installed and operated if the purpose of the lighting cannot be achieved by the installation of reflective road markers, lines, warning or informational signs, or other effective passive methods. Additionally, full consideration would be given to conserving energy, reducing glare, minimizing light pollution, and preserving the natural light environment. An example of commonly used lighting meeting these considerations is the use of high-pressure sodium lamps equipped with glare shields.

Where practicable, mitigation to improve the visual and aesthetic qualities of the project area would include the following features:

- A project-specific landscaping program Promoting roadside native wildflower planting programs
- Noise barriers
- Providing adequate signage and easy access to roadway facilities
- Treatment of the side surfaces and columns of the project using façade materials of varying texture, color, etc.
- Incorporation of CSS and design elements from the Green Mobility Challenge