



Cumulative Effects Technical Report

RM 620 at Anderson Mill Road Intersection
From South of Foundation Road to Little Elm Trail

Travis and Williamson Counties, Texas

CSJs: 0683-01-100 & 0683-02-079

TxDOT Austin District
November 2022

The environmental review, consultation, and other actions required by applicable Federal environmental laws for this project are being, or have been, carried-out by TxDOT pursuant to 23 U.S.C. 327 and a Memorandum of Understanding dated December 9, 2019, and executed by FHWA and TxDOT.

Table of Contents

1.0	Introduction	1
2.0	Cumulative Effects	1
2.1	Resource Study Area, Conditions and Trends	5
2.1.1	Resource Study Area	5
2.1.2	Conditions and Trends	6
2.2	Direct and Indirect Impacts to Threatened and Endangered Species as a Result of the Proposed Project	8
2.3	Past, Present and Reasonably Foreseeable Future Actions	9
2.3.1	Past Actions	9
2.3.2	Present and Reasonably Foreseeable Future Actions	10
2.4	Overall Effects of the Proposed Project Combined with Other Actions	14
2.4.1	Overall Effects to Threatened and Endangered Species Resources	14
2.5	Mitigation of Cumulative Effects	16
2.5.1	Mitigation of Cumulative Effects on Threatened and Endangered Species Habitat.....	17
3.0	Conclusion	17
4.0	References	18

Tables

Table 1: Resources Considered in the Cumulative Effects Analysis	2
Table 2: Historic Population Trends.....	6
Table 3: KFR and Associated Sensitive Species.....	7
Table 4: Planned Major Transportation Improvements within the RSA.....	11
Table 5: Planned Developments within the RSA	12
Table 6: Potential Cumulative Impacts of Development by KFR	15

Appendices

Appendix A Figures

1.0 Introduction

The Texas Department of Transportation (TxDOT) Austin District proposes improvements along Ranch-to-Market (RM) 620 at the Anderson Mill Road intersection in Travis and Williamson counties, Texas (see **Figure 1** in **Appendix A**). A description for the proposed project is provided in the Environmental Compliance Oversight System (ECOS).

2.0 Cumulative Effects

The Council on Environmental Quality (CEQ) defines cumulative effects as the incremental impacts of an action when added to other past, present, and reasonably foreseeable future actions regardless of the agency (federal or non-federal) or person that undertakes such an action. These types of impacts “can result from individually minor but collectively significant actions taking place over a period of time” (40 CFR §1508.7). The Federal Highway Administration (FHWA) states that the “cumulative effects of an action may be undetectable when viewed in the individual context of direct and even [indirect] impacts, but nonetheless can add to other disturbances and eventually lead to a measurable environmental change” (FHWA 1992).

According to the American Association of State Highway Transportation Officials (AASHTO) *Practitioner’s Handbook for Assessing Indirect Effects and Cumulative Impacts Under NEPA* (2011), analysis of cumulative impacts is based on the impacts of the proposed action, the sensitivity of the resources that could be affected by the proposed project, and other actions and their impacts. In the absence of direct and indirect impacts, cumulative impacts to a resource are not likely to occur (AASHTO 2011, 12).

This analysis was developed using the Texas Department of Transportation’s (TxDOT’s) 2019 *Cumulative Impacts Analysis Guidelines*, which outlines five steps necessary for determining the cumulative effects of a proposed project. These include:

1. Resource study area, conditions and trends;
2. Direct and indirect effects on each resource from the proposed project;
3. Other actions—past, present, and reasonably foreseeable—and their effects on each resource;
4. Overall effects of the proposed project combined with other actions; and
5. Mitigation of cumulative effects.

In accordance with TxDOT guidance, this Cumulative Impacts Analysis focuses on resources anticipated to be substantially impacted by the proposed project (either directly or indirectly), as well as resources that would be affected to any degree by the proposed project and are considered at risk or in poor or declining health. In order to thoroughly assess the potential cumulative impacts to a resource, minor direct or indirect impacts to a resource considered at risk or in poor or declining health should be considered along with past, present, and reasonably foreseeable future actions to determine if such actions, when considered together, would pose a threat to the sustainability or health of that resource.

The potential direct and indirect effects of the proposed project on each resource are considered in separate, resource-specific technical reports and are summarized in **Table 1**.

Table 1: Resources Considered in the Cumulative Effects Analysis		
Resource	Direct + Indirect Impacts	Carried Forward?
Archeological Resources	Based on Predictive Archeological Liability Map (PALM) data, the potential for prehistoric and historic archeological deposits, and a lack of development in the area, an intensive archeological survey with subsurface investigations (e.g., shovel testing) was warranted within the 4.32 acres of proposed right of way encompassing a proposed water quality pond and extending south of RM 620 that is considered to have a low to moderate potential for shallowly buried archeological materials. According to the survey and coordination with the Texas Historical Commission (THC), no archeological historic properties would be affected.	No
Historic Resources	Reviews of the Texas Historical Commission (THC) Historic Sites Atlas, the TxDOT Historic Districts & Properties of Texas, and the TxDOT National Register of Historic Places (NRHP) Listed and Determined Eligible Bridges of Texas Geographic Information Systems (GIS) maps revealed that no designated or previously identified historic resources are located within the one-quarter-mile study area.	No

Table 1: Resources Considered in the Cumulative Effects Analysis		
Resource	Direct + Indirect Impacts	Carried Forward?
Socioeconomic Resources	<p>The proposed project would cause changes in travel patterns due to the construction of an overpass through the Anderson Mill Road and El Salido Parkway intersections. No substantial changes in access or to community cohesion would occur.</p> <p>The proposed project would result in 26 potential commercial displacements. There are also three vacant buildings adjacent to RM 620 which were previously businesses that would be displaced. There would be no residential displacements. None of the businesses are unique to the area. Economic benefits for the local and regional economies would result in the form of short-term increases in expenditures and employment. The proposed project would not have a disproportionately high and adverse effect on minority populations or low-income populations in the community study area. Most of the proposed construction is outside of Environmental Justice (EJ) geographies, and no displacements would occur in minority blocks. The induced growth effects related to the proposed project are consistent with local and regional development plans and are part of a larger trend exhibited in the greater Austin region. Economic benefits would occur as a result of continued population and employment growth within the area.</p>	No

Table 1: Resources Considered in the Cumulative Effects Analysis		
Resource	Direct + Indirect Impacts	Carried Forward?
Biological Resources	<p>The proposed project would potentially impact three federally listed threatened or endangered species, including the Jollyville Plateau salamander (<i>Eurycea tonkawae</i>), Bone Creek harvestman (<i>Texella reyesi</i>), and Tooth Cave ground beetle (<i>Rhadine persephone</i>). A Biological Assessment (BA) is currently being prepared and consultation with the U.S. Fish and Wildlife Service (USFWS), City of Austin, and the Balcones Canyonlands Preserve (BCP) is ongoing and conservation measures will be agreed upon and implemented to avoid or minimize impacts to these species.</p> <p>The proposed project would result in impacts to approximately 51 acres of Urban development; four acres of Edwards Plateau Savannah, Woodland, and Shrubland; two acres of Agriculture; and less than one acre of Riparian habitat categories. Induced growth effects to biological resources could include the potential development of approximately 75 acres of Edwards Plateau Savannah, Woodland, and Shrubland; 13 acres of Urban development; and four acres of Riparian habitat categories. Impacts related to future development of these habitat categories could result in minor habitat fragmentation and impacts to wildlife typically associated with conversion of rural areas to suburban areas, such as habitat degradation and roadway mortality of individual species. Additionally, future development could potentially result in the unintentional discovery of previously unknown karst features or voids typically associated with construction in karst areas which could result in impacts to karst species.</p>	Yes
Water Resources	<p>The project would not require authorization under Section 404 of the Clean Water Act (CWA). Indirect growth effects to water resources could include impacts related to increases in impervious cover, such as alteration of drainage patterns and increased localized erosion. However, regulatory protections such as the Texas Water Code and Sections 402 and 404 of the CWA would serve to avoid and minimize potential impacts to water resources.</p>	No

Archeological resources, historic resources, socioeconomic resources, and water resources are considered to be in good health in the context of the proposed project; therefore, these resources are not carried forward for detailed evaluation in this Cumulative Impacts Analysis. The health of biological resources within the project area is considered to be at risk due to potential effects to wildlife habitat, which may, in turn, impact sensitive and protected species.

Sensitive species and their habitats, including karst features, are considered in further detail to determine if the proposed project, in conjunction with other past, present, and reasonably foreseeable future actions, would pose a risk to the sustainability or health of these resources. This analysis focuses on the following species, which, as discussed in the *RM 620\Anderson Mill Road Intersection Project Species Analysis Spreadsheet* (TxDOT 2022a), are federally and/or state-listed species, for which suitable habitat is present within the proposed project area and for which project impacts could occur:

- Jollyville Plateau salamander (*Eurycea tonkawae*)
- Bone Cave harvestman (*Texella reyesi*)
- Tooth Cave ground beetle (*Rhadine persephone*)

2.1 Resource Study Area, Conditions and Trends

2.1.1 Resource Study Area

A Resource Study Area (RSA) serves as a geographic and temporal boundary within which potential cumulative effects on resources are analyzed. According to 2019 TxDOT guidance, an RSA should encompass an area large enough to facilitate discussion of resource trends while still focusing on an area within which a meaningful analysis, appropriately scaled to the size of the project, can be conducted.

The three sensitive species listed in **Section 2.0** inhabit karst features and/or the waters associated with or within karst features. Because of this, Karst Fauna Regions (KFRs) were selected to serve as the meaningful RSA for the threatened and endangered species (see **Figure 2 in Appendix A**). KFRs are areas which are known to support one or more of the listed karst invertebrate species and are delineated based on geologic features, hydrology, and the distribution of 38 rare troglobitic species (USFWS 2019). The RSA encompasses four KFRs: West Cedar Park, East Cedar Park, Jollyville Plateau, and Undesignated. The Undesignated KFR is comprised of areas of small, biologically unstudied and geologically isolated karst areas that are awaiting study to determine if they can be associated with nearby KFRs (National Cave and Karst Research Institute [NCKRI] 2021). These four KFRs encompass an appropriately sized, resource-based geographical area for evaluating potential cumulative effects to habitat for these sensitive karst species. The three designated KFRs include suitable habitat for each of the sensitive species included in this analysis. The Jollyville Plateau salamander is not associated with a particular KFR; however, this species can be found in small, spring-fed karst features and aquifers, particularly within identified critical habitats. Critical habitat for the Jollyville Plateau salamander is discussed in **Section 2.1.2.1** below.

The temporal boundary for the RSA begins in 1980, when land within the RSA began to be annexed. The temporal boundary ends in 2045, the planning horizon year for the Capital Area

Metropolitan Planning Organization’s (CAMPO) 2045 Regional Transportation Plan (RTP), which includes the proposed project.

2.1.2 Conditions and Trends

The RSA is located in Williamson and Travis counties and encompasses parts of Austin, Cedar Park, Leander, and Round Rock. The city of Austin is located approximately 73 miles north of San Antonio, 30 miles north of San Marcos, 88 miles west of Bryan/College Station, and 95 miles south of Waco. Austin is located in Travis, Williamson, and Hays counties. The city of Cedar Park is located approximately 17 miles north of downtown Austin and approximately 23 miles north of the Austin-Bergstrom International Airport. Cedar Park is located primarily within Williamson County, with a small portion in Travis County, and is surrounded by the cities of Leander, Round Rock, Jonestown, and Austin. The city of Leander is located approximately 25 miles northwest of downtown Austin and approximately 32 miles northwest of the Austin-Bergstrom International Airport. Leander is located primarily within Williamson County, with a small portion in Travis County, and is surrounded by the cities of Cedar Park, Liberty Hill, and Georgetown. The city of Round Rock is located approximately 19 miles north of downtown Austin and approximately 25 miles northwest of the Austin-Bergstrom International Airport. Round Rock is located entirely within Williamson County, and is surrounded by the cities of Austin, Cedar Park, Hutto, Pflugerville, and Georgetown.

As visible on the aerial imagery in **Figure 2** in **Appendix A**, development within the RSA is primarily found in the northeastern portion. Development in this area is primarily single-family residential, with the exception of industrial land use in the western portion of Cedar Park (Lime Creek Quarry) as well as commercial, civic, and few industrial businesses along the major roadways, including US 183, US 183A Toll, RM 1431, RM 620, Anderson Mill Road, and Lakeline Boulevard. The southwestern portion of the RSA is comprised largely of undeveloped land.

The Austin-Round Rock-Georgetown Metropolitan Statistical Area (MSA) shown in **Table 2** encompasses Austin, Round Rock, Cedar Park, and Leander. The Austin-Round Rock-Georgetown MSA and Travis and Williamson counties are experiencing growth rates that outpace the state of Texas. These population trends are consistent with the pattern of suburban sprawl radiating from the Austin Metropolitan Area.

	2000	2010	% Change 2000–2010	2020	% Change 2010–2020
Austin-Round Rock-Georgetown MSA	1,249,763	1,716,289	37	2,283,371	33
Travis County	812,280	1,024,266	26	1,290,188	26
Williamson County	249,967	422,679	69	609,017	44
Texas	20,851,820	25,145,561	21	29,145,505	16

Source: US Census Bureau 2000, 2010, 2020.

2.1.2.1 Conditions and Trends of Threatened and Endangered Species

As shown in **Figure 2** in **Appendix A** and **Table 3** below, most of the RSA is comprised of the East Cedar Park KFR (11,121 acres or approximately 33 percent of the total RSA). The other predominant KFRs within this RSA are the West Cedar Park KFR and Jollyville Plateau KFR, making up 10,270 acres (approximately 30 percent of the total RSA) and 9,161 acres (approximately 27 percent of the total RSA), respectively. The Undesignated KFR makes up approximately 30 acres, which represents less than one-half percent of the total RSA. Additionally, approximately 3,482 acres or 10 percent of the RSA are not within either a designated or undesignated KFR.

In addition to total KFR acreage within the RSA, **Table 3** indicates which KFR within this RSA could potentially provide habitat for the sensitive karst threatened and endangered species. None of the sensitive species are associated with the Undesignated KFR at this time, as biological studies are required to make determinations on species presence and KFR designations (NCKRI 2021). All of the karst species included in this report are considered to be at risk due to their federally and/or state-listed threatened and/or endangered status.

Table 3: KFR and Associated Sensitive Species			
KFR	Acres within RSA	Percentage within RSA	Species
West Cedar Park	10,270	30	Tooth Cave ground beetle
East Cedar Park	11,121	33	Bone Cave harvestman, Tooth Cave ground beetle
Jollyville Plateau	9,161	27	Bone Cave harvestman, Tooth Cave ground beetle
Undesignated	30	0.09	N/A
Areas not within a Designated or Undesignated KFR	3,482	10	N/A
Total	34,064		

The Jollyville Plateau salamander is not associated with a particular KFR and is not included in **Table 3**; however, this species can be found in small, spring-fed karst features and aquifers, particularly within identified critical habitats. Critical habitat for the Jollyville plateau salamander is present within the RSA and is designated when the USFWS believes an area is essential to a species' conservation. While designation of critical habitat does not prevent further development of an area, federal agencies are reminded to make special efforts to protect the important characteristics of these species (NOAA 2022). Additionally, activities that involve a federal permit, license, or funding and are likely to destroy or adversely affect the critical habitat area are required to work with USFWS to protect the resource of concern.

When necessary, modifications to a project may be required to minimize harm to the critical habitat (NOAA 2022).

Critical habitat for the Jollyville Plateau salamander is located outside the proposed project. However, as shown in **Figure 3** in **Appendix A**, surface and subsurface critical habitat for the Jollyville Plateau salamander were established primarily in the southeastern portion of the RSA, but also occurs near the center of the RSA.

2.2 Direct and Indirect Impacts to Threatened and Endangered Species as a Result of the Proposed Project

Potential direct and indirect effects to karst resources as a result of the proposed project are discussed in **Table 1**. Most of the potential impacts to sensitive threatened and endangered species and their habitats would be limited to the construction phase of the proposed project and temporary in nature.

The proposed project would result in direct impacts to approximately 58 acres of the East Cedar Park KFR. These direct impacts to this KFR could affect habitat for the Bone Cave harvestman and Tooth Cave ground beetle, which are federally listed species. In addition to direct impacts, the proposed project is anticipated to facilitate continued growth within the area of influence (AOI) (TxDOT 2020b). Future growth anticipated to occur within the AOI would include up to approximately 169 acres, including approximately 125 acres of the East Cedar Park KFR and approximately 11 acres of the Jollyville Plateau KFR.

Construction activities during future development and the development of the proposed project could potentially result in the unanticipated discovery of or negative impacts to karst features, such as caves and voids connected to groundwater. This could impact the quality of available karst features and increase the potential for contamination of groundwater and springs, which provide habitat for the following federal and/or state-listed threatened and endangered species: Jollyville Plateau salamander, Bone Cave harvestman, and Tooth Cave ground beetle. The *Geologic Assessment* (TxDOT 2020c) conducted for the proposed project identified 11 manmade features within the proposed project right of way, four of which were considered sensitive (three wells and one manmade excavation). These features were determined to be sensitive due to their incision into Edwards Limestone bedrock, which left them potentially open to transmitting surface contaminants rapidly to the subsurface. Karst feature surveys were conducted on June 24, 2020. No new karst features, or new potential habitat for the Jollyville Plateau salamander were identified within the project limits; however, one known spring identified as potential salamander habitat occurs within 262 feet of the project limits, the distance used to define surface critical habitat for salamanders by the USFWS (TxDOT 2020d). All sensitive features were located in the Travis County portion of the project limits and fall outside jurisdictional requirements of the Edwards Aquifer Rules (30 TAC 213.5); however, it is recommended that proper stormwater best management practices (BMPs) consistent with these rules be implemented to prevent urban- and construction-related runoff from entering the features, and to avoid or minimize impacts to the four sensitive manmade features and spring, as well as any unknown karst features within the

area. A BA is currently being prepared in support of formal Section 7 consultation under the Endangered Species Act (ESA) for the three federally listed threatened or endangered species.

Amphibians

The proposed project may impact one federally and state-listed threatened amphibian species: Jollyville Plateau salamander. Spring-fed streams, karst features, and aquifers in the RSA could provide critical habitat for this species. According to the USFWS Critical Habitat data for the Jollyville Plateau salamander, there are approximately 251 acres of surface critical habitat and 2,662 acres of subsurface critical habitat for this species present in the RSA. Consultation with the USFWS, City of Austin, and the BCP is ongoing and conservation measures will be agreed upon and implemented to avoid or minimize impacts to this species.

Arachnids

The proposed project may impact one federally listed endangered arachnid species: Bone Cave harvestman. The Jollyville Plateau KFR and East Cedar Park KFR in the RSA could provide habitat for the Bone Cave harvestman. Consultation with the USFWS, City of Austin, and the BCP is ongoing and conservation measures will be agreed upon and implemented to avoid or minimize impacts to this species.

Insects

The proposed project may impact one federally listed endangered insect species: Tooth Cave ground beetle. The West Cedar Park KFR, East Cedar Park KFR, and Jollyville Plateau KFR in the RSA could provide critical habitat for this species. Consultation with the USFWS, City of Austin, and the BCP is ongoing and conservation measures will be agreed upon and implemented to avoid or minimize impacts to this species.

2.3 Past, Present and Reasonably Foreseeable Future Actions

This section identifies other past, present, and reasonably foreseeable future actions independent of the proposed project that may contribute to a cumulative effect on threatened and endangered species. “Reasonably foreseeable” actions are those that are expected to occur within the 2045 timeframe of this analysis and, although uncertain, are probable rather than merely possible (FHWA 2003). This information is based on a review of projects, resources, developments, land use plans, and maps prepared by federal, state, and/or local government agencies, and where appropriate, private entities.

2.3.1 Past Actions

The proposed project is situated between the cities of Austin and Cedar Park, as well as Travis and Williamson counties. Since its founding in late 1839, historical development trends in Austin have been characterized by outward expansion and sprawling development patterns along the city’s periphery. The majority of land within the RSA was annexed in the 1980s, 1990s, and 2000s (City of Austin 2020). Development types in newly annexed areas tend to follow suburban or rural residential patterns, gradually adjusting to accommodate a more expansive roadway network, and integrating commercial and multi-family land use zones along main arterial corridors. Historic aerial imagery reveals that most development within the

RSA occurred after the 1980s and 1990s. Most of the land use in the area is suburban with single-family residences. According to the Cedar Park Comprehensive Plan (2019) and the 2020 US Census Bureau, Williamson County has been experiencing rapid population growth and increasing employment levels, priming this region to become one of the top areas for jobs and growing businesses.

Impacts to threatened and endangered species within the RSA associated with historical development (including residential and industrial development) have been concentrated within the more developed areas of Austin. Roadway developments, including along US 183, US 183A Toll, SH 45 Toll, IH 35, RM 2222, and RM 1431, have also contributed to impacts to threatened and endangered species in the RSA. In general, most of the RSA remains relatively suburban, with the densest development concentrated in existing neighborhoods in Austin, Cedar Park, Round Rock, and Leander.

2.3.2 Present and Reasonably Foreseeable Future Actions

Planned Transportation Improvements

The CAMPO 2045 RTP (CAMPO 2020) identifies plans for meeting existing and projected transportation needs. The Travis County Land, Water, and Transportation Plan (Travis County 2014) provides a framework for guiding population growth while protecting natural resources. The Williamson County Long-Range Transportation Plan (Williamson County 2016) guides future capital improvements based on the county's expected growth. The Imagine Austin Comprehensive Plan (City of Austin 2018) provides a framework for transitioning Austin towards becoming a city of complete communities. The City of Cedar Park Comprehensive Plan (City of Cedar Park 2019) is a long-range planning tool to direct the growth and physical development of the city. The City of Leander Comprehensive Plan (City of Leander 2020) is the community's unified policy guide and action plan that will be implemented in the future. The City of Round Rock Comprehensive Plan (Round Rock 2020) provides the necessary information for the future development and redevelopment of land in the Plan Area.

These plans mention numerous transportation projects in the region that are planned or underway in order to address rapid development in the region. The TxDOT Project Tracker website (2022e) includes numerous roadway improvement projects within and near the RSA, including those discussed in the plans mentioned above. Many of the roadway improvement projects include landscape development, traffic signal improvements, and preventative maintenance that would not involve any new right-of-way acquisition. In addition to the proposed RM 620 overpass at Anderson Mill Road, four other major transportation projects within the RSA would involve widening and/or new right of way (see **Table 4**). The proposed RM 620 from SH 45 to SH 71 was expected to be completed in 2021; however, construction has been delayed and updated completion dates have not been announced. The FM 734 proposed improvements are expected to begin in 2022, the RM 2222 proposed improvements are expected to begin between 2024 and 2030, and the two US 183 projects are estimated to be completed in 2026.

Table 4: Planned Major Transportation Improvements within the RSA	
Planned Improvement	Description
Widen FM 734 from RM 1431 to SH 45	Approximately 4.4 miles; estimated completion date not available
Widen RM 620 from SH 45 in Williamson County to SH 71 in Travis County	Approximately 16.8 miles; estimated completion date not available
Widen RM 2222 from RM 620 to Ribelin Ranch Road	1.7 miles; estimated completion date not available
Widen US 183 from SH 45/RM 620 to Travis County Line	Approximately 5.3 miles; estimated completion date in 2026
Construct New Roadways Lanes on US 183 from Cedar Park Dr to South of Buttercup Creek Blvd	Approximately 0.7 miles; estimated completion date in 2026

Source: TxDOT Project Tracker 2022; 183north.com

Planned Development

Additional reasonably foreseeable future development within the RSA was determined based on review of data from local planning department websites, interactive maps, and aerial imagery (City of Cedar Park Atlas 2022; City of Austin Growth Watch Zoning Cases, Subdivision Cases, Site Plan Cases, and Issued Building Permits 2022; City of Round Rock Site Development Permits 2022; and City of Leander Area Developments Map 2021). According to these data sources, approximately 765 acres (2.50 percent of the total RSA) are planned for future development within the RSA (see **Figure 4** in **Appendix A** and **Table 5**). The planned transportation improvements discussed in the previous section are also included in **Figure 4** as numbers 1, 2, 3, 20, and 25, and are listed in **Table 4**. These reasonably foreseeable future developments are in varying stages of planning and development but are anticipated to be developed by the planning horizon year of 2045 based on currently available data.

Table 5: Planned Developments within the RSA				
#	Planned Development	Location	Description	Status
4	Lime Creek Quarry	Cedar Park; adjacent to Anderson Mill Rd. and RM 1431	Currently operating as a quarry, but will be available for redevelopment in 2023; will most likely be redeveloped as a livable place with an interconnected design to support pedestrian traffic	A feasibility study was published in April 2020, which outlined development options; construction would not start until closure of the quarry in 2023
5	Coreslab Structures Inc.	Cedar Park; adjacent to north end of Lime Creek Quarry	Precast concrete manufacturer; this lot will be used as an office only	CO Issued
6	Juliette NW Replat	Cedar Park; adjacent to east side of Cypress Creek Rd., north of S. Lakeline Blvd.	Replat of five acres	Active
7	Park Avenue Development	Cedar Park; adjacent to South Lakeline Blvd.	Three building site plan—two retail/commercial/restaurant strip center buildings	Active
8	Koko's Restaurant	Cedar Park; adjacent to South Lakeline Blvd.	Site development plan for a food and beverage service space with 121 parking spaces	Active
9	Cedar Park Nissan Inventory Lot	Cedar Park; adjacent to South Bell Blvd.	Proposed inventory storage for Cedar Park Nissan; includes paving, drainage, landscaping, and lighting	Active
10	Avery Oaks Apartments Phase 2	Austin; north of Lakeline Blvd., east of US 183A, and south of Avery Ranch Blvd.	Proposed construction of a multifamily development and associated improvements	Application approved and released January 2022
11	Lakeline Station Multifamily North	Austin; adjacent to east side of Lyndhurst St. and west side of Lakeline Metro Station	Proposed construction of a multifamily development including adjacent retail site and associated improvements	Application under review
12	Lakeline Station Multifamily South	Austin; adjacent to east side of Lyndhurst St. and west side of Lakeline Metro Station	Proposed construction of a multifamily development including adjacent retail site and associated improvements	Application under review
13	Volente Business Park	Austin; adjacent to project area	Proposing to rezone property for a business park	Rezoning was approved; site plans not yet submitted
14	Woodland Greens Multifamily	Austin; adjacent to project area	Proposing to redevelop the golf driving range to a multifamily development with 186 units; proposed rezoning from Commercial to Multi-Family Residential	Inactive; however, plans have been submitted and reviewed as recently as January 2022

Table 5: Planned Developments within the RSA				
#	Planned Development	Location	Description	Status
15	Plaza Volente Residential	Austin; adjacent to proposed project behind the HEB at RM 620 and Anderson Mill Rd.	Proposing to rezone Development Reserve to a low-density Multi-family Residential development with a total of over 300 apartment units	Expired; preliminary site plan submitted 12/2020
16	Volvo Dealership	Austin; adjacent to and west of RM 620, along Buckner Rd.	Proposing a Volvo dealership	Approved and issued March 10, 2022
17	11833 Buckner Road	Austin; adjacent to RM 620	Proposing an office building with associated improvements	Under review by the city
18	Stagliano 620	Austin; adjacent to and west of RM 620	Requesting to rezone from Single Family Residential and Development Reserve to Community Commercial Services	Rezoning case approved and closed
19	Montebello Subdivision	Austin; adjacent to existing Montebello Subdivision, which is adjacent to RM 620	Continuation of existing Montebello Subdivision (previously known as Parke North) which opened in 2016; revising three lots and 170 acres of an existing Preliminary Plan	Preliminary plan approved
21	SAS Campus II	Austin; northwest of RM 620, adjacent to Wilson Parke Ave. and the Waterton Parke subdivision	Requesting to rezone from rural residential to general office	Rezoning case approved and closed; no site plans have been submitted
22	Juniper Apartments	Austin; adjacent to RM 620, on east side of roadway, south of Concordia and across RM 620 from Home Depot	Proposed to construct residential apartment buildings	Site plan under review
23	11200 Zimmerman Lane	Austin; north of Four Points Centre to the east of RM 620	Requesting to rezone from developed reserve to single-family large lots	Rezoning case approved and closed; no site plans have been submitted
24	Four Points Lot 5	Austin; north of FM 2222, east of RM 620, and adjacent to Four Points Dr.	Proposed to construct office building	Approved and issued March 2, 2020
26	Lake Travis Bluff	Austin; adjacent to west side of Comanche Trl., north of RM 620	Proposes to construct residential condominium complex of 30 separate buildings and associated site improvements	Approved and issued in 2007; construction has not yet begun

Source: City of Cedar Park Atlas 2022; City of Austin Growth Watch Zoning Cases, Subdivision Cases, Site Plan Cases, and Issued Building Permits 2022; City of Round Rock Site Development Permits 2022; City of Leander Area Developments Map 2021.

2.4 Overall Effects of the Proposed Project Combined with Other Actions

Overall, future development in the RSA is expected to be largely concentrated in the faster growing areas of the RSA in Travis and Williamson counties. Williamson County and the city of Austin are experiencing rapid development and economic growth, which could potentially lead to the loss of or impact to karst features in the RSA.

2.4.1 Overall Effects to Threatened and Endangered Species Resources

The proposed project and reasonably foreseeable future development within the RSA could potentially result in the unintentional discovery of a previously unknown karst features or voids typically associated with construction in karst areas. This could, in turn, lead to water quality degradation and negatively impact the integrity of the karst features and karst threatened and endangered species habitat. In particular, populations of the species discussed in **Section 2.2** are fragile and susceptible to degradation by human activities due to more stringent habitat requirements than other species.

Table 6 quantifies the potential cumulative impacts of the proposed project and reasonably foreseeable future development on sensitive species and their associated KFRs within the RSA. The location and size of these projects were used to estimate potential effect to the KFRs within the RSA by the reasonably foreseeable future projects (see **Table 6** below and **Figure 4** in **Appendix A**). From there, the total acreage and percentage of potential impacts to the KFRs within the RSA were calculated and included in the table. The acreages presented in the following table are based on currently available development plans and are approximate. The Undesignated KFR is not included in the table below, as the proposed project and reasonably foreseeable future development would not impact this KFR. Additionally, as mentioned in **Section 2.1.1**, none of the sensitive species are associated with the Undesignated KFR at this time, as biological studies are required to make determinations on species presence and KFR designations (NCKRI 2021).

Table 6: Potential Cumulative Impacts of Development by KFR

KFR	Total Acreage within RSA	Species Associated with KFR	Present and Reasonably Foreseeable Future Impacts	Potential Cumulative Impact within KFR (acres)	Percent Impacts to KFR
West Cedar Park	10,270	Tooth Cave ground beetle	US 183 from Cedar Park Dr. to South of Buttercup Creek Blvd.	2	0.02
			US 183 from SH 45/RM 620 to Travis County Line	2	0.02
			Planned Developments	369	3.59
			Total Impacts	373	3.63
East Cedar Park	11,121	Bone Cave harvestman, Tooth Cave ground beetle	FM 734 from RM 1431 to SH 45	31	0.28
			RM 620 at Anderson Mill Rd. Intersection	58	0.52
			RM 620 Widening Project	8	0.07
			US 183 from SH 45/RM 620 to Travis County Line	175	1.57
			Planned Developments	116	1.04
			Total Impacts	388	3.48
Jollyville Plateau	9,160	Bone Cave harvestman, Tooth Cave ground beetle	RM 2222 from RM 620 to Ribelin Ranch Rd.	39	0.42
			RM 620 Widening Project	63	0.69
			Planned Developments	205	2.24
			Total Impacts	307	3.35

The RSA measures approximately 34,064 acres. Most of the RSA is comprised of the East Cedar Park KFR (11,121 acres or approximately 33 percent of the total RSA), which is located in the northeastern portion of the RSA (see **Figure 2** in **Appendix A** and **Table 3**). The second-most prevalent KFR within the RSA is the West Cedar Park KFR (10,270 acres or

approximately 30 percent of the total RSA), followed by the Jollyville Plateau KFR (9,160 acres or approximately 27 percent of the total RSA). The East Cedar Park KFR (58 acres or approximately 0.52 percent of this KFR) would be directly impacted by the proposed project. The proposed project would not impact the other KFRs in the RSA.

The five planned transportation projects would impact approximately 320 acres (0.94 percent) of the total RSA acreage. The proposed project plus reasonably foreseeable future developments (including the planned transportation projects) would impact approximately 823 acres (2.42 percent) of the RSA. The highest percentage of impacts to a KFR as a result of the proposed project and reasonably foreseeable future developments would be to the West Cedar Park KFR, with a total of approximately 373 acres of potential impacts or 3.63 percent of the total acreage of this KFR within the RSA (see **Table 6**). The next KFR that would be most impacted would be the East Cedar Park KFR, with a total of approximately 388 acres of potential impacts or 3.48 percent of total acreage of this KFR. Potential cumulative impacts to the remaining KFR includes 307 acres (3.35 percent of total) to the Jollyville Plateau KFR. Potential impacts to the KFRs by the proposed project and reasonably foreseeable future developments would not exceed five percent and are, therefore, not considered significant. Additionally, BMPs and other conservation measures would be implemented to avoid and minimize impacts that could occur as a result of this and other TxDOT projects to protected wildlife species and karst features found in this area (see **Section 2.5.1** for further discussion).

The West Cedar Park and East Cedar Park KFRs have the highest potential to be affected by the proposed project and reasonably foreseeable future developments within the RSA. These KFRs are prevalent within the RSA and would not be anticipated to be substantially affected. Similarly, potential habitat for the federally and/or state-listed species in the RSA would not be expected to be substantially affected when considered within the context of the RSA as a whole. While continued development within the RSA is expected to contribute to an overall decline in habitat and the potential impacts to karst features, the direct and indirect contribution of the proposed project to this decline would be minimal and cumulative impacts would not be substantial.

As shown in **Figure 3** in **Appendix A**, surface and subsurface critical habitat regions for the Jollyville Plateau salamander were established primarily in the southeastern portion of the RSA, but also occur near the center of the RSA. The Jollyville Plateau salamander critical habitat is located outside the proposed project limits; however, planned and reasonably foreseeable future development could potentially impact approximately nine acres of surface and 89 acres of subsurface critical habitat, or 3.59 percent and 3.34 percent of the total of each within the RSA, respectively.

2.5 Mitigation of Cumulative Effects

This section discusses the governmental regulations and guidance that currently exist to protect the resources examined with regard to cumulative effects, though no substantial cumulative effects are anticipated.

2.5.1 Mitigation of Cumulative Effects on Threatened and Endangered Species Habitat

Consultation with the USFWS, City of Austin, and the BCP is ongoing and conservation measures will be agreed upon and implemented to avoid or minimize impacts to the federally and state-listed Jollyville plateau salamander, and the federally listed Bone Cave harvestman and Tooth Cave ground beetle. Additionally, stormwater BMPs consistent with the Edwards Aquifer Rules would be implemented to avoid or minimize impacts to the karst features which serve as habitat for these threatened and endangered species.

3.0 Conclusion

The proposed project would not result in substantial direct, indirect, or cumulative effects to sensitive species and their habitats. The contribution of the proposed project to cumulative effects to these resources would be minor and cumulative effects to these resources within the RSA would not adversely affect the overall sustainability or long-term health of sensitive species and their habitats.

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APPENDIX A
FIGURES