

Chapter 5

Cumulative Effects

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Chapter 5 Cumulative Effects

An analysis of cumulative effects evaluates cause-and-effect relationships among multiple actions and the resources, ecosystems, and human communities they would affect. The analysis can reveal unintended consequences that might not be apparent when a project is evaluated in isolation instead of in a broader context. The objective of the analysis is to identify whether a combination of individually minor effects from multiple actions could result in adverse effects requiring mitigation.

ATP evaluated the incremental effects of the Project when combined with the effects of other past, present-day, and reasonably foreseeable future actions. The potential for cumulative effects has influenced all aspects of ATP's environmental review process, including scoping, documenting the affected environment, developing the alternatives, and evaluating environmental effects. During the alternatives development and analysis process and the NEPA scoping period, ATP gathered information from other agencies and the public to identify effects of past and present developments and reasonably foreseeable future actions that could interact with the Build Alternative and Design Options.

5.1 Temporal and Geographic Boundaries of Cumulative Analysis

This analysis considers the following actions:

- **Past actions.** Nonnative settlements dating back to the 1800s and continuing trends in development up to the present;
- **Present actions.** Projects by local, state, and federal agencies just completed or under construction; and
- **Reasonably foreseeable future actions.** Projects that have obtained some local, state, or federal government approval and could be under construction at any time between the present and the Project horizon year of 2045.

The Study Areas for this analysis are based on the type and extent of the Project's effects. Four Study Areas are defined, and the environmental resources that are evaluated in each Study Area are identified, as follows:

- The Study Area for socioeconomic conditions, land use, neighborhoods, parkland, and environmental justice (EJ) is the city of Austin, although potential adverse effects would be generally limited to a 0.5-mile buffer of the proposed Project alignment and facility locations.
- The Study Area for transportation, air quality and greenhouse gases, and energy is the Austin MSA, which is the air quality control region defined by EPA.
- The Study Area for water resources, threatened and endangered species, and geology encompasses the Austin Watershed area that drains into Lady Bird Lake and the wildlife corridors of Blunn Creek, Carson Creek, Country Club Creek, and associated tributaries and greenbelts.

- The Study Area for visual quality and aesthetics, historic and archaeological resources, hazardous materials, utilities, safety and security, noise and vibration, and electromagnetic fields is 0.5 mile from the Project alignment. This Study Area is appropriate because it encompasses the geographic range within which the Project, in combination with other past, present, and reasonably foreseeable future actions, could contribute to cumulative effects on these resources.

5.2 Historic, Current, and Future Trends

Austin is a rapidly growing city that has made commitments and investments to benefit the lives of all its residents. However, like most areas in the United States, it has had a complicated and turbulent history. Rapid growth has resulted in increased housing prices, outward development, and longer commutes, and increased traffic congestion.

Austin experienced rapid growth during the 1910s and 1920s, with new municipal projects such as construction of the Congress Avenue bridge (still extant) and expansion of the electric streetcar route that was established during the 1890s. The streetcar system was in operation from 1891 to 1940 with an extensive network of 20 streetcars spanning 15 miles of track. The route ran from Hyde Park in the north to Travis Heights in the south and from Lake Austin in the west to East Austin in the east. Further, Austin suburbs such as Hyde Park and Aldridge Place saw rapid growth and development. Austin also saw increased segregation, with Austin's Black and Hispanic populations confined to Austin's east side while affluent neighborhoods were developed west of Austin (Freeman and Moore 1990).

Austin's population boom began in the 1950s and continues today, growing between 30 and 50 percent each decade. Austin's developed land area sprawled from 53 square miles in 1970 to more than 372 square miles today as the population nearly quadrupled (City of Austin 2023a). Open space and agricultural land were prevalent east of I-35 until the 1990s when development and construction of subdivision and commercial areas began picking up.

During the 1980s, multifamily construction of sprawling "apartment cities" coincided with some high-tech companies relocating to Austin. By the early 1990s, the region had about 400 high-tech manufacturers (City of Austin 2024a), and this trend continues today. Several companies have recently relocated their headquarters or increased operations in Austin and surrounding areas, including Tesla, Google, Meta, Amazon, SpaceX, Apple, and Canva. In 2023, approximately 80 businesses relocated to or expanded in Austin, adding more than 18,600 jobs (Austin Chamber of Commerce 2023).

This development has resulted in a large increase in median house prices in Austin since 1990 and especially within the past 5 years. The median home price in Austin in July 2024 was \$585,000 (Austin Board of Realtors 2024) compared to the median home price of \$360,000 in October 2017 (Austin Board of Realtors 2017). Housing affordability is a key concern for Austin residents and City officials.

The City and regional planners expect the historical development trends to continue at a similar pace well into the future. CAMPO estimates that both population and employment in the Austin Metro Area will more than double to nearly 4.7 million residents and 2.4 million jobs by 2045, yet new roadway capacity can grow by only 15 percent within the constraints of the urban environment (CAMPO 2024a). Accommodating this growth in a sustainable and equitable manner is a top priority for the City. This priority is the driving force behind *The Imagine Austin Comprehensive Plan*, *The Austin Strategic Mobility Plan*, and *Project Connect*

5.3 Past, Present, and Reasonably Foreseeable Future Actions

5.3.1 Past Actions

Past projects that have shaped the Study Area include the following:

- Construction and expansion of Austin’s major institutions, including UT founded in 1883 (with expansions throughout its history and continuing to today); St. Edward’s University founded in 1873; Huston-Tillotson University founded in 1875; and Austin Community College District founded in 1973;
- Development of Austin’s park system, a vast system that notably includes four historic squares built in 1839 in Downtown Austin and the 1,142-acre Town Lake Metro Park, built with support from the National Park Service in 1939.
- Construction of major roadways including I-35, MoPac Expressway, and US 183 in the 1960s; recent expansions of Mopac Expressway, US 183, and SH 71 in the vicinity of Austin-Bergstrom International Airport; and the ongoing improvements to Loop 360.
- Formation of CapMetro and the implementation of bus service in 1985, followed by CapMetro Rail service in 2010.
- Zoning amendments that encouraged increased density such as the East Riverside Corridor Zoning District in 2013 and the Rainey Street District in 2005, which transformed a low-density residential neighborhood into a downtown district.
- Construction of the Waller Creek Tunnel between 2011 and 2015, which reduced the floodplain and freed up 28 acres of land for development in the Rainey Street District.
- CapMetro’s implementation of transit priority lanes on East Riverside Drive between Summit Street and Grove Boulevard, and on Guadalupe and Lavaca Streets between 3rd Street and MLK Boulevard.
- Adoption of the University and Downtown Overlay Density Bonus Ordinances.

5.3.2 Present Actions

CapMetro is constructing two new CapMetro Rapid bus routes (Pleasant Valley and Expo Center) and is scheduled to make improvements to stations on the Red Line as part of the Project Connect program. As of summer 2024, station platforms and new bus shelters are actively under construction. Additionally, two new park-and-rides are under construction along these routes to improve their accessibility for suburban residents. Improvements to major roadways in the region are ongoing, including the 183 North Mobility Project and the I-35 expansion in Round Rock.

Within 0.5 mile of the Project alignment, there are more than 4,500 residential units in multifamily buildings and a 14-story hotel under construction. These and other developments are described in more detail in **Appendix E-2, Land Use and Zoning Technical Report**.

In 2023, the City eliminated minimum off-street motor vehicle parking requirements, and in May 2024, established maximum off-street parking limits for properties in Downtown Austin. These changes were made to achieve the goals of reducing the overall number of new parking spaces to create a more walkable, pedestrian-oriented environment.

In March 2023, the Austin City Council adopted the *ETOD Policy Plan*, which provides a comprehensive policy framework to guide future development around the Project's stations (City of Austin 2023d). The plan lays out the path to mitigate displacement pressures and ensure that historically marginalized communities benefit from public transit connectivity while maintaining economic opportunities.

In May 2024, the Austin City Council approved the incorporation of amendments to *Imagine Austin* to reflect the Project's station areas and the goals of the *ETOD Policy Plan*. The *East Riverside Corridor Master Plan* (City of Austin 2010a), which will be updated as part of the ETOD plans, proposes substantial redevelopment in the proposed station areas along East Riverside Drive. Development bonuses in the areas around these stations are stipulated in exchange for specified community benefits, such as affordable housing (City of Austin 2013). The Cesar Chavez Station at Trinity and 3rd Streets is a key component of the Palm District Planning Initiative, which seeks to create a thriving district in East Austin through the lens of social equity (City of Austin 2022b).

In March 2024, the City purchased the 107-acre Tokyo Electron campus located at 2400 Grove Boulevard, paid for in part by the Project Connect Anti-Displacement Fund Program. The acquisition will enable the City to develop additional income-restricted units close to proposed Project light rail stations on East Riverside Drive.

5.3.3 Reasonably Foreseeable Future Actions

5.3.3.1 Transit Projects

Planned public transit projects are summarized in **Table 5-1**. In addition to these public transit projects, the locally adopted *Austin Light Rail Implementation Plan* (ATP 2023a) identifies priority extensions from Yellow Jacket Station to Austin-Bergstrom International Airport and from 38th Street Station to Crestview. These priority extensions could be advanced in a future phase if additional funding were to become available.

Table 5-1: Summary of Planned Transit Projects

Service	Planned Routes
CapMetro Express Bus	Downtown Austin to: <ul style="list-style-type: none"> • San Marcos • Buda • Southpark Meadows • Georgetown • Round Rock • Howard Station • Elgin • Manor <ul style="list-style-type: none"> • Hutto • Pflugerville • Lockhart • Easton Park • South Mopac • Bastrop • Del Valle • Four Points
CapMetro Rapid Bus	<ul style="list-style-type: none"> • Pleasant Valley – Mueller to the Goodnight Ranch Park-and-Ride • Expo Center – East Austin to Republic Square • Austin Community College – Highland to Republic Square • Burnet – Menchaca and Oak Hill Road Rapid Extension • Parmer Lane – Wildhorse to Lakeline • MLK – Decker to Redbud • Crosstown – CARTS East Bus Plaza to Redbud • ACC – Highland to Tech Ridge
CapMetro Rail (commuter rail)	<ul style="list-style-type: none"> • Proposed Green Line service to Elgin on a 25-mile alignment with 10 stations and connections to light rail routes, CapMetro Rail, and CapMetro Rapid • Red Line improvements, including a double-track segment to support expanded operations, platform extensions, new stations

Source: CAMPO 2024a.

5.3.3.2 Roadway Projects

TxDOT and the City have a number of roadway projects programmed to improve multimodal facilities, increase capacity, and improve safety. The list of projects is provided in **Chapter 3, Transportation**. Of the planned roadway projects, the one that will have the greatest effect on Study Area conditions is TxDOT’s I-35 Capital Express Central Project. This project will:

- add two non-tolled high-occupancy vehicle managed lanes in each direction along I-35 from US 290 East to SH 71/Ben White Boulevard;
- lower I-35 through Downtown Austin (between MLK Boulevard and Holly Street);
- improve east-west connections through Downtown Austin;
- reconstruct the I-35 bridge across Lady Bird Lake; and
- improve bicycle and pedestrian paths (TxDOT 2023a).

Construction is expected to start in the near future and extend over an 8- to 10-year period, overlapping with the proposed Project construction period. Both projects would involve bridge construction in Lady Bird Lake and would directly affect parkland in Waller Beach at Town Lake Metro Park and Norwood Tract at Town Lake Metro Park.

5.3.3.3 Airport Expansion

The Austin-Bergstrom International Airport is advancing a multi-year expansion program including near-term remodeling improvements and longer-term capacity improvements. The airport has had record-breaking passenger and airline activity levels and is planning for future growth by building out new facilities and modern infrastructure (Austin-Bergstrom International Airport 2020).

5.3.3.4 Development Projects

Currently, the City is tracking 45 development projects within 0.5 mile of the Project alignment that have a permit or an approved site plan. The projects include civic, commercial, mixed use, office, open space, multifamily residential, retail, transportation, and utility developments. Nine projects will add approximately 1,600 residential units near the UT campus, 23 projects will add more than 6,700 residential units to Downtown Austin, and 12 projects will add more than 1,800 units along East Riverside Drive. Plans to expand the Austin Convention Center from 376,000 square feet to 709,000 square feet have been developed, and construction is expected to begin in 2025. These projects are listed and described in **Appendix E-2, Land Use and Zoning Technical Report**.

In the South Austin portion of the Study Area, there are only three projects with approved site plans or permits. However, the largest City-approved planned unit development—305 South Congress—is adjacent to the alignment and is part of the South Central Waterfront District Initiative. While no site plan has been approved, the 305 South Congress development encompasses approximately 118 acres of public and private land (formerly a floodplain). In this area, more than 30 private developers are collaborating on how to build a walkable mixed-use district with public spaces and waterfront access. While these projects are expected to be completed in the foreseeable future, their construction schedules and dates of completion are not known at this time.

5.4 Cumulative Effects Analysis

Both adverse and beneficial cumulative effects would result from Project implementation and other past, present, and reasonably foreseeable future actions. The following sections describe the expected cumulative effects on the built, human, and natural environment.

5.4.1 Transportation

Operation of the Project would not result in adverse cumulative effects on traffic conditions or parking. The incremental effects of the Project when added to past, present, and reasonably foreseeable future transportation projects in the region would result in a net benefit to the transportation system because it would improve accessibility and circulation via a reduction in VMT in the region and would offer a safe and reliable travel alternative to the automobile.

As Austin and the region have become more urbanized, traffic congestion has worsened. The transportation agencies in the region developed the projects in CAMPO's *2045 Regional Transportation Plan (2024a)* to address existing congestion and accommodate the substantial growth anticipated in the region. Collectively, the region's public transit, roadway, and airport

expansion projects are anticipated to substantially increase capacity and improve mobility. The Project, and others that include active transportation facilities, would contribute additional connectivity. The cumulative effects of the roadway and public transit projects in the *2045 Regional Transportation Plan* would be beneficial.

The Project would restrict automobiles from using some streets to create public transit/bicycle/pedestrian-only corridors, change traffic patterns near station areas resulting in increased localized levels of congestion at certain intersections, and reduce the number of on-street parking spaces in Downtown Austin. While intersection delay for vehicles crossing the tracks would increase during train passes, delay would be reduced for vehicles operating in the same direction of travel and benefiting from the light rail signal prioritization. ATP, in coordination with the City, has developed measures to mitigate the Project's localized effects on intersection levels of service to the extent practical (see **Chapter 3**). Overall, the Project supports the City's transportation plans and policies to reduce drive-alone trips and encourage more travel by other modes, including public transit, biking, and walking. The City's plans and policies reflect broad public support for dedicated transit-only lanes and protected bike lanes through Downtown Austin (City of Austin 2022d and 2023i).

The Project would affect the corridor's roadway design configurations, affecting the amount of on-street parking in certain areas. The Project would eliminate up to 607 on-street parking spaces, most of which are along Guadalupe Street, Lavaca Street, and South Congress Avenue. As indicated in **Chapter 3**, there is a significant amount of off-street parking that would absorb the loss of parking on the Drag and in Downtown Austin. The loss of parking on South Congress Avenue would be partially mitigated through the proposed park-and-ride. Overall, the Project would provide mobility via approximately 28,500 trips each day; the majority of riders would bike or walk to light rail stations and would not occupy existing parking spaces. While increased population and employment, and the City's more restrictive parking policies would increase the demand on existing parking supply, the Project would reduce the demand for parking and result in a net benefit in the region.

Adverse cumulative effects on traffic, parking, public transit, active transportation, and safety could result from Project construction. The overlapping construction periods of the Project, the I-35 Capital Express Central Project, and other public transportation projects, as well as City developments, would increase truck trips, the number and duration of road closures, congestion on detour routes, and the demand for parking in Austin. These overlapping construction activities are expected to exacerbate traffic delays on major thoroughfares and local streets, reducing roadway capacity and efficiency. Increased demand for parking could adversely affect nearby businesses, residential areas, and recreational facilities, particularly during peak hours. In addition, increased disruptions to bus routes, relocated public transit stops, and detoured bicycle and pedestrian paths could reduce the accessibility and efficiency of public transit and increase travel times for bicyclists and pedestrians. Additionally, the increased presence of construction vehicles and altered traffic patterns could pose heightened safety risks for all road users, particularly in construction zones.

As detailed in **Chapter 3, Transportation**, ATP would participate in a Construction Partnership Program with regional transportation agencies that would coordinate construction schedules, road closures, and detours for vehicles, bicyclists, and pedestrians in the Study Area. The program will implement public information platforms (such as a mobile app, website, and customer information call-in number) that keep the traveling public apprised of roadway conditions and allow them to plan ahead to meet their mobility needs. Additional construction-related mitigation measures are noted in Table 3-13 in **Chapter 3**. Other foreseeable construction projects would implement similar measures to reduce traffic impacts during construction. Coordination of construction activities among projects with concurrent construction would reduce effects on public transit, active transportation, traffic, and safety. However, even with implementation of mitigation, there is still a potential for cumulative transportation impacts to occur. Because of the duration of construction activities and the number of detours and closures anticipated, the Project would result in a cumulative impact on transportation during construction.

5.4.2 Socioeconomic Conditions

When added to past, present, and reasonably foreseeable future actions, the Project would result in both beneficial and adverse cumulative effects on socioeconomic conditions. The Project would displace properties as described in Section 4.1, adding to the number of direct displacements that would result from other transportation projects and the substantial development planned in the City. While these direct displacements would be dispersed throughout the City and would not be expected to substantially change the socioeconomic conditions in existing neighborhoods.

The population and employment influx, together with improved infrastructure, have the potential to increase the rate of gentrification and the future displacement of residents and businesses, especially in minority and low-income neighborhoods. The effect on property values near high-capacity transit stations has been studied for different geographic areas and types of transit systems. A study prepared by the Center for Transit-Oriented Development for FTA found that increases in property values near transit were most dramatic for office and retail spaces, increasing from a few percent to more than 150 percent. For residential properties, single-family dwellings had a property value increase range of 2 to 32 percent, condominiums from 2 to 18 percent, and apartments from 0 to 45 percent (FTA 2008). The light rail, in combination with an increasingly tight real estate market, has the potential for adverse cumulative effects related to property affordability.

The simultaneous construction of the Project with other reasonably foreseeable future projects would also have cumulative socioeconomic impacts. As indicated above in Section 5.4.1, temporary road closures, detours, and construction-related disruptions could adversely affect access to local businesses, potentially reducing foot traffic and sales. However, construction would also generate short-term employment opportunities and would contribute to the local economy by creating demand for construction workers and materials, thereby offsetting some of the adverse effects.

In terms of long-term benefits, the Project would add incrementally to the number of jobs expected in the City, both during construction and operation of the new light rail service and would provide efficient transportation that would make Austin more attractive to businesses looking to relocate. The Project, together with the transportation projects included in CAMPO's *2045 Regional Transportation Plan (2024a)* would support Austin's potential for sustainable economic growth that would otherwise be hindered by traffic congestion and long commutes to work in Downtown Austin. The Project, in conjunction with the land use regulations and density bonus programs, would support the creation of affordable housing in Project station areas and would provide an opportunity for residents to reduce household expenses related to car ownership.

5.4.3 Land Use and Neighborhoods

The incremental effects of the Project on land use and neighborhoods, when combined with past, present, and reasonably foreseeable future actions, are expected to be largely beneficial and would not result in adverse cumulative effects. Light rail is integral to the local and regional plans that are in place to manage and accommodate growth. The plans are intended to increase transportation capacity, target development into activity centers identified in neighborhood plans, and support an increase in the number of affordable housing units. The Project would provide new public transit access to key destinations and improve connections to jobs and educational, health, and cultural resources in Downtown Austin for the East Austin communities harmed by past discriminatory practices. The Project would make mixed-use development and higher density housing near public transit stations more attractive to developers. During construction, there may be temporary disruptions to local neighborhoods, including road closures, noise, and access limitations. However, these short-term impacts would be managed through mitigation measures such as clear communication with residents, alternative access routes, and construction phasing designed to minimize inconvenience. In the long term, higher densities would lead to additional demand on municipal services in Austin, but less demand on services farther from the urban core that would realize a slower pace of development.

5.4.4 Visual Quality and Aesthetics

The Project and other reasonably foreseeable future projects would be visually compatible in the urban environment and consistent with both the urban landscape and the plans and policies that have been adopted to guide growth. Proposed transportation projects would be located largely in existing transportation corridors and would not require substantial new transportation ROW. The development projects would meet the aesthetic and zoning requirements reflected in approved site plans and permits. In addition to becoming a part of the viewed environment, the infrastructure projects would provide new viewing opportunities for residents and travelers.

When added to past, present, and reasonably foreseeable future actions, the incremental effects of the Project would be negligible and would not result in adverse cumulative visual effects. The Project would support denser development, which could help reduce adverse visual changes associated with low-density development elsewhere in the region (e.g., loss of open space, reduction in vegetated areas, expansion of paved areas).

Adverse cumulative effects on visual quality would result from Project construction. During construction, the Project would contribute to the number of active construction sites in the Study Area, which would increase the visual intrusion of construction in areas along the alignment. ATP would implement best management practices as referenced in Chapter 4, these would include dust, lighting, and other contributors to visual impacts associated with construction to minimize the temporary effects.

5.4.5 Cultural Resources

Infrastructure and development projects can alter historic settings and adversely affect historic properties. Incrementally, the Project is part of the changing fabric of urbanization and would require easements at or near historic properties for utility relocations and short-term construction activities. However, ATP has preliminarily determined that the easements would not alter, directly or indirectly, any of the characteristics of a historic property that qualifies it for listing in the National Register of Historic Places in a manner that diminishes its integrity. FTA, in partnership with ATP, is coordinating with the Texas Historical Commission for final determination of adverse effects in compliance with Section 106 of the National Historic Preservation Act. Consulting parties are also being asked to provide information on historic properties in the APE.

Based on the archaeological surveys conducted to date, no cumulative effects on archaeological resources are expected to result from the Project. Archaeological resources are typically identified and protected early in the project planning process through surveys, avoidance, or mitigation measures, which limit the potential for adverse effects from any one project. Additionally, compliance with existing regulations, including Section 106, would help ensure that impacts are minimized and documented for each project, preventing incremental degradation across multiple projects. Therefore, the incremental effects of the Project when added to past, present, and reasonably foreseeable future actions would be minor and would not result in adverse cumulative effects on historic built properties or archaeological resources.

5.4.6 Hazardous Materials

The incremental effects of the Project when added to past, present, and reasonably foreseeable future actions would not result in adverse cumulative effects. The potential for hazardous materials effects during construction and operation would be mitigated by ATP through management, disposal, and transport in accordance with local, state, and federal regulations, and adverse cumulative effects would not occur. These regulations have resulted in the identification and remediation of past hazardous materials sites and in fewer hazardous materials spills and releases. Because encountered contaminated materials require proper handling and disposal during project development, future development projects, with or without the Project, would accelerate the mitigation of existing contaminated sites in the Study Area and result in a cumulative beneficial effect.

5.4.7 Utilities

Light rail service and zoning within the Project corridor would encourage development of property in and around the station areas. Higher density development minimizes the infrastructure needed to provide services to residences and businesses, resulting in lower cost to develop properties and more efficient maintenance of services. Any development near the Project station areas would be as dense as what is allowed in the City's adopted land use plans and development regulations. The Project is governed by the 2023 Utility Rules of Practice, a Joint Powers Agreement among ATP, CapMetro, and the City (see **Appendix E-9, Utilities**). The Utility Rules of Practice was drafted to support utility relocations required by the Project and to address the requirements of private utility companies operating in the City ROW. ATP would coordinate with the City, CapMetro, and private utilities during final design to obtain approvals for utility relocations and to coordinate with developers of adjacent sites to advance utility work concurrently in order to minimize street-level disruption. Therefore, the incremental effects of the Project when added to past, present, and reasonably foreseeable future actions would not result in adverse cumulative effects on utilities.

5.4.8 Safety and Security

The incremental effects of the Project when added to past, present, and reasonably foreseeable future actions would not result in adverse cumulative effects related to safety and security. As the regional population has increased, so has the demand for public services. Demand for these services would continue to increase with or without the Project. The Project would not induce growth in the region but would facilitate channeling growth into the activity centers identified in the City's land use plans. Existing services and those intended to serve this planned growth would be available for light rail users, including police and emergency services personnel. During construction, temporary safety measures would be implemented to help protect workers and the public. This would include traffic control, barriers, and clear signage to reduce the risk of accidents in construction zones. Additionally, security measures would be in place to prevent unauthorized access to construction sites. Once operational, dedicated security personnel for the Austin Light Rail would provide surveillance throughout the system to minimize crime.

5.4.9 Noise and Vibration

The FTA methodology for noise analysis identifies noise impacts and mitigation in the context of cumulative noise exposure at noise-sensitive properties, accounting for past and present events. It is based on existing noise levels in combination with new noise generated by the Project (see **Chapter 4**). Aircraft noise also affects some of the Study Area and is accounted for in the noise monitoring data. Vibration impacts are identified if trains passing by would cause levels that exceed certain thresholds. The noise and vibration impacts that would result from operation of the light rail would be localized effects at properties that would not be affected by the other reasonably foreseeable future projects once they are constructed.

During construction, the Project would contribute to noise and vibration caused by other nearby construction activities, which could result in cumulative effects. ATP would require contractors to develop Noise and Vibration Control Plans and monitor contractor compliance with the plans.

5.4.10 Air Quality

Since the implementation of the Clean Air Act in 1970, emissions of key air pollutants monitored by EPA have continued to decline across the United States due to the enforcement of stationary and mobile source regulations. The trend of cleaner air is expected to continue for the foreseeable future as regulations become more stringent and local, state, and national net-zero emissions goals are met.

As indicated in **Appendix F-1, Air Quality and Greenhouse Gases**, air pollution levels in the Austin MSA are in compliance with the NAAQS, and net pollutant reductions would result from the Project due to the reduction of automobile VMT. The incremental effects of the Project when added to past, present, and reasonably foreseeable future actions would be beneficial.

The cumulative effects of concurrent construction projects in Austin would include increased emissions from construction equipment and fugitive dust, particulate matter, and other pollutants from the use of heavy machinery, pavement removal, and earthmoving. The use of diesel-powered machinery would lead to short-term increases in nitrogen oxides (NO_x) and particulate matter, which can contribute to localized air quality degradation. These effects would be minimized by ATP and other Project sponsors through best management practices, including the use of newer, lower-emission equipment, controlling dust through water spraying and other suppression methods, and limiting idling times for construction vehicles and machinery. Additionally, compliance with local and state regulations would help ensure that emissions are minimized during construction. Construction schedules would be carefully managed to avoid overlap where possible and to minimize extended periods of high emissions.

5.4.11 Greenhouse Gases, Energy, Climate Change, and Resiliency

GHG emissions have peaked in Austin and are heading downward. Austin's two largest sources of emissions are on-road transportation and electricity used in buildings. However, in the last 10 years, building emissions have fallen nearly by one-third, even as Austin's population grew by one-third over the same time frame. This reduction is mostly due to investment in renewable energy generation through Austin's community-owned electric utility, Austin Energy (Austin Energy 2023). Because the source of electricity in Austin is becoming cleaner, transportation powered by fossil fuels is quickly becoming the number one source of emissions (City of Austin 2021).

The Project is an integral part of the City's response to climate change and would support the City's 2040 net-zero community-wide GHG emissions goal by increasing the number of trips in Austin made using public transit, biking, and walking. When combined with past, present, and reasonably foreseeable future actions, the Project would result in a net benefit by reducing automobile VMT, energy use, and GHG emissions. Light rail provides a low emissions alternative to driving, and Austin Energy would provide the electricity for the new light rail service. Austin Energy plans to phase out its single remaining coal-powered plant and move to 100 percent carbon-free generation by 2035 (Austin Energy 2023). The analysis presented in **Appendix F-1, Air Quality and Greenhouse Gases Technical Report** demonstrates that the long-term energy savings resulting from the reduction in VMT in the region would be greater than the energy needed for Project construction and operation. FTA's methodology for

estimating energy use during construction includes the indirect effects of manufacturing construction materials (FTA 2022). As a result, the Project would be consistent with local, regional, state, tribal, and global policies addressing climate change.

ATP is developing strategies that address a changing climate in accordance with the FTA *Transit Resilience Guidebook* (2024c). These strategies address design and construction, asset management, maintenance, emergency response, and operational policies and guidance. CapMetro has procedures for emergency response, maintenance, asset management, and operation and maintenance of the transportation system, which consider a number of changing climate scenarios over time. The Project would incorporate green infrastructure to reduce stormwater runoff and flood potential while providing water quality treatment, porous rail to reduce the potential for rail buckling during extreme heat events, and shade trees to address the comfort of passengers walking to or waiting for the train if not prohibited by ROW constraints. ATP is identifying additional resiliency measures via a sustainable design planning process, and guidelines for the Project are currently being developed.

5.4.12 Electromagnetic Fields

ATP is mitigating the potential for electromagnetic interference to cause sensitive electronic equipment to malfunction through coordination with affected property owners. The Project's indirect effects of increased transit-oriented development in the Study Area would introduce more sources of electromagnetic interference in the Study Area. However, an increase in electromagnetic fields from higher density residential and business development would not be expected to cause cumulative electromagnetic interference effects. Electromagnetic interference can be mitigated by installing shielding and grounding components to sensitive equipment. Such mitigation would be implemented by project sponsors, as required, and adverse cumulative effects would not occur.

5.4.13 Water Resources, Threatened and Endangered Species, and Geology

The degradation of water and terrestrial resources in Austin resulting from rapid urbanization over the past century prompted the City to implement its first Watershed Protection Ordinance in the 1970s. Since that time, the City's watershed protection regulations have evolved to address stream setbacks, floodplain and erosion hazard protections, flood detention, water quality, and impervious cover limits. The City measures the overall environmental health of its reservoirs via a continuous monitoring program and aggregates water quality, sediment toxins, riparian habitat, aquatic macroinvertebrates, and other metrics into one score. Overall scores have remained relatively static in Lady Bird Lake ranging from fair to good over the past 10 years, despite the substantial increases in population and employment (City of Austin 2024c).

The incremental effects of the Project when added to past, present, and reasonably foreseeable future actions would be negligible, and adverse cumulative effects would not be expected to occur. The Project is located in a highly urbanized area, and effects on water resources, threatened and endangered species, and geology are expected to be minor. The past and present trends of increased population in and around Austin have resulted in urban sprawl and reduction of natural areas. Without the Project, cumulative effects on natural resources would be expected to worsen. To accommodate regional growth, more development would likely occur

outside the urban core and would involve the conversion of natural areas to urban and suburban land use.

The Project and the I-35 Capital Express Central Project would involve regulated activity in jurisdictional waters and, therefore, would require authorization under Section 404 of the Clean Water Act. Permit restrictions would limit the extent of the adverse effects on aquatic species, aquatic habitat, vegetation, wildlife, and wetlands. Neither the Project nor the I-35 Capital Express Central Project would result in a significant encroachment in the floodplain as defined by Executive Order 11988, Floodplain Management, or jeopardize the continued existence of federally listed species.

Any additional direct or indirect effects that may occur on natural resources as a result of other transportation and development projects would also be addressed by the entity, either private sector or public/local agency. The City and Travis County have permitting, planning, and zoning policies and ordinances in place that future developers would need to adhere to during the development planning phase.

Over time, new development and redevelopment will bring many existing pollution-generating surfaces up to current standards for runoff control and stormwater quality treatment. Most new developments in Austin are required to construct on-site stormwater ponds to prevent flooding, erosion, and pollution in creeks and lakes. Small improvements in stormwater runoff control and water quality would occur over time, with or without the Project. This should result in modest improvement in the hydrology and water quality of the streams within the Study Area.

The City requires mitigation via new tree planting or fee-in-lieu for tree removal; the specific requirements depend on the size and number of the trees removed. Because trees lost on a project may or may not be able to be mitigated in the same area, there could be permanent effects from tree removal in specific locations. Effects on City-protected and heritage trees would be mitigated by ATP under the City's Tree Ordinance.

5.4.14 Parkland

The incremental effects of the Project when added to past, present, and reasonably foreseeable future actions would result in a combined encroachment on Waller Beach at Town Lake Metro Park of 3.6 acres, or approximately 13 percent of the 28-acre park (see **Appendix H, Section 4(f) Evaluation**). In 2012, the City converted a 1.29-acre parcel of the park for the Waller Creek Tunnel and maintenance access route, and the I-35 Capital Express Central Project will use 1.3 acres for reconstruction of the I-35 bridge. Despite these encroachments, no net loss of parkland would result from these projects because each agency, complying with Section 6(f) of the Land and Water Conservation Fund Act, would provide replacement parkland of equivalent value in exchange for the conversion of use at Waller Beach.

ATP is coordinating with the City Parks and Recreation Department and the Texas Parks and Wildlife Department to minimize effects of the Project at Waller Beach, develop effective mitigation strategies to offset adverse effects, and advance the plans for providing replacement parkland (see **Appendix G, Section 6(f) Evaluation**).

5.4.15 Environmental Justice

The Project has the potential to result in beneficial and adverse cumulative effects on socioeconomic conditions that would be felt disproportionately by EJ communities. The Project would make development more appealing near the light rail stations, which could lead to increased direct displacements and could contribute to or accelerate the historic trends of gentrification in Austin. These effects would occur in conjunction with ongoing development pressures that have resulted in high housing costs in Austin and are felt by all populations, but more acutely by EJ communities. However, as indicated in **Chapter 6**, the Project would also deliver offsetting benefits by providing an affordable public transit option that connects affordable housing to jobs, and these benefits would accrue to a higher degree in EJ communities. Cumulative beneficial effects would be expected to result from the City's planned affordable housing and targeted tenant and homeowner stabilization programs supported by the Project Connect Anti-Displacement Fund, ETOD policies, and the transportation investments identified in CAMPO's *2045 Regional Transportation Plan (2024a)* that support transit-dependent populations in EJ.

5.5 Mitigation

Operation of the Project when added to past, present, and reasonably foreseeable future actions has the potential to result in adverse cumulative effects on parkland and socioeconomic conditions. ATP would mitigate the effect on Waller Beach at Town Lake Metro Park by complying with Section 6(f) of the Land and Water Conservation Fund Act. Mitigation measures would be developed in conjunction with the City Parks and Recreation Department and the Texas Parks and Wildlife Department, which are the officials with jurisdiction at Waller Beach, and would account for the cumulative encroachment at Waller Beach resulting from past and reasonably foreseeable future actions. ATP would minimize construction effects on park and trail users at Waller Beach by coordinating construction activities with TxDOT to minimize detours and other construction-related disruption.

ATP would mitigate the potential for cumulative effects on socioeconomic conditions resulting from operation of the Project through compliance with the Uniform Act and direct administration of programs that support the community. ATP is considering the development of a workforce program that includes local hiring requirements and wraparound services to provide community members with access to jobs and career growth opportunities in the infrastructure industry. ATP is considering creating a Business Assistance Program to support businesses along the alignment, with direct focus on small and local businesses, as they navigate challenges before and during construction.

Additionally, ATP anticipates collaborating with the City's Anti-Displacement Prevention team to develop and implement programs funded by the \$300 million allocated for anti-displacement efforts. The Project Connect financial model includes \$300 million in anti-displacement funding over a 13-year timeline with \$100 million in expenditures planned in the first 3 years.

The emerging land development regulations associated with the *ETOD Policy Plan* are described in **Appendix E-4, Socioeconomics Technical Report**. The regulations include higher density zoning and measures to facilitate the development of affordable housing via the City's many density bonus programs and the ETOD Overlay, which would increase housing opportunities, offset the loss, and help to alleviate displacement pressures for all Austinites, including those displaced by the Project.

Construction of the Project when added to past, present, and reasonably foreseeable future actions has the potential to result in cumulative transportation, air quality, visual, and noise effects. To minimize cumulative construction effects, ATP has formed a multi-agency partnership with the region's transportation agencies including the City of Austin, TxDOT, CapMetro, and the Central Texas Regional Mobility Authority to prepare for the transportation and public infrastructure construction that will occur over the next 10 years. The Construction Partnership Program would coordinate construction plans, streamline communications, and keep the traveling public informed and up-to-date with construction plans and detour routes. These measures would minimize the potential for cumulative effects during construction to the extent practical.