Austin Transit Partnership

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Austin Light Rail Phase 1 Project

Utilities Technical Report

Austin, TX

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Acronyms and Abbreviations

Term/Acronym	Definition
ATP	Austin Transit Partnership
CapMetro	Capital Metropolitan Transportation Authority
City	City of Austin
FTA	Federal Transit Administration
Project	Austin Light Rail Phase 1 Project
ROW	right-of-way
TxDOT	Texas Department of Transportation

1 Introduction

The Federal Transit Administration (FTA) and Austin Transit Partnership (ATP) are completing an environmental review of the Austin Light Rail Phase 1 Project (the Project) in Austin, Texas. This utilities technical report was prepared to support the Project's Draft Environmental Impact Statement in accordance with the National Environmental Policy Act and related laws and regulations. FTA and ATP are the Lead Agencies in the National Environmental Policy Act process.

The purpose of this report is to describe existing utilities and assess the potential effects on utilities that would result from the construction and operation of the Project. This technical report analyzes the effects on parallel and perpendicular utilities that cross the Project (directly, within the right-of-way [ROW]) and utilities located within the Study Area. The Study Area is defined as the geographic limits of construction, which is the boundary within which construction, materials, storage, grading, landscaping, and related activities would occur.

According to 23 Code of Federal Regulations 645.207, a utility is a "privately, publicly or cooperatively owned line, facility, or system for producing, transmitting, or distributing communications, cable television, power, electricity, light, heat, gas, oil, crude products, water, steam, waste, storm water not connected with highway drainage, or any other similar commodity, including any fire or police signal system or street lighting system, which directly or indirectly serves the public." Utility services may be conveyed through overhead or underground systems such as electrical transmission lines, electrical distribution lines, high pressure gas lines, treated water and sanitary sewer mains, steam tunnels, chilled water lines, buried fiber optic cables, and telephone and communications lines.

This report:

- identifies existing utilities within the Study Area;
- qualitatively explains potential utility conflicts that would be expected under the Build Alternative and Design Options;
- identifies construction methods that would be used to minimize disruptions during construction; and
- summarizes how utilities in conflict with the Project would be relocated, removed, and/or abandoned in place.

This technical report is based on preliminary engineering; as such, the findings detailed in this report may change as the Project design advances.

2 Regulatory Context

The National Environmental Policy Act requires the evaluation of effects on the built environment, including utility systems. In addition, many local, state, and federal laws regulate the construction, operation, and maintenance of utility facilities. Local and state regulations also

require the issuance of permits or franchises for utilities that are placed within public ROW. The relocation and adjustment of utilities located within the Project area would be conducted in conformance with applicable local, state, and federal regulations.

The construction of the Project would also require integration with existing utility infrastructure subject to FTA's *Project and Construction Management Guidelines* (2016). The regulations and policies applicable to utilities within the Project corridor are summarized below:

- 23 Code of Federal Regulations Part 645, Subparts A and B, which outline the policies and procedures addressing utility adjustments or relocation;
- American Society of Civil Engineers C-I 38-02, Standard Guidelines for the Collection and Depiction of Existing Subsurface Utility Data;
- Public Utility Regulatory Act (Texas Utilities Code, Title II);
- Texas Administrative Code Title 30, Part 1, Chapter 217, Design Criteria for Domestic Wastewater Systems;
- Texas Administrative Code Title 30, Part 1, Chapter 290, Public Drinking Water;
- Texas Administrative Code Title 43, Part 1, Chapter 21, Subchapter B: Utility Adjustment, Relocation, or Removal (outlines the process for relocating, adjusting, or removing utilities within the Texas Department of Transportation [TxDOT] and/or City ROW);
- Texas Administrative Code Title 43, Part 1, Chapter 21, Subchapter C: Utility Accommodation (outlines the process for relocating, adjusting, or removing utilities within TxDOT and/or City ROW);
- TxDOT Project Development Manual, Section 4: Utility Adjustments (outlines TxDOT responsibilities during utility relocations and/or adjustments);
- TxDOT ROW Utilities Manual (provides guidance and policies for adjusting utilities within TxDOT ROW);
- City of Austin Land Development Code (Chapters 25-7 and 25-8);
- City of Austin Standard Specifications Manual;
- City of Austin Standards Manual (details); and
- City of Austin Utilities Criteria Manual, Drainage Criteria Manual, Environmental Criteria Manual, and Transportation Criteria Manual.

In addition to the applicable regulatory requirements listed above, the Project is also governed by the 2023 Utility Rules of Practice, a Joint Powers Agreement among ATP, Capital Metropolitan Transportation Authority (CapMetro), and the City of Austin (City). The Utility Rules of Practice, a comprehensive document to support efforts to relocate utilities for the purpose of implementing high-capacity transit, is provided in **Attachment A**. It provides guidance and methodology for analyzing, reviewing, and approving potential utility conflicts.

The Utility Rules of Practice also consider private utility companies operating in City ROW, which remain covered under existing City Franchise Agreements. Upon completion of the Project, the City would own and maintain all City utility infrastructure relocated or replaced as a result of construction.

3 Methodology

ATP identified existing utilities within the Project alignment through coordination with the utility companies and the City. ATP also conducted field investigations and subsurface utility exploration surveys, and reviewed owner-furnished record drawings, investigation reports, and base maps obtained from utility service providers. For areas outside the Project alignment, existing utility information was determined based on available records of facilities and utility easements.

3.1 Utility Locations

ATP defined a Study Area as the Project limits of construction, which includes temporary and permanent impact areas associated with construction of the guideway, stations, operations and maintenance facility, park-and-rides, proposed roadway reconstruction and bicycle and pedestrian facility improvements, stormwater infrastructure, and contractor access and laydown/staging areas. The Study Area limits of construction would also include the adjacent roadways where utility relocations are likely to occur beyond the Project corridor.

3.2 Data Sources

Existing utilities within the Study Area were compiled from owner furnished record drawings and findings from Subsurface Utility Engineering investigations. **Table 1** lists the primary data sources reviewed.

Table 1: Primary Data Sources for Utilities

Data	Description
Utility easements	City existing and planned utility easements
Utility providers	Austin Energy service area Austin Water utilities service area Private telecommunications and fiber optic easements City Watershed Protection Department stormwater utilities
Subsurface utilities	Texas Railroad Commission data for oil/gas pipelines

3.3 Types of Utilities

The Project team contacted 40 utility owners and providers to request electronic or hard copy files of record as-built drawings. Thirty-three utility owners and providers responded by sharing the requested data files. The Project team also contacted public agencies requesting electronic or hard copies of record as-built drawings; nine public agency departments responded by

providing the requested data. **Table 2** lists the primary utility service providers within the Study Area.

Table 2: Utility Types and Providers Within the Study Area

Utility Type	Providers and Facility Owner
Electric distribution and transmission lines	Austin Energy, City
Electric – traffic signals, control boxes, and street lighting	Austin Energy, City
Proposed electric – highway lighting	TxDOT
Reclaimed water	City
Stormwater and storm drains	Austin Watershed Protection Department
Water line	Austin Water, City
Wastewater, sewer, and proposed wastewater lines	Austin Water, City
Chilled water	Austin Energy
Gas service and gas transmission	Texas Gas Service
Gas pipeline and refined liquid product pipeline	Texas Gas Service, SUNOCO, ExxonMobil, CITGO
Telecommunication lines including cable television, fiber optic cable, etc.	AT&T, Grande, Charter, Spectrum, Brightspeed, Fiberlight, Logix, Verizon, MCI, Lumen, GAATN, Zayo, Grande, Google Fiber, Centurylink, Charter, Astound, Crown Castle, Telwest, Quanta, Nextlink

Sources: Utilities Tracking Matrix by AECOM and HNTB (January 2024), provided in **Attachment B**.

ATP continues to facilitate extensive coordination through a variety of meetings with respective utility service providers to determine and verify the locations of existing utilities within the Study Area.

4 Affected Environment

The Study Area contains complex utility infrastructure that connects residences and businesses to essential services. Major utilities include both public and private utilities, aboveground and underground utilities; crossing utilities (i.e., those that cross the light rail guideway), non-crossing utilities within the ROW, and utilities that are in proximity and within the Study Area. The types of the existing major utilities located within the Study Area, identified during conceptual engineering, are listed below:

- Communications infrastructure;
- Telephone;
- Fiber optic;

- Community antenna television;
- Electric/power infrastructure;
- Traffic signalization infrastructure;
- Gas/petroleum infrastructure/pipelines;
- Water infrastructure;
- Wastewater infrastructure;
- Stormwater infrastructure (i.e., storm drains);
- Reclaimed water infrastructure;
- Chilled water lines; and
- Overhead and underground utilities.

Many utilities are aligned in or along the existing transportation corridors. ATP prefers to not have utilities located parallel to or under the guideway. Most utility owners and providers also do not want their facilities located under the guideway or other high-use transportation corridors because they would be difficult and expensive to maintain, repair, and replace. Additional concerns include the potential effect of stray currents from the light rail track electrification system. Stray currents are electric discharges released into the subgrade that have the potential to disrupt nearby sensitive equipment or metal objects and also have the potential to accelerate the rate of corrosion on subsurface metal conduits and piping.

ATP has identified 33 private utility companies and seven public utilities within the Study Area. As the design progresses, ATP would coordinate with public and private utilities to determine and discuss specific effects and necessary solutions. ATP would also review existing franchise agreements and applicable City code sections for each private utility company for utility relocations. A Utility Tracking Matrix, provided in **Attachment B**, details the existing utilities within and near the Study Area to track utility conflicts with the corridor trackway. The matrix identifies the owner, utility type, size, and length of effect. The Utility Tracking Matrix would be used to track all conflicts through resolution; this matrix is intended to be a living document that would be modified, as necessary, to track the various needs of the City and ATP. **Table 3** shows the private utility companies, and **Table 4** shows the public utility departments operating facilities within the Project corridor.

Table 3: Private Utility Providers Operating Facilities in the Project Corridor

#	Private Utility Companies
1	AboveNet Communications
2	Alpheus Communications, L.P. (El Paso Global Networks)
3	APOGEE (on The University of Texas at Austin campus)
4	AT&T Metro (Teleport Communications)
5	AT&T Long Haul (AT&T Fiber, Legacy T)
6	AT&T Texas (previously SBC)
7	Atmos Energy

#	Private Utility Companies
8	Charter Communications
9	ExteNet
10	CenturyLink (Level3, Lumen)
11	Crown Castle
12	Greater Austin Area Telecommunications Network (GAATN)
13	Grande Communications
14	Google Fiber
15	Kinder Morgan
16	Logix Communications FiberLight
17	Magellan
18	McLeod USA Telecommunications Qwest National Network Services
19	Tel West Network Services, LLC (TelePacific)
20	Phillips 66
21	SiEnergy
22	Sunoco
23	Texas Gas Service
24	Time Warner Cable
25	TW Telecommunications TxDOT – Maintenance University of Texas Information
26	Technology Services Verizon Business (MCI)
27	Verizon (Verizon Wireline, MCI Metro, MCI Communications, XO Communications)
28	University of Texas
29	Znet Limits
30	Bluebonnet Electric Cooperative
31	Enterprise Products
32	Zayo
33	Windstream

Table 4: Public Utility Providers Operating Facilities in the Project Corridor

#	Public Utility Companies and Departments
1	City – Austin Energy – including transmission, distribution, downtown network, district
2	City – Energy and cooling, substations, street lights, and pole attachment services
3	City – Austin Water – including water, wastewater, and reclaimed water infrastructure and services
4	City – Watershed Protection Department – including gray infrastructure drainage, open channels (river, creeks, tributaries, concrete lined facilities), detention structures, and water quality facilities
5	City – Transportation and Public Works Department, Street and Bridge Operations
6	City – Transportation and Public Works Department, Signal Operations Division
7	City – Austin-Bergstrom International Airport

5 Environmental Consequences

Potential effects on utilities were assessed using data from utility owners as well as preliminary design information. Project effects were assessed by considering:

- potential effects on utility facilities requiring functional replacements;
- potential effects on utility facilities due to required relocation;
- potential effects on utility facilities due to maintenance access and maintenance depth constraints;
- effects on City water and sewer facilities and major utility distribution/trunk lines; and
- the ease of moving or mitigating effects on utilities.

Long-term utility effects are defined as consequences of the Project, including both adverse and beneficial effects that could change the operation of utilities in the Study Area. Long-term effects on utilities could include direct impacts on infrastructure, elements of the Project impeding or disrupting access for maintenance, and reductions in the level of service. The effects presented in this section focus on changes that could have a major impact on utility operation, utility level of service, or public safety.

5.1 No Build Alternative

Under the No Build Alternative, the Project would not be built. The No Build Alternative serves as the baseline from which to compare the effects of the Project. The No Build Alternative is defined as the existing transportation system as well as any committed highway and transit improvements defined in the *2045 Regional Transportation Plan* (Capital Area Metropolitan Planning Organization 2020), without the proposed Project. Under the No Build Alternative,

utilities would continue to be constructed, relocated, rehabilitated, removed, and replaced based on local and regional needs.

5.2 Build Alternative and Design Options

5.2.1 Operational (Long-Term) Effects

Long-term, direct effects would be generally similar for the Build Alternative and the Design Options based on the current design stage and selected locations of the surface and structured parking areas. A comparison of the Build Alternative and Design Options is summarized below:

- **Wooldridge Square Station Design Option:** No substantial differences between the Build Alternative and Design Option.
- **Cesar Chavez Station Design Option:** Both the Build Alternative and Design Option would require relocation of the Austin Energy chilled water infrastructure. Furthermore, both the Build Alternative and Design Option would require clearing up additional ROW on Trinity Street and 3rd Street to support the rebuild of the chilled water line extension back to the Convention Center. The Design Option would be located on more private property and would result in fewer effects on utilities within and adjacent to the ROW. The Design Option would avoid direct conflict with most of the 66-inch-diameter watermain.
- **Lady Bird Lake Bridge Extension Design Option:** The Build Alternative (at-grade) would result in greater utility impacts; there are opportunities to avoid utility conflicts and reduce impacts by using piers for the elevated structures of the light rail.
- **Travis Heights Station Design Option:** Elimination of the Travis Heights Station would reduce effects on utilities when compared to the Build Alternative.
- **Center-Running Bike/Ped. and Shade Tree Facilities on East Riverside Design Option:** Widening of the cross section as required by this Design Option would result in more utility conflicts when compared to the Build Alternative. The Utility Rules of Practice may be revised to restrict or limit the presence of utilities within the center-running bicycle and pedestrian facilities zone.
- **Grove Station Design Option**: The Grove Station Design Option would result in fewer utility conflicts and therefore fewer utility impacts than the Build Alternative because the wider guideway and utility free zone would be eliminated at Faro and Montopolis Stations and replaced with a standard-width guideway that can more closely follow the existing roadway alignment. As a result, fewer utilities would need to be relocated.

The light rail system would increase electricity usage in the Study Area through operation of trains and lighting installed at facilities and along the alignment. Traction power substations placed approximately 1 mile apart would distribute power to the overhead catenary system, nearby stations, the operations and maintenance facility, and the train control and communications systems, facilities, or bungalows. A traction power substation provides electricity to the train and all other system components requiring electric power, such as stations, lighting, and communications. An overhead catenary system is a system of overhead

wires above rail tracks and connected to the substations; overhead catenary systems are used to supply electricity to light rail vehicles. Traction power substations would be powered by the electric lines connecting to the nearest pole. In some cases, additional distribution lines may be needed to service individual traction power substations. A dedicated traction power substation with direct current traction power distribution network would be included in the building structure of the operations and maintenance facility.

Underground utilities in or adjacent to the Project footprint, including communications, gas, sewer, water, reclaimed water, and electric lines, could be susceptible to corrosion from stray electrical currents traveling from the traction power substation to overhead catenary system poles. Trenched areas along the alignment, common to the Build Alternative and all Design Options, have the potential for stray current effects, which have the potential to accelerate the rate of corrosion on subsurface metal conduits and piping. ATP would coordinate with utility providers to identify appropriate control measures to avoid or minimize corrosion. Typical design measures include:

- installing cathodic protection systems, which protect metal utility lines from corrosion that could occur due to stray electrical currents (Cathodic protection helps lengthen the lifespan of metallic subsurface infrastructure. Cathodic protection measures and metallic casing pipes would protect different types of metal objects and utilities such as water, wastewater, and chilled water lines.);
- installing insulating unions to break the electrical conductivity of the utility;
- installing polywrap encasement, a sleeve around metallic pipe that protects the pipe from corrosion;
- isolating electrical rails from the ground; and
- installing stray-current-control track fastening systems, where appropriate.

Major service disruptions to utility customers during light rail repair and maintenance operations are unlikely. ATP would relocate sewer manholes, pipes, vaults, or other access points. ATP would work closely with utility providers to maintain required access to these utilities and any relocated sewer holes and vaults, utility mains, fire hydrants, and other features. For maintenance access to the Waller Creek Tunnel, ATP would coordinate with the City to determine the adequacy of existing access points and would evaluate opportunities for new access, if needed.

The design of utility relocations and access points would be in accordance with the Utility Rules of Practice developed for the Project with input from CapMetro regarding operating considerations. ATP would integrate efficient operating practices at the new facilities and would use equipment to reduce energy and water demand and to recycle water. Implementing these and other sustainable practices would reduce consumption and demand on utilities.

5.2.2 Construction-Related (Short-Term) Effects

Implementation of the Build Alternative would require the acquisition of new ROW and construction activities that involve land clearing, grading, and sub-surface excavation. Prior to initiating construction, utilities along the corridor of the proposed Project would need to be moved. Coordination with utility owners would continue through final design and construction to either relocate the utility outside of the proposed ROW within a separate easement or make provisions for the utility to be incorporated within the guideway.

The light rail guideway would consist of two parallel tracks serving bi-directional trains. The typical separation of the tracks is 14 feet from centerline of track to centerline of track. The embedded tracks are supported by concrete foundations directly under the tracks. The typical width of the guideway is 28 feet. The guideway includes a utility review zone that is 5.5 feet below the surface of the guideway and 10 feet from either side of the light rail track centerline. Utilities within the utility review zone would be reviewed to determine whether they would be protected in place or relocated; pressurized water mains within the utility review zone would be relocated. During construction, utility services would be maintained; temporary services would be installed if the main services are shut off. The construction contractor would install, operate, protect, and maintain the respective temporary services during the construction period until the permanent utility can be placed back into service. The guideway also includes a utility free zone, which is the area between the surface and 2.5 feet below the surface of the guideway and covers the width of the guideway. Utilities within this zone would be relocated outside the utility free zone; relocation efforts would be coordinated with the respective utility owners and providers on a case-by-case basis.

The following is a summary of the major existing utilities affected by the Build Alternative and how they would be managed. ATP would coordinate with utility providers to establish replacement procedures and facility design standards as applicable.

5.2.2.1 Water

Existing perpendicular pressurized water mains located in either the utility free zone or utility review zone would be replaced and relocated below the utility review zone. The section of the new pipe that remains below the utility review zone would be placed into solid continuous steel encasement. In accordance with the requirements detailed in the Utility Rules of Practice, the end of the casing pipe would be extended to a minimum distance of 10 feet from the centerline of the nearest light rail track unless ATP and the City approve a shorter distance. As detailed in the Utility Rules of Practice, valves for pressurized water mains would be located outside the guideway in areas accessible by a vehicle for maintenance. Any abandoned and retired water pipes would be capped, plugged, filled, removed, or otherwise addressed to maintain the integrity of City ROW.

5.2.2.2 Reclaimed Water

Where available, the Project may establish connections to the City's reclaimed water system (purple pipes) to make reclaimed water available for irrigation and other viable non-potable water uses.

5.2.2.3 Wastewater

Existing perpendicular gravity wastewater mains that would remain in or below the utility review zone require a condition assessment to evaluate their structural integrity. Utilities in good condition would be protected in place and evaluated for suitability for encasement. Suitable pipes include polyvinyl chloride (PVC) pipes less than 24 inches in diameter and less than 20 years old. Wastewater pipes that are in poor condition or of a material that is no longer approved by Austin Water would be replaced and placed into a continuous casing pipe. In accordance with the requirements detailed in the Utility Rules of Practice, the end of the casing pipe would be extended to a minimum distance of 10 feet from the centerline of the nearest light rail track. All new metal casing pipes installed by open cut would be double-wrapped in 8-millimeter poly-wrap for corrosion control. In addition to double poly-wrap, cathodic protection may be installed, if deemed necessary by ATP and other stakeholders such as the City, utility owners, and utility providers.

Temporary utility connections would be made to maintain service levels during construction. Utilities containing asbestos may be removed from beneath the guideway, regardless of depth. Utilities containing non-friable, stabilized asbestos mixed with cement and other bonding materials that would not pose health hazards may be abandoned in-place. Abatement of asbestos-containing materials would be completed in compliance with City, state, and federal requirements. Any abandoned and retired water and wastewater pipes would be capped, plugged, filled, removed, or otherwise addressed, in compliance with the Utilities Criteria Manual, Section 2.8.0 – Abandonment of Facilities, to maintain the integrity of City ROW. If deemed necessary, new lift stations and force mains may be included as part of the proposed Project; these new lift stations would include odor control. Any new lift stations and force mains proposed as replacement of a gravity wastewater line would be reviewed by Austin Water on a case-by-case basis. ATP would prepare an evaluation that addresses feasibility and constructability of both a gravity solution and a pumped solution. Alternative assessment criteria would include constructability, capital cost, and 30-year life cycle operating cost. If proposed, all new force main piping material would be polyethylene. Wastewater utilities that cross the guideway on a skew and in conflict with the light rail construction would be reviewed and designed to reduce the skew angle.

5.2.2.4 Manholes and Handholes

Manholes and handholes are underground enclosures that provide access points for maintenance, inspection, and management of underground utilities like electrical cables, telecommunication lines, and water pipes. Handholes are specifically designed to be shallow with enough space for easy access to utilities using a hand and arm. In accordance with the Utility Rules of Practice, access manholes and handholes that are in good condition, outside of the guideway, and at least 10 feet from the centerline of the nearest light rail track would be reviewed on a case-by-case basis for relocation because of size and depth or would remain in place. However, access manholes and handholes within the guideway would be relocated outside the guideway and would be a minimum distance of 10 feet from the centerline of the nearest light rail track, in accordance with the Utility Rules of Practice.

5.2.2.5 Stormwater, Storm Drains, and Catch Basin Laterals

Existing stormwater lines that would remain in or below the utility review zone require a condition assessment to evaluate their structural integrity. Utilities in good condition would be protected in place and evaluated for suitability for encasement. Existing parallel storm drain infrastructure that conflicts and/or has access within the guideway would be relocated outside of the guideway. Relocated pipes would be reconstructed and upsized to meet current standards for conveyance systems, as detailed in the Utility Rules of Practice. Existing deep parallel storm tunnels would be assessed to evaluate structural resilience, maintenance access, and feasibility of relocation. Existing perpendicular storm drains under the guideway and impacted by light rail construction (including physical construction effects, surcharge loadings caused by high volumes of water entering the pipes, and maintenance access) would be replaced. Perpendicular storm drains not affected by the Project, in good condition, and with access locations outside the guideway would remain in place. Stormwater pipes in poor condition or of a material that is no longer approved by the City's Watershed Protection Department would be replaced with reinforced concrete pipe or placed into a continuous casing pipe. Existing stormwater catch basin laterals and trunk lines outside the limits of the guideway may be retained to accommodate Project drainage needs. The Project may require additional catch basin laterals; these would be designed per current City standards. Connections to existing structures would be installed per City standards.

ATP is currently developing a Sustainability Plan for the Project that will document ATP's sustainability criteria and guidelines as well as ATP's willingness to adopt sustainable design, construction, and operational best practices for the Project. The Sustainability Plan will comprise guidelines including measures such as green infrastructure to mitigate flood risks, improve water quality, and enhance biodiversity.

5.2.2.6 Energy

The Austin Energy vaults that connect the various large power duct banks in Downtown Austin represent significant infrastructure. These vaults are considered "confined spaces" with energized high voltage cables present. The potential relocation of one large vault could result in the relocation of hundreds of feet of large duct bank systems. To mitigate this potentially significant cost, efforts would be made to retain these vaults in place by modifying the vault access manhole location to maintain clearance from the guideway. The Utility Rules of Practice may be revised to restrict construction over electric manholes and vaults except for perpendicular crossings. A safety evaluation would be performed on each potential modification to vault access. Clearances for Austin Energy overhead 69-kilovolt and 138-kilovolt transmission lines would follow Austin Energy Design Criteria Guidelines. Any variances from these clearances would require Austin Energy approval.

The utilities within the Study Area through a network of underground equipment (including pipes and fiber conduit) also support Austin Energy's District energy and cooling operations, distributing chilled water to customer buildings. Relocated chilled waterlines and communication conduits, along with fiber cable routing, would be installed per Austin Energy chilled water requirements. (Fused or welded seamless carbon steel, cathodic protection, and consideration of placing the water main in casing pipe would be on a case-by-case basis.) If pipe casing is not

deemed necessary, a study to determine whether cathodic protection is needed would be completed; if any utilities would be affected, the requisite cathodic protection would be designed. The casing pipe would be installed to the maximum extent possible for the section of pipe located beneath the guideway. The casing pipe for Austin Energy chilled water would be grouted per specifications. Valves and other appurtenances located beneath the guideway would be relocated outside of the guideway, directly above the chilled water piping. All new valves would be accessible by a vehicle for valve exercising and maintenance.

ATP is currently developing a Sustainability Plan for the Project that will document sustainability criteria and guidelines, as well as ATP's willingness to adopt and implement sustainable and energy efficiency best management practices. The Project would be operated using electricity supplied by Austin Energy. In 2023, 70 percent of Austin Energy's portfolio was carbon-free energy. 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), prior to the implementation of the Project. ATP will collaborate with Austin Energy to support renewable energy, develop energy efficiency plans, and evaluate opportunities to continue to reduce emissions.

5.2.2.7 Electrical

Electric utility infrastructure is critical to the public's safety and well-being of the residents of Austin. As such, maintaining utilities during and after construction is imperative. Electric utilities are considered in conflict with the guideway if they are within the defined utility free zone. All electric utility infrastructure within the utility free zone would be relocated either below or outside of the utility free zone. If an electric utility is located outside the utility free zone, ATP would determine whether it is in conflict and should be relocated or whether it can remain in place. If the utility is located beneath the guideway, direct access under the guideway would not be permitted, and maintenance of underground utility systems would be restricted to outside the utility review zone. All emergency situations would be addressed in the design and construction documents during construction and in the light rail operations policies after the light rail lines become operational in coordination with Austin Energy.

5.2.2.8 Traffic Signals

The City's Transportation and Public Works Department owns and operates traffic signals and associated communication infrastructure within the City ROW. Traffic signals within TxDOT ROW are typically owned by TxDOT and operated by the City under a maintenance agreement. All traffic signal infrastructure would meet the minimum requirements in effect established by the City's Standard Specifications Manual, Standards Manual (details), Utilities Criteria Manual, and Transportation Criteria Manual. ATP would be responsible for the design of all traffic signal infrastructure affected by the Project. Traffic signals and associated infrastructure would not infringe on the clearance envelope around the overhead catenary system and light rail vehicle. Infrastructure that cannot be located outside the clearance envelope would be identified, and ATP would work with Transportation and Public Works to develop operation and maintenance language to address those situations.

5.2.2.9 Street Lighting

The streets lights and associated infrastructure would be designed in compliance with all applicable local, state, and federal regulations.

5.2.2.10 Gas

All parallel gas mains would be relocated outside the utility review zone; gas lines crossing the Study Area utility review zone would be lowered and protected using casing or sleeves.

5.2.2.11 Telecommunications

Fiber optic, cable, and telephone lines traverse and cross the Project independently and in major duct banks. Utilities are considered in conflict with the guideway if they are within the utility free zone. Parallel telecommunications utilities would be relocated outside the utility review zone, and crossing telecommunication lines would be lowered and protected with encasement or sleeves. Infrastructure for telecommunications is critical to the public, businesses, and well-being of the residents of Austin; as such, keeping all utilities maintained during and after construction is imperative. All telecommunications infrastructure located in this defined area would be relocated either below or outside of the utility free zone.

5.2.2.12 Other Public Works Infrastructure

Pavements temporarily affected by utility relocations and adjustments would be restored per the Utilities Criteria Manual standard criteria. Any new or temporary pavements that would not be simply restored per the utility repair standards above would be designed per the City's Pavement Design Guidelines. Sidewalks and ramps affected by utility relocation would provide an appropriate, temporary path and/or detour that is accessible per the Americans with Disabilities Act standards in accordance with local, state, and federal requirements throughout the utility relocation and full construction period. Damaged concrete sidewalks would be removed and replaced in full sections (joint to joint). In areas with sidewalk pavers, contractors would carefully remove, store, and replace pavers to match existing conditions or better. The Project would try to avoid placing vaults and hand holes within sidewalks. If unavoidable, these would be placed away from the primary accessible route per the Americans with Disabilities Act standards.

Utility services would be maintained during construction. When a main service is required to be shut off for construction, the contractor would install a temporary replacement service. Temporary services for water supply, wastewater bypass, gas, light, and power may be needed depending on the location. The construction contractor would install, operate, protect, and maintain the respective temporary service during the construction period until the permanent utility can be placed back into service. Service disruptions of short duration would be required to connect customers to the temporary service and again once the permanent utility is back in service. ATP would provide shutoff schedules well in advance to ensure businesses and residents are informed and able to plan for the short-term service disruption.

The Build Alternative would also include construction and installation of utility services (mechanical electrical plumbing) for platform stations (at grade and elevated), communication bungalows, wayside equipment, and traction power substation locations, to be confirmed in subsequent design phases.

5.2.2.13 Preconstruction Measures and Coordination with Utility Providers

During final design, a subsurface utility company would complete detailed utility investigations and update the utility base maps. After all utilities have been recorded, a comprehensive conflict analysis would be performed, and the Utility Tracking Matrix would be updated. The subsurface utility company would work with utility owners and designers to minimize effects, determine relocation needs, and assist in creating supplemental agreements that align with the Utility Rules of Practice. ATP would complete an assessment to determine which underground utilities could be crossed and which would need to be relocated outside the proposed ROW and within a separate easement. The assessment would be completed in accordance with the Utility Rules of Practice and the criteria developed by ATP, the City, and the respective utility owner. As an example, **Table 5** shows Austin Water's pipeline condition assessment options for corridor, mobility, or light rail projects. Stormwater and overhead utilities would be addressed in a similar manner through coordination with the City's Watershed Protection Department and utility companies; the final order, lead time, and cost of the utility relocations would also be determined.

Table 5: Austin Water's Pipeline Condition Assessment Options for Corridor, Mobility, and Light Rail Projects

Condition Assessment Option	Water	Wastewater	Expected Schedule to Complete/ Level of Effort	Documentation Provided
Preliminary Assessment	Cursory and high-level review of all water pipes crossing or along a corridor, including age information (as available) and pipe material; provide informed feedback from Austin Water professionals for the area.	Cursory review of all wastewater pipes crossing or along a corridor, including age information (as available) and pipe material, if there is a Pipeline Assessment Certification Program inspection, plus informed feedback from Austin Water professionals for the area.	Approx. 2 weeks per ~250 pipe segments or conflicts.	Table summary and recommendation (satisfactory, needs further assessment, or recommend replacement).
Intermediate Assessment	Provide mid-level assessment; count the number of qualified Work Orders (i.e., associated with water pipe breaks or relevant maintenance) associated with each pipe groupings. Does not include reading details on work orders or reviewing actual inspections	Provide mid-level assessment; count the number of qualified Work Orders, review of Pipeline Assessment Certification Program codes, and sanitary sewer overflows associated with each pipe groupings. Does not include reading details on work orders or reviewing actual inspections	Approx. 6-8 weeks per ~100 pipe segments or conflicts	Table summary with data counts; show data on geographic information system drawing(s) as appropriate; generate four levels of recommendation (very high probably of failure, high probability of failure, medium probability of failure, and low probability of failure) for pipe segments.

Condition Assessment Option	Water	Wastewater	Expected Schedule to Complete/ Level of Effort	Documentation Provided
Detailed Assessment	Provide detailed level assessment; review and summarize Work Order narratives for additional detail of representative weaknesses or conditions.	Provide detailed level assessment; review and summarize Work Order narratives, and review of closed-circuit television coverage, for additional detail of representative weaknesses or conditions.	Approx. 12-16 weeks per ~50 pipe segments or conflicts	Table summary with data counts; show data on geographic information system drawing(s); brief narrative report with representative closed-circuit television screen shots; generate a standard 1 to 5 Condition Score for pipe segments.
Additional Data Collection/ Assessment	Collection of additional field data (smart ball technology, or other targeted condition assessment) to provide updated or more representative condition data for specific evaluation purposes.	Collection of additional field data (more current closed-circuit television, multi-sensor technology, or other targeted condition assessment) for specific evaluation purposes.	Approx. 8-12 months, maybe longer, with vendor support	Brief narrative report with supporting vendor-supplied data results.

ATP would continue to coordinate with each utility owner to identify utility facilities that would potentially be affected by the Project and to develop conceptual plans and cost estimates for the anticipated relocation, replacement, or protection of those facilities. ATP would also coordinate with public and private utility owners as the proposed design for the Project progresses to identify additional effects and minimize service disruptions. Existing utilities would be surveyed during the final engineering phase and efforts would be made to avoid or limit effects on existing utilities when practical.

The Project would comply with current Dig Once laws, as detailed in 23 Code of Federal Regulations 645.307, and associated state regulations and guidelines, which require advanced coordination with the broadband/fiber utility owners. Special measures would be incorporated to ensure continuous service to life safety functions such as hospitals, fire protection, emergency

response, and other facilities providing critical support such as private medical offices and care facilities.

Construction mitigation measures, such as fencing, would be put in place in advance of major construction activities. Construction activities would be evaluated such that the local dynamics of the area and the needs of the property owners and businesses, as well as the end users, are incorporated into the Project. During construction, utilities could temporarily be shut off. Specific effects on businesses and residences are not known at this time; however, shutoff schedules and effects would be communicated well in advance to ensure affected businesses and residences are informed. Roadway closures and detours associated with utility construction, relocation, etc. would be communicated well in advance of closures, detours, or disruptions. Utility conflict resolutions would consider age, material, and condition of existing utility infrastructure. Use and occupancy agreements (permits and franchises) would be required for utilities located within the ROW. The utility owner or contractor performing relocation work would obtain any other requisite local, state, and federal permits and approvals.

6 Mitigation

ATP is responsible for funding and constructing public utilities that must be relocated due to conflicts of the existing utilities in the ROW with the proposed light rail. The utility relocations will be guided by the Utility Rules of Practice jointly adopted by ATP and each of the public utilities. Conflicts with private (franchise) utilities that will require relocation will be governed by Master Utilities Agreement(s), currently under development in coordination with the franchise utility companies.

Through planning, preconstruction measures, coordination with utility providers, and compliance with all local, state, and federal requirements, adverse effects on utilities are expected to be minor. Access for maintenance operations would be maintained via existing access points or new access points coordinated with the City's representative departments. Where possible, ATP and the City would collaborate to evaluate and implement solutions to protect subsurface utilities to extend the design life and minimize future maintenance needs. ATP would coordinate with the City to discuss existing access to the Waller Creek Tunnel and would evaluate opportunities for new access points, if needed. During final design, ATP would continue to work with the City, utility owners, utility providers, and other stakeholders within the Study Area to determine and coordinate protection, relocation, and removal of affected utilities. ATP would develop and implement standard design control measures in consultation with utility owners to mitigate the potential of stray currents that can damage or corrode utility systems. If additional effects are identified during final design of the Project, ATP would work with the potentially affected utility owners or utility provider to determine whether mitigation is warranted.

7 References

Capital Area Metropolitan Planning Organization. 2024. *2045 Regional Transportation Plan*. Adopted May 4, 2020. Updated May 2024. Accessed July 2024. https://www.campotexas.org/regional-transportation-plans/2045-plan/.

FTA. 2016. *Project and Construction Management Guidelines*. U.S. Department of Transportation, Federal Transit Administration. March. https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/FTA_Project_and_Construction_Mgmt_Guidelines_2016.pdf.

Austin Transit Partnership

Attachment A. Utility Rules of Practice

Austin Transit Partnership

Attachment B. Utility Tracking Matrix