Zero-Emission Bus Transition Plan - FY2022

Utah Transit Authority

May 2022

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Issue and revision record

Revision	Date	Originator	Approver	Description
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Executive summaryAcronyms and Abbreviations

A-BRT	Automated Bus Rapid Transit
AQI	Air Quality Index
APTA	American Public Transportation Association
BEB	Battery Electric Bus
BEERD	Bus Efficiency Enhancements Research and Demonstration
BFMP	Bus Fleet Management Plan
BIL	Bi-Partisan Infrastructure Law
BRT	Bus Rapid Transit
CTE	Center for Transportation and the Environment
CNG	Compress Natural Gas
EV	Electric Vehicle
FCEB	Fuel Cell Electric Bus
FTA	Federal Transit Administration
HVT	High Valley Transit
NITC	National Institute for Transportation and Communities
OEM	Original Equipment Manufacturer
PM	Particulate Matter
RAISE	Rebuilding American Infrastructure with Sustainability and Equity
RMP	Rocky Mountain Power
TAZ	Traffic Analysis Zone
TNC	Transportation Network Companies
TRAX	Transit Express
UCAIR	Utah Clean Air Partnership

URSTA	Urban Rural Specialized Transit Association
UTA	Utah Transit Authority
VW	Volkswagen
XC	Xcelsior CHARGE
ZEB	Zero Emission Bus
ZEP	Zero-Emission Plan
ZEV	Zero-Emission Vehicle

1 Introduction

The Zero-Emission Plan (ZEP) provides comprehensive information requested by the Federal Transit Administration (FTA) to apply for the Low or No Emission Grant Program and the Grants for Buses and Bus Facilities Competitive Program (49 U.S.C. 5339(b)), for projects related to Zero-Emission Vehicles (ZEV).

UTA serves the region along the Wasatch Front, an area with significant seasonal air quality issues. The major population centers are located in mountain valleys which trap poor air in the winter and summer months. UTA has taken significant steps to reduce emissions with the implementation of a 45-mile light rail system, CNG bus fleet, and clean diesel buses. Moving toward 50% alternatives technologies powered fleet will enable UTA to help make a significant positive impact on air quality. This plan includes the FTA requirements for the grant applications, including a long-term fleet management plan, current and future status transition resources, technology policies, and legislation, current and future facility assessment, provider partnership relationships study, and workforce impact assessment. A brief description of each requirement is included below:

Bus Fleet Management Plan (BFMP): The BFMP provides current information on UTA's bus fleets and facilities, describing its current condition and provides information of funded and planned projects. The BFMP also includes information of current and projected ridership, bus operation characteristics, maintenance philosophy, reliability performance, and measures used to gather information on service quality and on-time performance is included. UTA's BFMP is included for reference in Appendix A.

Current and future resources for transition costs: As outlined below, UTA has adopted a comprehensive zero emission transition plan. An important component of this plan is the Board of Trustees adopted 5-year financial plan which includes the purchase of 289 vehicles and supporting infrastructure during the period ending December 31, 2026. UTA will continue to work with the FTA and its partners to attain full funding for its transition plan including the pursuit of federal grant funds. UTA will work closely with our State, Local and public/private partnerships on other funding/grant opportunities to implement its transition plan.

Policy and legislation: UTA´s Government Relations department works with lawmakers, stakeholders, partners, and consultants to assure UTA staff is informed of and compliant with all local, state, and federal laws and guidance. The Government Relations staff tracks Congressional and State legislation and shares passed legislation and impacts with UTA staff. UTA has participated in training, webinars, and conferences to learn about the Bipartisan Infrastructure Law (BIL) requirements and has implemented processes to ensure compliance. The Government Relations department thoroughly vets state legislative proposals and bills that effect UTA. We also have contracted federal consultants to help ensure we are notified of any changes nationally. We work with many stakeholders in the area dealing with related issues such as Utah Clean Air Caucus, Utah Clean Air Partnership, Utah Clean Energy, and Rocky Mountain Power.

Existing and future facility evaluation: UTA works collaboratively with vehicle, infrastructure suppliers, and sub-system suppliers to fully define the infrastructure and equipment needs to support the vehicles, and associated changes to existing maintenance facilities. UTA's BFMP describes the infrastructure and equipment needed to support the vehicles and the associated changes to existing facilities**.** The BFMP does also include facility assessments and future expansions. Ref: *4.3. Electrical Infrastructure* and *Appendix A BFMP, 3. Existing Transit Centers and Operating Business Units.*

Alternative fuel provider partnership: Describes the cooperative partnership with the utility provider Rocky Mountain Power and the collaborative strategy to pursue innovative and clean energy objectives. Ref: *4. Utility Provider Partnership.*

Workforce impact assessment: Describes UTA´s workforce training strategy since introducing the first Battery Electric Bus (BEB) and the technology-specialized skill improvement philosophy as well. Ref: *6. Workforce Development*.

2 Overview of UTA

Utah Transit Authority (UTA) has been the service provider for public transportation along the Wasatch Front since August of 1970. The service area is approximately 1,600 square miles and serves six counties, including many nearby municipalities. This service area contains 80 percent of Utah's population and 77 percent of Utah's automobiles. The average annual ridership from 2014 to 2018 exceeded 45 million trips. For years 2016 to 2020 average annual ridership was 40,535,76.

The current active bus fleet includes 506 service buses and 22 contingency buses which are serviced by five maintenance facilities. One of these facilities is located in Ogden (Mt. Ogden), three in the Salt Lake area (Central/Depot District, Meadowbrook, Riverside), and one in Orem (Timpanogos). The Riverside facility houses Special Services, a demand response system serving people with disabilities.

The Depot District will replace the 45-year-old Central Bus Garage, which is fast approaching the end of its useful life. Currently, 100 buses are maintained at the existing garage facility. The current facility cannot be expanded due to a lack of available adjacent land. The lack of space makes it impossible for UTA to expand bus service, as there is no available room to store and maintain the necessary additional vehicles. The new Depot District Clean Fuels Tech Center will provide UTA with bus storage and maintenance resources. It will initially be capable of storing and maintaining up to 150 buses, expandable to 250 buses. The facility is designed to house alternative fuels, including CNG and battery-electric buses. In addition, the project is building a new bus maintenance shop, bus wash, administrative offices, and bus canopies.

UTA maintains the bus fleet to ensure that the average UTA fixed route bus has a life expectancy consistent with the FTA minimum requirement of 12 years. UTA's bus fleet will continue to change accordingly in size as ridership dictates, and as funding is available. Beyond 2022, UTA expects a steady increase in bus revenue miles as the regular bus service is expanded and new Bus Rapid Transit (BRT) systems are implemented through 2040 as outlined in the 2019-2050 Wasatch Front Regional Transportation Plan (https://wfrc.org/vision-plans/regional-transportation-plan/). Refer to the Bus Fleet Management Plan Rev. 9 included in Appendix A for more information.

UTA's Zero Emission Transition Plan has set a target of 50% alternatively fueled vehicles by 2040. The 2040 target is as follows:

- Clean Diesel: 50%
- Electric: 36%
- CNG: 14%

3 UTA's Electrification

In 2016 UTA began the transition to electrify its bus fleet. This section presents the state of electrification and UTA's plan to continue deploying electric buses. It will also provide an overview of UTA's transition plan, including vehicles, depots, bus routes, and other goals the Agency aims to achieve in the next decade and beyond.

Due to lower costs and the mature state of technology of BEBs as compared with Fuel Cell Electric Bus (FCEB), UTA has chosen the BEB technology. Due to the current limited (but rapidly increasing) range of BEBs, this will require the installation of some on-route charging and may require service modifications which add to the total fleet requirement and operational costs. Drop-down pantograph technology will be used for charging at line terminus and on-route locations. For maintenance depots, plug-in charging technology will be used, consistent with the approach followed by several peer agencies in the United States. UTA will also continue considering using FCEB technology, especially for services that would be difficult to operate with BEBs due to range limitations.

3.1 Current state of electrification

UTA and the University of Utah participated in a joint procurement to acquire five (5) 40' New Flyer Xcelsior CHARGE (XC) NG BEBs, refer to Figure 1. Three (3) of these vehicles belong to UTA's fleet. The remaining two (2) vehicles belong to the University of Utah. UTA is the lienholder for all vehicles obtained through this joint procurement. The University of Utah operates and maintains their two vehicles assigned to them and UTA performs an annual inspection of these vehicles. A plug-in type charger is available at the University of Utah.

Figure 1. New Flyer's XC40

These five vehicles were procured in 2016 and have been in revenue service operation since 2018. UTA's current bus fleet composition (does not include the two BEB operated and maintained by the University of Utah) is shown in Figure 2.

PROPULSION TYPE	QUANTITY
CLEAN DIESEL	423
HYBRID	54
CNG	47
ELECTRIC	3
TOTAL	527

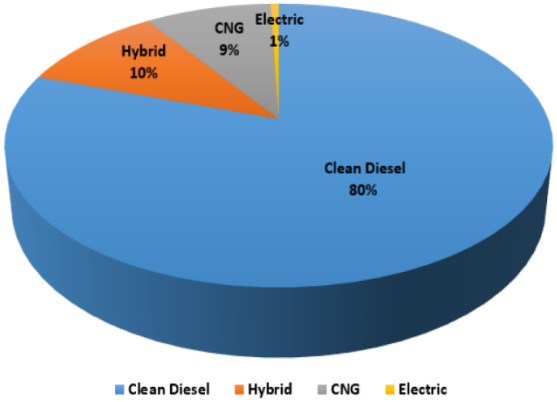

Figure 2. April 2022 UTA's Bus Fleet Composition

These three BEBs are currently being operated and maintained by the Central Business Unit. The charging infrastructure consists of plug-in chargers at this location, as shown in Figure 3.

Figure 3. Plug-in Charging Infrastructure at Central Business Unit

Currently, a new Business Unit facility is under construction. As a result, all operations will be transferred from the Central Facility to the Depot District Clean Fuels Technology Center.

UTA has two existing on-route charges at Salt Lake Central Station, which have been in operation since the end of 2019. They currently are used by UTA's three 40' New Flyer Xcelsior CHARGE buses, which

run on routes 2 and 509. Long term, these chargers can support many other routes which serve this critical transit hub.

As outlined in UTA's transit development plan, a new Depot District Clean Fuels Technology Center maintenance facility is under construction. The facility is scheduled for completion in the Spring of 2023 and will support the BEB fleet including overhead charging infrastructure as seen in Figure 4.

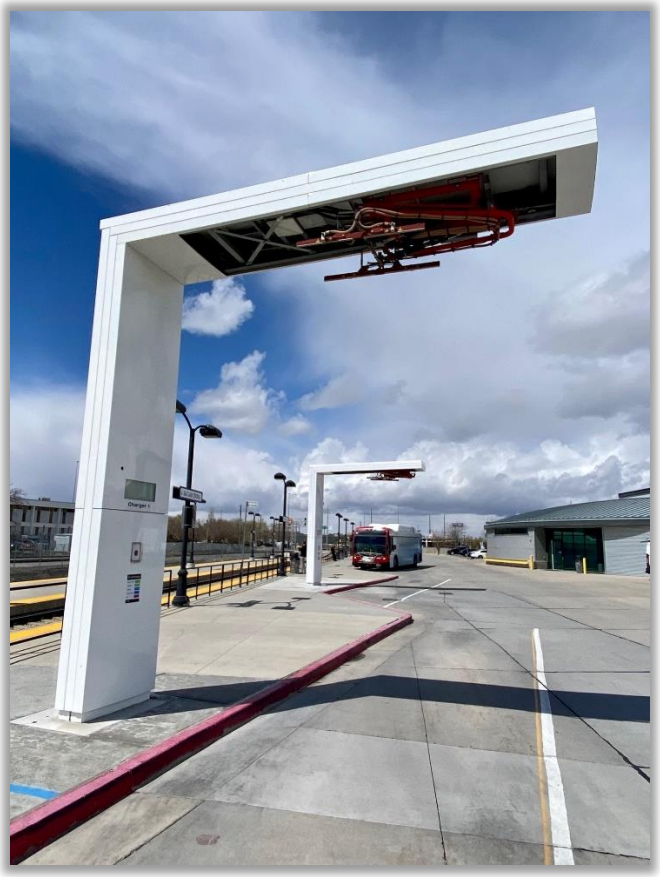

Figure 4. Overhead Chargers at the Salt Lake Central Station.

Charging infrastructure is also being installed at the Mount Ogden Business Unit as part of the facility expansion and upgrade. The charging infrastructure consists of plug-in chargers for 12 BEBs, one of them located inside the main building, the rest installed outside as shown in Figure 5.

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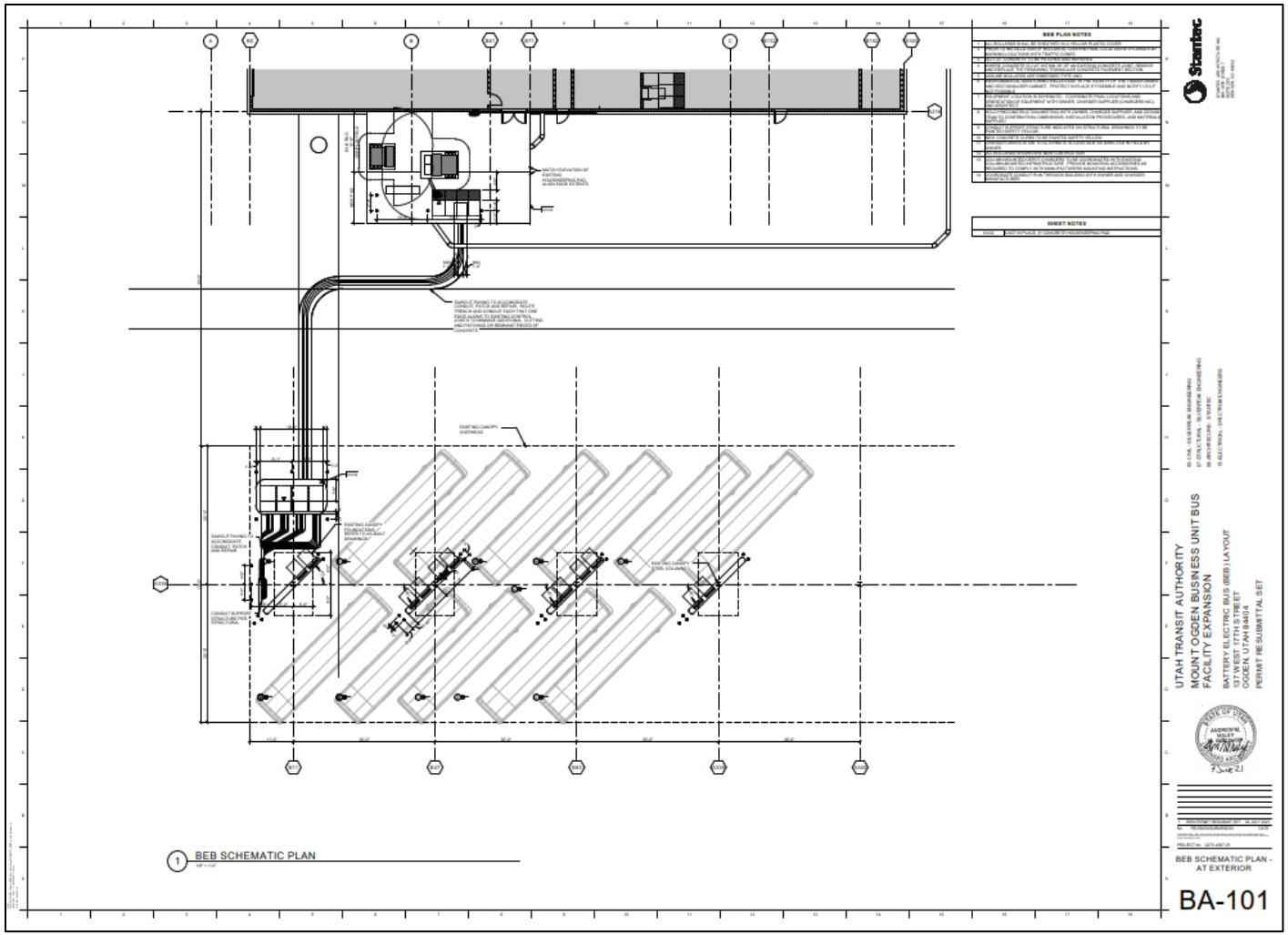

Figure 5. Charging Infrastructure Plans at Mt. Ogden Business Unit

3.2 On-going Procurement BEB and Charging Infrastructure

In April 2021, UTA signed a five-year bus procurement contract with Gillig LLC for BEBs and associated charging infrastructure. This was also a joint procurement, including UTA, Park City, and High Valley Transit (HVT).

UTA's second project for 2022 was partially funded by the Volkswagen (VW) Clean Air Act Civil Settlement through the State of Utah Department of Environmental Quality. The Base Order will furnish delivery of forty-four (44) BEBs, four (4) overhead chargers, sixteen (16) plug-in depot chargers, workforce training, special tools, and an extended warranty. The contract also has a provision for option for up to 95 additional BEBs over five (5) years. A breakdown of this order is provided in Table 1.

Table 1. BEB Base Order for Gillig BEBs and Charging Infrastructure

Quantity	Description	Order Breakdown
9	Thirty-five (35') foot BEB – Transit	Qty. 4 for HVT Qty. 5 for Park City (Now 7 with 2 options used)
20	Forty (40') foot BEB – Transit/Suburban Bus	Qty. 20 for UTA (from VW Settlement)
4	Forty (40') foot BEB – Suburban bus with commuter style interior layout	Qty. 4 for HVT
11	Forty (40') foot BEB – BRT	Qty. 11 for OGX Ogden BRT route
4	On-Route Chargers – Drop-down pantograph	Qty. 4 for UTA
16	Depot Chargers – Plug-in chargers	Qty. 5 for UTA's Mt. Ogden Business Unit for OGX. The remaining units to be split between UTA, Park City and HVT
1	Workforce Training	
1	Special Tools	
1	Spare Parts	
1	Maintenance and Training Manuals	
44	Extended Warranty	

After the base contract was executed, Park City added two (2) option vehicles to their order, leaving 93 BEBs remaining as part of the contract's options.

Delivery of the Base Order BEBs started in April 2022, at an approximate rate of one BEB per week. Table 2 and Figure 6 indicates the expected Bus fleet composition for the end of year 2022.

Table 2. UTA End of 2022 Bus fleet composition

PROPULSION TYPE	QUANTITY
Clean Diesel	466
CNG	23
Electric	14
Hybrid	34
Total	537

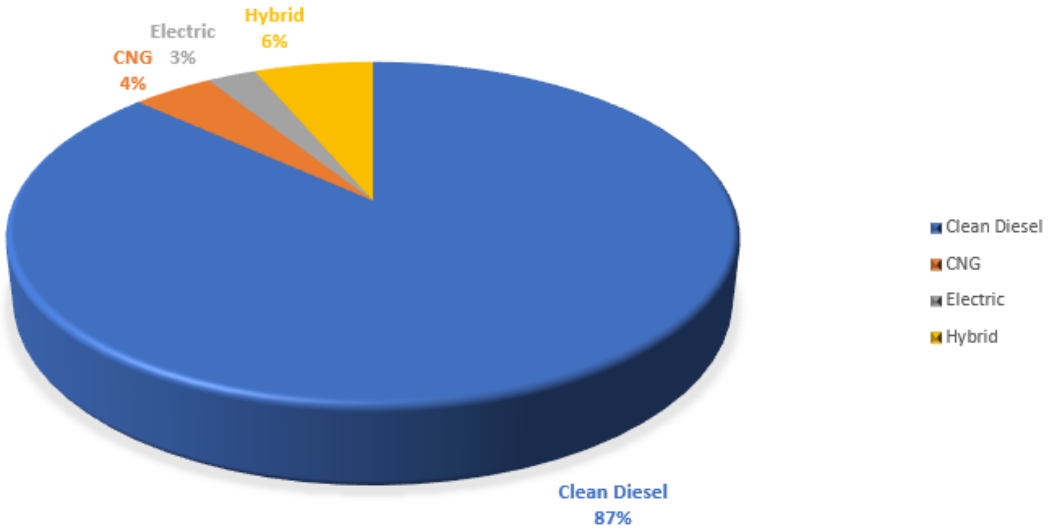

Figure 6. UTA End of 2022 Bus Fleet Composition

Figure 7. UTA Gillig 40' BEB at the APTA Mobility Conference - Columbus, OH, May 2022.

3.2.1 VW Charging Plan – Initial Evaluation

As part of the VW BEB charging plan, UTA's Operations and Planning department evaluated specific sites which were rated based on several components, including:

- The number of routes at each site based on the 5-year service plan
- Since several of the proposed locations do not currently have a transit hub/station, buildability was used to rate how quickly the charger could come online
- Similarly, land ownership was rated to give UTA-controlled property the highest points, followed by City or University of Utah owned property
- The electrical service was rated on a scale of 1-3, based on the existing conditions
- The final element considered was operator facilities
- Bus charging load balance (switch ON/OFF) based on Light Rail sub-station power requirements

The initial evaluation included the locations indicated in Table 3.

Table 3. BEB Charging Locations Screening Matrix

VW Electric Bus Charging Locations - Screening Matrix		
	Total	**Notes**
Salt Lake Central	**18**	Ideal location, existing facilities in place. Site redevelopment may affect the best locations for chargers.
North Temple Power Station (On Street)	**11**	Not ideal to have EOL on street, no operator facilities, bus turn around may be difficult.
North Temple Hub	**12**	SLC is working on planning to finalize location, more than 2-years until construction.
Orange Street	**11**	Will be built within the next 2 years. Only route 4 will serve the facility long term.
Central Pointe	**16**	Ideal location, existing facilities in place and additional service planned.
University of Utah South Campus	**11**	Ideal location, but timeline for construction is unknown.
University of Utah Medical Center	**12**	Ideal location, but timeline for construction is unknown.

An update of the VW BEB project budget status is provided in Table 4.

Table 4. VW BEB project budget status

2019 VW Award Purchase Battery (2020 Update)

Buses

Item Description	Qty.	Unit Cost	VW	UTA/Other	Total Cost
Buses	20	$ 1,000,000	$ 11,000,000	$ 9,000,000	$ 20,000,000
Radios/Farebox	20	$ 27,000	$ 297,000	$ 243,000	$ 540,000
Bus configurable/spare parts/warranty/bike rack	20	$ 68,000	$ 748,000	$ 612,000	$ 1,360,000
Project Management	4	$ 50,000	$ 110,000	$ 90,000	$ 200,000
Training	4	$ 35,000	$ 77,000	$ 63,000	$ 140,000
Tools	4	$ 15,000	$ 33,000	$ 27,000	$ 60,000
Shop Improvements	4	$ 20,000	$ 44,000	$ 36,000	$ 80,000
TOTALS			**$ 12,309,000**	**$10,071,000**	**$ 22,380,000**

Charging Infrastructure

Item Description	Qty.	Unit Cost	Partner: RMP, CMAQ, STP	UTA/Other	Total Cost
On-Route Charging Equipment	4	$ 427,000	$ 1,195,600	$ 512,400	$ 1,708,000
On-Route A&E Services	4	$ 65,000	$ 182,000	$ 78,000	$ 260,000
Depot Charging Equipment (7 units)	7	$ 160,000	$ 784,000	$ 336,000	$ 1,120,000
Depot Charger Construction Services	7	$ 80,000	$ 392,000	$ 168,000	$ 560,000
Software	3	$ 3,600	$ 7,560	$ 3,240	$ 10,800
Training	3	$ 15,000	$ 31,500	$ 13,500	$ 45,000
On-Route Contruction Services	4	$ 600,000	$ 1,680,000	$ 720,000	$ 2,400,000
UTA Project Management	4	$ 35,000	$ 98,000	$ 42,000	$ 140,000
Contingency	7	$ 125,000	$ 612,448	$ 262,500	$ 875,000
TOTALS			**$ 4,983,108**	**$ 2,135,640**	**$ 7,118,800**

VW Project Total Budget	**$ 17,292,108**	**$12,206,640**	**$ 29,498,800**

Grants and funding sources won to date	Match Amount
VW funds	$ 13,079,240
UTA	$ 14,000,000
WFRC	$ 2,500,000
Sub-Total won	$ 29,579,240

3.2.2 Base plan

The base plan developed by the Capital, Service, and Operations Planning is to install the chargers at the following locations:

- One charger station at Salt Lake Central Station
- One charger at the Orange Street End-of-Line Facility
- Two chargers at Central Pointe Station

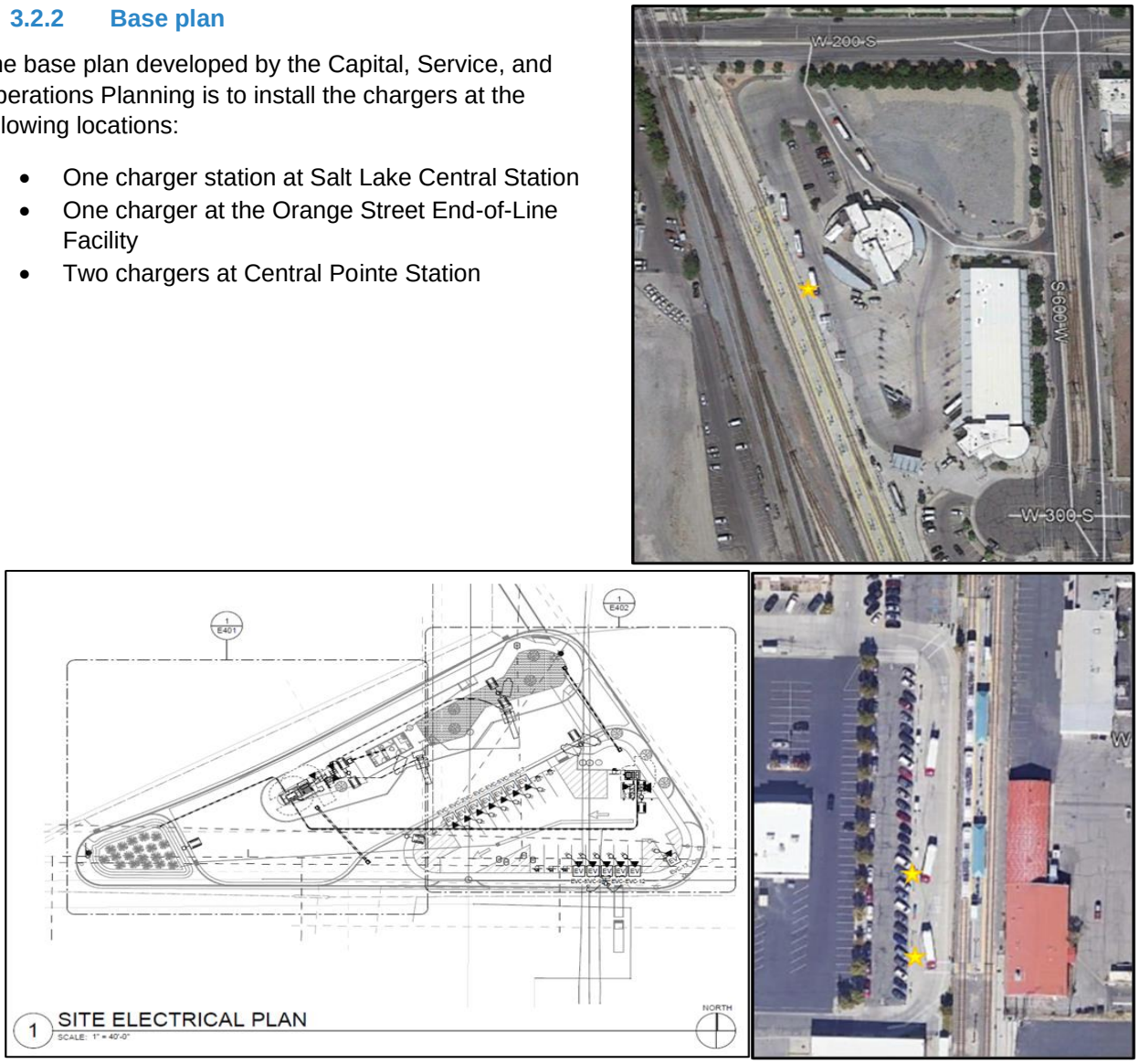

Figure 8. Charger installation locations

The buses have also been proposed to be used on the Westside Express project if the Rebuilding American Infrastructure with Sustainability and Equity (RAISE) discretionary grant funds are received. If so, the four chargers will be installed at the following locations:

- One charger at Salt Lake Central Station
- Two chargers at 5600 W. Old Bingham Hwy Station
- One charger at the Orange Street End-of-Line Facility

Figure 9. West Side Express Charging Station Project

Other Charging locations:

UTA is also working with High Valley Transit (HVT) to implement electric buses on the Park City – SLC Connect Service. UTA currently operates bus service to Park City as part of an interlocal agreement that outlines service expectations and funding responsibilities. UTA and HVT are working to transition the responsibility for owning, operating, maintaining, and funding this service to HVT. As part of this effort, UTA is supporting the development of two on-route chargers. One will be constructed at UTA's Wasatch Blvd. & 3900 South Park and Ride, which will be the transfer point between the two services. UTA will operate and maintain this charger. UTA is also supporting HVT in building a charger at their Kimball Junction hub, which HVT will operate and maintain.

3.3 Initial Service and Route Analysis

UTA partnered with the National Institute for Transportation and Communities (NITC) to conduct an analysis titled: *Bi-objective Optimization for Battery Electric Bus Deployment Considering Cost and Environmental Equity*. As indicated by its title, the analysis was conducted with two objectives. The first objective is to minimize the cost of purchasing BEB and installing both on-route and in-depot charging stations while maintaining current bus schedules. The second objective is to maximize environmental equity by incorporating the disadvantaged population in the decision-making process.

The developed bi-objective spatiotemporal optimization model and the result are integrated via a unifying interactive visualization platform to support querying, navigating, and exploring various BEB deployment scenarios. The platform allows users to explore the designated buses

to be replaced with BEBs with their customized inputs, the siting of corresponding charging stations, and the impacts of various BEB deployment strategies in terms of cost and environmental/social benefits. Only empirical data was used but the platform can be refined as actual data is gathered from the BEB currently in service. As part of this analysis, several BEB deployment scenarios were explored. The outputs of the platform are the corresponding parameter for each of the scenarios analyzed, e.g., charging station locations.

Typical BEB analysis focuses on cost or environmental benefits associated with the deployment of BEB fleets. This analysis also considered social equity as many transit-dependent communities served by UTA tend to suffer the most from poor air quality as they often reside in areas with a high concentration of air pollutants. Replacing diesel or Compressed Natural Gas (CNG) buses with BEB vehicles in these neighborhoods further improves environmental and social equity.

For this analysis, a mathematical model was developed, which considers the different parameters, decision variables, and constraints necessary to meet the two objectives established for this analysis. However, no single solution exists that simultaneously optimizes both goals. Increasing the budget will likely lead to more BEB deployment, thus improving environmental equity.

a. The bus considered for the analysis is the New Flyer XC 40', and actual performance data gathered from service operations were used in the mathematical model. Some of these parameters are:

b. Driving range varies from 62 – 200 miles in the winter.

c. Driving range varies from 75 – 294 miles in the summer.

d. Electric heater can take up to 50% of battery consumption.

e. Air conditioning can take a considerable amount of battery consumption, but less than 50%.

f. Considering the steep elevation rise along the UTA routes, a safe 62 miles range assumption is used.

g. Standard on-route charging time is 10-13 minutes, no partial charging is assumed in this study. Thus, only terminals in which any bus dwells more than 10 minutes are deemed as potential sites for building on-route charging stations.

Under these parameters and assumptions, the following was found:

- There are 114 buses in UTA's fleet of 467 with daily mileage less than 62, indicating no on-route charging is needed. An estimated 51 buses will run out of battery power before charging due to the long distance between stops.
- This results in 71 potential charging stations for the study area. In addition, four bus garages on the Wasatch Front are qualified as in-depot charging stations for overnight charging without space limitations (refer to Figure 10).
- Among the remaining 302 buses operated by UTA on weekdays, 82 cannot be fully charged because they dwell less than 10 minutes at any terminals, which means they are not qualified as replacements given the current parameters.
- It leaves 220 buses in total that require in-depot charging and on-route charging.

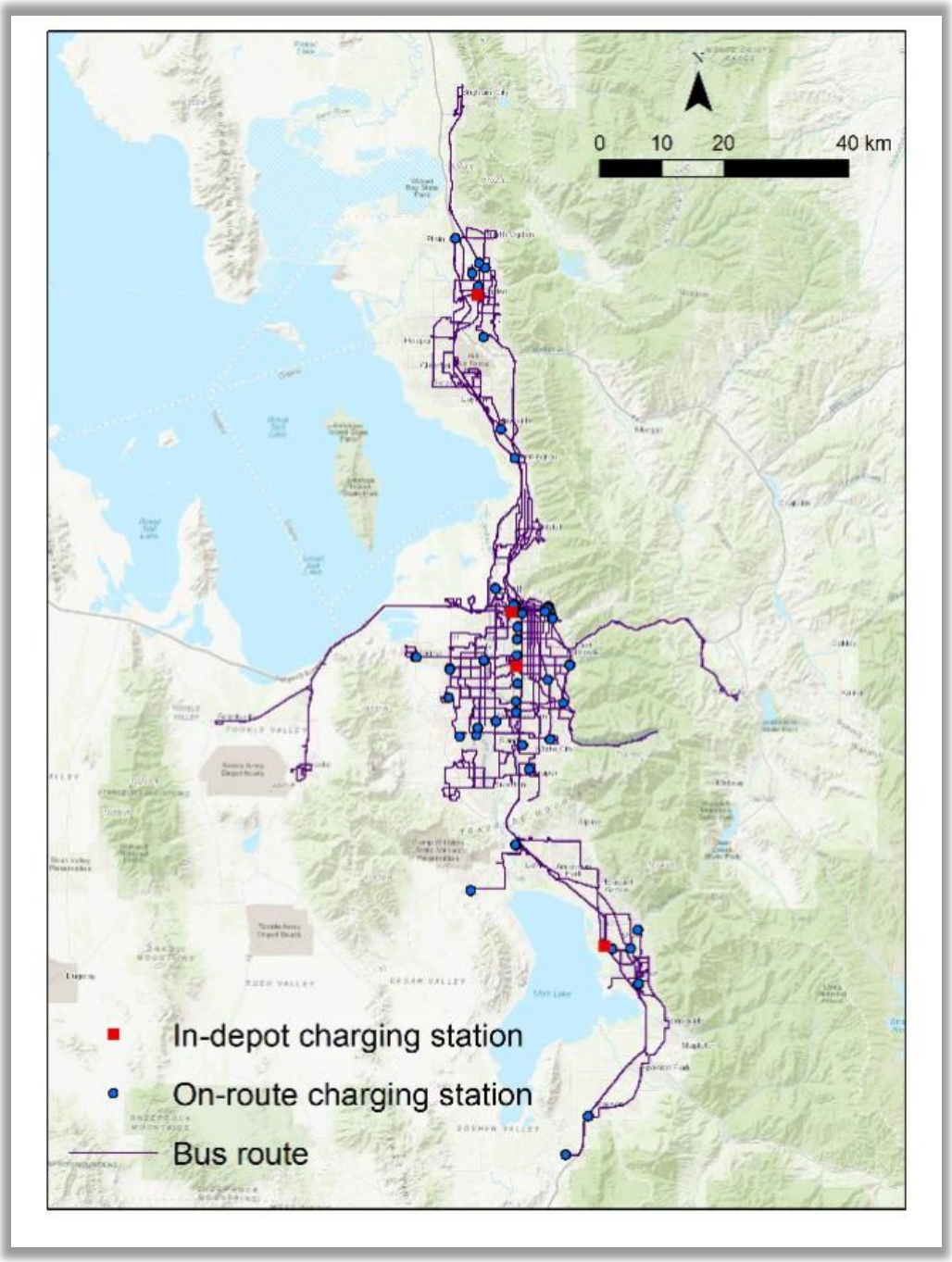

Figure 10. Study Area

3.4 Low-Income Population

The analysis assumes that low-income populations depend heavily on public transit for mobility and fulfilling their daily activities. Population groups with incomes ranging from $0 to $34,999 are considered low-income in Utah, refer to Figure 11.

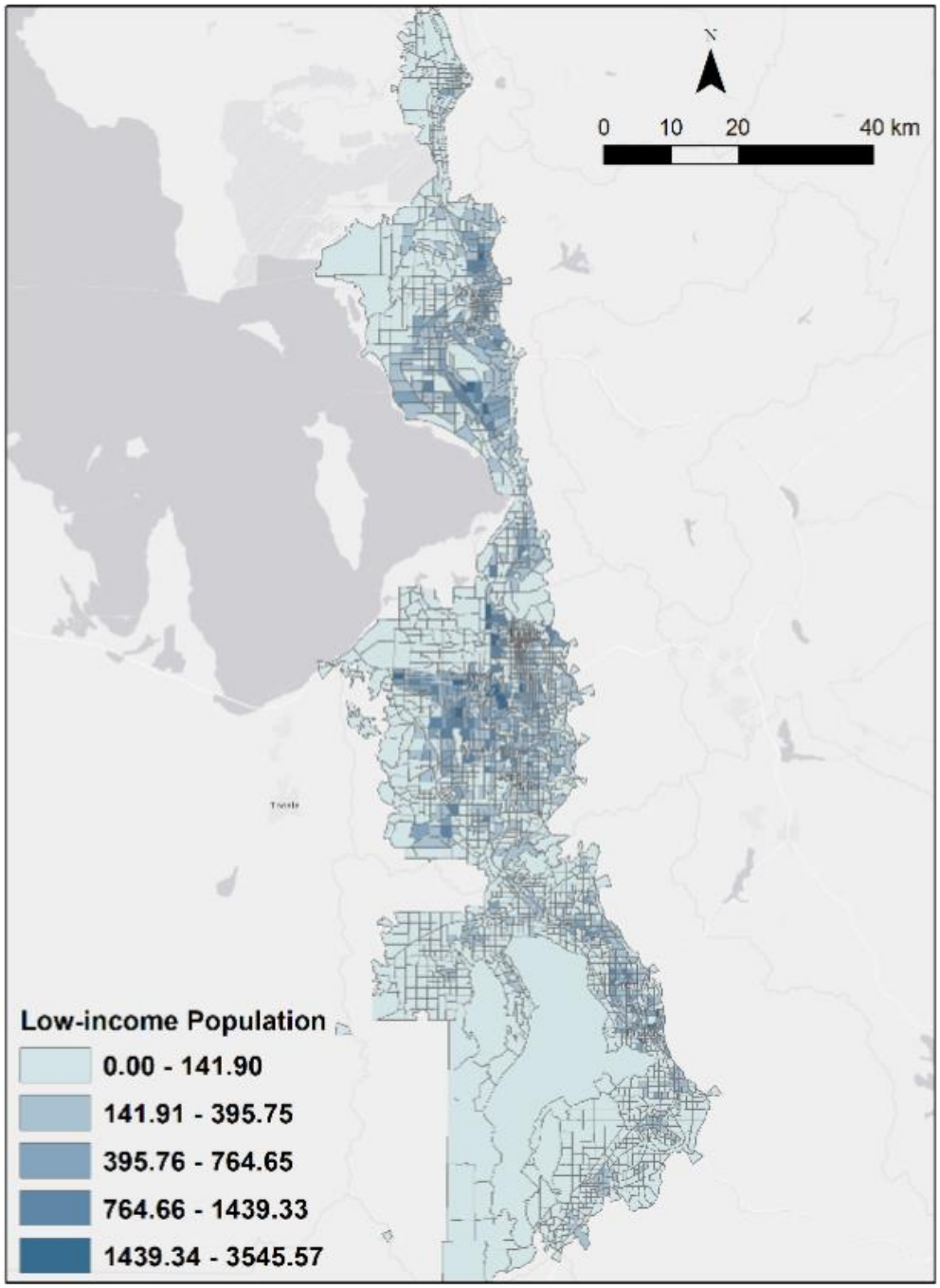

Figure 11. Distribution of Low-Income Populations

3.5 Air Pollution Data

Air pollution data was collected to model the environmental equity outcomes resulting from BEB deployment. UTA obtained this information from PurpleAir, an air quality monitoring network built on a new generation of laser particle counters that provide real-time measurement of Particulate Matter (PM) PM1.0, PM2.5, and PM10 (particulate air pollution size measured in µg/m³, where µg/m³ is micrograms of gaseous pollutants per cubic meter of ambient air). There are over 400 public sensors distributed across Utah. Figure 12 shows a sample screenshot for PurpleAir Air Quality Index (AQI) reading in Utah on April 8th, 2020.

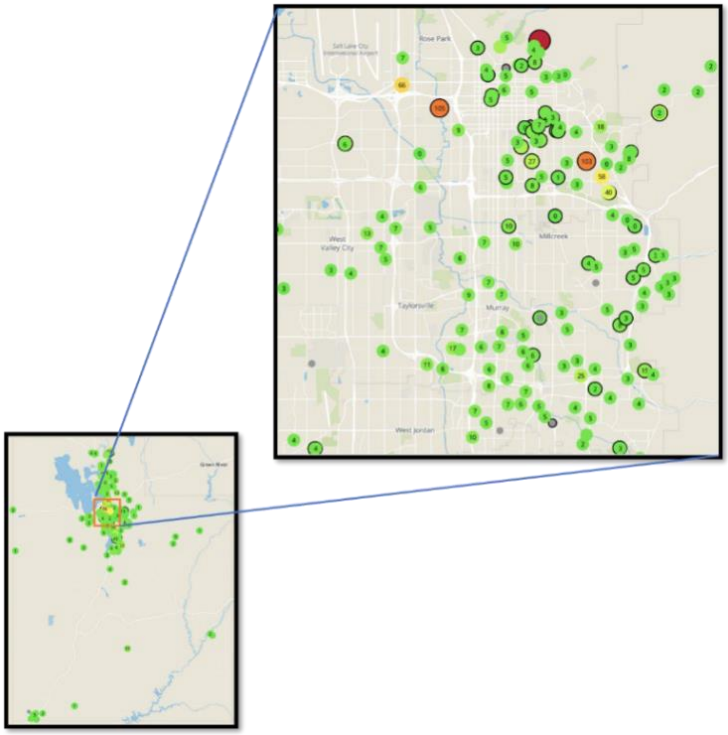

Figure 12. Sample Screenshot of PurpleAir Sensor Distribution in the State of Utah on 04/08/2020

Data retrieved PM2.5 concentration from all sensors in the state of Utah from October 1st to October 14th, 2019 and calculated the average for each site. The data was further processed to interpolate the pollutant level at the unit of Traffic Analysis Zone (TAZ).

This analysis focuses on deploying BEBs so that the low-income populations who are exposed to the worst air conditions can be given priority. To this end, the concentration of PM2.5 (µg/m³) is treated as the indicator of air pollution level in this study. Figure 13 shows the resulted average PM2.5 concentration delineated by TAZ. Comparing Figure 11 and Figure 13, it is noted that most of the low-income population resides in TAZs with higher PM2.5 concentration. For example, in central Salt Lake City, where PM2.5 concentration is the highest, there is a cluster of TAZs with a larger low-income population, accounting for more than 50% of the total low-income populations in the studied region. Also, the area to the east of the Great Salt Lake shows similar patterns where low-income populations reside in areas with a higher concentration of PM2.5.

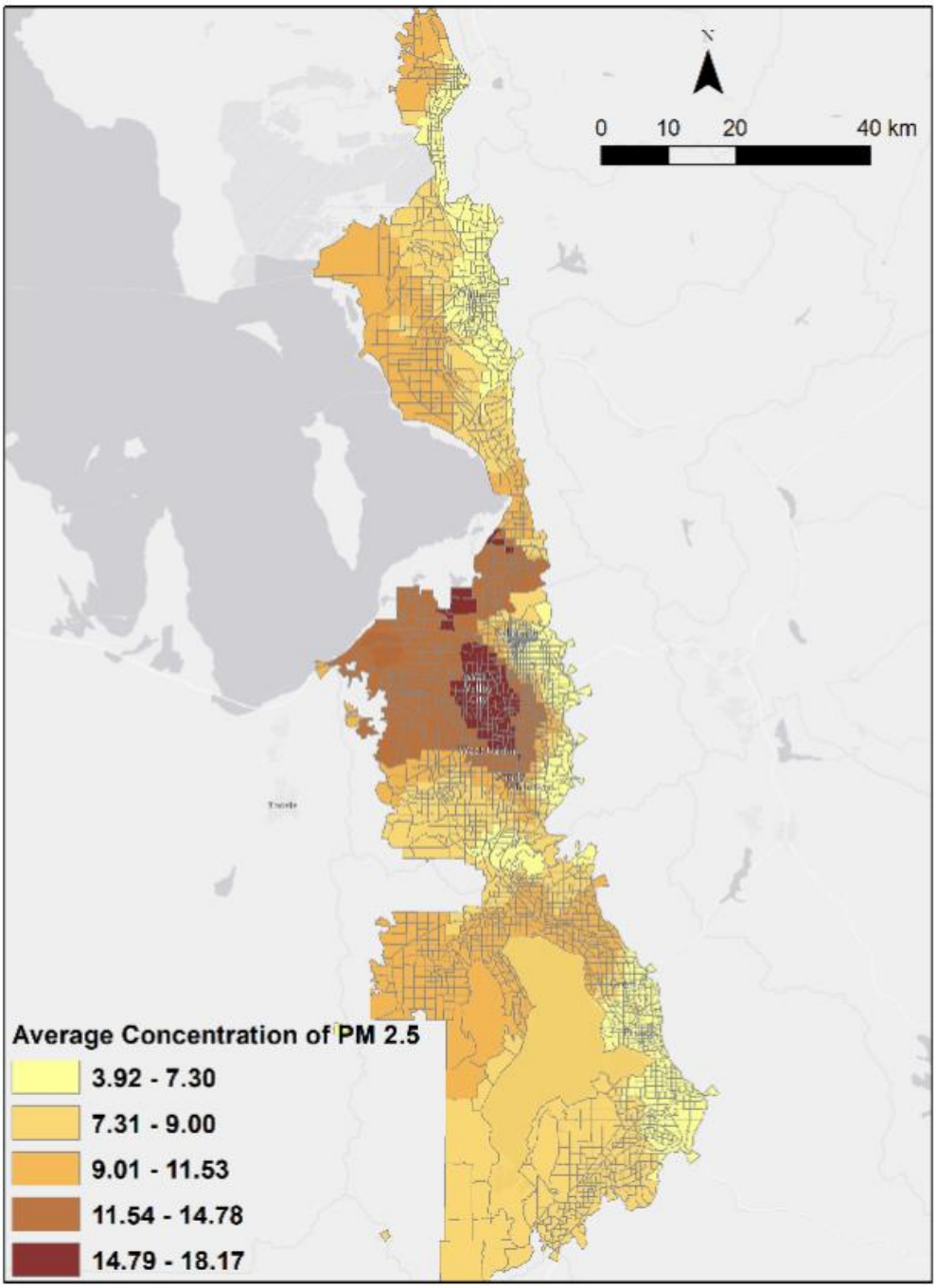

Figure 13. PM2.5 Concentration delineated by TAZ for Utah

3.6 Results and Analysis

The intention is to identify the trade-off between environmental equity and cost incurred by replacing the current fleet with BEBs. Different deployment plans can be presented by varying budget constraints/funding availability. Each plan would produce the set of locations for charging stations and replaced buses, given a fixed budget and the maximum environmental equity it could yield. Figure 14 shows the trade-off curve between budget and environmental

equity each unique plan could produce. There is a clear positive correlation between budget and environmental equity. As the budget increases, the number of buses applicable for replacement goes up as well as the number of on-route and in-depot charging stations.

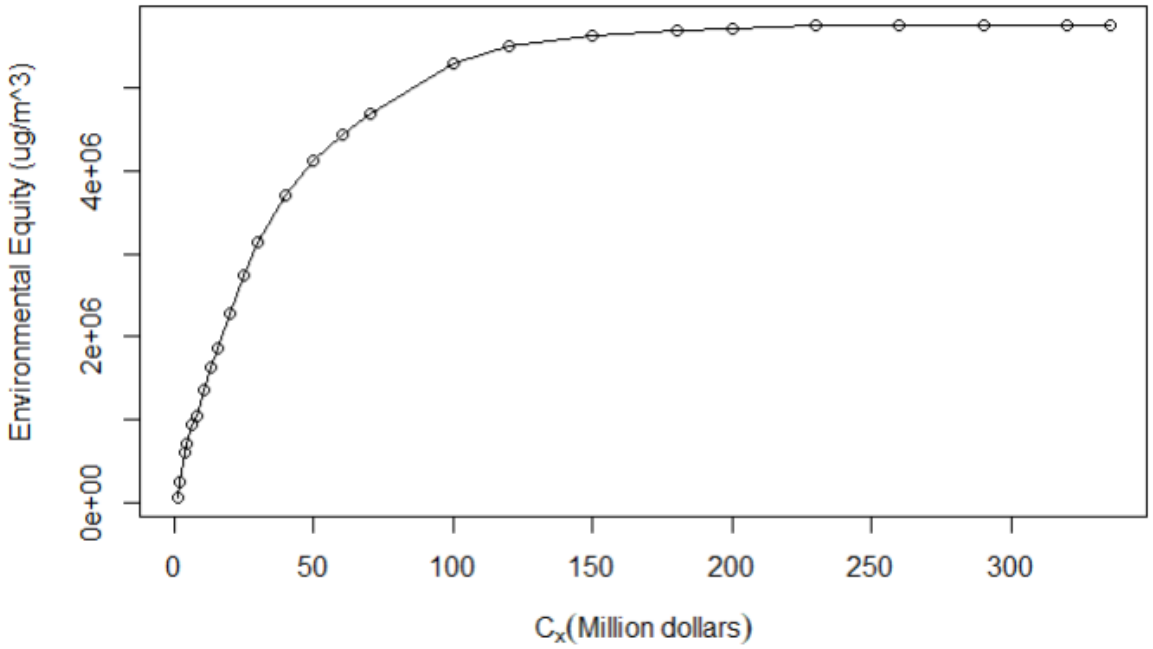

Figure 14. Trade-off Curve between Cost and Environmental Equity

Based on the analysis done as part of this study, out of a fleet of 467 buses, 51 buses will run out of battery power during service due to the long distance between stops, and 82 buses cannot be fully charged because their dwell time is less than 10 minutes at any terminals, which means they are not qualified as replacements given the current parameters (on-route chargers installed only at terminals, and a 10 minutes minimum dwell time at terminals).

Therefore, out of the 467-bus fleet, potentially 334 buses are eligible for replacement to BEB. Out of the 334 BEBs, 114 do not require on-route charging stations as their daily mileage is less than 62. The maximum environmental equity achievable would correspond to the scenario where all 334 buses are replaced with BEBs. Such a scenario requires 46 on-route charging stations and 112 in-depot charging stations. The total cost for BEBs and charging stations would approximately be $335.366 million, whose environmental equity reached is 5.76 × 106 $\mu g/m^3$, as seen in Figure 14.

Figure 15 shows the deployment plan while the budget is set as $25 million, which is approximately 13% of the total cost for replacing all buses. The environmental equity achieved is 2.75×10^6 $\mu g/m^3$., which is around 47.7% of the scenario when all buses are replaced with BEBs. While the Budget is $25 million, 26 buses are replaced, two on-route charging stations and nine in-depot charging stations are built. These 26 buses all require on-route charging and serve 11 routes whose distances range from 6.88 miles to 18.90 miles with an average of 11.48 miles. The two on-route charging stations are sited at West Valley Central Station (3650 S 2880 W) and Millcreek (Wasatch Blvd at 3900 S). The daily mileage of the buses ranges from 161.89 miles to 263.33 miles, with an average of 202.98 miles.

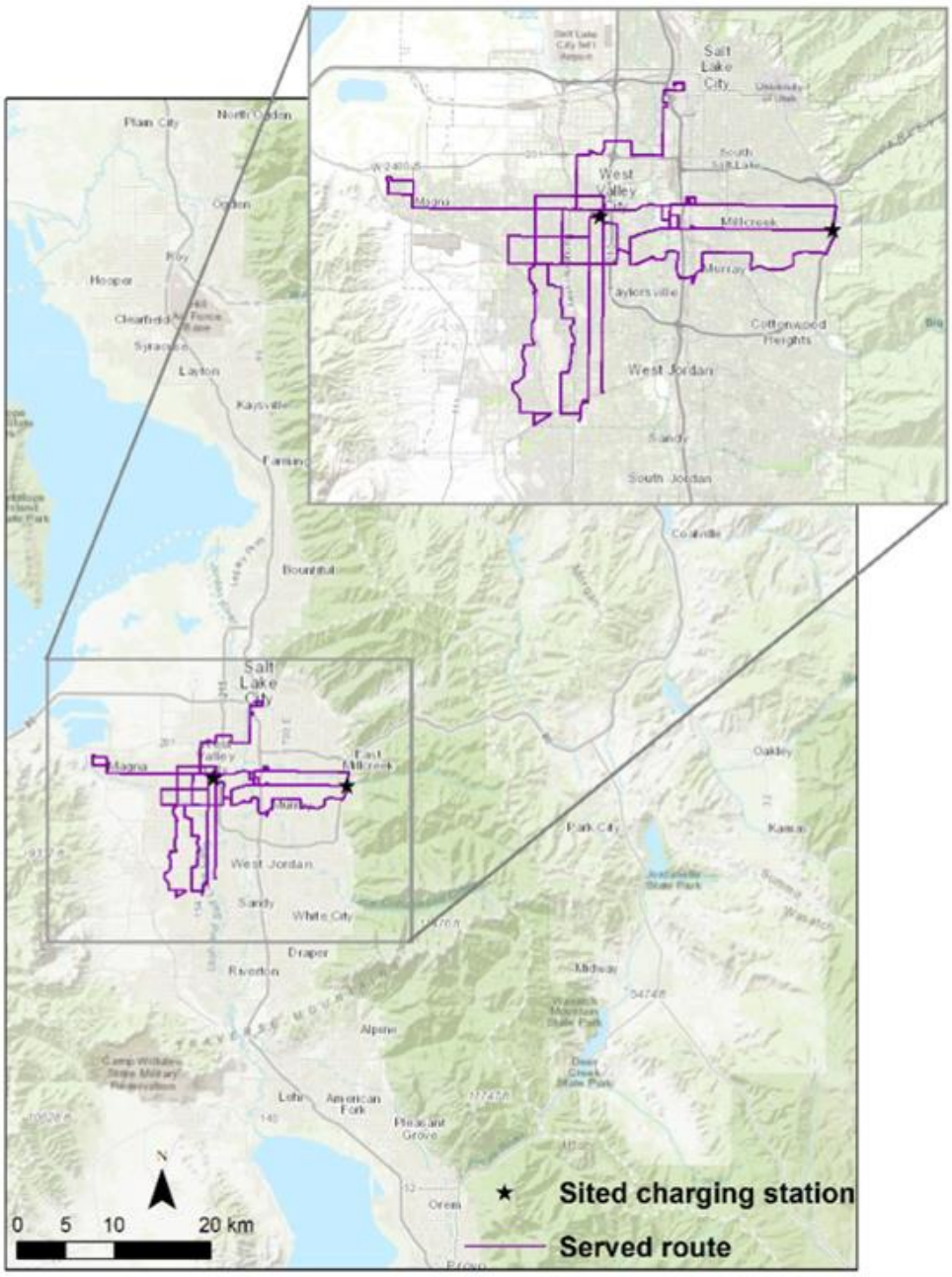

Figure 15. BEB Deployment when the Budget is set at $25 million

If the budget is set at $60 million, 63 buses will be replaced with BEBs while five on-route charging stations and 21 in-depot charging stations will be built. Figure 16 demonstrates the actual deployment plan. It brings 4.44 × 106 μg/m³ environmental equity outcome, which is 77.1% of the total environmental equity that the system can possibly achieve. Two out of five on-route charging stations are built at Millcreek (Wasatch BLVD at 3900S), while the other three are located at three different terminals in West Valley Central Station (3650 S 2880 W), North Temple Station (490 W 240 N), and Salt Lake Central Station (300 S 600 W). The 63 buses replaced serve 20 routes whose distances range from 5.45 miles to 18.90 miles, with an

average of 10.63 miles. The daily mileage of the 63 buses ranges from 62.78 miles to 263.33 miles, with an average of 176.20 miles.

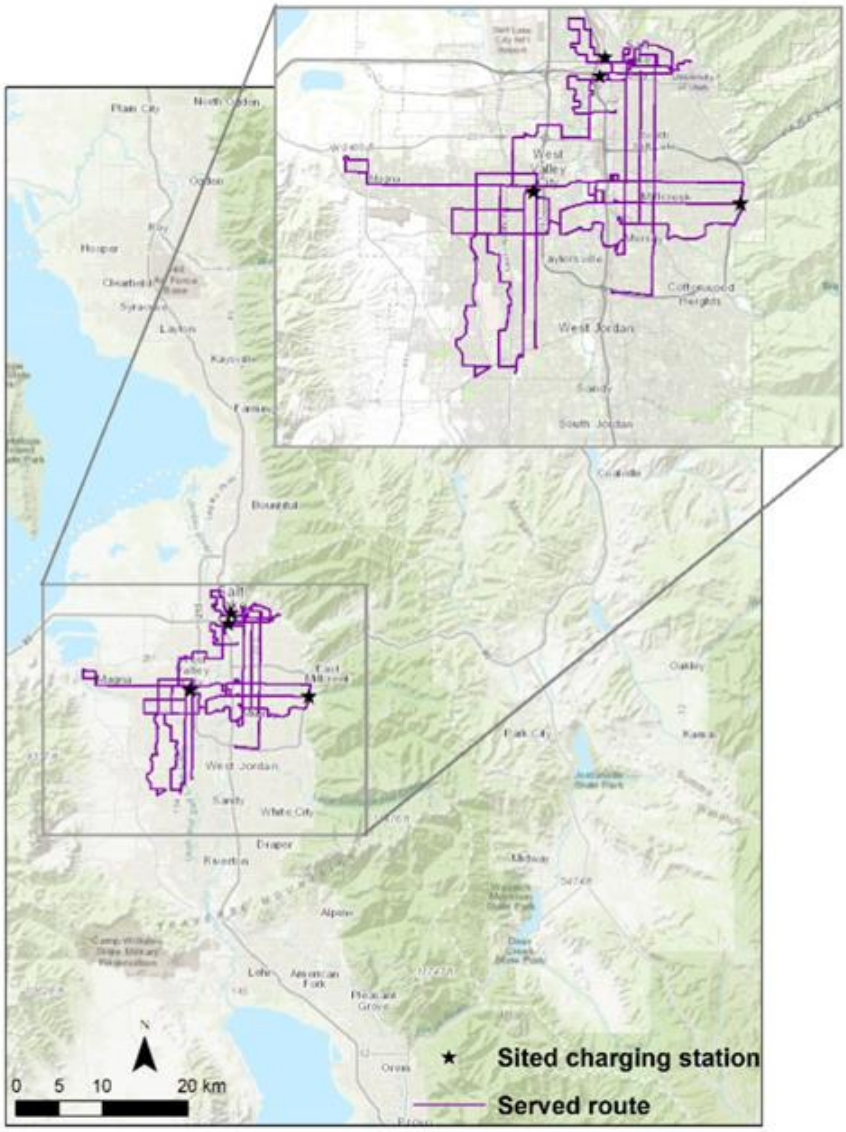

Figure 16. BEB Deployment Plan when Budget is set at $60 million

Furthermore, if the budget is raised to $120 million, 122 buses will be replaced with 14 on-route charging stations and 41 in-depot charging stations built. This option brings 5.51 × 106 μg/m³ environmental equity and accounts for 95.7% of the total. As shown in Figure 17, the 14 on-route charging stations are located across the region in Millcreek, West Valley, Salt Lake, South Salt Lake, Sandy, South Ogden, Orem, and Murray. The 122 buses replaced serve 32 routes whose distances range from 5.45 miles to 23.15 miles, with an average of 11.53 miles. The daily mileage of the 122 buses ranges from 62.78 miles to 263.33 miles, with an average of 170.52 miles. The increase in environmental equity brought by replacing additional BEBs drastically declines because buses that could reach the most environmental equity are already included in the first 63 buses. If we continue to raise the budget to $200 million, 99.3% of the total environmental equity will be reached, with 203 buses replaced and 24 on-route charging stations, and 68 in-depot charging stations built.

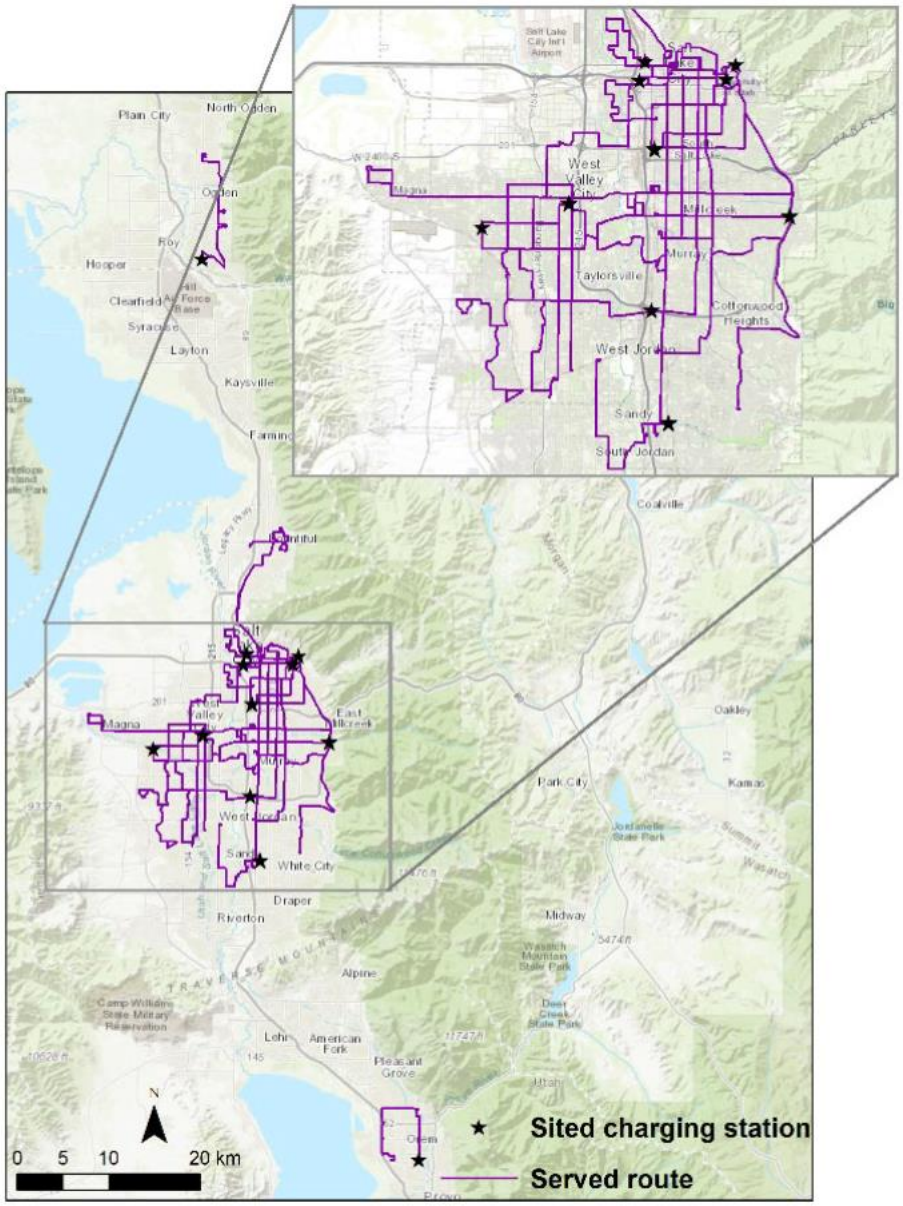

Figure 17. BEB Deployment Plan when Budget is set at $120 million

3.7 Actual Data

In addition to the mathematical model and simulation of various BEB deployment scenarios, UTA continues gathering field data from the BEB fleet telematics. Some of the key information being collected and analyzed includes the charge and discharge performance of the batteries and the different battery ranges obtained from running the BEB through different types of routes and during various times of the year to ensure the extreme temperature ranges experienced in the region are represented. Figure 18 shows a sample graph that provides information related to the state of charge of a battery and odometer miles during an entire day of operation. In this example, the bus completed a 170 miles trip on March 8th, 2022.

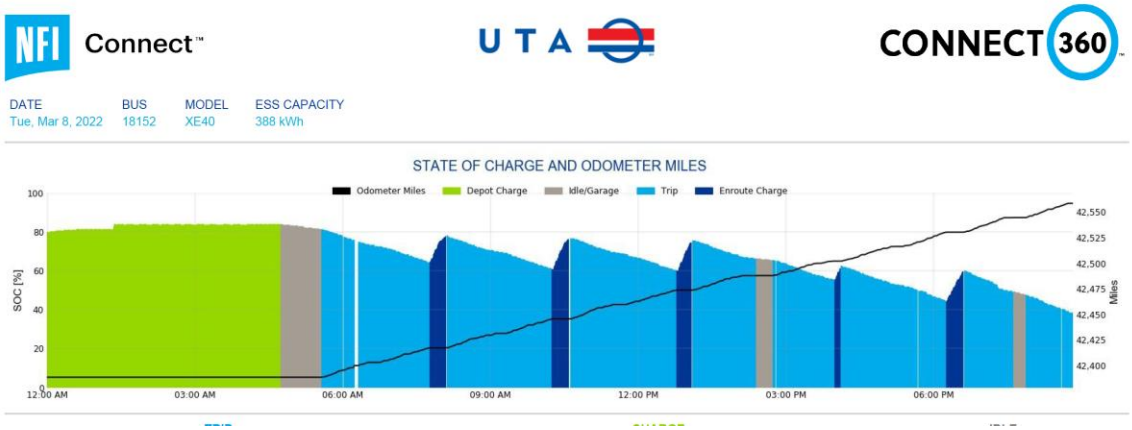

Figure 18. Bus 1852 Sample State of Charge and Miles Traveled vs. Time

Some of this real-world data has been used to inform the mathematical model, as it is known that battery range varies based on the bus operating conditions. For example, Figures 19 and 20 show the difference in energy consumption when running a BEB during the month of October (79.94 °F average ambient temperature) vs. running a BEB during the month of November (52.32 °F average ambient temperature). As can be seen in the graphs, the use of electrical heater for passenger comfort during the trip in November uses 38% of the battery capacity, which results in an average energy consumption of 2.88 kWh/mile (26.00 kWh/hour). On the other hand, less energy was consumed in October when interior heat was not used, 1.71 kWh/mile (16.47 kWh/hour).

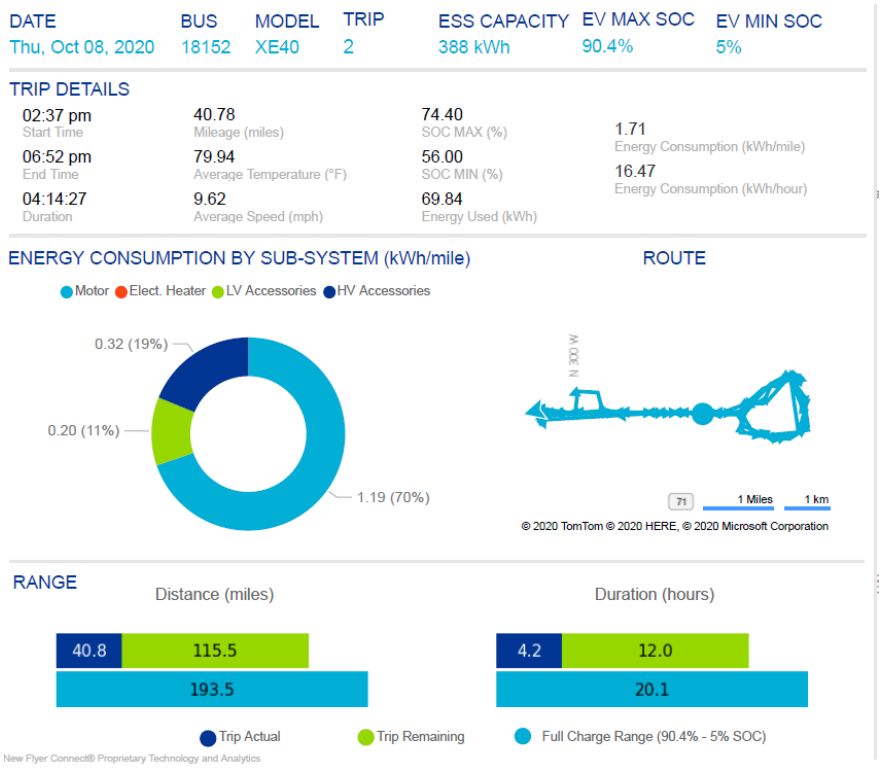

Figure 19. Energy consumption data of BEB operated in October 2020

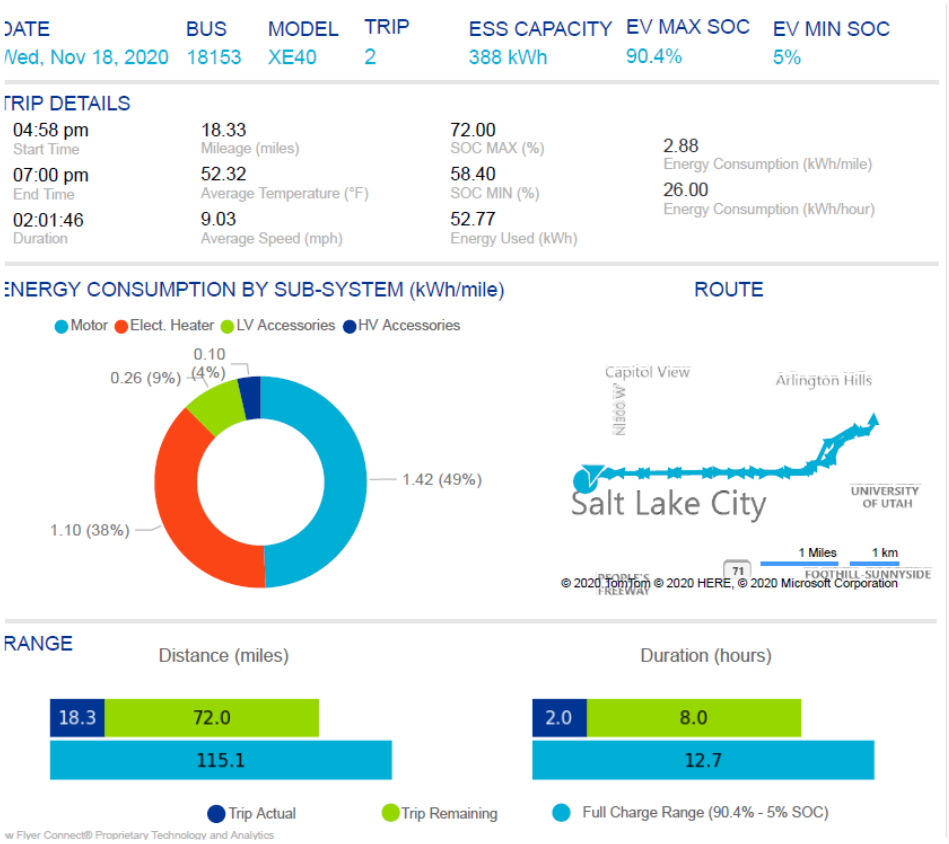

Figure 20. Energy consumption data of BEB operated in November 2020

3.8 Service and Route Analysis Next Steps

UTA will continue gathering information from the telematics systems of the BEB fleet and charging infrastructure to better understand and continue learning about the equipment performance under different operating conditions. This information will continue to be used to inform the mathematical model. The objective will be to continue refining the model by adding other variables that highly impact the performance of the vehicles. These additional variables will include topography, passenger load, different traffic conditions, on-route charging, and weather conditions. The plan is to incorporate further goals other than budget and environmental equity to make the system robust, efficient, and effective. These goals can also be prioritized at different stages for UTA to make informed planning-level decisions according to our short-term and long-term goals.

Additionally, UTA will consider the rapid increase in technology performance to refine the model as these improved technologies become commercially available. Also, UTA will evaluate other emerging technologies for consideration and potential implementation, e.g., wireless charging system.

4 Utility Provider Partnership

Utah Transit Authority entered a cooperative partnership with Rocky Mountain Power (RMP) in September of 2020. This partnership is intended to lead to the discovery of innovative solutions to the shared concerns of public safety, equal access and opportunity, air quality, and the demands of population growth. In addition, both parties are committed to responsibly using clean energy to power Utah's future, collaborating in joint consideration of a range of projects and opportunities.

Table 5 below summarizes the collaborative initiatives both parties intend to pursue under this partnership.

Table 5. Partnership Collaborative Initiatives

Energy Efficiency	Electric Vehicles	Electrical Infrastructure	Grid Resilience	Research and Grants
Wattsmart Program	Electric Buses	Bus & Car Charging Stations	System Redundancy	Vehicle Drive System
Power Usage Evaluation	FrontRunner Electrification	Power Storage and Substations	Smart Grid	Batteries and Peak Demand Management
Upgrading Old Systems	Autonomous Vehicles	Rail Expansion and Electrification	Solar-supplemented Grid	Grant Initiatives
		North Temple Transit Hub		
Clean and Efficient Energy Partnership Opportunities				

4.1 Energy Efficiency

UTA and RMP strive each day to reduce wasteful energy consumption. The transportation sector is one of the largest contributors to energy consumption in the United States. With assistance from RMP, UTA intends to manage its power usage better and achieve the highest energy efficiency standards in the industry.

4.1.1 Wattsmart Program

This program has helped and can continue to help UTA finance the installation of new energy-efficient equipment. RMP's Wattsmart program provides business cash incentives for installing electrical systems and equipment that meet the highest energy efficiency standards. Both UTA and RMP strive to conserve energy wherever possible to encourage others to find mindful of their energy consumption. Saving energy by using energy-efficient equipment helps Utah grow sustainably into the future.

4.1.2 UTA Power Usage Evaluation

With the aid of RMP energy experts, UTA can evaluate its energy usage to find areas where energy can be used more efficiently. Together, UTA and RMP can create an energy management plan to implement innovative solutions to increase energy efficiency.

4.1.3 Upgrading Outdated System

UTA carries out routine preventative maintenance of its electrical equipment (e.g., signaling equipment, train and bus repair shop equipment, wayside storage, and distribution systems) to increase its lifespan and ensure everything is in safe and working order. As electrical systems age and become outdated, however, they need to be replaced with new equipment. Rocky Mountain Power energy experts can help UTA identify outdated systems and plan to replace the systems with the most up-to-date equipment.

4.2 Electric Vehicles

Currently, diesel buses comprise just over 85% of UTA's bus fleet. By 2040, UTA intends to reduce the number by approximately half of the fleet. A combination of CNG and BEBs will replace these buses. UTA is also considering electrifying paratransit buses, vanpool vans, on-demand service vehicles, white fleet vehicles, and eventually FrontRunner (commuter rail). The significant increase in Electric Vehicles (EVs) will require power storage upgrades and an expanded network of charging stations. One of UTA's goals is to improve air quality, and EVs allow UTA decrease its carbon emissions significantly. With the help of Rocky Mountain Power, this electric vision can be made possible.

4.2.1 Electric Buses

With help from federal grants and interagency partnerships (including RMP), UTA has acquired five electric buses which have been in operation since late 2018. Electric buses are a big step toward promoting clean energy in Utah. UTA was awarded funding from the Volkswagen settlement for the incremental cost of purchasing 20 BEBs. Bus rapid transit (BRT) is an effective means of mass transit. Future BRT projects could use electric buses if funding is available. The Ogden BRT project is moving forward to acquire 11 electric buses and charging infrastructure. Working with Rocky Mountain Power to secure funding for the vehicles and charging equipment will ensure progress towards more zero-emissions vehicles.

4.2.2 FrontRunner Electrification

The 2018 Future of FrontRunner report outlines plans to eventually electrify FrontRunner. There are several ways a train can be electrified, but the most effective method is to combine the locomotive and passenger cars into electrical multiple units (EMUs) powered by overhead catenary wires. This configuration removes the need for a separate locomotive and is like the system currently used for Transit Express (TRAX) light rail, but at a larger scale. In California there is a comparable example where Caltrain is replacing their existing diesel fleet with new

Stadler Kiss bi-level EMUs manufactured locally at Stadler's Salt Lake City, Utah facility. The extensive infrastructure implications of electrifying FrontRunner would require close collaboration between UTA and Rocky Mountain Power early in the planning and design phases of the project.

4.2.3 Autonomous Vehicles

There is a growing trend in America towards adopting of autonomous vehicles, which can drastically decrease the number of traffic-related deaths. UTA has experimenting with autonomous vehicles to study how they can enhance people's accessibility to transit by shuttling them to and from transit stops, thus tackling the first-mile last-mile problem of transit accessibility. Potential future use cases include automated microtransit and Automated Bus Rapid Transit (A-BRT). Assuming the autonomous vehicles would be electric, a partnership between UTA and Rocky Mountain Power would make the planning, design, and installation of necessary charging infrastructure a much smoother process.

4.3 Electrical Infrastructure

Electrical power networks are the lifeblood of modern civilization. Almost every aspect of daily life, including transportation, is made possible through this electrical infrastructure. UTA needs to maintain a robust electrical infrastructure for TRAX to move people safely and reliably to their destinations. UTA is also in the process of electrifying a third of its bus fleet and eventually FrontRunner. Establishing an efficient system to power these vehicles is one of UTA's top priorities. A partnership with RMP is essential to ensuring these systems are implemented effectively.

4.3.1 Bus and Car Charging Stations

As UTA obtains more electric buses and possibly electric vanpool vans, paratransit buses, and support fleet vehicles, major investments will need to be made in charging infrastructure. Large-scale charging stations and high-capacity electrical storage are needed to maintain consistent power to the fleet vehicles. UTA also hopes to install EV charging stations at park and ride facilities and other UTA facilities. By doing this, UTA hopes to join RMP in supporting the Live Electric community partnership. These added amenities allow partnering with Transportation Network Companies (TNC) that use EVs, like Lyft and Uber, to provide customers with free rides to and from transit stations. Partnering with Rocky Mountain Power will ensure that these systems are integrated into the existing electrical infrastructure without compromising the electrical grid's stability.

Since 2019 UTA has operated UTA On Demand microtransit service through a public-private partnership. The microtransit service is powered by UTA's business partner, VIA Transportation, Inc. (VIA). Currently VIA's vehicle fleet consists of Toyota Sienna minivans, Chrysler Voyager minivans, and includes wheelchair accessible vans of both models. All the current vans are gasoline powered. UTA and VIA representatives are developing a plan to integrate clean, zero-emission electric vehicles into the microtransit fleet to gradually replace all gasoline powered vans. While the initial electric vehicle capital expense is higher, expected future operating benefits of this transition should include lower fuel costs and lower ongoing maintenance expenses. This partnership creates opportunities for more electric vehicle projects in the future.

4.3.2 Power Storage and Substations

As UTA expands its network of TRAX, FrontRunner, and streetcar lines, additional substations and power storage facilities need to be built to power the vehicles. Some of the initial TRAX system lines have already expanded to the point where the original substations are insufficient and need to be upgraded. A thorough assessment of existing and future electrical infrastructure will identify locations where upgrades are needed most. Having RMP as a project partner and financial contributor for these infrastructure improvements will help keep these systems in excellent condition.

4.3.3 Rail Expansion and Electrification

UTA's 2040 Strategic Plan includes expanding TRAX and FrontRunner lines, including Frontrunner extensions to Brigham City and Santaquin and TRAX extensions to Lehi and southwest Salt Lake County. As mentioned above, extending rail lines requires large-scale electrical infrastructure investments. All TRAX lines are powered solely by electricity, and eventually, FrontRunner will also run on electricity. Partnering with Rocky Mountain Power during the planning phases of these projects is essential to ensure sufficient electrical infrastructure expansions can reasonably be constructed.

4.3.4 North Temple Transit Hub

UTA is interested in developing a transit hub in the area of the North Temple Power Station light rail platform. Salt Lake is doing a study to identify the location. Depending on the final site selection UTA may be interested in purchasing or leasing property from RMP. This property may have the potential to be used for a transit hub that would facilitate electric buses and their needed charging infrastructure. Having this facility would help UTA implement clean energy transportation for the west side of SLC.

4.4 Grid Resilience

The transportation sector takes its place as one of the largest energy consumers. While petroleum-based fuels are currently the most common energy source for vehicles, a transition to EVs is underway and is becoming a more popular choice. Rapid adoption of EVs will put an unprecedented strain on the electrical grid. Consequently, UTA is seeking grid resilience solutions to prepare for the increased electricity use at UTA's various facilities. With RMP, UTA can employ system redundancy, smart grid, and renewable energy strategies to maintain a stable electric grid.

4.4.1 System Redundancy

Electrifying buses and trains can pose risks to reliable public transportation if a resilient power system is not in place. For example, if the power goes out during an emergency, vehicles would not be able to run their routes, leaving many people stranded. A partnership with RMP would help UTA establish system redundancy and backup power sources to mitigate the adverse effects of a power failure.

4.4.2 Smart Grid

Advancements in sensor and data collection technologies have given rise to the possibility of constructing a smart grid. As these sensors are installed in more and more electricity-consuming devices, appliances, and vehicles, the electrical grid can become a two-way communication between energy providers and consumers. RMP could use this real-time energy usage data to manage its energy resources more efficiently. UTA can install smart grid

capabilities in its electric vehicles and equipment to construct a reliable and efficient smart grid to be more environmentally responsible.

4.4.3 Solar-Supplemented Grid

Enhanced grid resilience can be achieved by adding solar power as an additional energy source. Solar power has the flexibility of being produced on- or off-site and can be produced virtually anywhere via photovoltaic cells. Generating power on-site is an excellent way to sustain an ample reserve of backup energy and can reduce strain on the energy grid at peak usage times. In 2013, RMP's Blue Sky Program funds were used to construct four (4) solar-powered TRAX stations on the Green Line. With the help of RMP and its Blue Sky Program, UTA can implement solar power generation at more TRAX stations and facilities such as the future Depot District Clean Fuels Technology Center.

4.5 Research Grants:

UTA is constantly seeking new opportunities to research cutting-edge ideas and technology to improve transit performance and the quality of life for members of the community. UTA seeks grants and other funding from various public and private programs to keep up with the latest advancements in transportation technology. UTA and RMP has some overlapping research interests, therefore, a partnership in this area could help both parties secure research funding. Currently, UTA and RMP in cooperation with Utah State University have a project underway to evaluate and mitigate the grid impacts of adding BEBs to the Salt Lake Central Station. This work was completed in 2021.

4.5.1 Vehicle Drive System

Since diesel and gasoline engines have historically been the primary sources of vehicle propulsion, drive system technology for these engines has been developed to achieve maximum efficiency. Until recently, however, vehicle drive systems using alternative fuels have not had the same level of research investment. UTA is branching out to explore new technologies and alternative fuels to help Utah grow sustainably into the future. To that end, UTA hopes to research better vehicle drive systems for alternative fuels such as electric batteries and CNG. Researching more efficient electric drive systems and battery technology could increase electric vehicles on the road, resulting in expanded revenue opportunities for RMP and improved air quality for the region.

UTA has partnered with Center for Transportation and the Environment (CTE) for their Paratransit diesel bus fleet. This partnership has led to the development of the Eparc system that significantly reduces the diesel engine idling on the Paratransit fleet. In turn, this reduces operational costs, reduces energy consumption, and reduces air pollution. The University of Texas Center for Electromechanics, Mobile Climate Control, Transworld Associates, and the University of Utah, are also partners in the project. This project has been made possible by the FTA Bus Efficiency Enhancements Research and Demonstration (BEERD) program.

UTA are also working with CTE on their Electro Microtric project. This project consists of three (3) phases.

- Phase 1 – CTE are using a screening model to evaluate expected energy needs for each bus vehicle to determine if zero-emission technologies have sufficient range to complete every scheduled service day.
- Phase 2 – CTE will simulate various charging scenarios to guide charging equipment decisions.

- Phase 3 – CTE will evaluate the vehicle and charger performance over three months after deployment using data provided by UTA. This will include an evaluation of vehicle energy consumption, estimated vehicle range in mileage and service hours, and required charging time.

The overall results gained from the charge modeling will determine if any changes are required to the vehicle specifications or service schedules to optimize vehicle operations.

4.5.2 Batteries and Peak Demand Management

UTA is interested in partnering with Rocky Mountain Power to research the use of batteries and supercapacitors to manage peak energy demand. Storing energy in batteries during non-peak times to be used during peak times could result in a more even distribution of energy usage throughout the day. On-board supercapacitors could lessen the energy surges of accelerating TRAX vehicles, and regenerative braking could charge the supercapacitors as the vehicles decelerate. UTA and RMP would benefit from a joint research effort to explore these and other peak management solutions.

4.5.3 Other Research

There are several other areas of research that UTA and RMP could collaborate on. UTA, RMP, and Salt Lake City could conduct a land use study around the North Temple Station to find ways to enhance public space and transit accessibility. Another research focus could be power usage and grid optimization. To maximize the efficient use of energy resources, additional studies could be done to target areas in UTA's systems that use excess power or put excessive strain on the grid. Finally, more research can be done on the effects of current technological developments such as autonomous vehicles and TNCs. Keeping up to date on the latest developments in science and technology can enable UTA and RMP to provide their customers with the best services available.

4.5.4 Grant Initiatives

UTA seeks funding from various public and private entities that support sustainable growth and the use of advanced technologies to improve the quality of life in cities. RMP partners with UTA to provide supporting funds for projects funded through FTA grant programs (i.e., the Low or No Emission Vehicle Program (Low-No)). Additional funding programs are available through the U.S. Department of Transportation, the U.S. Department of Energy, and other federal agencies. More locally, the Utah Clean Cities Coalition and the Utah Clean Air Partnership (UCAIR) offer grant programs to support emission reductions. Partnered together, UTA and RMP will be eligible for more grant funding and will be more effective in identifying new funding opportunities.

5 Existing and Planned Fleet Procurements

UTA's goal is to replace buses on a 12 to 14-year cycle on transit buses, and 18 years on commuter buses. The actual replacement schedule is driven by funding availability, while ensuring continued safe and reliable service. The type of technology and/or propulsion type is evaluated on a year-to-year basis and will be dependent on grant funding availability.

As indicated in Section 3.2, UTA is currently under a 5-year contract with Gillig for 44 BEBs with options for an additional 95 vehicles. This order is being split between UTA, Park City, and HVT. After the base contract was executed, Park City added two (2) option vehicles to their order, leaving 93 BEBs remaining as part of the contract's options.

If UTA are successful in securing the LOW-NO Grant, UTA aim to replace ten (10) busses at their Central/Depot District facility in 2024 and another ten (10) at their Meadowbrook facility in 2026. All 20 busses will be replaced with Gillig's BEB vehicles.

The bus replacement plan as of May 2022 is included below in Table 6. This plan includes service expansions which are currently in progress. There is no provision for service expansion due to the natural growth within the UTA service area, as this type of service expansion is evaluated on an annual basis.

The transition between the different propulsion sources is included below in Figure 21.

This plan reflects UTA's intention to move toward utilizing Low to Zero-Emission Revenue Vehicles.

Table 6. Bus Replacement Plan 2021 - 2050

Original Model Year	Replacement Procurement Year	Type	Original Propulsion	Replacement Propulsion	Qty	Annual Total
2002	**2021**	Commuter	Clean Diesel	Clean Diesel	9	
2007	**2021**	Transit	Clean Diesel	Clean Diesel	9	
2007	**2021**	Canyon Service	Clean Diesel	Clean Diesel	2	20
2004	**2022**	Commuter	Clean Diesel	Clean Diesel	13	
2006	**2022**	Transit	Clean Diesel	Clean Diesel	5	
2006	**2023**	Transit	Clean Diesel	Electric	20	
2010	**2022**	Transit	Hybrid Diesel	Clean Diesel	20	
Expansion	**2022**	Transit	N/A	Electric	11	69
2007	**2023**	Transit	Clean Diesel	CNG	11	
2009	**2023**	Transit	Clean Diesel	Clean Diesel	38	49
2010	**2024**	Transit	Clean Diesel	Clean Diesel	36	
2012	**2024**	Transit	Hybrid Diesel	Clean Diesel	9	

Expansion	**2024**	Transit	N/A	Electric	10	55
2007	**2025**	Transit	Clean Diesel	Clean Diesel	11	
2011	**2025**	Canyon Service	Clean Diesel	Clean Diesel	30	
2013	**2025**	Transit	Clean Diesel	CNG	24	65
2012	**2026**	Transit	Clean Diesel	Electric	15	
2012	**2026**	Transit	Clean Diesel	Clean Diesel	15	
Expansion	**2026**	Transit	N/A	Electric	20	50
2009	**2027**	Transit	Clean Diesel	Electric	5	
2013	**2027**	Transit	Clean Diesel	Electric	2	
2015	**2027**	Transit	CNG	CNG	23	
2013	**2027**	Canyon Service	Clean Diesel	Clean Diesel	2	32
2014	**2028**	Transit	Clean Diesel	Clean Diesel	10	
2014	**2028**	Transit	Clean Diesel	Electric	10	20
2017	**2029**	Transit	Hybrid Diesel	Electric	25	25
2016	**2030**	Canyon Service	Clean Diesel	Clean Diesel	5	
2018	**2030**	Transit	Electric	Electric	3	
Expansion	**2030**	Transit	N/A	Electric	9	17
2017	**2031**	Transit	Clean Diesel	Clean Diesel	31	
2017	**2031**	Transit	Clean Diesel	Electric	12	
2017	**2031**	Transit	Clean Diesel	Electric	14	
2017	**2031**	Canyon Service	Clean Diesel	Clean Diesel	7	64
2018	**2032**	Transit	Clean Diesel	CNG	12	
2018	**2032**	Transit	Clean Diesel	Clean Diesel	12	
2018	**2032**	Trolley	Clean Diesel	Electric	4	28
2019	**2033**	Transit	Clean Diesel	Electric	10	10
2020	**2034**	Transit	Clean Diesel	Electric	10	
2020	**2034**	Canyon Service	Clean Diesel	Clean Diesel	9	
2022	**2034**	Transit	Electric	Electric	11	30
2021	**2035**	Transit	Clean Diesel	Clean Diesel	23	
2021	**2035**	Canyon Service	Clean Diesel	Clean Diesel	2	
2021	**2035**	Transit	Clean Diesel	Electric	9	
2023	**2035**	Transit	CNG	CNG	11	45

2022	**2036**	Transit	Clean Diesel	Clean Diesel	45	
2024	**2036**	Transit	Electric	Electric	10	55
2023	**2037**	Transit	Clean Diesel	Clean Diesel	38	
2025	**2037**	Transit	CNG	CNG	24	62
2024	**2038**	Transit	Clean Diesel	Clean Diesel	45	
2026	**2038**	Transit	Electric	Electric	35	80
2021	**2039**	Commuter	Clean Diesel	Clean Diesel	10	
2025	**2039**	Transit	Clean Diesel	Electric	11	
2025	**2039**	Canyon Service	Clean Diesel	Clean Diesel	30	
2027	**2039**	Transit	CNG	CNG	23	
2027	**2039**	Transit	Electric	Electric	5	79
2022	**2040**	Commuter	Clean Diesel	Electric	13	
2026	**2040**	Transit	Clean Diesel	Electric	15	
2028	**2040**	Transit	Electric	Electric	10	38
2027	**2041**	Transit	Clean Diesel	Clean Diesel	2	
2029	**2041**	Transit	Electric	Electric	25	
2027	**2041**	Canyon Service	Clean Diesel	Clean Diesel	2	29
2028	**2042**	Transit	Clean Diesel	Electric	10	
2030	**2042**	Transit	Electric	Electric	12	22
2031	**2043**	Transit	Electric	Electric	12	12
2030	**2044**	Canyon Service	Clean Diesel	Clean Diesel	5	
2032	**2044**	Transit	CNG	CNG	4	
2032	**2044**	Trolley	Electric	Electric	4	13
2031	**2045**	Transit	Clean Diesel	Clean Diesel	45	
2031	**2045**	Canyon Service	Clean Diesel	Clean Diesel	7	
2033	**2045**	Transit	Electric	Electric	10	62
2032	**2046**	Transit	Clean Diesel	Clean Diesel	20	
2034	**2046**	Transit	Electric	Electric	21	41
2035	**2047**	Transit	CNG	CNG	11	11
2034	**2048**	Canyon Service	Clean Diesel	Clean Diesel	9	
2036	**2048**	Transit	Electric	Electric	10	19
2035	**2049**	Canyon Service	Clean Diesel	Clean Diesel	2	

2035	**2049**	Transit	Clean Diesel	Clean Diesel	32	
2037	**2049**	Transit	CNG	CNG	24	58
2036	**2050**	Transit	Clean Diesel	Clean Diesel	25	
2038	**2050**	Transit	Electric	Electric	71	96

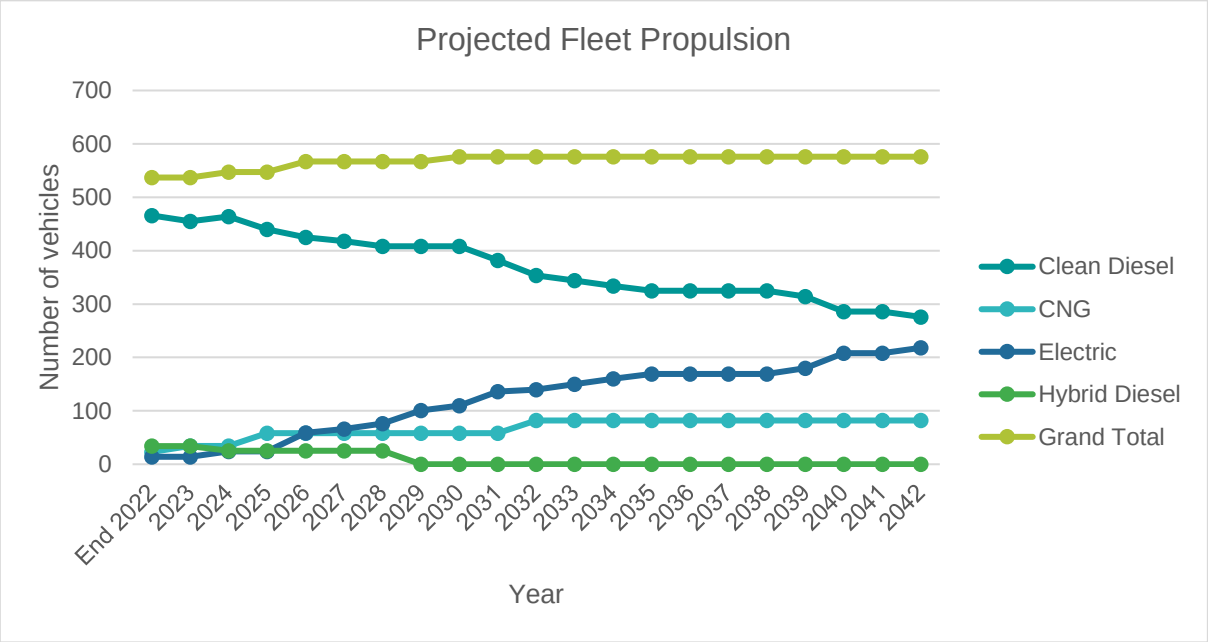

Figure 21. Projected Fleet Propulsion

6 Workforce Development

To ensure UTA's workforce is prepared to transition to Zero Emissions Bus (ZEB), UTA has developed a transition plan for our Bus Operations and Maintenance personnel. The transition plan includes needs assessments, workforce training and deployment, and first responder training.

To understand our current workforce skills, UTA will conduct a needs assessment. The needs assessment will also include questions to target areas of concern. This will help the agency address those concerns and prevent anxiety surrounding the deployment of Battery Electric Bus (BEB). Based on the information from the needs assessment, UTA's Management will determine if further action is needed outside of training.

Additionally, UTA's Management will conduct a pre-coordination meeting. This meeting will focus on lessons learned from previous ZEB deployments and establish best practices from FTA and APTA. A formal debrief of the needs assessment will also be presented which will allow Management to determine how many employees from operations and maintenance personnel will receive initial Original Equipment Manufacturer (OEM) training and what specific OEM training topics are required.

During the ZEB procurement, UTA will ensure funding is included or available to procure OEM training from the vendor. The procurement contract shall be written to request the opportunity to purchase OEM training materials, if possible. Alternatively, UTA will seek funding opportunities to contract for instructional design services to develop training content for internal use. Incorporating ZEB training into internal resources will ensure UTA continues to provide training to new employees and allow UTA to provide refresher training to the existing workforce. Additionally, UTA intends to incorporate ZEB training into our Bus Transit Repairer Apprenticeship program.

Furthermore, to provide the most comprehensive and safe training, UTA intends to seek funding opportunities to procure training aids and an electric bus simulator. Training aids, such as electric vehicle trainer provides students with the opportunity to demonstrate, troubleshoot, and fault-find on a real-life simulation of an electric vehicle system. Additionally, a simulator supports driver training specific to bus operations, regenerative braking, and energy-saving techniques.

As with all workforce training, safety will be a top priority. All employees operating or maintaining ZEB will receive safety training covering best practices and emergency procedures. Employees will also receive training on charging procedures and associated hazards as well as specific operational safety considerations (e.g., silent operations).

The primary focus of the initial OEM training will be to familiarize Operators with dashboard controls and warning signals, as well as the appropriate corrective procedures for when they appear. It will also be a priority to ensure Operators understand the battery State of Charge, operating time, estimated range, and other notifications. Optimal driving procedures will ensure operators know how to maximize efficiency. Other training concepts will include regenerative braking, mechanical braking, hill holding, and roll back.

Priority training for the maintenance technicians will be placed on high voltage safety. At a minimum, the following safety training topics will be provided:

- Electrocution hazards

- Arching hazards
- Short circuit hazard
- Lock-out tag-out procedure
- Personal protective equipment
- Safe handling and deactivation of high-voltage components
- Emergency shut down procedure

The maintenance technicians will receive OEM training on servicing and troubleshooting electric propulsion and auxiliary systems. Additionally, training will be provided on using the onboard diagnostic systems. Other training components may be provided based on identified needs such as preventive maintenance, entrance and exit doors, wheelchair ramp and restraint systems, brake system and axles, air system and ABS, front and rear suspension and steering, body structure, towing and recovery, and HVAC.

Lastly, UTA will coordinate OEM training for local first responders to ensure proper emergency response procedures are followed if an incident occurs. In addition, UTA will follow the Guidebook for Deploying Zero-Emissions Transit Buses suggested training topics.

6.1 Transit Technical Education Center

Understanding the importance of workforce training, UTA is working on developing a dedicated facility for bus maintenance training. The new facility is being built in an industrial building owned by UTA, located in a Federal Opportunity Zone, refer to Figure 22 and Figure 23.

Figure 22. Existing building to be retrofitted as a Bus Maintenance Workforce Training Facility

This project has two primary objectives: support the maintenance of UTA's bus fleet and foster the development of Utah's workforce. The transit system benefits our region's air quality and provides access to essential jobs. UTA's mechanics ensure that vehicles are in good working order and can safely make pull-out. This new facility will foster the education of those mechanics, which is especially important as UTA strives to sustain and expand its workforce. In addition, having a dedicated facility will allow UTA to provide more training opportunities for employees, many of whom are members of a union and partner agencies.

UTA will make use of an existing asset with this project. Upgrades to the building will allow it to be used for the foreseeable future. This approach is more economically and environmentally sustainable than constructing a new facility. It is ideally located in the center of UTA's service area, with easy access to the Meadowbrook and Depot District (under construction) bus garages. A dedicated training facility will allow training to be more efficient by having more hands-on training stations and modules. UTA's current space only allows us to run one training class at a time, with borrowed shop space for hands-on demonstrations. This severely limits our capability to provide training to more individuals.

Additionally, due to limited classroom space, we are forced to limit the number of attendees. This has become a direct impediment to our apprenticeship program. In 2020, under these circumstances, the Maintenance Training team was able to provide 709 training opportunities to 209 employees. With adequate training space, UTA will double those training opportunities.

As of 2020, UTA has an average of 13,182 miles between maintenance road calls, compared to the peer agency average of 8,500. UTA's ability to have high miles between road call incidents directly results from having competent, skilled technicians. In addition, UTA's ability to provide proactive training has resulted in technicians who can stay current with changing technologies, are highly skilled in troubleshooting, and have the wherewithal to fix mechanical issues the first time.

As the largest transit provider in Utah, we understand that having a strong transportation system benefit all, especially under-served, underrepresented, and rural populations. UTA's vision is to provide a space where training is provided for its own workforce and offer the available trainings to all rural public transit providers statewide. In addition, the training opportunities will be provided free of charge to external entities unless supplies are needed. UTA is partnering with Utah's Urban Rural Specialized Transit Association (URSTA), which will provide travel funding for Rural Transit Provider staff to attend the trainings.

Furthermore, UTA will be able to expand partnership opportunities with Utah State University and ASPIRE Research Center, which will provide further opportunities for employee training and development. These agencies can help support the development of enhanced training procedures and foster innovative technology. With this facility, UTA will also be able to advance workforce development for electric vehicles. UTA's training programs provide hands-on education and allow for career growth. The agency offers good-quality jobs that pay well. In addition, UTA works closely with the Amalgamated Transit Union to ensure employees' voices are heard. This new training center will address challenges currently faced by the Bus Maintenance Training group. Improvements will directly benefit UTA employees.

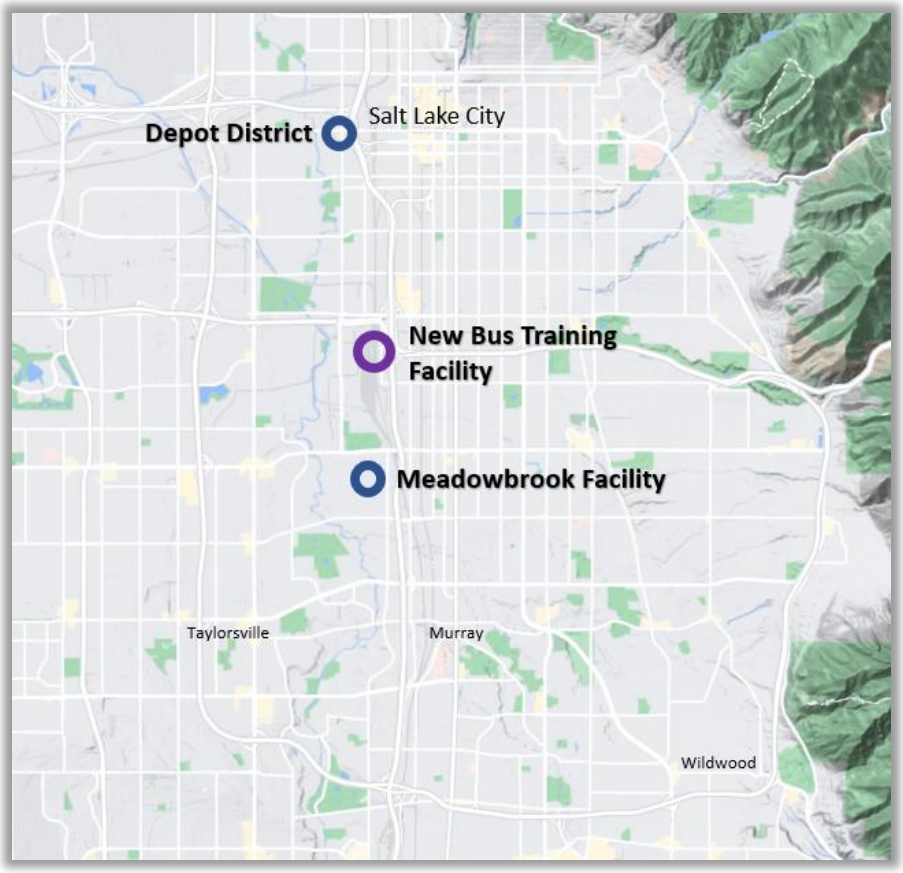

Figure 23. Location of new Bus Workforce Training Facility

When completed, this project will provide the following advantages and benefits:

- ✓ Support the transit network which benefits the region's air quality.
- ✓ Located in the center of UTA's service area, with easy access to the Meadowbrook and Depot District (under construction) bus garages.
- ✓ Foster job creation and career development, providing support for apprenticeship programs.

Provides the space needed to train mechanics on new technologies, including BEBs and Charging Infrastructure.

7 Current and future resources for transition costs

UTA is applying for a grant from the FTA as part of the Low or No Emission competitive program. If approved, this grant will allow the UTA to fund the procurement of the following equipment and services:

a. 20 BEB's
b. 7 Plug-in type depot chargers
c. 4 Drop-down pantograph type on-route chargers
d. Installation cost of charging equipment
e. Workforce Training

If approved, the objective will be to procure the 20 BEBs by exercising the options as part of the existing contract with Gillig. Table 7 provides a cost breakdown of equipment and services requested as part of this grant application, which includes the amount requested from the FTA and local match amount.

Table 7. Cost Breakdown of FTA Grant Application

Item Description	Qty.	Federal Amount Requested	Local Match Amount	Total Cost
BEB from UTA Options - Existing GILLIG contract	20	$ 570,000	$ 380,000	$ 19,000,000
Depot Charging Equipment - Existing GILLIG contract	7	$ 72,000	$ 48,000	$ 840,000
On-Route Charging Equipment - Existing GILLIG contract	4	$ 300,000	$ 200,000	$ 2,000,000
Design, constructionand installation of Charging Equipment	1	$ 2,460,000	$ 1,640,000	$ 4,100,000
Workforce Training on Charging Infrastructure - Existing GILLIG contract	1	$ 24,000	$ 6,000	$ 30,000
Workforce Training for BEB for GILLIG per options on their existing contract	1	$ 60,000	$ 15,000	$ 75,000
Workforce Training to develop internal UTA/BEB charger training	1	$ 1,057,600	$ 264,400	$ 1,322,000
Contingency (Approx. 10%)	1	$ 1,560,000	$ 1,040,000	$ 2,600,000
TOTALS		**$ 6,103,600**	**$ 3,593,400**	**$ 29,967,000**

8 Next Steps

The deployment of BEBs is a complex process that exerts huge impacts on transit systems which requires enormous capital investment, thorough feasibility study, and careful planning. The following are the next No-steps UTA plans to take in the medium and long term of this journey to electrify its bus system:

a. UTA will continue gathering information from the telematics systems of the BEB fleet and the charging infrastructure in place. This information will be used to continue analyzing the performance of BEBs on the different routes of the UTA system. In addition, other variables that highly impact the performance of the vehicles will be examined, including route topography, passenger load, traffic conditions during different days of the week, the performance of on-route charging equipment, and weather conditions, among others. The plan is for the UTA to have an electrified bus system that is robust, efficient, and effective. These additional goals can also be prioritized at different stages for UTA to make informed planning-level decisions according to our short-term and long-term goals.

b. Additionally, UTA will consider the rapid increase in technology performance to continue improving the implementation of zero-emission buses in their system. This includes evaluating emerging technologies for consideration and potential implementation, and FCEB technology for bus routes where battery range cannot accommodate the current service levels.

c. As indicated in this plan, using the heater system during winter months for passenger comfort dramatically reduces the battery range, resulting in lower schedule compatibility levels. UTA will continue working with OEMs to evaluate different types of passenger compartment heaters to identify a solution with lower battery consumption that allows service compatibility with minimum or no modifications, resulting in a reduced required on-route charging infrastructure.

d. The development and improvement of the zero-emission bus training programs are critical to UTA as the existing workforce can continue operating and maintaining these new systems. While fewer mechanical mechanisms require maintenance and repair in a zero-emission bus than a Diesel or Diesel-Electric hybrid bus, there is an increased level of software and electrical systems requiring specialized training to maintain, repair, and operate. Therefore, the UTA expects significant investment in workforce development will be necessary to ensure maintenance personnel has the specialized training and safety equipment required to perform these new job functions.

e. UTA will continue working with RMP on all the initiatives established in the partnership, specifically related to the responsibly use of clean energy to power Utah’s mobility future. UTA and RMP will assess different renewable energy options (on-site and off-site) to determine the best path backup power plan for BEB technology. UTA will continue studying the installation of on-site solar energy equipment and assess its feasibility covering energy requirements for the maintenance and operation of the BEB fleet.

f. UTA will also continue working on charging strategies. A determination of available charging time windows for the BEBs to be charged in the facilities will be explored as more vehicles are added to the fleet. Different charging strategies will be analyzed to

determine the most optimal charging scenarios, e.g., simple, or smart charging, and time-variable depending on energy rates.

g. As UTA continues operating and working with BEBs, maintenance and reliability information will be gathered, evaluated, and compared with current information from the baseline fleets. This information will allow UTA to develop maintainability, reliability, and performance requirements that can be used to inform future BEB and charging infrastructure procurements.

h. UTA faces constant challenges to improve the performance and quality of the critical services provided to the community. Understanding that Unions have a stake in the ability of the agency to meet these challenges, UTA is in the process of developing partnership with its Union to ensure the zero-emission training program is innovative, efficient, and effective. Some of the benefits expected from this partnership includes (a) improvement in performance and quality of services provided to the community, (b) provide to personnel equitable access to training on new technologies, helping employees to advance in their field and secure good paying jobs, and (c) improvement of the workforce work-life, allowing employees to progress and foster a more positive work environment.

Appendix A. Bus Fleet Management Plan

Bus Fleet Management Plan - FY2022
Rev. 9.0

Utah Transit Authority

May 2022

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Utah Transit Authority
669 West 200 South Salt
Lake City, Utah 84101
USA

Bus Fleet Management Plan - FY2022 Rev. 9.0

Utah Transit Authority

May 2022

Issue and revision record

Revision	Date	Originator	Approver	Description
0	07/29/2003	HJo/MRo	SMe	
1.0	02/19/2004	BSa	SMe	
1.1	04/09/2004	BSa	SMe	
2.0	11/01/2005	BSa	SMe	
3.0	12/14/2005	BSa	SMe	
3.1	01/23/2006	BSa	SMe	
4.0	09/05/2007	ChrisChes		
4.1	02/11/2008	MMa/CCh	EGT	
5.0		DWo/CCh		
5.1	09/09/2009	DWo/AHa	EGT	
5.2	06/23/2010	DWo/AHa	EGT	
5.3	03/11/2011	DWo/AHa	EGT	
6.0	05/29/2015	JR/JLS		
6.1	10/25/2015	JR/JLS		
6.2	12/21/2015	JR/JLS		
6.3	03/17/2016	JLR/LRD	GT	
6.4	05/04/2016	JLR/LRD	GT	
7.0	09/28/2018	RD/WSP	KS	
8.0	04/06/2020	TH/WSP	KS	Document structure updated to reflect FTA Oversight Procedure 37
9.0	05/31/2022	CT/MM	KS	

Contents

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Acronyms and Abbreviations

ADA	Americans with Disabilities Act
BFMP	Bus Fleet Management Plan
BRT	Bus Rapid Transit
CBD	Central Business District
CNG	Compressed Natural Gas
DDCFTC	Depot District Clean Fuels Technology Center
FMP	Fleet Management Plan
FTA	Federal Transit Administration
GPS	Global Positioning System
HVT	High Valley Transit
MAG	Mountainland Association of Governments
MAU	Makeup Air Unit
MCI	Motor Coach Industries
LED	Light Emitting Diodes
O&M	Operations and Maintenance
OEM	Original Equipment Manufacturer
OGX	Ogden Express
RFP	Request for Proposal
RTU	Remote Terminal Unit
PVR	Peak Vehicle Requirements
TRAX	Transit Express
UTA	Utah Transit Authority
UVX	Utah Valley Express
WAC	Work Activity Center
ZEB	Zero-emission buses

1 Introduction

This Bus Fleet Management Plan (BFMP) provides a strategic overview of Utah Transportation Authority's (UTA) approach to managing the UTA bus fleet and associated services, including:

- General services
- Bus service
- Bus maintenance practices
- Bus fleet procurement and replacement schedules
- Facilities for bus maintenance and servicing.

It is intended for UTA's use in managing its services and to provide the Federal Transit Administration (FTA) with an overview of UTA bus operations.

The BFMP is a living document that is updated regularly and is intended to be reviewed at least annually, potentially increasing its review frequency during transitional periods. Each revision includes updated assumptions on ridership demand, bus operations, and fleet, facilities, and infrastructure conditions. Additionally, a discussion of the maintenance facilities including their condition, capacity, maintenance practices, reliability performance, and measures used to gather information on service quality, reliability and on-time performance is included. This BFMP spans the years 2022 through 2032 based on data from UTA planning department.

This document has been developed according to the latest guidance and requirements from the FTA for Fleet Management Plans (FMPs). The following are the primary FTA requirements for transit operators to develop their FMP:

- The plan should reflect a 10 to 15-year time frame.
- The plan should address vehicle and service types in operation and anticipated to be in operation, including paratransit, as well as factors that are relevant to determine current and future equipment needs.
- The plan should also address in detail the composition of the fleet, operating conditions, facilities, etc.
  Future demand should be estimated based on
  a) vehicle life expectancy
  b) the requirements for peak and spare vehicles
  c) strategies for acquisition of new vehicles, and
  d) strategies for maintenance and operations.
- The plan must address operating policies (level of service requirements, vehicle failure definitions and actions); peak vehicle requirements; maintenance program (scheduled, unscheduled, and overhaul); system and service expansions; vehicle procurements and related schedules; and spare ratio justification.

UTA has determined that it complies with the above-mentioned FTA requirements.

1.1 Background

UTA has been the service provider for public transportation along the Wasatch Front since August of 1970. The service area is approximately 1,600 square miles and serves six counties,

including many nearby municipalities. This service area contains 80 percent of Utah's population and 77 percent of Utah's automobiles. In 2021, system-wide ridership reached 1,426,982 trips.

When UTA started providing bus service in 1970 the average yearly bus ridership was approximately 1,700,000. In 2021 the bus ridership was 12,310,065 for fixed route buses out of Timpanogos, Ogden, and Salt Lake, 254,524 for Paratransit, and 305,940 for route deviation. The historical 5-year ridership average has grown over the decades as follows:

2004–2008: 21,924,151
2006–2010: 21,956,813
2008–2012: 22,167,836
2010–2014: 20,826,048
2012–2016: 19,883,851
2014-2018: 45,312,960
2016-2020: 40,535,768

In 2021 UTA operated 19,278,266 vehicle miles of fixed route and demand response bus services (17,067,467 vehicle revenue miles). The current active bus fleet includes 506 service buses and 22 contingency buses which are serviced by four maintenance facilities. One of these facilities is located in Ogden (Mt. Ogden), three in the Salt Lake area (Central, Riverside, and Meadowbrook), and one in Orem (Timpanogos). The Riverside facility is a demand response system serving people with disabilities, which operates 114 service buses and 8 contingency buses.

UTA service and maintain the bus fleet to ensure that the average UTA fixed route bus has a life expectancy consistent with Federal Transit Administration (FTA) requirements of 12 years. UTA's bus fleet will continue to change accordingly in size as ridership dictates, and as funding is available. UTA will use any increase in fleet size to provide additional bus services, and where possible integrate them with the current light rail transit (LRT) system.

In addition to UTA's long-standing core bus system, a 15-mile north/south light rail system (TRAX) was put into service in December 1999. Additional LRT services have been constructed and now Utah Transit Authority's LRT system is comprised of the Blue, Red, and Green Lines, plus the Sugarhouse Streetcar. UTA also constructed and operates a 90-mile commuter rail corridor (FrontRunner) from Ogden to Utah Counties.

The Blue Line LRT segment travels from the Draper Town Center to Salt Lake Central Station via Salt Lake City's Central Business District (CBD). Additionally, this LRT route provides service along the busy I-15 transportation corridor, and through the communities of Draper, Sandy, Midvale, Murray, South Salt Lake City, and Salt Lake City.

The Red Line LRT segment begins in the southwest part of Salt Lake County at the Daybreak development and overlaps with the Blue Line before it heads east at 400 South to travel to the University of Utah. There, it serves the stadium, central campus, and the medical center.

The Green Line LRT segment consists of 10.9 miles of track and ten stations servicing the area between West Valley City Center and the Salt Lake International Airport via downtown Salt Lake City.

The S Line or Sugar House Streetcar is an independent spur that connects to the Transit Express (TRAX) system at Central Pointe Station (2100 South). This spur connects the Sugar House community to UTA's TRAX system.

The FrontRunner Commuter Rail is a 79-mph commuter rail system that spans from Ogden to Provo. This 90-mile corridor has 16 stations. Most stations have intermodal connections with bus services, and two stations have intermodal connections with TRAX.

UTA's LRT system utilizes a shared core with spurs leading to each corner of the Salt Lake County and valley. The length of the segments are as follows:

	Length	**Shared Core**	**Spur Length**
Blue Line	19.8	(Core)	
Red Line	23.8	9.4	14.4
Green Line	15.0	4.0	11.0
Sugar House Streetcar	1.8	Exclusive	

In August 2018, the Utah Valley Express (UVX) Bus Rapid Transit (BRT) line was opened. UVX provides frequent service between Orem and Provo connecting to the Orem Frontrunner Station and Provo Frontrunner station and serves Utah Valley University and Brigham Young University.

As of April 2022, UTA is providing service levels which have not yet returned to pre-COVID levels. The labor market has not fully returned to 2019 levels and transportation methods have adjusted to accommodate working from home. Some bus routes have been eliminated, while others have reduced frequency or duration.

As expected, ridership continues to increase after the COVID-19 pandemic, UTA anticipates enhanced service with multiple modes of transportation including bus, light rail, and commuter rail along the Wasatch Front. UTA expects to increase fixed route ridership between 2022 and 2030 as system optimization and intermodal connections improve.

Beyond 2022, UTA expects a steady increase in bus revenue miles as the regular bus service is expanded, ongoing BRT project Ogden Express (OGX) comes online, and other new BRT systems are implemented through to 2040. These system increases are outlined in the 2019-2050 Wasatch Front Regional Transportation Plan (http://wfrc.org/vision-plans/regional-transportation-plan/) which was prepared by the TransPlan40 (https://mountainland.org/transplan40/) prepared by the Mountainland Association of Governments (MAG). This plan increases enhanced bus corridor projects. These projects will make critical connections with the rail system and other destinations to better serve the public.

Figure 1 and Figure 2 illustrate UTA's long-term planning model for both weekday boardings and service miles. The reduced boardings and revenue service miles during the Covid pandemic during 2020 and 2021 are illustrated. The model is calibrated to actual numbers for each from 2019. The bus procurement plan reflects the projection modes. As expansion service is finalized, the bus replacement plan is modified to ensure sufficient revenue vehicles are available.

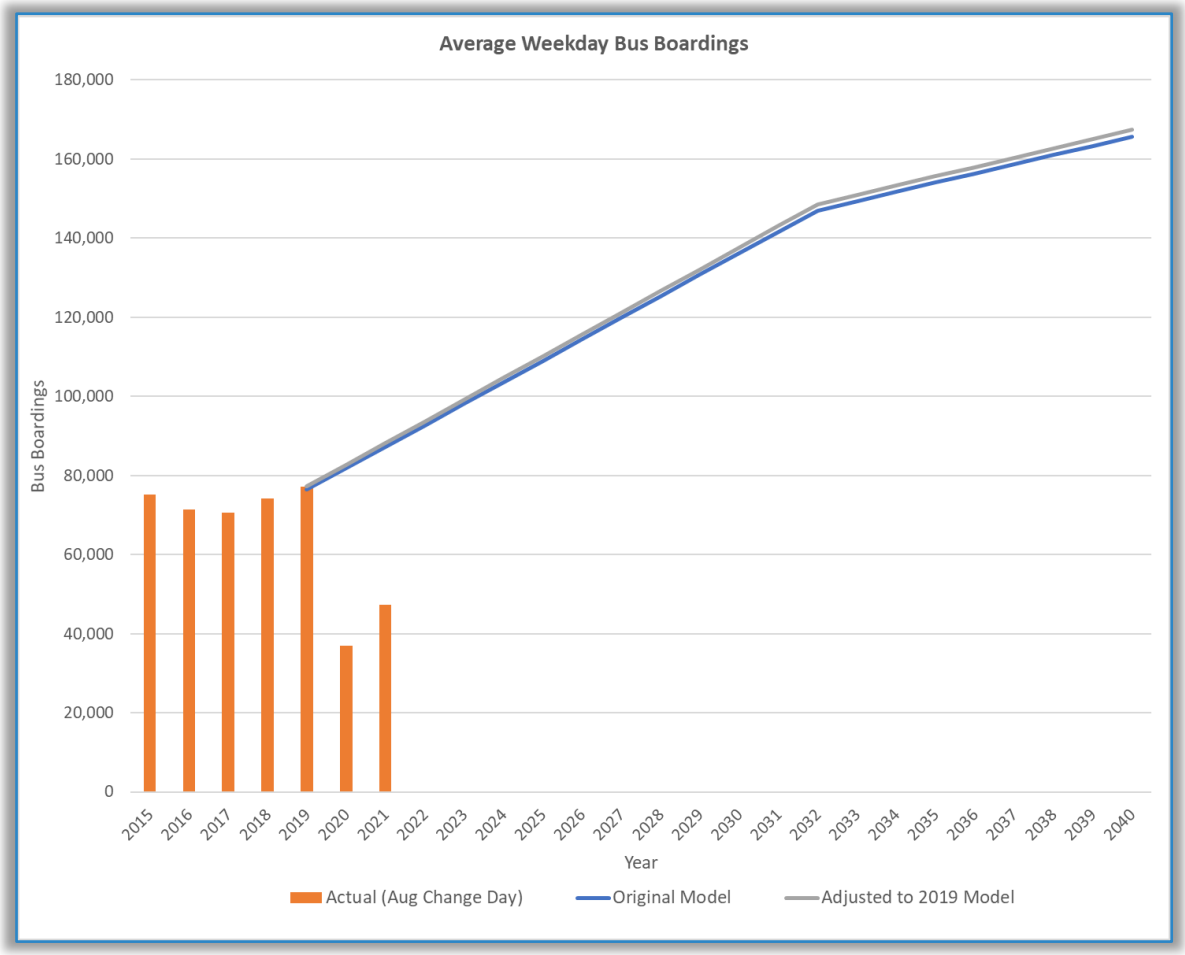

Figure 1 Modelled Average Weekday Bus Boardings

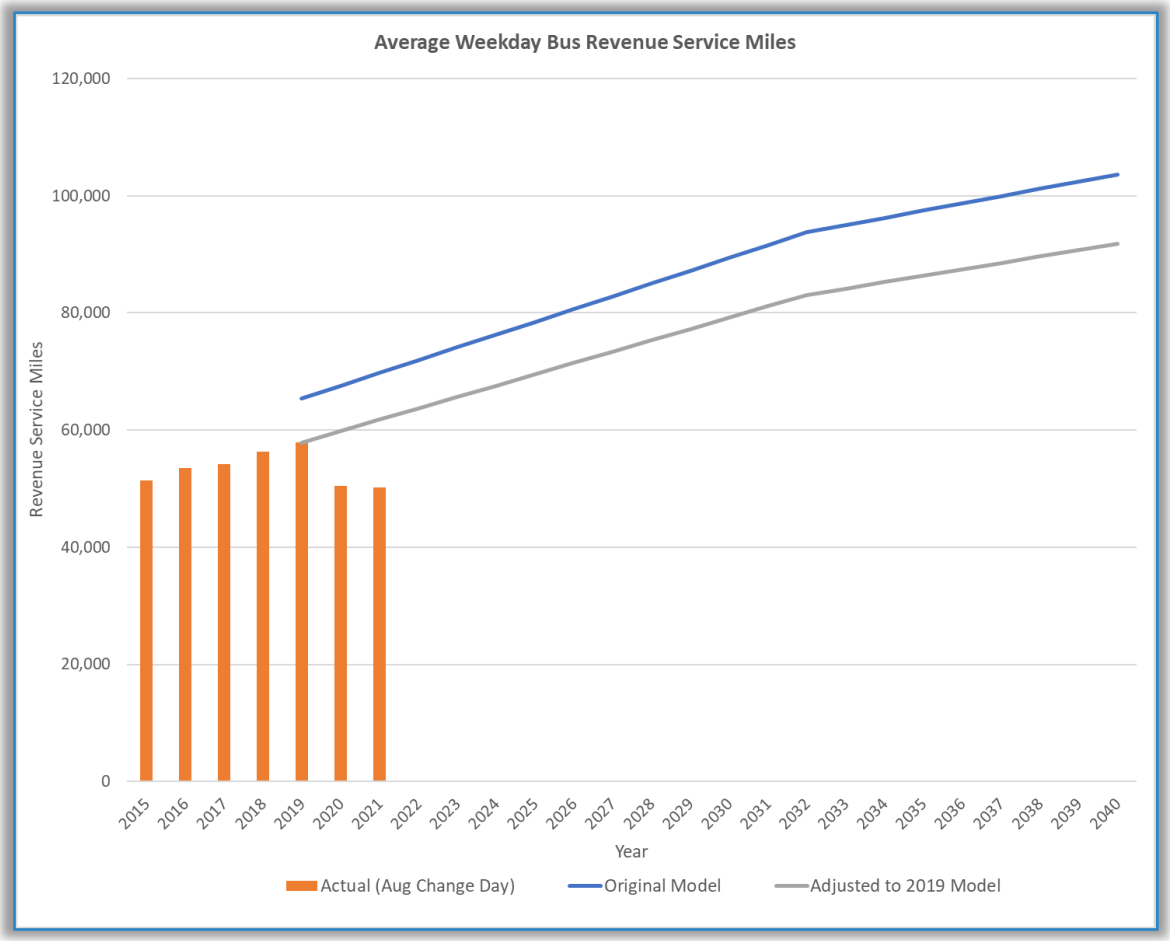

Figure 2 Modelled Average Weekday Bus Revenue Service Miles

1.2 Overview of Plan

The plan establishes the policy and practices by which UTA determines current and future bus fleet requirements, vehicle fleet spare percentages, and maintenance practices. It provides an overview of the existing UTA bus system and details of events including:

1. Current fleet and future vehicle procurements
2. Operating useful life
3. Rebuild, rehabilitation, or overhaul programs
4. Fleet configuration changes or manufacturers' modifications
5. Current system and future extension
6. Current transit service and future expansions

1.3 Plan Timeframe

In accordance with the FTA's guideline, this document´s planning horizon is based on a 10 to 15-year time frame, and is intended to be reviewed at least annually, potentially increasing its review frequency during transitional periods of new vehicle purchase, the retirement of existing vehicles, rebuild/rehab programs, extensions/expansions in service or strategic changes that can affect operations, peak vehicle requirements, or load factors of the system.

2 Existing System

2.1 Description of Existing System

As of May 2022, UTA Bus System operates on 98 routes and 3,520 route miles, servicing 6,233 stops including local, express, flexible, and Canyon/Ski routes. However, service requirements are constantly being adjusted to accommodate ridership demands. UTA has been the service provider for public transportation along the Wasatch Front since 1970 when the average yearly bus ridership was approximately 1,700,000. This ridership has grown over the decades, until the COVID-19 pandemic, which decreased the ridership across the globe. Since 1970, UTA has expanded its service area to approximately 1,600 square miles and now serves four whole counties (Weber, Davis, Salt Lake, and Utah counties), portions of Box Elder, Tooele, a few acres in Juab, and operates to Summit County under a partnership agreement. For detailed and up-to-date information on current operating bus routes, please refer to https://rideuta.com/Rider-Tools/Schedules-and-Maps.

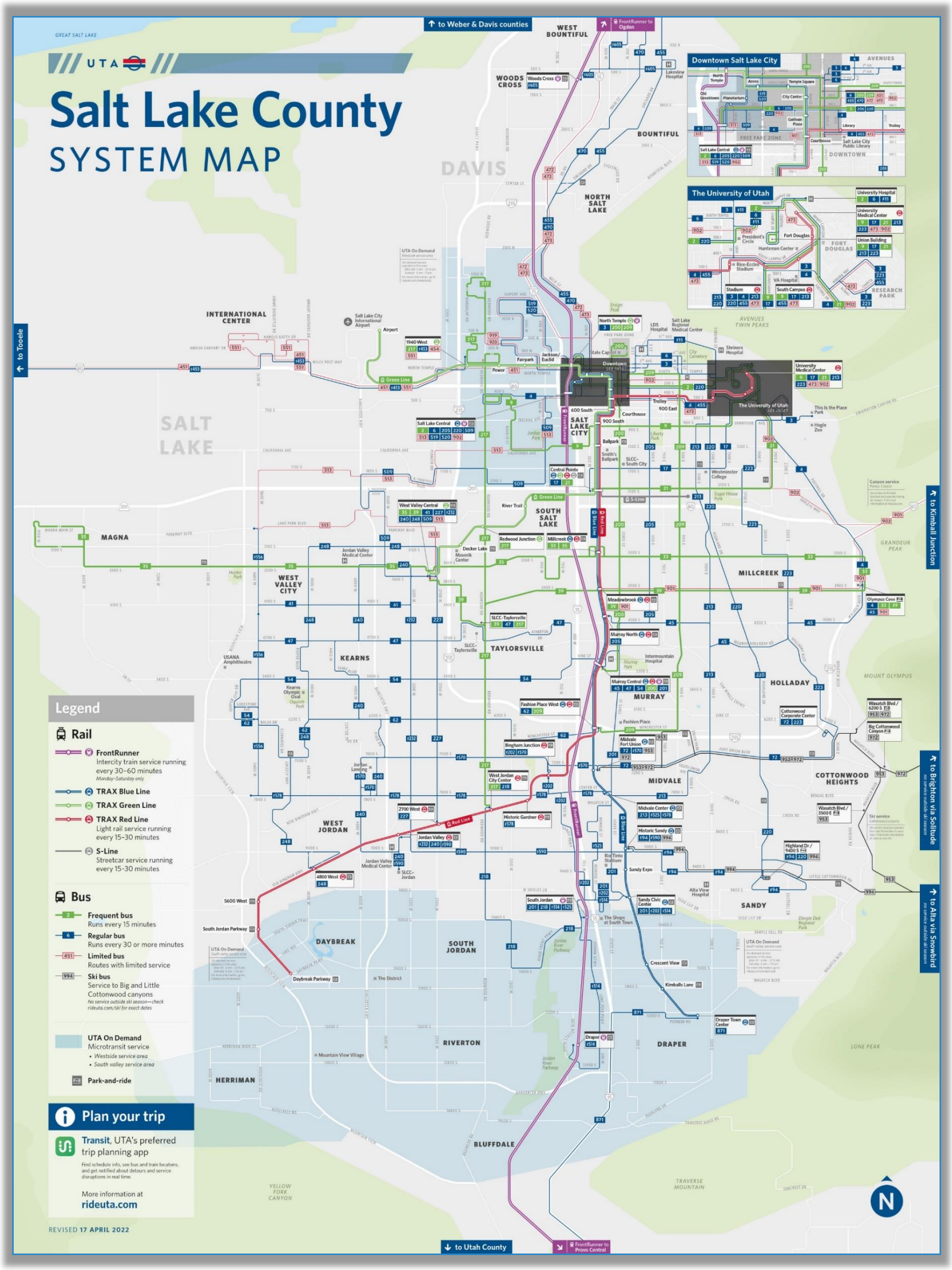

Figure 3. Salt Lake County System Map

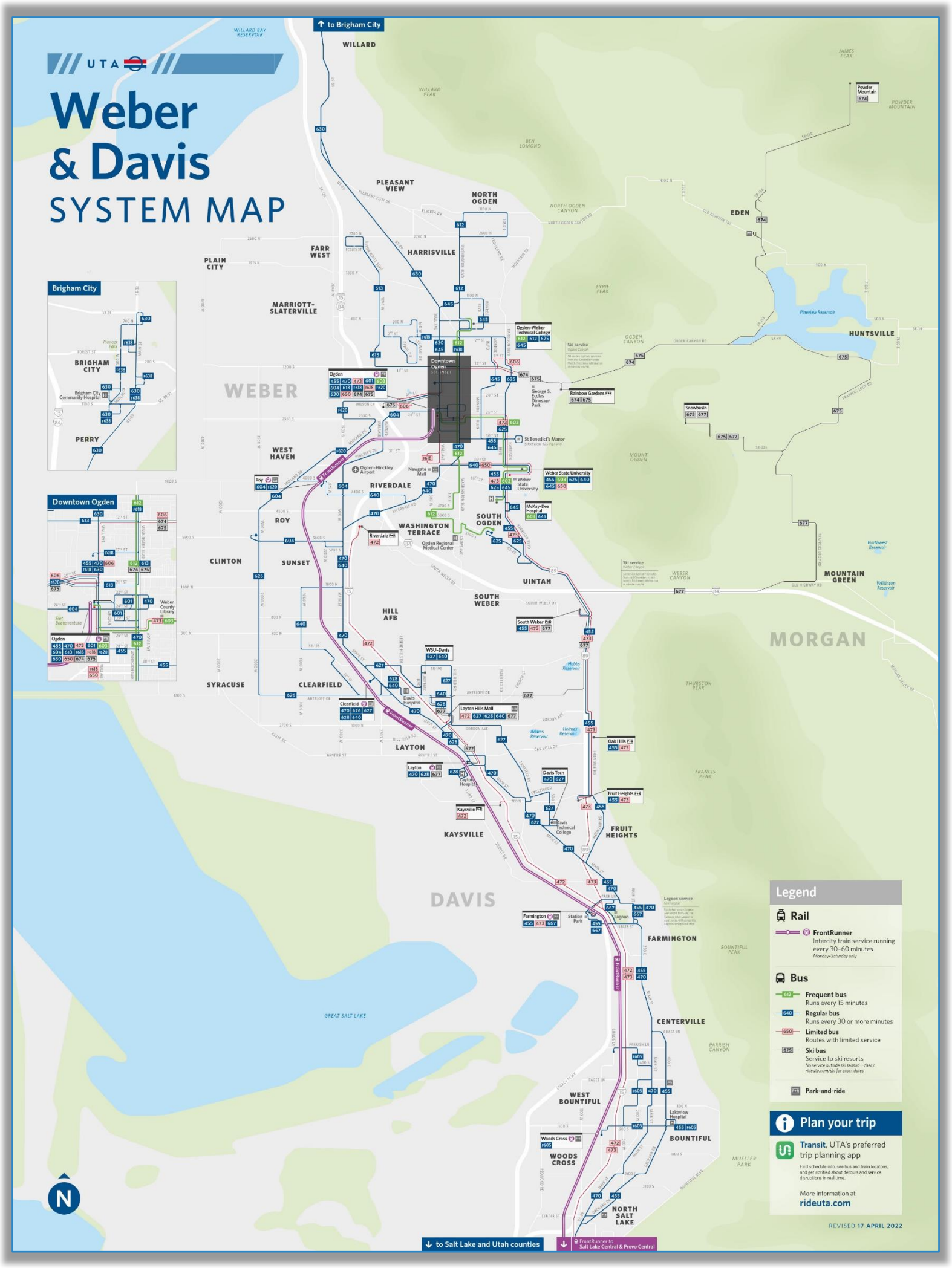

Figure 4 Weber, North Davis & Box Elder County System Map

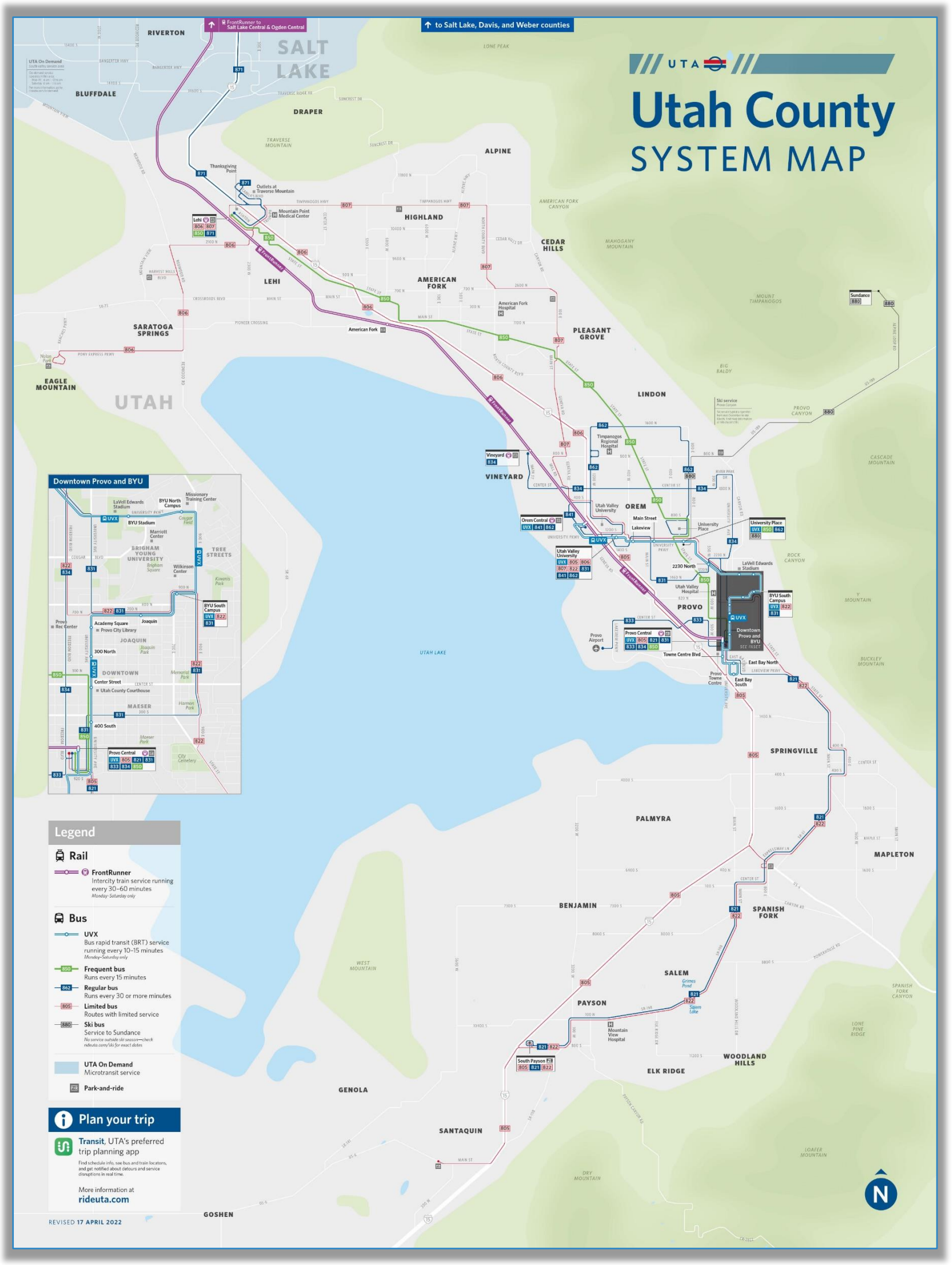

Figure 5 Utah County System Map

2.2 Existing Routes and Fleet

UTA currently has 509 buses. This includes 40-foot local buses, ski buses, express buses, special BRT buses, and 60-foot articulated buses which run on the Provo-Orem BRT (UVX).

2.2.1 Existing Routes

A complete listing of existing routes is included in Appendix A.

2.2.2 Existing Fleet

Table 1 Existing Fleets (High Level)

Type	Length	Year	Make & Model	Fuel Type	Quantity
Bus	35	2011	Gillig BRT 35'	Clean Diesel	30
		2013	Gillig BRT 35'	Clean Diesel	2
		2016	Gillig BRT 35'	Clean Diesel	5
		2017	Gillig BRT 35'	Clean Diesel	7
		2020	Gillig Low Floor 35'	Clean Diesel	9
	40	2006	Gillig BRT 40'	Clean Diesel	31
		2007	Gillig BRT 40'	Clean Diesel	34
		2009	Gillig BRT 40'	Clean Diesel	48
		2010	Gillig BRT 40'	Clean Diesel	36
		2010	Gillig BRT Hybrid 40'	Hybrid	20
		2012	Gillig BRT 40'	Clean Diesel	31
		2012	Gillig BRT Hybrid 40'	Hybrid	9
		2013	Gillig BRT CNG 40'	CNG	10
		2013	Gillig BRT Plus 40'	CNG	14
		2014	Gillig BRT 40'	Clean Diesel	20
		2015	Gillig BRT Plus 40'	CNG	23
		2017	Gillig BRT 40'	Clean Diesel	37
		2018	Gillig BRT 40'	Clean Diesel	44
		2018	New Flyer XE40 40'	Electric	3
		2019	Gillig BRT 40'	Clean Diesel	10
		2020	Gillig Low Floor 40'	Clean Diesel	10
		2021	Gillig Low Floor 40'	Clean Diesel	23
	45	2002	MCI D4500 45'	Clean Diesel	12
		2004	MCI D4500 45'	Clean Diesel	15
		2005	MCI D4500CL 45'	Clean Diesel	20
		2009	MCI D4500CL 45'	Clean Diesel	5
	60	2017	New Flyer XDE60 60'	Clean Diesel	25
Trolley	29	2018	Gillig Trolley 29'	Clean Diesel	2
	35	2018	Gillig Trolley 35'	Clean Diesel	2

In addition to the buses listed above, there are 10 Ford F450 Glaval American with Disabilities Act (ADA) vehicles purchased in 2017. These vehicles are used for some Flex routes and occasionally Paratransit Services.

An itemized list of the bus fleet is included in Appendix B.

2.3 Service Type

UTA offers multiple types of bus services to meet the different ridership needs. An updated description of these service types is provided below and a current list of all UTA bus routes for each service type can be found on UTA's website Utah Transit Authority (rideuta.com).

2.3.1 Regular Service (TRANSIT)

Regular bus service encompasses the largest single category of transit service UTA provides. These services have defined routes with frequent stops.

2.3.2 Express and Worker Express Services (EXPRESS)

UTA provides four types of express services:

- **Express/Commuter Routes**
  These services provide access to a limited number of bus stops in a local community, then utilize the interstate system to reach a designated destination area. For Express/Commuter Routes a high priority is given to locations that provide park-and-ride opportunities. These routes provide longer distance inter-county service with significantly shorter travel times than regular service routes.
  Only two routes are currently designated as Express: 472 and 473.
- **Limited Express**
  Limited express routes pick up passengers in local communities and then access the interstate to get to their destination to reduce travel time. The routes that are destined for locations in downtown Salt Lake City are going to be discontinued in August 2022 due to labor market changes, COVID-19, and associated travel. Five routes will still run but not in a specific geographic area.
  Currently, six routes are operating as Limited Express: 2X, 451,805, 806, 807, and 809.
- **Limited Stop**
  Limited stop routes pick up and discharge passengers only at signalized intersections along a section of the route.
  This type of route will be discontinued in August 2022.
- **Worker Express/Vanpool**
  Worker express services provide service to major employment centers in the region. The distinction between worker express and the other express categories is that the “part-time” operator is also a worker at the destination employment site. The bus remains at the facility between the beginning and end of work times. Having worker drivers on these routes eliminates the need for extensive deadheading.
  The only Worker Express route, 456 will be discontinued in August 2022 due to Covid-19 and the associated travel and labor market changes. As this is the only Worker Express route, this category of route will be eliminated after August 2022.

2.3.3 Canyon Service (CANYON SERVICE)

UTA provides seasonal bus service to the Wasatch Front winter recreation areas. The Canyon Service utilizes specialized buses equipped with ski and snowboard storage areas, larger rear doors, and automatic tire chain deployment systems.

2.3.4 Bus Rapid Transit (BRT)

There are 2 Bus Rapid Transit (BRT) routes operated by UTA. BRT provides enhanced, prioritized bus service along specific corridors. Utilizing technology and methods such as signal prioritization, dedicated lanes, and limited stops allow BRT service to provide fast, efficient, and dependable service.

- **The 3500 South MAX**
  The 3500 South MAX line connects Magna with the West Valley Central TRAX Station and the Millcreek TRAX station in South Salt Lake City.
- **Utah Valley Express (UVX) BRT**
  The Utah Valley Express (UVX) line connects the Orem Intermodal Center with Utah Valley University (UVU), Brigham Young University (BYU), and Provo Intermodal Center station.

2.3.5 ADA Paratransit (PARATRANSIT) and Work Activity Center (WAC)

UTA's Paratransit Service ADA program is a service for people with physical, cognitive, or visual disabilities who are functionally unable to independently use the UTA fixed route bus service either all of the time or only under certain circumstances. UTA provides a complementary paratransit service as an origin-to-destination service.

UTA provides buses to Work Activity Centers (WAC) and operates its service.

2.3.6 Flex Service (FLEX)

UTA offers Flex Service in partnership with several cities and counties. These services operate as a fixed route with a specific schedule and designated stops. However, they can accommodate deviations from the route upon request and pick up or drop off passengers at locations up to ¾ miles from the scheduled route. Such pickup requests are scheduled in advance through UTA's paratransit office.

2.4 Non-Bus Revenue Service

2.4.1 Intermodal connections

UTA operates a Light Rail system, a Streetcar system, and an 81.4-mile Commuter Rail corridor (FrontRunner). The rail systems and the bus network are linked with intermodal connections that improve flexibility and transit reach.

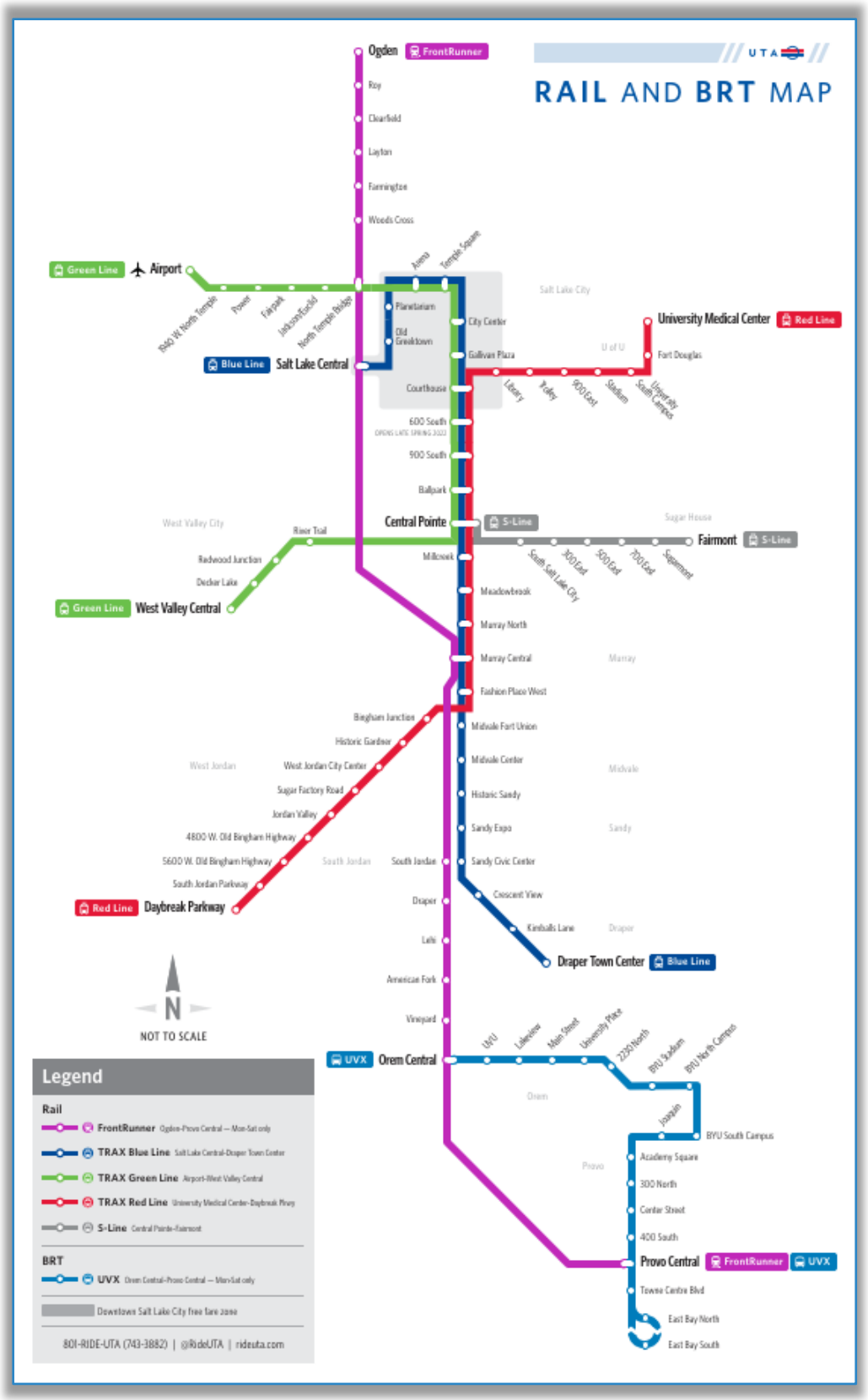

Figure 6 Rail and BRT Map

2.5 Operating Times

UTA's bus service is run at four levels or tiers, with the following headways (in minutes):

Table 2 Service Hours

Tier	Weekday				Saturday				Sunday
	4:00-6:00	6:00-19:00	19:00-21:00	21:00-24:00	4:00-6:00	6:00-19:00	19:00-21:00	21:00-24:00	6:00-21:00
1	30	15	30	30	30	15	30	30	30
2		30	30			60	60		
3		60	60						
4		Peak Only							

Select Tier 2 routes run on Sundays and select Tier 3 routes on Saturdays on routes where ridership is high enough to consistently maintain the service.

3 Existing Transit Centers and Operating Business Units

3.1 Existing Transit Centers

There are currently two transit operational centers:

- Salt Lake Central Station: served by FrontRunner, TRAX blue-line, Amtrak Thruway, Greyhounds, and UTA bus routes 2, 6, 11, 205, 220, 509, 513, 519, 520, and 902.
- Ogden Intermodal Transit Center, served by FrontRunner and bus lines 455, 456, 470, 473, 601, 603, 604, 613, 616, 630, 650, F618, F620.

Other transportation hubs, which are not staffed include:

- Central Pointe Station, served by all three TRAX lines, S-line, and bus routes 17 & 21.
- Millcreek Station, served by the TRAX Blue and Red lines, and bus routes 33, 35 & 35M.
- Murray Central Station, served by TRAX Blue and Red lines, FrontRunner, and bus routes 45, 47, 54, 200 & 201.
- West Valley Station, served by TRAX Green Line and bus routes 35, 39, 41, 227, 240, 248, 509, 513 & F232.
- Orem Station, served by FrontRunner and bus routes 830 & 841.
- Provo Station, served by FrontRunner, Amtrak's California Zephyr, and bus routes 805, 821, 830, 831, 833, 834, 838 & 850

3.2 Operating Bus Units

Due to UTA's large geographical service area UTA's bus operations and maintenance are divided across four operating business units with five Operations & Maintenance (O&M) facilities to provide efficient and reliable service.

UTA's buses are serviced out of five maintenance facilities. Three are in Salt Lake County: Central, Meadowbrook, and Riverside (Special Services). Mt. Ogden is situated to the north of UTA's service area in Weber County, supporting UTA's North service area. Timpanogos is in Utah County on the south end of the service area.

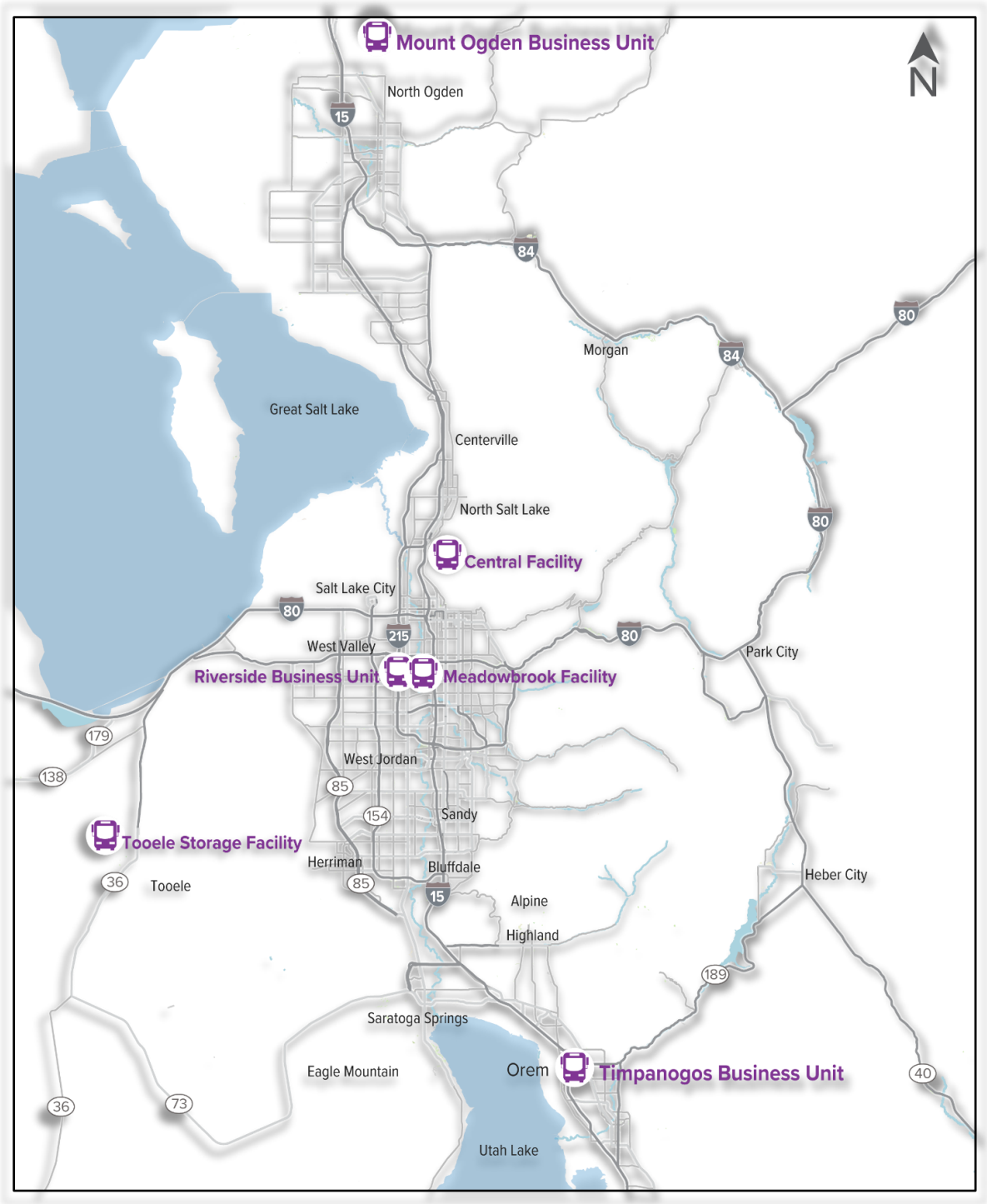

Figure 7 Business Units Map

3.3 Salt Lake Business Unit (Meadowbrook and Central facilities)

The Salt Lake Business Unit consists of the Meadowbrook and Central Facility as described below.

3.3.1 Meadowbrook Facility

Location: 3600 South 700 West, South Salt Lake

Meadowbrook is UTA's largest facility. It occupies 30.4-acres of land in the City of South Salt Lake. The facility consists of 8 buildings and features covered vehicle storage, dispatching, supervisory, administration, and maintenance facilities. The maintenance facility includes repair bays with pits, articulated capable bus bays, and bays with lifts. Other maintenance functions include a service building for fueling, fare retrieval, and a bus washing building. The facility has a storage capacity of 257 buses.

The Meadowbrook location is also home to UTA's only major repair facility. Major engine and transmission overhauls are completed at this location. The facility houses a machine shop for component repair, a body shop, a paint booth, a tire repair shop, and UTA's centralized shipping and receiving parts warehouse.

Seven new bays are currently being constructed and replacement and expansion projects are being implemented. Planned and funded projects include roof replacement, Remote Terminal Unit (RTU) and Makeup Air Unit (MAU) replacement, floor coating, plasma cutter exhaust system installation, hydronic heat implementation at bus wash exits, and brake pit repairs among others.

Figure 8 Meadowbrook Facility Satellite View

Figure 9 Meadowbrook Facility Bays

3.3.2 Central Facility

Location: 616 West 200 South, Salt Lake City

The Central facility is a 38,969-square foot facility sited on 7.28 acres of land and includes six buildings. The Central business unit includes operations functions such as dispatch and administration. Additionally, it houses a chassis wash, fuel and servicing garage, and fare retrieval equipment. The facility includes:

- A high-speed fueling and service system
- A 45,000-gallon fuel storage area
- A high bay area roof with hydraulic lifts
- A standby diesel power generator
- Covered parking for 114 buses
- Pit-type repair stations
- Detail cleaning stations

The Central facility is strategically located at the western edge of downtown Salt Lake City. This location allows for reduced deadheading for many weekday routes that begin and end in downtown Salt Lake City.

Currently, a new facility is under construction and all operations will be transferred from the Central Facility to the Depot District Clean Fuels Technology Center (Section 4.3.2 for more information).

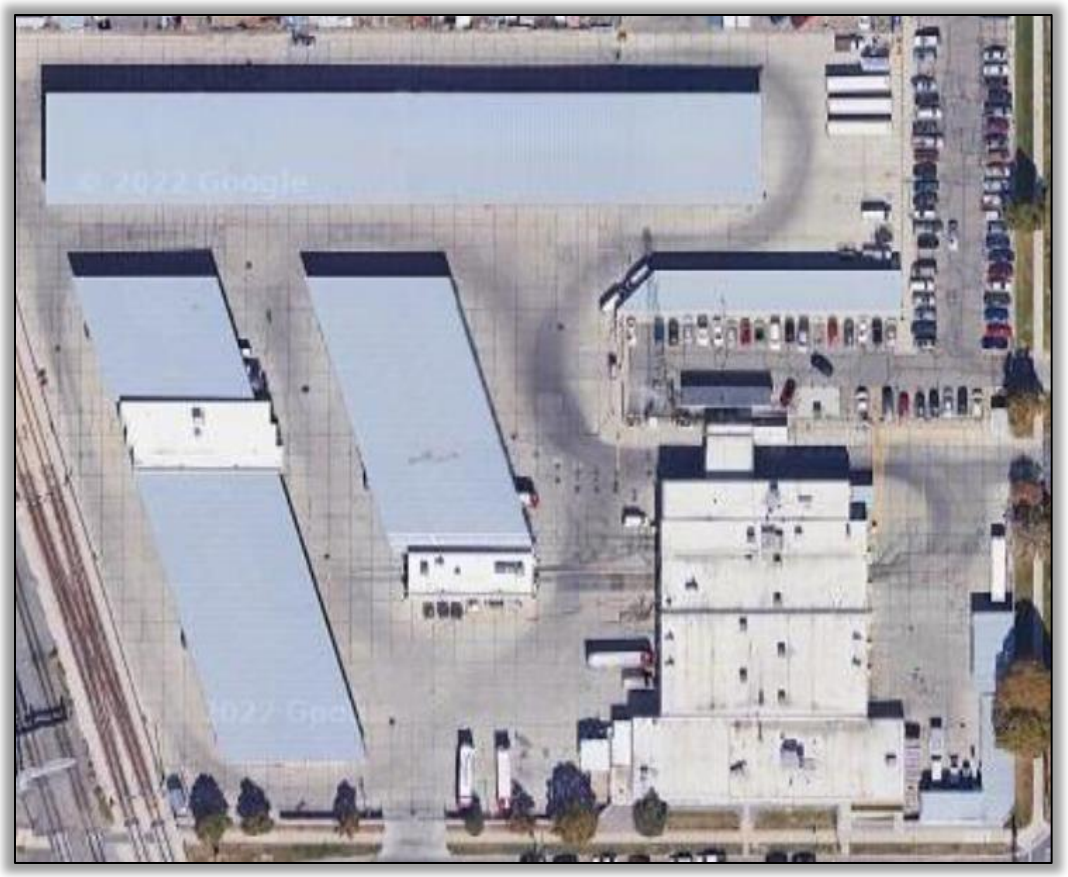

Figure 10 Central Facility Satellite View

Figure 11 Central Facility Bays

3.4 Mount Ogden Business Unit

Location: 17th St. and Wall Ave. Ogden City

The Mt. Ogden business unit is a 43,733-square-foot facility located on 9 acres of land. The Mt. Ogden business unit includes five buildings and is equipped with full accommodations for division management, dispatch, and operations/road supervision as well as the necessary maintenance facilities and equipment to provide effective maintenance of the current Ogden bus fleet.

Maintenance facilities at the Mt. Ogden division have lift-equipped light repair stations, lift-equipped heavy repair stations, pit-equipped preventive maintenance stations, pit-equipped brake inspection, and adjustment station, lift-equipped steam cleaning, and chassis wash station.

The Mt. Ogden business unit has parking stalls for 88 buses. UTA owns an additional 30 acres to the west of the current facility, which is available for possible future expansion.

Current planned and funded projects include bay expansion, roof replacement, and lift installations.

Figure 12 Mount Ogden Facility Satellite View

Figure 13 Mount Ogden Facility Bus Storage

3.5 Timpanogos Business Unit

Location: 1110 South Geneva Road, Orem City

The Timpanogos business unit is the only UTA maintenance facility in Utah County. The 45,124-square foot facility includes a 12,600 square feet extension to accommodate UVX BRT maintenance. It is located on an 8.5-acre site. It includes nine buildings that incorporate operations for dispatch and supervision, bus operator facilities, and maintenance facilities.

The maintenance building includes repair stations, preventative maintenance stations, a high-speed drive-through bus washer, detail-cleaning stations, and a steam cleaning station.

The service building includes high-speed fueling, a 62,000-gallon fuel and lubricant storage unit, nightly service operations, and fare retrieval and security facilities. This site has an additional 5 acres that could be used for future expansion.

As part of the UVX BRT project, UTA enhanced the Timpanogos Maintenance Facility. Improvements include expanded space for vehicles, improved technology, parts storage, and office space. To accommodate the 25 BRT vehicles, the existing 83,400-square foot maintenance, fuel, and wash facility was reconfigured to expand the parts storage area and other workspaces. A tire and brake building, fuel building with a tank farm and space to accommodate CNG fueling, and a wash and detail building east of the existing building. Also, a roof replacement project has been completed recently.

The current planned and funded projects include improvements in the parking lot, the AC Bay, floor repainting, coolant, and oil tanks replacement, and lighting replacement for Light Emitting Diodes (LED).

Figure 14 Timpanogos Maintenance Facility Satellite View

Figure 15 Timpanogos Maintenance Facility

3.6 Riverside Business Unit

Location: 3601 South 900 West, South Salt Lake

Servicing UTA's demand response/paratransit fleet, Riverside Business Unit sits on 8.47 acres. Opened in 1997, it has 86 stalls of covered vehicle storage and dispatch, supervisory, demand response operations, and maintenance facilities. The maintenance facilities include a repair bay with a pit, repair bays with lifts and flat floor bays, a service island with stations for fueling, and a wash facility. The business unit was designed to accommodate the expansion of both the maintenance and storage canopies.

UTA is planning to implement funded and approved projects such as the fire system upgrade, new lifts, and a 500-gal diesel tank replacement.

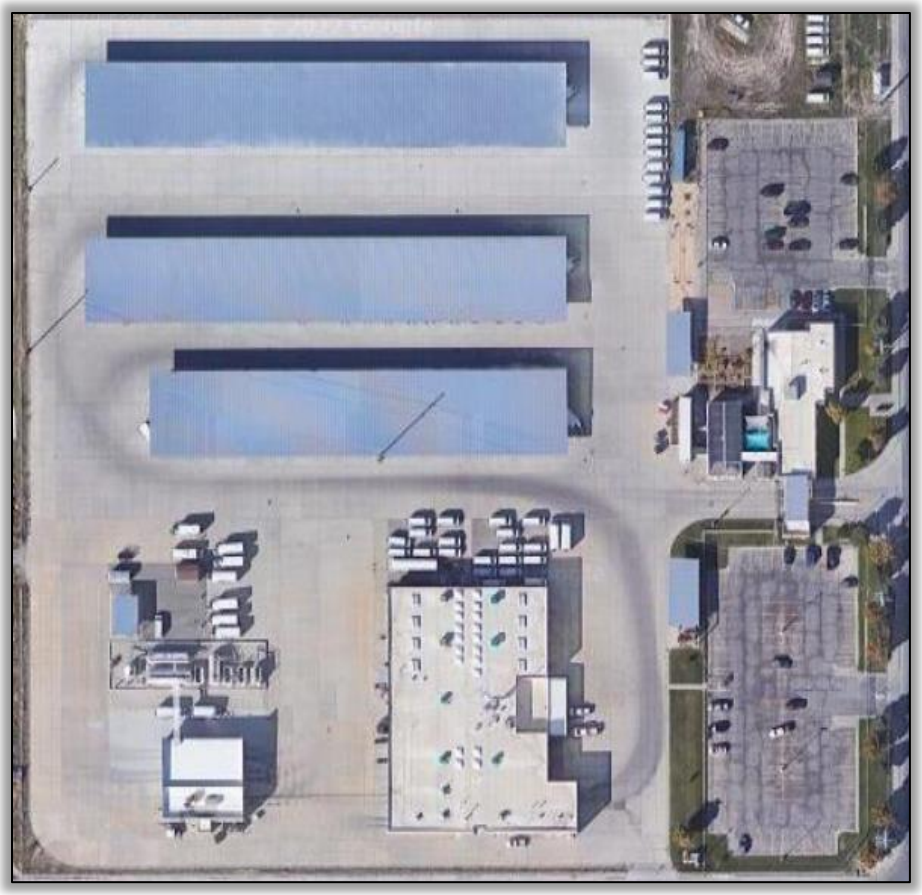

Figure 16 Riverside Facility Satellite View

Figure 17 Riverside Facility Bays

3.7 Tooele Storage Facility

Location: 90 South Garnet Street, Tooele

UTA has a storage facility in Tooele that does not have maintenance capabilities but serves as a bus storage facility for routes from this outlying community to the Salt Lake City area. This storage site allows local Tooele operators to use the buses on commuter routes to Salt Lake City in the morning, leave the buses at the Central garage during the day while they operate other routes, and make the evening return trips back to Tooele with the commuter buses. This improves efficiency by decreasing deadhead running time.

Figure 18 Tooele Storage Facility

4 Expansion Plan

UTA is continually working to enhance service across its multiple modes (bus, light rail, and commuter rail) along the Wasatch Front. UTA plans to increase fixed-route bus ridership as system optimization and intermodal connections improve. UTA's bus service and the corresponding fleet size will continue to increase in line with ridership demand and are subject to available funding.

UTA has developed a Facilities Master Plan to guide the development of UTA facilities to support this increase in fleet size and service.

4.1 Public Outreach

UTA is always working on efficiently making changes to bus service in all counties to make the entire transit network operate more effectively as a unified system. In preparation for each change day, UTA holds outreach efforts to seek input from the community. This input is used to assist the agency in developing service plans.

Changes featured in most change day events.

- New routes
- Discontinued routes
- Route alignment changes to improve connections, improve operational efficiency, or resolve operations and safety issues
- Adjustments to service hours, days of service, or service frequency to match current and/or expected demand
- Schedule adjustments for improved on-time adherence, reduced dwell time, or improved operational efficiency
- Conversion of routes from one mode to another, i.e., local bus to flex, local bus to BRT, etc.

Comments on all change day proposals are accepted via UTA's public comment forum and other media such as the website, e-mail, telephone, mail, and Twitter.

4.2 Future Bus System Expansions

4.2.1 Ogden/Weber State University BRT

Scheduled to commence operations in the fall of 2022, the Ogden Express BRT Project will run from the Ogden FrontRunner Station (UTA Commuter Rail) to Weber State University, terminating at McKay-Dee Medical Center.

The 5.3-mile corridor will provide transit access to Ogden Downtown, Weber State University, and major business, residential, and employment centers along the route.

The Ogden BRT is currently constructing chargers for 11 new electric buses aiming to be installed by June 2022 and the construction of the guideway and stations is ongoing, with the Weber State University shuttle system expected to start in August of 2022. This Shuttle system will operate between the Dee Hub and Central Campus and will replace the existing campus system. Once the entire system opens in August of 2023, the shuttle will be intermixed with the overall BRT system.

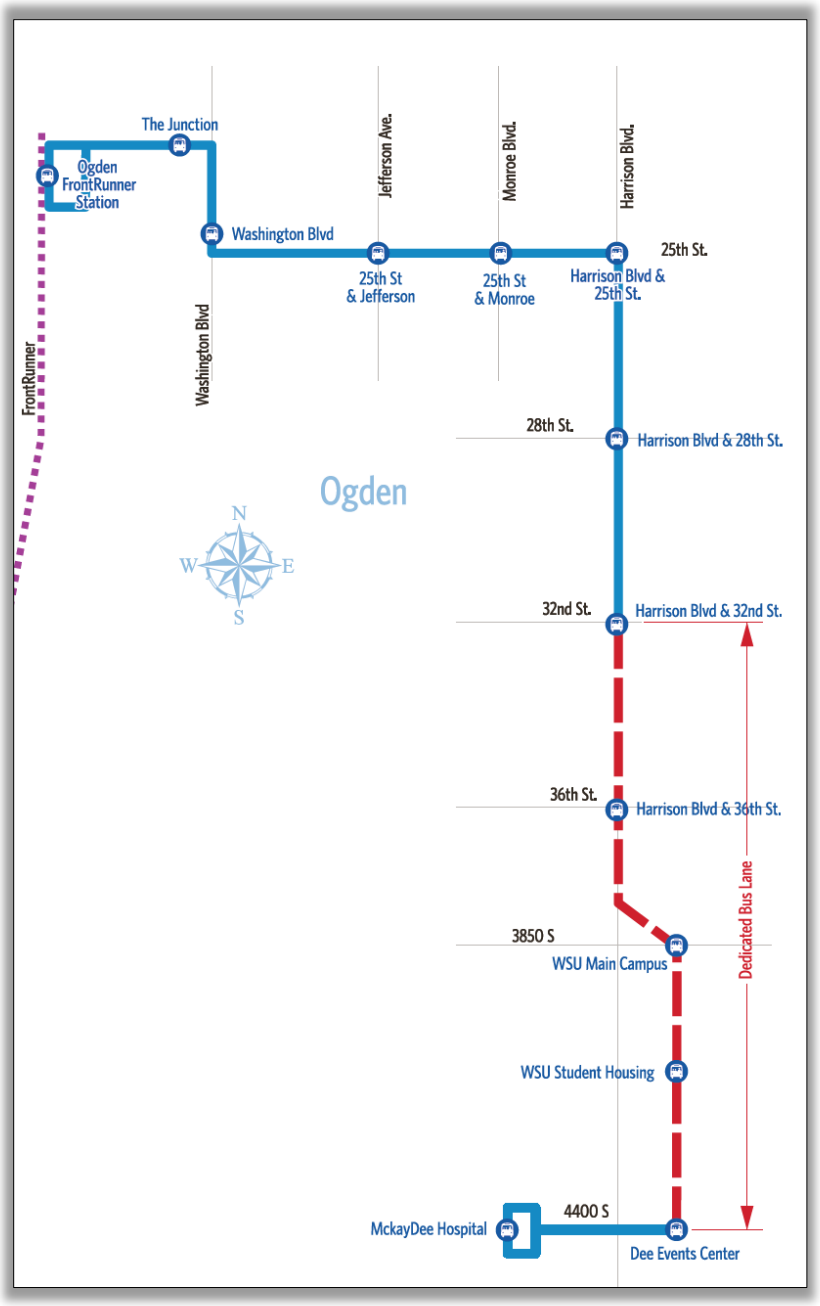

Figure 19 Ogden Express BRT Route

The projected peak, weekday service will require 10 minutes headways for the entire route and 5 minutes on campus.

To meet this service UTA is procuring a fleet of 11, new, 40-foot electric busses:

- 9 - Peak service
- 2 – Spares

The new electric buses will replace older diesel buses that currently operate on Route 603. Route 603 will be discontinued once the Ogden Express BRT becomes operational.

The following infrastructure changes will be incorporated to accommodate the new fleet:

- 4 maintenance bays (8,000 square feet) will be added to the Mount Ogden Business Unit maintenance building.
- Electric charging infrastructure will be added to the Mount Ogden Business Unit storage area.
- 2 on-route charging locations will be installed.

4.3 Future Facility Expansions

UTA is continuously designing, planning, and executing facility improvements and expansions according to the Facilities Master Plan. Current and future expansions are listed below.

4.3.1 Meadowbrook Expansion

The Meadowbrook expansion project consists of 7 additional bays to the existing maintenance building and includes the installation of new lifts. Construction is scheduled to be substantially complete by the end of June 2022.

Figure 20 Meadowbrook Expression Additional Bays

4.3.2 Depot District Expansion

In line with UTA's transit development plan, a new Depot District Clean Fuels Technology Center (DDCFTC) maintenance facility is currently being constructed. The facility will have the capacity to store, operate, maintain and service its current fleet and the addition of more CNG and electric buses. It is scheduled for completion in the Spring of 2023.

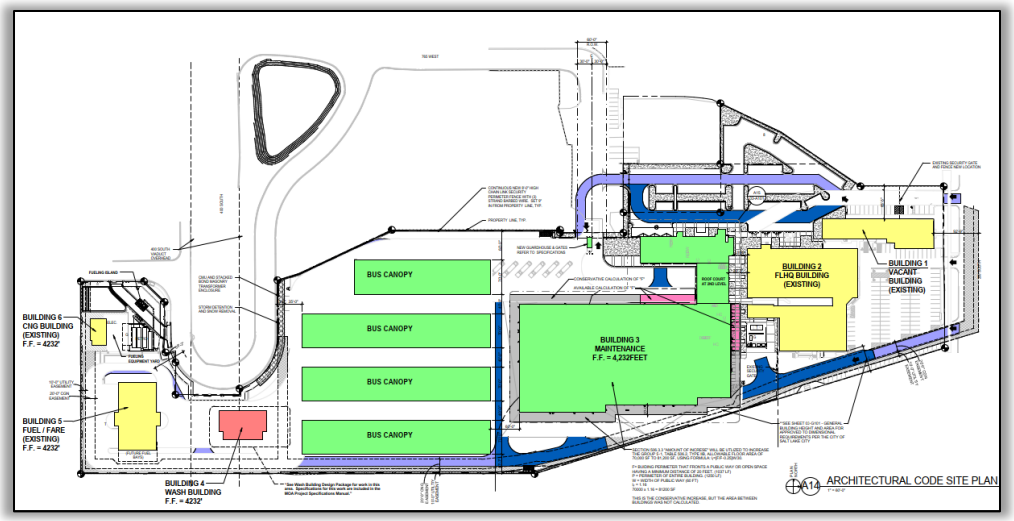

Figure 21 DDCFTC Site Plan

The DDCFTC will replace the existing nearly 50-year-old Central bus garage which is at the end of its useful life. All operations are going to be transferred to the new facility that will provide support in administration, operations, maintenance, and parking for 150 buses (alternative and standard fuel buses to meet short-term and 2040 needs) and expandable to 250.

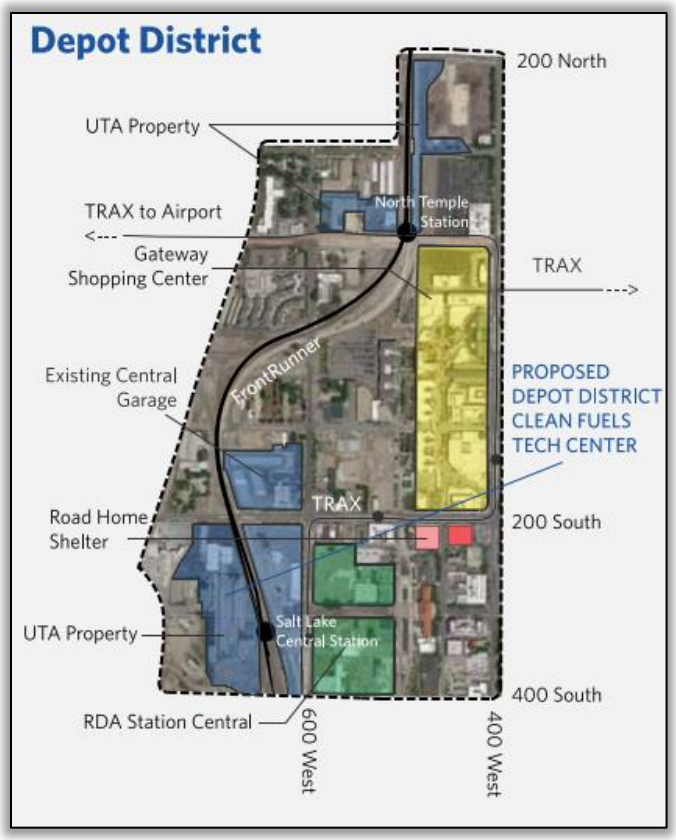

Figure 22 Depot District

It will support the future alternative fuel fleet with chargers for electrical buses. Also, it will speed the transition of UTA´s bus fleet to alternative fuel technologies that utilize locally produced CNG.

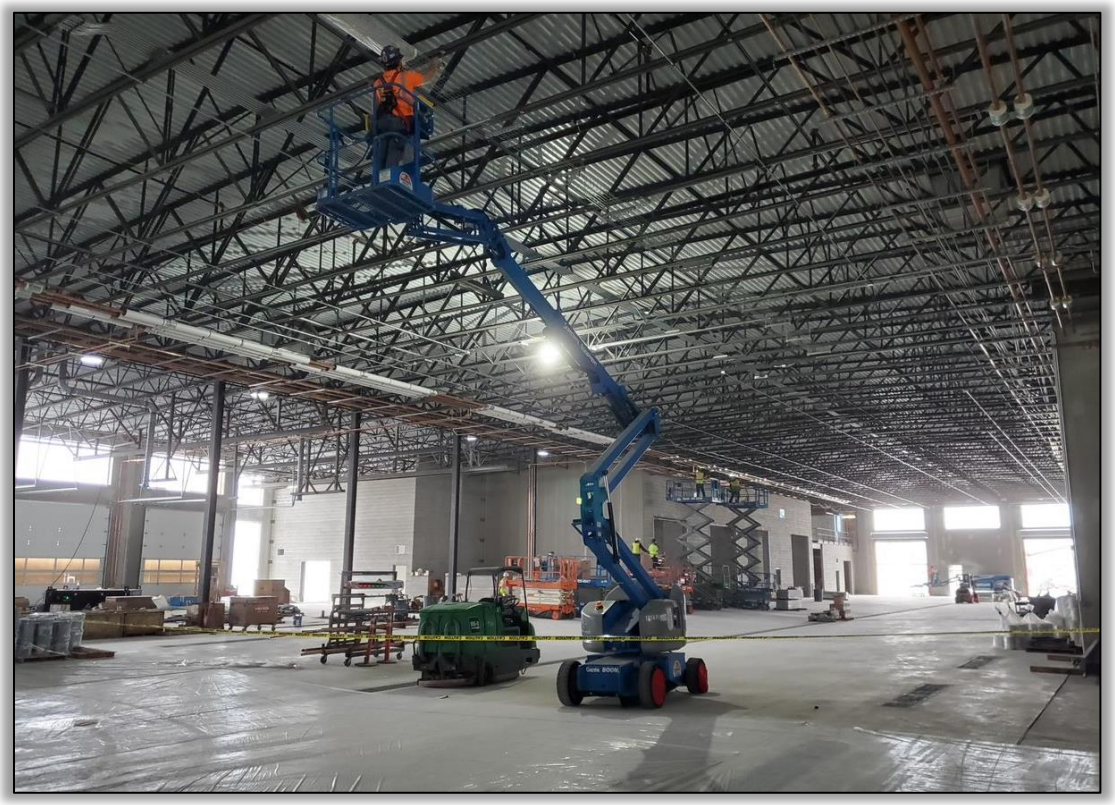

Figure 23 DDCFTC Interior, March 2022

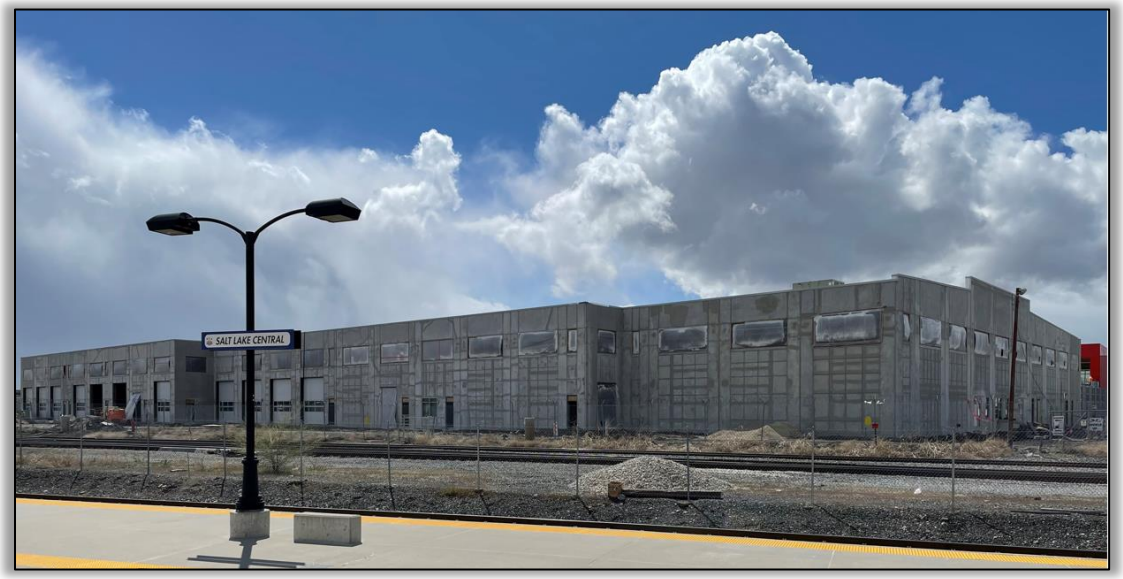

Figure 24 New Facility Construction, April 2022

5 Demand for Revenue Vehicles

Prior to Covid, UTA had been experiencing a steady increase in ridership and bus revenue miles throughout the region. During Covid, the resulting labor market changes forced some routes to be canceled, and others into reduced service. As the economy and labor market readjust, UTA anticipates a return to previous levels and continued growth.

5.1 Peak Passenger Demand

The highest passenger demand occurs during morning and afternoon rush hours. Table 3 reflects the proposed bus service frequency for the August 2022 Change Day.

Table 3 Proposed Service Frequency (August 2022 Change Day)

August 2022 Change Day Proposed Bus Service Frequency										
		Weekday				Saturday				Sunday
Route	Tier	4:00-6:00	6:00-19:00	19:00-21:00	21:00-24:00	4:00-6:00	6:00-19:00	19:00-21:00	21:00-24:00	6:00-21:00
1	1	30	15	30	30	30	15	30	30	30
2	1	30	15	30	30	30	15	30	30	30
4	2+SUN		30	30			60	60		60
9	1	30	15	30	30	30	15	30	30	30
F11	3		60	60						
17	3		60							
21	1	30	15	30	30	30	15	30	30	30
33	1	30	15	30	30	30	15	30	30	30
35	1	30	15	30	30	30	15	30	30	30
39	1 -	30	15	30	30		30	60	60	60
45	2+SUN	60	30	60	60		30	60	60	60
47	2+SUN	60	30	60	60		30	60	60	60
54	2+SUN	60	30	60	60		30	60	60	60
62	3+SAT		60				60	60		
72	2		30	30			60	60		
F94	3+SAT		30	30			60	60		
200	1	30	15	30	30	30	15	30	30	30
201	2		30	30			60	60		
F202	3		30	30						
205	2+SUN		30	60			30	60		60
209	1 -	30	15	30	30		30	30		60
213	2		30	30			60	60		
217	1	30	15	30	30	30	15	30	30	30
218	2		30	30			60	60		
220	2+SUN	60	30	60	60		30	60	60	60
223	3+SAT		60	60			60	60		
227	3		60							
F232	3		30	30						
240	2+SUN		30	30			60	60		60
248	3		60							

August 2022 Change Day Proposed Bus Service Frequency (Cont.)										
		Weekday				Saturday				Sunday
Route	Tier	4:00-6:00	6:00-19:00	19:00-21:00	21:00-24:00	4:00-6:00	6:00-19:00	19:00-21:00	21:00-24:00	6:00-21:00
451	4		Peak							
F453	3		60							
455	3		30/60	60						
470	2+SUN	60	30	30	60	60	30	30	60	30
472	4		Peak							
473	4		Peak							
509	2		30	30			60	60		
513	4		Peak							
F514	3+SAT		30	30			60	60		
F525	3+SAT		30	30			60	60		
551	4+SAT+SUN		Peak				Peak			Peak
F556	3+SAST		30	30			60	60		
F570	3		30	30						
F578	3+SAT		30	30			60	60		
601	2		20	20			20	20		
602	3		5/15	15						
603	1	30	15	30	30		15	30	30	30
604	3+SAT		60	60			60			
606	4		Peak							
612	2+SUN	30	15/30	30	30	30	15/30	30	30	30
613	3		60							
F618	3+SAT		30/60	60			60			
F620	3		30/60	60						
625	3		30/60	60			60			
626	3+SAT		60	60			60			
627	3+SAT		60	60			60			
628	2		30	30			30	30		
630	3+SAT		60	60			60	60		
F638	3		60							
640	2		30	30			60	60		
645	3+SAT		30/60	60			60			
650	4		30/60							
667	2		15/30	30			15/30	30	60	
674	4 (Seasonal)		Peak				Peak			Peak
675	4 (Seasonal)		Peak				Peak			Peak
677	4 (Seasonal)		Peak				Peak			Peak
805	4		Peak							
806	4		Peak							
807	4		Peak							
821	2		30	30			60	60		
822	4		Peak							
830X	2	30	6/10	15	60	30	15	15	60	

August 2022 Change Day Proposed Bus Service Frequency (Cont.)										
		Weekday				Saturday				Sunday
Route	Tier	4:00-6:00	6:00-19:00	19:00-21:00	21:00-24:00	4:00-6:00	6:00-19:00	19:00-21:00	21:00-24:00	6:00-21:00
831	2		30	30			60	60		
833	3+SAT		60				60			
834	2		30				60			
841	2		30	30			60	60		
850	1	30	15	15	30	30	15	15	30	60
862	2		30	30			60	60		
871	3+SAT+SUN		30/60				60			60
880	4 (Seasonal)		Peak				Peak			
901	4 (Seasonal)		Peak				Peak			Peak
902	4 (Seasonal)		Peak				Peak			Peak
953	4 (Seasonal)		30				30			30
972	4 (Seasonal)		15				15			15
994	4 (Seasonal)		15/30				15/30			15/30

5.2 Passenger Load Standards

UTA's Service Design guidelines reference route performance. Route performance is defined in terms of passengers per hour, which corresponds with the load factor.

5.3 Vehicle Run Times

Route run-times are included in the Comprehensive Service Analysis 2019. This data is included in the route summary table in Appendix A.

5.4 UTA Inventory Fleet Breakdown

Below is the 2022 April Change Day roster. This indicates vehicle inventory and peak pullout levels. UTA's highest peak pullout is through December when ski service is provided.

Table 4 Full April 2022 Change Day Roster

	TRANSIT	SKI	PCC	EXPRESS	BRT	TOTAL
Peak Pull Out (Block type from Trapeze)	251	1		27	11	290
Spares	127	54	2	19	14	216
Total Active Fleet (Bus Type from JDE)	**378**	**55**	**2**	**46**	**25**	**506**

Active Fleet Breakdown

Fleet	Active Buses	TRANSIT	SKI	PCC	EXPRESS	BRT	TOTAL
160	9950-951 9900 Gillig 40 Foot	2					2
16S	16001-005 16000 Gillig 35 Foot Ski Bus		5				5
17A	17101-125 17100 New Flyer Articulated					25	25
17R	17001-057 17000 Gillig 40 FT	57					57
17S	17071-077 17000 Gillig 35 Foot Ski Bus		7				7
185	0202,0204-205,0207,0209-213 0200 MCI Commuter				9		9
18E	18151-153 18100 NF Electric	3					3
18R	18001-024 18000 Gillig 40 FT	24					24
18T	18101-102 18100 Gillig Trolley 35 FT	2					2
18Y	18103-104 18100 Gillig Trolley 29 FT	2					2
198	07053,07055 07000 Gillig Canyon Service		2				2
19R	19001-010 19000 Gillig 40 FT	10					10
200	04001-003,04005,04007-015 04000 MCI Commuter				13		13
205	06001-006,06008-013,06016-026,06028-029 06000 Gillig 40 Foot	25					25
207	07081-089,07091-092 07000 MCI Commuter				11		11
20R	20001-010 20000 Gillig 40 FT	10					10
20S	20051-059 20000 Gillig Canyon Service		9				9
210	07001-008,07010-021 07000 Gillig Transit	20					20
218	09001-010,09012,09014-017,09019-039,09041-042 09000 Gillig 40 Foot Transit	38					38
21C	21071-078,21085-086 21000 MCI Commuter				10		10
21R	21001-023 21000 Gillig 40 Foot Transit	23					23
220	10001-018,10020-037 10000 Gillig 40 Foot Transit	36					36
221	09091-095 09000 MCI COMMUTER			2	3		5
225	10051-070 10000 Gillig Hybrid	20					20
231	11001-030 11000 Gillig Canyon Service		30				30
232	12001-002,12004-031 12000 Gillig 40 Foot Transit	30					30
233	12041-049 12000 Gillig Hybrid	9					9
236	13001-010 13000 Gillig CNG	10					10
237	13051-052 13000 Gillig Canyon Service		2				2
238	13031-044 13000 Gillig CNG Series 2	14					14
239	14001-020 14000 Gillig 40 Foot Transit	20					20
242	15001-023 15000 Gillig CNG	23					23
	TOTAL ACTIVE BUSES	**378**	**55**	**2**	**46**	**25**	**506**

	MEADOWBROOK	TIMPANOGOS	OGDEN	CENTRAL	TOTAL
Contingency Buses	6	9	1	6	**22**
Active Buses	218	84	117	87	**506**
TOTAL BUSES	**224**	**93**	**118**	**93**	**528**

5.4.1 Central Change Day Roster Report

Table 5 Central Change Day Roster

	TRANSIT	TOTAL
Peak Pull Out (Block type from Trapeze)	55	55
Spares	32	32
Total Active Fleet (Bus Type from JDE)	**87**	**87**

Central Active Fleet Breakdown			
Fleet	**Active Buses**	**TRANSIT**	**TOTAL**
160	9950-951 9900 Gillig 40 Foot	2	2
18E	18151-153 18100 NF Electric	3	3
18R	18001-024 18000 Gillig 40 FT	24	24
210	07001-008,07010-012 07000 Gillig Transit	11	11
236	13001-010 13000 Gillig CNG	10	10
238	13031-044 13000 Gillig CNG Series 2	14	14
242	15001-023 15000 Gillig CNG	23	23
	TOTAL ACTIVE BUSES	**87**	**87**

CENTRAL RESERVE FLEET BREAKDOWN			
Fleet	**Contingency Buses**		**TOTAL**
160	9941-942,9993 9900 Gillig 40 Foot	3	3
210	07024-025,07033 07000 Gillig Transit	3	3
	TOTAL CONTINGENCY BUSES	**6**	**6**

	CENTRAL
Contingency Buses	6
Active Buses	87
TOTAL BUSES	**93**

5.4.2 Meadowbrook Change Day Roster Report

Table 6 Meadowbrook Change Day Roster

	TRANSIT	SKI	PCC	EXPRESS	TOTAL
Peak Pull Out (Block type from Trapeze)	107	1		5	113
Spares	56	38	2	9	105
Total Active Fleet (Bus Type from JDE)	**163**	**39**	**2**	**14**	**218**

Meadowbrook Active Fleet Breakdown						
Fleet	**Active Buses**	**TRANSIT**	**SKI**	**PCC**	**EXPRESS**	**TOTAL**
17R	17015-057 17000 Gillig 40 FT	43				43
198	07053 07000 Gillig Canyon Service		1			1
19R	19001-010 19000 Gillig 40 FT	10				10
207	07081-089,07091-092 07000 MCI Commuter				11	11
20R	20001-010 20000 Gillig 40 FT	10				10
20S	20051-059 20000 Gillig Canyon Service		9			9
218	09001-010,09012,09014-017,09019-028 9000 Gillig 40 Foot Transit	25				25
21R	21015-023 21000 Gillig 40 Foot Transit	9				9
220	10001-018,10020-037 10000 Gillig 40 Foot Transit	36				36
221	09091-095 09000 MCI COMMUTER			2	3	5
231	11004-030 11000 Gillig Canyon Service		27			27
232	12001-002,12004-031 12000 Gillig 40 Foot Transit	30				30
237	13051-052 13000 Gillig Canyon Service		2			2
	TOTAL ACTIVE BUSES	**163**	**39**	**2**	**14**	**218**

MEADOWBROOK RESERVE FLEET BREAKDOWN				
Fleet	**Contingency Buses**	**TRANSIT**		**TOTAL**
218	09011,09013,09018 09000 Gillig 40 Foot Transit	1	2	3
219	09051-052 09000 Gillig 40 Foot Suburban	2		2
220	10019 10000 Gillig 40 Foot Transit		1	1
	TOTAL CONTINGENCY BUSES	**3**	**3**	**6**

	MEADOWBROOK
Contingency Buses	6
Active Buses	218
TOTAL BUSES	**224**

5.4.3 Ogden Change Day Roster Report

Table 7 Ogden Change Day Roster

	TRANSIT	SKI	EXPRESS	TOTAL
Peak Pull Out (Block type from Trapeze)	60		13	73
Spares	21	12	11	44
Total Active Fleet (Bus Type from JDE)	81	12	24	117

Ogden Active Fleet Breakdown					
Fleet	**Active Buses**	**TRANSIT**	**SKI**	**EXPRESS**	**TOTAL**
16S	16001-005 16000 Gillig 35 Foot Ski Bus		5		5
17R	17001-014 17000 Gillig 40 FT	14			14
17S	17071-077 17000 Gillig 35 Foot Ski Bus		7		7
185	0202,0204-205,0207,0209-213 0200 MCI Commuter			9	9
18T	18101-102 18100 Gillig Trolley 35 FT	2			2
18Y	18103-104 18100 Gillig Trolley 29 FT	2			2
200	04001-003,04005,04007 04000 MCI Commuter			5	5
205	06001-006,06008-013,06016-026,06028-029 06000 Gillig 40 Foot	25			25
210	07013-021 07000 Gillig Transit	9			9
21C	21071-078,21085-086 21000 MCI Commuter			10	10
233	12041-049 12000 Gillig Hybrid	9			9
239	14001-020 14000 Gillig 40 Foot Transit	20			20
	TOTAL ACTIVE BUSES	**81**	**12**	**24**	**117**

OGDEN RESERVE FLEET BREAKDOWN			
Fleet	**Contingency Buses**		**TOTAL**
205	06031 06000 Gillig 40 Foot	1	1
	TOTAL CONTINGENCY BUSES	1	1

	OGDEN
Contingency Buses	1
Active Buses	117
TOTAL BUSES	**118**

5.4.4 Timpanogos Change Day Roster Report

Table 8 Timpanogos Change Day Roster

	TRANSIT	SKI	EXPRESS	BRT	TOTAL
Peak Pull Out (Block type from Trapeze)	29		9	11	49
Spares	18	4	-1	14	35
Total Active Fleet (Bus Type from JDE)	**47**	**4**	**8**	**25**	**84**

Timpanogos Active Fleet Breakdown						
Fleet	**Active Buses**	**TRANSIT**	**SKI**	**EXPRESS**	**BRT**	**TOTAL**
17A	17101-125 17100 New Flyer Articulated				25	25
198	07055 07000 Gillig Canyon Service		1			1
200	04008-015 04000 MCI Commuter			8		8
218	09029-039,09041-042 09000 Gillig 40 Foot Transit	13				13
21R	21001-014 21000 Gillig 40 Foot Transit	14				14
225	10051-070 10000 Gillig Hybrid	20				20
231	11001-003 11000 Gillig Canyon Service		3			3
	TOTAL ACTIVE BUSES	**47**	**4**	**8**	**25**	**84**

TIMPANOGOS RESERVE FLEET BREAKDOWN			
Fleet	**Contingency Buses**		**TOTAL**
210	07022-023,07026,07028-032,07034 07000 Gillig Transit	9	9
	TOTAL CONTINGENCY BUSES	9	9

	TIMPANOGOS
Contingency Buses	9
Active Buses	84
TOTAL BUSES	**93**

6 UTA Spare Ratio

The Covid-19 Pandemic has impacted UTA's ridership causing a temporal reduction in bus service thus increasing UTA's spare ratio above the 20% allowed by FTA. Ridership is expected to increase as the effects of the pandemic decrease. Increased ridership will require the use of more buses, therefore, reducing the spare ratio.

6.1 Existing and Planned Fleet Procurements

UTA's goal is to replace buses on a 12 to 14-year cycle on transit buses, and 18 years on commuter buses. The actual replacement schedule is driven by the availability of funding while ensuring continued safe and reliable service. The type of technology and/or propulsion type is evaluated on a year-to-year basis and will be dependent on grant funding availability.

The bus replacement plan as of May 2022 is included below. This plan includes service expansions which are currently in progress. There is no provision for service expansion due to the natural growth within the UTA service area, as this type of service expansion is evaluated on an annual basis.

This plan reflects UTA's intention to move toward utilizing Low to Zero Emission Revenue Vehicles.

Table 9 Replacement Plan 2021 – 2050

Original Model Year	Replacement Procurement Year	Type	Original Propulsion	Replacement Propulsion	Qty	Annual Total
2002	**2021**	Commuter	Clean Diesel	Clean Diesel	9	
2007	**2021**	Transit	Clean Diesel	Clean Diesel	9	
2007	**2021**	Canyon Service	Clean Diesel	Clean Diesel	2	20
2004	**2022**	Commuter	Clean Diesel	Clean Diesel	13	
2006	**2022**	Transit	Clean Diesel	Clean Diesel	5	
2006	**2023**	Transit	Clean Diesel	Electric	20	
2010	**2022**	Transit	Hybrid Diesel	Clean Diesel	20	
Expansion	**2022**	Transit	N/A	Electric	11	69
2007	**2023**	Transit	Clean Diesel	CNG	11	
2009	**2023**	Transit	Clean Diesel	Clean Diesel	38	49
2010	**2024**	Transit	Clean Diesel	Clean Diesel	36	
2012	**2024**	Transit	Hybrid Diesel	Clean Diesel	9	
Expansion	**2024**	Transit	N/A	Electric	10	55
2007	**2025**	Transit	Clean Diesel	Clean Diesel	11	
2011	**2025**	Canyon Service	Clean Diesel	Clean Diesel	30	
2013	**2025**	Transit	Clean Diesel	CNG	24	65
2012	**2026**	Transit	Clean Diesel	Electric	15	
2012	**2026**	Transit	Clean Diesel	Clean Diesel	15	
Expansion	**2026**	Transit	N/A	Electric	20	50

Table 9 Replacement Plan 2021 – 2050 (Cont.)						
Original Model Year	Replacement Procurement Year	Type	Original Propulsion	Replacement Propulsion	Qty	Annual Total
2009	**2027**	Transit	Clean Diesel	Electric	5	
2013	**2027**	Transit	Clean Diesel	Electric	2	
2015	**2027**	Transit	CNG	CNG	23	
2013	**2027**	Canyon Service	Clean Diesel	Clean Diesel	2	32
2014	**2028**	Transit	Clean Diesel	Clean Diesel	10	
2014	**2028**	Transit	Clean Diesel	Electric	10	20
2017	**2029**	Transit	Hybrid Diesel	Electric	25	25
2016	**2030**	Canyon Service	Clean Diesel	Clean Diesel	5	
2018	**2030**	Transit	Electric	Electric	3	
Expansion	**2030**	Transit	N/A	Electric	9	17
2017	**2031**	Transit	Clean Diesel	Clean Diesel	31	
2017	**2031**	Transit	Clean Diesel	Electric	12	
2017	**2031**	Transit	Clean Diesel	Electric	14	
2017	**2031**	Canyon Service	Clean Diesel	Clean Diesel	7	64
2018	**2032**	Transit	Clean Diesel	CNG	12	
2018	**2032**	Transit	Clean Diesel	Clean Diesel	12	
2018	**2032**	Trolley	Clean Diesel	Electric	4	28
2019	**2033**	Transit	Clean Diesel	Electric	10	10
2020	**2034**	Transit	Clean Diesel	Electric	10	
2020	**2034**	Canyon Service	Clean Diesel	Clean Diesel	9	
2022	**2034**	Transit	Electric	Electric	11	30
2021	**2035**	Transit	Clean Diesel	Clean Diesel	23	
2021	**2035**	Canyon Service	Clean Diesel	Clean Diesel	2	
2021	**2035**	Transit	Clean Diesel	Electric	9	
2023	**2035**	Transit	CNG	CNG	11	45
2022	**2036**	Transit	Clean Diesel	Clean Diesel	45	
2024	**2036**	Transit	Electric	Electric	10	55
2023	**2037**	Transit	Clean Diesel	Clean Diesel	38	
2025	**2037**	Transit	CNG	CNG	24	62
2024	**2038**	Transit	Clean Diesel	Clean Diesel	45	
2026	**2038**	Transit	Electric	Electric	35	80
2021	**2039**	Commuter	Clean Diesel	Clean Diesel	10	
2025	**2039**	Transit	Clean Diesel	Electric	11	
2025	**2039**	Canyon Service	Clean Diesel	Clean Diesel	30	
2027	**2039**	Transit	CNG	CNG	23	
2027	**2039**	Transit	Electric	Electric	5	79

Table 9 Replacement Plan 2021 – 2050 (Cont.)						
Original Model Year	Replacement Procurement Year	Type	Original Propulsion	Replacement Propulsion	Qty	Annual Total
2022	**2040**	Commuter	Clean Diesel	Electric	13	
2026	**2040**	Transit	Clean Diesel	Electric	15	
2028	**2040**	Transit	Electric	Electric	10	38
2027	**2041**	Transit	Clean Diesel	Clean Diesel	2	
2029	**2041**	Transit	Electric	Electric	25	
2027	**2041**	Canyon Service	Clean Diesel	Clean Diesel	2	29
2028	**2042**	Transit	Clean Diesel	Electric	10	
2030	**2042**	Transit	Electric	Electric	12	22
2031	**2043**	Transit	Electric	Electric	12	12
2030	**2044**	Canyon Service	Clean Diesel	Clean Diesel	5	
2032	**2044**	Transit	CNG	CNG	4	
2032	**2044**	Trolley	Electric	Electric	4	13
2031	**2045**	Transit	Clean Diesel	Clean Diesel	45	
2031	**2045**	Canyon Service	Clean Diesel	Clean Diesel	7	
2033	**2045**	Transit	Electric	Electric	10	62
2032	**2046**	Transit	Clean Diesel	Clean Diesel	20	
2034	**2046**	Transit	Electric	Electric	21	41
2035	**2047**	Transit	CNG	CNG	11	11
2034	**2048**	Canyon Service	Clean Diesel	Clean Diesel	9	
2036	**2048**	Transit	Electric	Electric	10	19
2035	**2049**	Canyon Service	Clean Diesel	Clean Diesel	2	
2035	**2049**	Transit	Clean Diesel	Clean Diesel	32	
2037	**2049**	Transit	CNG	CNG	24	58
2036	**2050**	Transit	Clean Diesel	Clean Diesel	25	
2038	**2050**	Transit	Electric	Electric	71	96

6.1.1 Ongoing Procurement

UTA is currently executing a 5-year contract with Gillig for 46 Battery Electric buses. This order is being split between UTA, Park City, and High Valley Transit (HVT). The original order was for 44 vehicles but has increased to 46. There is an option for up to 93 additional vehicles. The contract expired on 2/20/2026.

- 20 for UTA utilizing the VW settlement grant
- 11 for the Ogden Express (OGX) BRT route
- 8 for High Valley Transit
- 7 for Park City Transit

UTA has a contract with MCI for 27 commuter coaches. There is still an option for up to 65 additional vehicles. There is also an option for electric bus purchases. This contract expires 7/15/2025.

A Request for Proposal (RFP) for new standard clean diesel buses is planned for release in the third quarter of 2022.

UTA has a 5-year contract with Lewis Bus for 40 paratransit vehicles. There are 167 options for additional vehicles. There is also an option for electric vehicle purchases. This contract expires on 3/31/2027.

The FTA is accepting applications for their Low or No Emission Vehicle Program – 5339(c). It is UTA's intention to apply through this program for additional funds for low or no emission buses and infrastructure.

https://www.transit.dot.gov/lowno#:~:text=The%20Low%20or%20No%20Emission,leasing%20of%20required%20supporting%20facilities.

6.1.2 Low to Zero Emission Transition Plan

Section 6.1 outlines UTA's planned fleet procurement, with detail included in Table 9. This plan reflects a gradual transition from Clean Diesel and Hybrid buses to more CNG and Electric buses. This transition will require the installation of additional maintenance facility charging stations as well as quicker or top-up chargers at transit centers and route terminations.

As Low to Zero Emission technology develops and becomes more economical in terms of initial capital expense, established UTA infrastructure, and performance, the bus replacement plan will be re-evaluated.

6.2 Overhaul / Rebuild Programs

Beyond preventive and corrective maintenance, UTA currently limits its rebuild and overhaul program to the drivetrain. Engines and transmissions are rebuilt according to the manufacturer's recommended intervals.

6.2.1 Part Obsolescence

There are very few instances of part obsolescence due to the active bus replacement schedule. When there is an instance, equipment Original Equipment Manufacturers (OEMs) typically provide a replacement.

7 Maintenance and Reliability

UTA provides services that are safe, clean, reliable, courteous, accessible, cost-effective, and efficient for operation in all business units. UTA has established 3 objectives to ensure the quality of service:

1. Ensure the cleanliness of the bus through daily servicing and cleaning, with a detailed internal and external cleaning every five weeks.
2. Achieve “on-time” (0 to +5 minutes) schedule reliability of at least 88 percent, as per the Service Design Guidelines. Schedule reliability is calculated from on-board Global Positioning System (GPS) units, with geofences marked around each timepoint. An ahead-of-schedule bus is permitted on express routes de-boarding passengers in the CBD, suburban employment centers, or other major destinations pending specific criteria. The criteria are that there are no passenger stops between the major destination and the last stop at which the bus is “on-time.”
3. Achieve at least 10,500 miles between National Transit Database (NTD) road calls based on schedule miles and total road calls.

The following table outlines the performance measures UTA uses to evaluate the bus service.

Table 10 Performance Measures

Mission Statement Component	Objectives	Items to Measure/Monitor
Safe	• Reduce preventable vehicle collisions.	• Track ratio of preventable collisions per 100,000 miles.
Clean	• Reduce customer complaints about dirty buses. • Provide prompt bus interior and exterior cleaning.	• Monitor frequency of bus cleaning.
Reliable	• Improve on-time performance. • Decrease service interruptions that negatively affect passenger experience.	• Monitor reliability performance. • Track number of missed trips.
Courteous	• Reduce customer complaints. • Improve customer response time.	• Track number of customer complaints per 100,000 boardings. • Monitor response time/ensure it is within 7-day response goal.
Accessible	• Reduce wheelchair lift failures. • Reduce the number of ADA complaints.	• Cycle lifts daily on all buses.
Cost-effective and Efficient Service	• Increase ridership. • Maintain revenue vehicles. • Provide innovative pass programs.	• Track revenue recovery. • Track investment per rider. • Track overall ridership. • Track cost per passenger; per mile; per hour. • Track maintenance cost per mile.

7.1 Maintenance Philosophy and Management

UTA emphasizes preventive maintenance rather than reactive maintenance. A strong preventive maintenance program reduces maintenance costs by decreasing the number of road calls reducing unpredictable repairs caused by reactive maintenance. UTA uses a graduated Preventative Maintenance Program (PM) based on manufacturer's recommendations and modified based on our experience and the local conditions in UTA's service area. Solid PM Practices maximize useful life, are cost efficient over the life of the vehicle, and ensure that our vehicles remain in safe operating condition.

UTA has an aggressive Preventive Maintenance Program that schedules bus inspections based on a variety of categories. A PM schedule is developed for each type or group of vehicles we operate. The PM schedule is based upon manufacturer's recommendations, application, and vehicle type. The schedule is progressive; Each successive PM includes a higher level of maintenance inspection activity. Vehicles are inspected based on mileage and time. In addition, each vehicle receives an annual comprehensive State Safety Inspection.

7.2 Preventative Maintenance Program

Table 11 outlines the basic preventive maintenance activities and intervals:

Table 11 Preventative Maintenance Activities

Inspection	Interval	Hours req.	Description
6,000-mile	"D" Inspection	6	Oil change and grease plus inspection
12,000-mile	"C" Inspection	8	Oil change and grease plus inspection
24,000-mile	"B" Inspection	10	Oil change, grease, hydraulic, Inspection
48,000-mile	"A" Inspection	16	Major inspection, transmission maintenance, change differential oil, inspection.
HVAC	180-days/Minor 360-days/Major	6 minors 8 majors	HVAC system check
Interior Cleaning	30-days/ deep clean (minor clean nightly on fuel island)	4.7	Interior cleaning
Steam Cleaning	30-days	1	Steam cleaning of the engine compartment
Wheelchair lift	Minor inspection every 6,000-miles (clean/lube). Major inspection every 48,000-miles (Remove lift, clean, lube, replace worn parts).	6	Wheelchair lift inspection
Winterization Inspection	Annual	8	Air system, Hydraulic, Aux. heater, Inspection and Maintenance
Amerex Inspection	Semi Annual	2	Fire suppression system inspection and repair
State Inspection	Annual	5	All Safety related items required by the state are inspected and repaired (brakes, suspension, air system, etc.)
Weekly Brake Inspection	Weekly	5-min per bus	One Driver and one mechanic in an inspection pit check rod travel and Pad/Shoe condition and recommend any buses needing repair to supervisor.

7.3 Obsolescence

By keeping the bus fleet up to date, part obsolescence rarely occurs. UTA works with bus OEMS through a standard project workflow to identify and install replacement parts. When this occurs, a case number and a Fleet Engineer are assigned and is responsible for locating suitable replacement parts and application to the fleet.

7.4 In-Service Reliability Rates

UTA uses GPS from the radio system to calculate on-time performance at each time point in the fixed-route system. UTA's Policy Forum sets an annual fixed route bus reliability goal as shown in the following table.

Table 12 Fixed Route On-Time Performance

Year	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Reliability (Goal)	87%	88%	89%	90%	91%	92%	93%	94%	95%	95%	95%
Reliability (Actual)	88%	90%	92%	92%	91%	93%	92%	90%	92%	90%	TBD

Appendix A, Existing Routes

No	Desc	Category	Type		One-Way Miles	Weekday Peak Headway	Weekday Trips	Weekday Miles	Weekday Hours	Sat Trips	Sat Miles	Sat Hours	Sun Trips	Sat Miles	Sat Hours
2	200 South	Significant Corridor	Core	Fixed-Route Bus	4.5	15	65	582	61.5	64	573	49.1	25	224	18.8
9	900 South	Significant Corridor	Core	Fixed-Route Bus	10.4	15	130	1314	130	130	1314	130	50	505.2	50
21	2100 South - 2100 East	Significant Corridor	Core	Fixed-Route Bus	8.2	15	129	1054	79.2	129	1042	77.6	51	412	25.5
33	3300 South	Significant Corridor	Core	Fixed-Route Bus	12.2	15	125	1395	84.3	68	742	44.2	49	560	30.9
39	3900 South	Significant Corridor	Core	Fixed-Route Bus	11.4	15	112	1264	84.5	53	582	36.6	20	226	14.1
41	4100 South	Significant Corridor	core	Fixed-Route Bus	4.6	15	110	505	23.6	55	252	14.2	20	92	5.2
45	4500 South	Significant Corridor	Core	Fixed-Route Bus	8.4	15	113	935	56.9	55	455	26.6	20	166	9.5
47	4700 South	Significant Corridor	Core	Fixed-Route Bus	10.6	15	113	1155	72.3	57	582	53.7	20	204	12.8
54	5400 South	Significant Corridor	Core	Fixed-Route Bus	9.8	15	123	1067	63	53	460	26.3	25	218	12
200	State Street North	Significant Corridor	Core	Fixed-Route Bus	11.5	15	119	1370	133.8	107	1057	113.8	38	375	29.1
209	900 East	Significant Corridor	Core	Fixed-Route Bus	14.2	15	112	1590	117.4	53	752	52.6	24	341	22.5
217	Redwood Road	Significant Corridor	Core	Fixed-Route Bus	17.5	15	122	2049	137.5	60	1005	67.4	20	335	21.3
220	Highland Drive - 1300 East	Significant Corridor	Core	Fixed-Route Bus	17.4	15	120	2017	135.3	57	957	56.4	24	403	25.2
603	WSU - McKay Dee	Significant Corridor	Core	Fixed-Route Bus	7.6	15	134	854	56.8	108	688	42.7	36	269	15.3
612	Washington Boulevard	Significant Corridor	Core	Fixed-Route Bus	17.9	15	118	1884	113.8	105	1685	94.4	36	543	30
830X	Utah Valley Express	Significant Corridor	Core	Bus Rapid Transit	13.4	6	259	3016	208	140	1655	110.9	n/a	n/a	n/a
850	State Street	Significant Corridor	Core	Fixed-Route Bus	22.9	15	113	2585	140.2	58	1327	68.1	22	503	25
3	3rd Avenue	Significant Corridor	Arterial	Fixed-Route Bus	7.6	30	47	350	27.2	26	194	14.4	n/a	n/a	n/a
4	400 South	Significant Corridor	Arterial	Fixed-Route Bus	12.4	30	60	730	54.2	26	316	23.6	22	268	19
6	6th Avenue	Significant Corridor	Arterial	Fixed-Route Bus	6.3	30	30	379	37.1	13	164	13.8	11	139	11.4
17	1700 South	Significant Corridor	Arterial	Fixed-Route Bus	7.7	30	54	413	36.3	n/a	n/a	n/a	n/a	n/a	n/a
35	3500 South	Significant Corridor	Arterial	Fixed-Route Bus	11.7	30	74	720	38.7	69	675	37.6	52	502	25.5
62	6200 South	Significant Corridor	Arterial	Fixed-Route Bus	10.7	30	35	353	19.9	24	242	12.9	n/a	n/a	n/a
72	7200 South	Significant Corridor	Arterial	Fixed-Route Bus	6.1	30	42	220	16.4	32	168	11.5	n/a	n/a	n/a
201	State Street South	Significant Corridor	Arterial	Fixed-Route Bus	10.1	30	45	454	25.3	27	272	15.5	n/a	n/a	n/a
205	500 East	Significant Corridor	Arterial	Fixed-Route Bus	9.7	15	111	1060	88.2	55	526	37	20	191	14.1
213	1300 East / 1100 East	Significant Corridor	Arterial	Fixed-Route Bus	15.7	30	52	821	56.6	22	347	23.3	n/a	n/a	n/a
218	South Jordan	Significant Corridor	Arterial	Fixed-Route Bus	7.6	30	59	449	23.6	26	198	10.2	n/a	n/a	n/a
223	2300 East / Holladay Blvd	Significant Corridor	Arterial	Fixed-Route Bus	14.6	30	41	593	31.3	n/a	n/a	n/a	n/a	n/a	n/a
227	2700 West	Significant Corridor	Arterial	Fixed-Route Bus	6.8	30	38	259	13.5	n/a	n/a	n/a	n/a	n/a	n/a
240	4000 West / Dixie Valley	Significant Corridor	Arterial	Fixed-Route Bus	13.4	30	88	792	53.5	26	349	23.4	22	275	15.5
248	4800 West	Significant Corridor	Arterial	Fixed-Route Bus	14.4	30	40	561	30.1	n/a	n/a	n/a	n/a	n/a	n/a
470	Ogden - Salt Lake Intercity	Significant Corridor	Arterial	Fixed-Route Bus	44.3	30	83	3519	186.9	65	2730	142.2	60	2544	116.6
604	West Ogden	Significant Corridor	Arterial	Fixed-Route Bus	13.9	30	66	719	36.3	41	348	18.6	n/a	n/a	n/a
613	Weber Industrial Park	Significant Corridor	Arterial	Fixed-Route Bus	9	30	34	300	14.4	n/a	n/a	n/a	n/a	n/a	n/a
625	ATC / Harrison Blvd / WSU	Significant Corridor	Arterial	Fixed-Route Bus	14	30	43	577	32	30	406	22.5	n/a	n/a	n/a
626	West Roy / Clearfield Station	Significant Corridor	Arterial	Fixed-Route Bus	9.9	30	52	487	24.1	24	227	12.4	n/a	n/a	n/a
627	Clearfield Station / DATC	Significant Corridor	Arterial	Fixed-Route Bus	13.9	30	55	606	36.1	24	274	16.4	n/a	n/a	n/a
630	Brigham City / Ogden Commuter	Significant Corridor	Arterial	Fixed-Route Bus	25	120	25	970	31.9	24	597	19.8	n/a	n/a	n/a

640	Layton Hills Mall / WSU Ogden Campus	Significant Corridor	Arterial	Fixed-Route Bus	22.4	30	63	1359	79.6	63	1379	76.4	n/a	n/a	n/a
645	Monroe Boulevard	Significant Corridor	Arterial	Fixed-Route Bus	13	30	47	544	33.3	31	344	21.6	n/a	n/a	n/a
821	South County / Provo Station	Significant Corridor	Arterial	Fixed-Route Bus	21.9	30	47	1020	39.2	26	565	21.9	n/a	n/a	n/a
No	Desc	Category	Type		One-Way Miles	Weekday Peak Headway	Weekday Trips	Weekday Miles	Weekday Hours	Sat Trips	Sat Miles	Sat Hours	Sun Trips	Sat Miles	Sat Hours
831	Provo Grandview	Significant Corridor	Arterial	Fixed-Route Bus	11.6	30	55	635	39.7	23	265	14.9	n/a	n/a	n/a
834	Orem - Riverwoods - Provo	Significant Corridor	Arterial	Fixed-Route Bus	9.1	30	36	322	16.4	22	197	9.5	n/a	n/a	n/a
862	Orem East / West	Significant Corridor	Arterial	Fixed-Route Bus	14	30	57	786	44.2	22	303	16.7	n/a	n/a	n/a
F556	5600 West Flex	Significant Corridor	Arterial	Shuttle Bus	7.8	30	42	289	16.3	24	165	9.4	n/a	n/a	n/a
F570	7000 South Flex	Significant Corridor	Arterial	Shuttle Bus	7.1	30	46	319	17.7	n/a	n/a	n/a	n/a	n/a	n/a
F578	7800 South Flex	Significant Corridor	Arterial	Shuttle Bus	8	30	46	322	18.4	25	176	9.2	n/a	n/a	n/a
F590	9000 South Flex	Significant Corridor	Arterial	Shuttle Bus	6.4	30	42	260	15.5	n/a	n/a	n/a	n/a	n/a	n/a
F94	Sandy Flex	Significant Corridor	Arterial	Shuttle Bus	7.2	30	63	295	175	25	129	7.2	n/a	n/a	n/a
509	900 West Shuttle	Community	Urban	Fixed-Route Bus	13.8	30	44	598	36.3	26	353	18.6	n/a	n/a	n/a
601	Ogden Trolley	Community	Urban	Trolley Bus	2.7	20	48	129	14.4	48	129	14.4	n/a	n/a	n/a
628	Midtown Trolley	Community	Urban	Trolley Bus	7.3	30	64	439	25	56	384	22.8	n/a	n/a	n/a
667	Lagoon / Farmington / Station Park	Community	Urban	Fixed-Route Bus	6.9	30	29	194	11.8	40	198	12.1	n/a	n/a	n/a
833	Airport / Provo Central Station	Community	Urban	Fixed-Route Bus	5.3	30	17	180	9	10	106	4.8	n/a	n/a	n/a
F11	11th Ave Flex	Community	Neighborhood		4.2	60	30	16	16	n/a	n/a	n/a	n/a	n/a	n/a
F202	Bingham Junction Flex	Community	Urban		5	30	60	347	31	n/a	n/a	n/a	n/a	n/a	n/a
F232	3200 W Flex	Community	Arterial		7.6	30	64	498	32	n/a	n/a	n/a	n/a	n/a	n/a
F400	Tooele Flex	Community	Urban	Shuttle Bus	7.4	30	39	262	13.9	n/a	n/a	n/a	n/a	n/a	n/a
F402	Tooele City Circulator	Community	Urban	Shuttle Bus	7.6	30	14	106	5.4	n/a	n/a	n/a	n/a	n/a	n/a
F514	300 West Flex	Community	Urban	Shuttle Bus	7.1	30	44	309	18	24	169	8.8	n/a	n/a	n/a
F618	Ogden BDO Flex	Community	Urban	Shuttle Bus	12.3	30	32	354	17	13	160	8.7	n/a	n/a	n/a
519	Fair Park	Community	Neighborhood	Fixed-Route Bus	10.4	30	31	308	22.7	14	146	9.3	11	115	7.3
520	Rose Park	Community	Neighborhood	Fixed-Route Bus	10.4	30	27	276	19.7	n/a	n/a	n/a	n/a	n/a	n/a
F605	South Davis Flex	Community	Neighborhood	Fixed-Route Bus	7.6	30	59	389	23.6	n/a	n/a	n/a	n/a	n/a	n/a
F620	West Haven Flex	Community	Neighborhood	Fixed-Route Bus	8.5	30	48	404	172	n/a	n/a	n/a	n/a	n/a	n/a
F638	The Brigham City Lift	Community	Neighborhood	Fixed-Route Bus	7.9	60	9	72	6	n/a	n/a	n/a	n/a	n/a	n/a
451	Tooele Express	Regional	Limited-Stop	Motor Coach	39.5	30	10	390	13	n/a	n/a	n/a	n/a	n/a	n/a
454	Grantsville / Salt Lake	Regional	Limited-Stop	Fixed-Route Bus	46.4	30	10	459	17.1	n/a	n/a	n/a	n/a	n/a	n/a
455	U of U / Davis County / WSU	Regional	Limited-Stop	Fixed-Route Bus	51.3	33	50	2427	121.1	n/a	n/a	n/a	n/a	n/a	n/a
472	Ogden - Salt Lake Express	Regional	Limited-Stop	Motor Coach	34.1	23	12	407	12.8	n/a	n/a	n/a	n/a	n/a	n/a
473	SLC - Ogden Hwy 89 Express	Regional	Limited-Stop	Motor Coach	46.5	21	19	776	36	n/a	n/a	n/a	n/a	n/a	n/a
805	Santaquin / Payson / SF / Provo Stn / UVU	Regional	Limited-Stop	Fixed-Route Bus	32.9	45	14	441	12.8	n/a	n/a	n/a	n/a	n/a	n/a
806	Eagle Mtn / Saratoga Spr / Lehi Stn / UVU	Regional	Limited-Stop	Fixed-Route Bus	28.6	30	8	226	7.4	n/a	n/a	n/a	n/a	n/a	n/a
807	North County / Lehi Station / UVU	Regional	Limited-Stop	Fixed-Route Bus	21.4	60	8	141	6	n/a	n/a	n/a	n/a	n/a	n/a
822	South Utah County / BYU / UVU Limited	Regional	Limited-Stop	Fixed-Route Bus	27.5	60	8	219	9.6	n/a	n/a	n/a	n/a	n/a	n/a
902	PC - SLC Connect	Regional	Limited-Stop	Motor Coach	27.2	66	16	426	15.9	n/a	n/a	n/a	n/a	n/a	n/a
953	Midvale Fort Union Station / Snowbird Alta	Recreational	Ski	Canyon Bus	22.8	n/a	2	45	2.3	2	45	2.3	2	45	2.3
F453	Tooele - SLC Flex	Regional	Limited-Stop	Shuttle Bus	31	60	16	492	12.1	n/a	n/a	n/a	n/a	n/a	n/a
513	Industrial Business Park Shuttle	Regional	Shuttle	Fixed-Route Bus	17.4	37	8	138	8.3	n/a	n/a	n/a	n/a	n/a	n/a
551	International Center	Regional	Shuttle	Fixed-Route Bus	15.3	30	9	184	9.5	5	77	3.9	6	92	4.7
606	Enable Utah / Monroe Blvd	Regional	Shuttle	Fixed-Route Bus	8.4	n/a	2	16	2.2	n/a	n/a	n/a	n/a	n/a	n/a

650	Ogden FrontRunner / WSU Fast Bus	Regional	Shuttle	Fixed-Route Bus	8.8	30	20	123	5.9	n/a	n/a	n/a	n/a	n/a	n/a
841	UVU - Orem Station	Regional	Shuttle	Fixed-Route Bus	2.9	30	55	179	12.2	22	62	3.5	n/a	n/a	n/a

No	Desc	Category	Type		One-Way Miles	Weekday Peak Headway	Weekday Trips	Weekday Miles	Weekday Hours	Sat Trips	Sat Miles	Sat Hours	Sun Trips	Sat Miles	Sat Hours
861	Lehi Station / Xactware	Regional	Shuttle	Fixed-Route-Bus	7	30	23	155	11.1	n/a	n/a	n/a	n/a	n/a	n/a
871	Tech Corridor Rail Connector	Regional	Shuttle	Fixed-Route-Bus	14.6	30	48	647	29.1	24	337	14.6	n/a	n/a	n/a
919	Fair Park (West High School)	Regional	Shuttle	Fixed-Route-Bus	4.8	n/a	2	14	1.1	n/a	n/a	n/a	n/a	n/a	n/a
920	Rose Park (West high School)	Regional	Shuttle	Fixed-Route Bus	5.1	n/a	3	14	1	n/a	n/a	n/a	n/a	n/a	n/a
F522	2200 West Flex Shuttle	Regional	Shuttle	Shuttle Bus	3.6	30	29	97	4.8	n/a	n/a	n/a	n/a	n/a	n/a
F534	Herriman Flex Shuttle	Regional	Shuttle	Shuttle Bus	13.6	30	4	53	2.2	n/a	n/a	n/a	n/a	n/a	n/a
674	Powder Mountain / Ogden	Recreational	Ski	Canyon Bus	27	30	13	321	14.7	12	304	14.1	13	329	15.1
675	Ogden / Snow Basin	Recreational	Ski	Canyon Bus	26	60	8	192	8.5	8	192	8.5	8	192	8.5
677	Layton / Snowbasin	Recreational	Ski	Canyon Bus	26.5	60	8	132	9.1	7	113	8	8	132	9.1
880	Sundance Ski Service	Recreational	Ski	Canyon Bus	18.7	45	14	193	6.4	14	193	6.4	n/a	n/a	n/a
901	PC - SLC Connect	Recreational	Ski	Canyon Bus	23.5	60	4	94	2.9	8	187	5.8	8	187	5.8
953	Midvale Fort Union Station / Snowbird Alta	Recreational	Ski	Canyon Bus	22.9	30	35	785	40	35	785	40	35	785	40
972	Bingham Junction / Solitude / Brighton	Recreational	Ski	Canyon Bus	22.9	30	35	785	40	35	785	40	35	785	240
994	90th South TRAX / Snowbird / Alta	Recreational	Ski	Canyon Bus	17.1	15	52	883	47.1	52	883	47.1	52	883	47.1

Appendix B, Current Inventory

Central Revenue Assets

Unit No.	Description	FTA Status
07001	07000 Gillig 40 Foot	Active
07002	07000 Gillig 40 Foot	Active
07003	07000 Gillig 40 Foot	Active
07004	07000 Gillig 40 Foot	Active
07005	07000 Gillig 40 Foot	Active
07006	07000 Gillig 40 Foot	Active
07007	07000 Gillig 40 Foot	Active
07008	07000 Gillig 40 Foot	Active
07010	07000 Gillig 40 Foot	Active
07011	07000 Gillig 40 Foot	Active
07012	07000 Gillig 40 Foot	Active
07022	07000 Gillig 40 Foot	Contingency
07024	07000 Gillig 40 Foot	Contingency
07025	07000 Gillig 40 Foot	Contingency
07032	07000 Gillig 40 Foot	Contingency
07033	07000 Gillig 40 Foot	Contingency
07034	07000 Gillig 40 Foot	Contingency
13001	2013 40 Foot Gillig CNG Series 1	Active
13002	2013 40 Foot Gillig CNG Series 1	Active
13003	2013 40 Foot Gillig CNG Series 1	Active
13004	2013 40 Foot Gillig CNG Series 1	Active
13005	2013 40 Foot Gillig CNG Series 1	Active
13006	2013 40 Foot Gillig CNG Series 1	Active
13007	2013 40 Foot Gillig CNG Series 1	Active
13008	2013 40 Foot Gillig CNG Series 1	Active
13009	2013 40 Foot Gillig CNG Series 1	Active
13010	2013 40 Foot Gillig CNG Series 1	Active
13031	2013 40 Foot Gillig CNG Series 2	Active
13032	2013 40 Foot Gillig CNG Series 2	Active
13033	2013 40 Foot Gillig CNG Series 2	Active
13034	2013 40 Foot Gillig CNG Series 2	Active
13035	2013 40 Foot Gillig CNG Series 2	Active
13036	2013 40 Foot Gillig CNG Series 2	Active
13037	2013 40 Foot Gillig CNG Series 2	Active
13038	2013 40 Foot Gillig CNG Series 2	Active
13039	2013 40 Foot Gillig CNG Series 2	Active
13040	2013 40 Foot Gillig CNG Series 2	Active
13041	2013 40 Foot Gillig CNG Series 2	Active
13042	2013 40 Foot Gillig CNG Series 2	Active
13043	2013 40 Foot Gillig CNG Series 2	Active
13044	2013 40 Foot Gillig CNG Series 2	Active
15001	2015 Gillig 40 Foot CNG	Active
15002	2015 Gillig 40 Foot CNG	Active
15003	2015 Gillig 40 Foot CNG	Active
15004	2015 Gillig 40 Foot CNG	Active
15005	2015 Gillig 40 Foot CNG	Active
15006	2015 Gillig 40 Foot CNG	Active
15007	2015 Gillig 40 Foot CNG	Active
15008	2015 Gillig 40 Foot CNG	Active
15009	2015 Gillig 40 Foot CNG	Active
15010	2015 Gillig 40 Foot CNG	Active
15011	2015 Gillig 40 Foot CNG	Active
15012	2015 Gillig 40 Foot CNG	Active
15013	2015 Gillig 40 Foot CNG	Active
15014	2015 Gillig 40 Foot CNG	Active
15015	2015 Gillig 40 Foot CNG	Active
15016	2015 Gillig 40 Foot CNG	Active
15017	2015 Gillig 40 Foot CNG	Active
15018	2015 Gillig 40 Foot CNG	Active
15019	2015 Gillig 40 Foot CNG	Active
15020	2015 Gillig 40 Foot CNG	Active
15021	2015 Gillig 40 Foot CNG	Active
15022	2015 Gillig 40 Foot CNG	Active
15023	2015 Gillig 40 Foot CNG	Active
18001	2018 Gillig 40 Foot Bus	Active
18002	2018 Gillig 40 Foot Bus	Active
18003	2018 Gillig 40 Foot Bus	Active
18004	2018 Gillig 40 Foot Bus	Active
18005	2018 Gillig 40 Foot Bus	Active
18006	2018 Gillig 40 Foot Bus	Active
18007	2018 Gillig 40 Foot Bus	Active
18008	2018 Gillig 40 Foot Bus	Active
18009	2018 Gillig 40 Foot Bus	Active
18010	2018 Gillig 40 Foot Bus	Active
18011	2018 Gillig 40 Foot Bus	Active
18012	2018 Gillig 40 Foot Bus	Active
18013	2018 Gillig 40 Foot Bus	Active
18014	2018 Gillig 40 Foot Bus	Active
18015	2018 Gillig 40 Foot Bus	Active
18016	2018 Gillig 40 Foot Bus	Active

Central Revenue Assets (Cont.)

Unit No.	Description	FTA Status
18017	2018 Gillig 40 Foot Bus	Active
18018	2018 Gillig 40 Foot Bus	Active
18019	2018 Gillig 40 Foot Bus	Active
18020	2018 Gillig 40 Foot Bus	Active
18021	2018 Gillig 40 Foot Bus	Active
18022	2018 Gillig 40 Foot Bus	Active
18023	2018 Gillig 40 Foot Bus	Active
18024	2018 Gillig 40 Foot Bus	Active
18151	2018 New Flyer Electric	Active
18152	2018 New Flyer Electric	Active
18153	2018 New Flyer Electric	Active
09941	9900 Gillig 40 Foot	Contingency
09942	9900 Gillig 40 Foot	Contingency
09950	9900 Gillig 40 Foot	Active
09951	9900 Gillig 40 Foot	Active
09993	9900 Gillig 40 Foot	Contingency

Meadowbrook Revenue Assets

Unit No.	Description	FTA Status
07053	0700 Gillig Canyon Service	Active
07081	07000 MCI Commuter	Active
07082	07000 MCI Commuter	Active
07083	07000 MCI Commuter	Active
07084	07000 MCI Commuter	Active
07085	07000 MCI Commuter	Active
07086	07000 MCI Commuter	Active
07087	07000 MCI Commuter	Active
07088	07000 MCI Commuter	Active
07089	07000 MCI Commuter	Active
07091	07000 MCI Commuter	Active
07092	07000 MCI Commuter	Active
09001	2009 Gillig 40 Foot Bus	Active
09001	2009 Gillig 40 Foot Bus	Active
09002	2009 Gillig 40 Foot Bus	Active
09003	2009 Gillig 40 Foot Bus	Active
09004	2009 Gillig 40 Foot Bus	Active
09005	2009 Gillig 40 Foot Bus	Active
09006	2009 Gillig 40 Foot Bus	Active
09007	2009 Gillig 40 Foot Bus	Active
09008	2009 Gillig 40 Foot Bus	Active
09009	2009 Gillig 40 Foot Bus	Active
09010	2009 Gillig 40 Foot Bus	Active
09011	2009 Gillig 40 Foot Bus	Active
09012	2009 Gillig 40 Foot Bus	Active
09013	2009 Gillig 40 Foot Bus	Contingency
09014	2009 Gillig 40 Foot Bus	Active
09015	2009 Gillig 40 Foot Bus	Active
09016	2009 Gillig 40 Foot Bus	Active
09017	2009 Gillig 40 Foot Bus	Active
09018	2009 Gillig 40 Foot Bus	Contingency
09019	2009 Gillig 40 Foot Bus	Active
09020	2009 Gillig 40 Foot Bus	Active
09021	2009 Gillig 40 Foot Bus	Active
09022	2009 Gillig 40 Foot Bus	Active
09023	2009 Gillig 40 Foot Bus	Active
09024	2009 Gillig 40 Foot Bus	Active
09025	2009 Gillig 40 Foot Bus	Active
09026	2009 Gillig 40 Foot Bus	Active
09027	2009 Gillig 40 Foot Bus	Active
09028	2009 Gillig 40 Foot Bus	Active
09051	2009 Gillig 40 Foot Bus	Active
09052	2009 Gillig 40 Foot Bus	Active
09091	09000 MCI Commuter	Active
09092	09000 MCI Commuter	Active
09093	09000 MCI Commuter	Active
09094	09000 MCI Commuter	Active
09095	09000 MCI Commuter	Active
10001	2010 Gillig 40 Foot Bus	Active
10002	2010 Gillig 40 Foot Bus	Active
10003	2010 Gillig 40 Foot Bus	Active
10004	2010 Gillig 40 Foot Bus	Active
10005	2010 Gillig 40 Foot Bus	Active
10006	2010 Gillig 40 Foot Bus	Active
10007	2010 Gillig 40 Foot Bus	Active
10008	2010 Gillig 40 Foot Bus	Active
10009	2010 Gillig 40 Foot Bus	Active
10010	2010 Gillig 40 Foot Bus	Active
10011	2010 Gillig 40 Foot Bus	Active
10012	2010 Gillig 40 Foot Bus	Active
10013	2010 Gillig 40 Foot Bus	Active
10014	2010 Gillig 40 Foot Bus	Active
10015	2010 Gillig 40 Foot Bus	Active
10016	2010 Gillig 40 Foot Bus	Active
10017	2010 Gillig 40 Foot Bus	Active
10018	2010 Gillig 40 Foot Bus	Active
10019	2010 Gillig 40 Foot Bus	Contingency
10020	2010 Gillig 40 Foot Bus	Active
10021	2010 Gillig 40 Foot Bus	Active
10022	2010 Gillig 40 Foot Bus	Active
10023	2010 Gillig 40 Foot Bus	Active
10024	2010 Gillig 40 Foot Bus	Active
10025	2010 Gillig 40 Foot Bus	Active
10026	2010 Gillig 40 Foot Bus	Active
10027	2010 Gillig 40 Foot Bus	Active
10028	2010 Gillig 40 Foot Bus	Active
10029	2010 Gillig 40 Foot Bus	Active
10030	2010 Gillig 40 Foot Bus	Active
10031	2010 Gillig 40 Foot Bus	Active
10032	2010 Gillig 40 Foot Bus	Active
10033	2010 Gillig 40 Foot Bus	Active
10034	2010 Gillig 40 Foot Bus	Active
10035	2010 Gillig 40 Foot Bus	Active
10036	2010 Gillig 40 Foot Bus	Active
10037	2010 Gillig 40 Foot Bus	Active
11004	2011 Gillig Canyon Service	Active
11005	2011 Gillig Canyon Service	Active
11006	2011 Gillig Canyon Service	Active
11007	2011 Gillig Canyon Service	Active
11008	2011 Gillig Canyon Service	Active

Meadowbrook Revenue Assets (Cont.)

Unit No.	Description	FTA Status
11009	2011 Gillig Canyon Service	Active
11010	2011 Gillig Canyon Service	Active
11011	2011 Gillig Canyon Service	Active
11012	2011 Gillig Canyon Service	Active
11013	2011 Gillig Canyon Service	Active
11014	2011 Gillig Canyon Service	Active
11015	2011 Gillig Canyon Service	Active
11016	2011 Gillig Canyon Service	Active
11017	2011 Gillig Canyon Service	Active
11018	2011 Gillig Canyon Service	Active
11019	2011 Gillig Canyon Service	Active
11020	2011 Gillig Canyon Service	Active
11021	2011 Gillig Canyon Service	Active
11022	2011 Gillig Canyon Service	Active
11023	2011 Gillig Canyon Service	Active
11024	2011 Gillig Canyon Service	Active
11025	2011 Gillig Canyon Service	Active
11026	2011 Gillig Canyon Service	Active
11027	2011 Gillig Canyon Service	Active
11028	2011 Gillig Canyon Service	Active
11029	2011 Gillig Canyon Service	Active
11030	2011 Gillig Canyon Service	Active
12001	2012 Gillig 40 Foot Bus	Active
12002	2012 Gillig 40 Foot Bus	Active
12003	2012 Gillig 40 Foot Bus	Active
12005	2012 Gillig 40 Foot Bus	Active
12006	2012 Gillig 40 Foot Bus	Active
12007	2012 Gillig 40 Foot Bus	Active
12008	2012 Gillig 40 Foot Bus	Active
12009	2012 Gillig 40 Foot Bus	Active
12010	2012 Gillig 40 Foot Bus	Active
12011	2012 Gillig 40 Foot Bus	Active
12012	2012 Gillig 40 Foot Bus	Active
12013	2012 Gillig 40 Foot Bus	Active
12014	2012 Gillig 40 Foot Bus	Active
12015	2012 Gillig 40 Foot Bus	Active
12016	2012 Gillig 40 Foot Bus	Active
12017	2012 Gillig 40 Foot Bus	Active
12018	2012 Gillig 40 Foot Bus	Active
12019	2012 Gillig 40 Foot Bus	Active
12020	2012 Gillig 40 Foot Bus	Active
12021	2012 Gillig 40 Foot Bus	Active
12022	2012 Gillig 40 Foot Bus	Active
12023	2012 Gillig 40 Foot Bus	Active
12024	2012 Gillig 40 Foot Bus	Active
12025	2012 Gillig 40 Foot Bus	Active
12026	2012 Gillig 40 Foot Bus	Active
12027	2012 Gillig 40 Foot Bus	Active
12028	2012 Gillig 40 Foot Bus	Active
12029	2012 Gillig 40 Foot Bus	Active
12030	2012 Gillig 40 Foot Bus	Active
12031	2012 Gillig 40 Foot Bus	Active
13051	2013 35 Foot Gillig Ski Bus	Active
13052	2013 35 Foot Gillig Ski Bus	Active
17015	2017 Gillig 40 Foot Bus	Active
17016	2017 Gillig 40 Foot Bus	Active
17017	2017 Gillig 40 Foot Bus	Active
17018	2017 Gillig 40 Foot Bus	Active
17019	2017 Gillig 40 Foot Bus	Active
17020	2017 Gillig 40 Foot Bus	Active
17021	2017 Gillig 40 Foot Bus	Active
17022	2017 Gillig 40 Foot Bus	Active
17023	2017 Gillig 40 Foot Bus	Active
17024	2017 Gillig 40 Foot Bus	Active
17025	2017 Gillig 40 Foot Bus	Active
17026	2017 Gillig 40 Foot Bus	Active
17027	2017 Gillig 40 Foot Bus	Active
17028	2017 Gillig 40 Foot Bus	Active
17029	2017 Gillig 40 Foot Bus	Active
17030	2017 Gillig 40 Foot Bus	Active
17031	2017 Gillig 40 Foot Bus	Active
17032	2017 Gillig 40 Foot Bus	Active
17033	2017 Gillig 40 Foot Bus	Active
17034	2017 Gillig 40 Foot Bus	Active
17035	2017 Gillig 40 Foot Bus	Active
17036	2017 Gillig 40 Foot Bus	Active
17037	2017 Gillig 40 Foot Bus	Active
17038	2017 Gillig 40 Foot Bus	Active
17039	2017 Gillig 40 Foot Bus	Active
17040	2017 Gillig 40 Foot Bus	Active
17041	2017 Gillig 40 Foot Bus	Active
17042	2017 Gillig 40 Foot Bus	Active
17043	2017 Gillig 40 Foot Bus	Active
17044	2017 Gillig 40 Foot Bus	Active
17045	2017 Gillig 40 Foot Bus	Active
17046	2017 Gillig 40 Foot Bus	Active
17047	2017 Gillig 40 Foot Bus	Active
17048	2017 Gillig 40 Foot Bus	Active
17049	2017 Gillig 40 Foot Bus	Active
17050	2017 Gillig 40 Foot Bus	Active

Meadowbrook Revenue Assets (Cont.)

Unit No.	Description	FTA Status
17051	2017 Gillig 40 Foot Bus	Active
17052	2017 Gillig 40 Foot Bus	Active
17053	2017 Gillig 40 Foot Bus	Active
17054	2017 Gillig 40 Foot Bus	Active
17055	2017 Gillig 40 Foot Bus	Active
17056	2017 Gillig 40 Foot Bus	Active
17057	2017 Gillig 40 Foot Bus	Active
19001	2019 Gillig 40 Foot Bus	Active
19002	2019 Gillig 40 Foot Bus	Active
19003	2019 Gillig 40 Foot Bus	Active
19004	2019 Gillig 40 Foot Bus	Active
19005	2019 Gillig 40 Foot Bus	Active
19006	2019 Gillig 40 Foot Bus	Active
19007	2019 Gillig 40 Foot Bus	Active
19008	2019 Gillig 40 Foot Bus	Active
19009	2019 Gillig 40 Foot Bus	Active
19010	2019 Gillig 40 Foot Bus	Active
20001	2020 Gillig 40 Foot Bus	Active
20002	2020 Gillig 40 Foot Bus	Active
20003	2020 Gillig 40 Foot Bus	Active
20004	2020 Gillig 40 Foot Bus	Active
20005	2020 Gillig 40 Foot Bus	Active
20006	2020 Gillig 40 Foot Bus	Active
20007	2020 Gillig 40 Foot Bus	Active
20008	2020 Gillig 40 Foot Bus	Active
20009	2020 Gillig 40 Foot Bus	Active
20010	2020 Gillig 40 Foot Bus	Active
20051	2020 Gillig Ski Bus	Active
20052	2020 Gillig Ski Bus	Active
20053	2020 Gillig Ski Bus	Active
20054	2020 Gillig Ski Bus	Active
20055	2020 Gillig Ski Bus	Active
20056	2020 Gillig Ski Bus	Active
20057	2020 Gillig Ski Bus	Active
20058	2020 Gillig Ski Bus	Active
20059	2020 Gillig Ski Bus	Active
21015	2021 Gillig 40 Foot Bus	Active
21016	2021 Gillig 40 Foot Bus	Active
21017	2021 Gillig 40 Foot Bus	Active
21018	2021 Gillig 40 Foot Bus	Active
21019	2021 Gillig 40 Foot Bus	Active
21020	2021 Gillig 40 Foot Bus	Active
21021	2021 Gillig 40 Foot Bus	Active
21022	2021 Gillig 40 Foot Bus	Active
21023	2021 Gillig 40 Foot Bus	Active

Ogden Revenue Assets

Unit No.	Description	FTA Status
0202	2002 MIC Commuter	Active
0204	2002 MIC Commuter	Active
0205	2002 MIC Commuter	Active
0207	2002 MIC Commuter	Active
0209	2002 MIC Commuter	Active
0210	2002 MIC Commuter	Active
0211	2002 MIC Commuter	Active
0212	2002 MIC Commuter	Active
0213	2002 MIC Commuter	Active
04001	2004 MCI Commuter	Active
04002	2004 MCI Commuter	Active
04003	2004 MCI Commuter	Active
04005	2004 MCI Commuter	Active
04007	2004 MCI Commuter	Active
06001	2006 Gillig 40 Foot	Active
06002	2006 Gillig 40 Foot	Active
06003	2006 Gillig 40 Foot	Active
06004	2006 Gillig 40 Foot	Active
06005	2006 Gillig 40 Foot	Active
06006	2006 Gillig 40 Foot	Active
06008	2006 Gillig 40 Foot	Active
06009	2006 Gillig 40 Foot	Active
06010	2006 Gillig 40 Foot	Active
06011	2006 Gillig 40 Foot	Active
06012	2006 Gillig 40 Foot	Active
06013	2006 Gillig 40 Foot	Active
06016	2006 Gillig 40 Foot	Active
06017	2006 Gillig 40 Foot	Active
06018	2006 Gillig 40 Foot	Active
06019	2006 Gillig 40 Foot	Active
06020	2006 Gillig 40 Foot	Active
06021	2006 Gillig 40 Foot	Active
06022	2006 Gillig 40 Foot	Active
06023	2006 Gillig 40 Foot	Active
06024	2006 Gillig 40 Foot	Active
06025	2006 Gillig 40 Foot	Active
06026	2006 Gillig 40 Foot	Active
06028	2006 Gillig 40 Foot	Active
06029	2006 Gillig 40 Foot	Active
06031	2006 Gillig 40 Foot	Contingency
07013	2007 Gillig 40 Foot	Active
07014	2007 Gillig 40 Foot	Active
07015	2007 Gillig 40 Foot	Active
07016	2007 Gillig 40 Foot	Active
07017	2007 Gillig 40 Foot	Active

Unit No.	Description	FTA Status
7018	2007 Gillig 40 Foot	Active
7019	2007 Gillig 40 Foot	Active
7020	2007 Gillig 40 Foot	Active
7021	2007 Gillig 40 Foot	Active
12041	2012 Gillig Hybrid Bus	Active
12042	2012 Gillig Hybrid Bus	Active
12043	2012 Gillig Hybrid Bus	Active
12044	2012 Gillig Hybrid Bus	Active
12045	2012 Gillig Hybrid Bus	Active
12046	2012 Gillig Hybrid Bus	Active
12047	2012 Gillig Hybrid Bus	Active
12048	2012 Gillig Hybrid Bus	Active
12049	2012 Gillig Hybrid Bus	Active
14001	2014 Gillig 40 Foot	Active
14002	2014 Gillig 40 Foot	Active
14003	2014 Gillig 40 Foot	Active
14004	2014 Gillig 40 Foot	Active
14005	2014 Gillig 40 Foot	Active
14006	2014 Gillig 40 Foot	Active
14007	2014 Gillig 40 Foot	Active
14008	2014 Gillig 40 Foot	Active
14009	2014 Gillig 40 Foot	Active
14010	2014 Gillig 40 Foot	Active
14011	2014 Gillig 40 Foot	Active
14012	2014 Gillig 40 Foot	Active
14013	2014 Gillig 40 Foot	Active
14014	2014 Gillig 40 Foot	Active
14015	2014 Gillig 40 Foot	Active
14016	2014 Gillig 40 Foot	Active
14017	2014 Gillig 40 Foot	Active
14018	2014 Gillig 40 Foot	Active
14019	2014 Gillig 40 Foot	Active
14020	2014 Gillig 40 Foot	Active
16001	2016 Gillig 35 Foot Ski Bus	Active
16002	2016 Gillig 35 Foot Ski Bus	Active
16003	2016 Gillig 35 Foot Ski Bus	Active
16004	2016 Gillig 35 Foot Ski Bus	Active
16005	2016 Gillig 35 Foot Ski Bus	Active
17001	2017 Gillig 40 Foot Bus	Active
17002	2017 Gillig 40 Foot Bus	Active
17003	2017 Gillig 40 Foot Bus	Active
17004	2017 Gillig 40 Foot Bus	Active
17005	2017 Gillig 40 Foot Bus	Active
17006	2017 Gillig 40 Foot Bus	Active
17007	2017 Gillig 40 Foot Bus	Active

Ogden Revenue Assets (Cont.)

Unit No.	Description	FTA Status
17008	2017 Gillig 40 Foot Bus	Active
17009	2017 Gillig 40 Foot Bus	Active
17010	2017 Gillig 40 Foot Bus	Active
17011	2017 Gillig 40 Foot Bus	Active
17012	2017 Gillig 40 Foot Bus	Active
17013	2017 Gillig 40 Foot Bus	Active
17014	2017 Gillig 40 Foot Bus	Active
17071	2017 Gillig 35 Foot Ski Bus	Active
17072	2017 Gillig 35 Foot Ski Bus	Active
17073	2017 Gillig 35 Foot Ski Bus	Active
17074	2017 Gillig 35 Foot Ski Bus	Active
17075	2017 Gillig 35 Foot Ski Bus	Active
17076	2017 Gillig 35 Foot Ski Bus	Active
17077	2017 Gillig 35 Foot Ski Bus	Active
18101	2018 Gillig Trolley 35 Foot	Active
18102	2018 Gillig Trolley 35 Foot	Active
18103	2018 Gillig Trolley 35 Foot	Active
18104	2018 Gillig Trolley 35 Foot	Active
21071	2021 MCI Commuter	Active
21072	2021 MCI Commuter	Active
21073	2021 MCI Commuter	Active
21074	2021 MCI Commuter	Active
21075	2021 MCI Commuter	Active
21076	2021 MCI Commuter	Active
21077	2021 MCI Commuter	Active
21078	2021 MCI Commuter	Active
21079	2021 MCI Commuter	Active
21080	2021 MCI Commuter	Active
21081	2021 MCI Commuter	Active
21082	2021 MCI Commuter	Active
21083	2021 MCI Commuter	Active
21084	2021 MCI Commuter	Active
21085	2021 MCI Commuter	Active
21086	2021 MCI Commuter	Active
21087	2021 MCI Commuter	Active
21088	2021 MCI Commuter	Active
21089	2021 MCI Commuter	Active

Riverside Revenue Assets

Unit No.	Description	FTA Status
13205	2013 Chevy Exp Van G4500	Active
13206	2013 Chevy Exp Van G4500	Active
13208	2013 Chevy Exp Van G4500	Active
13209	2013 Chevy Exp Van G4500	Active
13210	2013 Chevy Exp Van G4500	Active
13211	2013 Chevy Exp Van G4500	Active
13212	2013 Chevy Exp Van G4500	Active
13213	2013 Chevy Exp Van G4500	Active
13214	2013 Chevy Exp Van G4500	Active
13215	2013 Chevy Exp Van G4500	Active
13216	2013 Chevy Exp Van G4500	Active
14201	2015 Chevy 4500 Glaval Flex	Active
14202	2015 Chevy 4500 Glaval Flex	Active
14203	2015 Chevy 4500 Glaval Flex	Active
14205	2015 Chevy 4500 Paratransit	Active
14206	2015 Chevy 4500 Paratransit	Active
14207	2015 Chevy 4500 Paratransit	Active
14208	2015 Chevy 4500 Paratransit	Active
14209	2015 Chevy 4500 Paratransit	Active
14210	2015 Chevy 4500 Paratransit	Active
14211	2015 Chevy 4500 Paratransit	Active
15201	2015 Chevy 4500 Glaval	Active
15202	2015 Chevy 4500 Glaval	Active
15203	2015 Chevy 4500 Glaval	Active
15205	2015 Chevy 4500 Glaval	Active
15206	2015 Chevy 4500 Glaval	Active
15207	2015 Chevy 4500 Glaval	Active
15208	2015 Chevy 4500 Glaval	Active
15209	2015 Chevy 4500 Glaval	Active
15210	2015 Chevy 4500 Glaval	Active
15211	2015 Chevy 4500 Glaval	Active
15212	2015 Chevy 4500 Glaval	Active
15213	2015 Chevy 4500 Glaval	Active
15214	2015 Chevy 4500 Glaval	Active
15215	2015 Chevy 4500 Glaval	Active
15216	2015 Chevy 4500 Glaval	Active
15217	2015 Chevy 4500 Glaval	Active
15218	2015 Chevy 4500 Glaval	Active
15219	2015 Chevy 4500 Glaval	Active
15220	2015 Chevy 4500 Glaval	Active
15221	2015 Chevy 4500 Glaval	Active
15222	2015 Chevy 4500 Glaval	Active
15223	2015 Chevy 4500 Glaval	Active
15224	2015 Chevy 4500 Glaval	Active
15225	2015 Chevy 4500 Glaval	Active
15226	2015 Chevy 4500 Glaval	Active
15227	2015 Chevy 4500 Glaval	Active
16201	2017 Ford E450 - Paratransit	Active
16202	2017 Ford E450 - Paratransit	Active
16203	2017 Ford E450 - Paratransit	Active
16204	2017 Ford E450 - Paratransit	Active
16205	2017 Ford E450 - Paratransit	Active
16206	2017 Ford E450 - Paratransit	Active
16207	2017 Ford E450 - Paratransit	Active
16208	2017 Ford E450 - Paratransit	Active
16209	2017 Ford E450 - Paratransit	Active
16210	2017 Ford E450 - Paratransit	Active
16211	2017 Ford E450 - Paratransit	Active
16212	2017 Ford E450 - Paratransit	Active
16213	2017 Ford E450 - Paratransit	Active
16214	2017 Ford E450 - Paratransit	Active
16215	2017 Ford E450 - Paratransit	Active
16216	2017 Ford E450 - Paratransit	Active
16217	2017 Ford E450 - Paratransit	Active
16218	2017 Ford E450 - Paratransit	Active
16219	2017 Ford E450 - Paratransit	Active
16220	2017 Ford E450 - Paratransit	Active
16221	2017 Ford E450 - Paratransit	Active
16222	2017 Ford E450 - Paratransit	Active
16223	2017 Ford E450 - Paratransit	Active
16224	2017 Ford E450 - Paratransit	Active
16225	2017 Ford E450 - Paratransit	Active
16226	2017 Ford E450 - Paratransit	Active
16227	2017 Ford E450 - Paratransit	Active
16228	2017 Ford E450 - Paratransit	Active
17201	2017 Ford E450 - Flex	Active
17202	2017 Ford E450 - Flex	Active
17203	2017 Ford E450 - Flex	Active
17204	2017 Ford E450 - Flex	Active
17205	2017 Ford E450 - Flex	Active
17206	2017 Ford E450 - Flex	Active
17207	2017 Ford E450 - Flex	Active
17208	2017 Ford E450 - Flex	Active
17209	2017 Ford E450 - Flex	Active
17210	2017 Ford E450 - Flex	Active
17211	2017 Ford E450 - Paratransit	Active
17212	2017 Ford E450 - Paratransit	Active
17213	2017 Ford E450 - Paratransit	Active
17214	2017 Ford E450 - Paratransit	Active
17215	2017 Ford E450 - Paratransit	Active

Riverside Revenue Assets (Cont.)

Unit No.	Description	FTA Status
17216	2017 Ford E450 - Paratransit	Active
17217	2017 Ford E450 - Paratransit	Active
17218	2017 Ford E450 - Paratransit	Active
17219	2017 Ford E450 - Paratransit	Active
17220	2017 Ford E450 - Paratransit	Active
17221	2017 Ford E450 - Paratransit	Active
17222	2017 Ford E450 - Paratransit	Active
17223	2017 Ford E450 - Paratransit	Active
17256	2018 Ford Transit 350	Active
18201	2019 Ford E450 - Flex	Active
18202	2019 Ford E450 - Flex	Active
18203	2019 Ford E450 - Flex	Active
18204	2019 Ford E450 - Flex	Active
18205	2019 Ford E450 - Flex	Active
18206	2019 Ford E450 - Flex	Active
18207	2019 Ford E450 - Flex	Active
18208	2019 Ford E450 - Flex	Active
18209	2019 Ford E450 - Flex	Active
18210	2019 Ford E450 - Para	Active
18211	2019 Ford E450 - Para	Active
18212	2019 Ford E450 - Para	Active
18213	2019 Ford E450 - Para	Active
18214	2019 Ford E450 - Para	Active
18215	2019 Ford E450 - Para	Active
18216	2019 Ford E450 - Para	Active
18217	2019 Ford E450 - Para	Active
18218	2019 Ford E450 - Para	Active
18219	2019 Ford E450 - Para	Active
18220	2019 Ford E450 - Para	Active
18221	2019 Ford E450 - Para	Active
18222	2019 Ford E450 - Para	Active
18223	2019 Ford E450 - Para	Active
18224	2019 Ford E450 - Para	Active
18225	2019 Ford E450 - Para	Active
18226	2019 Ford E450 - Para	Active
18227	2019 Ford E450 - Para	Active
18228	2019 Ford E450 - Para	Active
18229	2019 Ford E450 - Para	Active
18230	2019 Ford E450 - Para	Active
18231	2019 Ford E450 - Para	Active
18232	2019 Ford E450 - Para	Active
18233	2019 Ford E450 - Para	Active
18234	2019 Ford E450 - Para	Active
18235	2019 Ford E450 - Para	Active
18236	2019 Ford E450 - Para	Active

Unit No.	Description	FTA Status
19201	2019 Ford E450 - Flex	Active
19202	2019 Ford E450 - Flex	Active
19203	2019 Ford E450 - Flex	Active
19204	2019 Ford E450 - Flex	Active
19205	2019 Ford E450 - Flex	Active
19206	2019 Ford E450 - Flex	Active
19207	2019 Ford E450 - Flex	Active
19208	2019 Ford E450 - Flex	Active
19209	2019 Ford E450 - Flex	Active
19210	2019 Ford E450 - Flex	Active
19211	2019 Ford E450 - Flex	Active
19212	2019 Ford E450 - Flex	Active
19213	2019 Ford E450 - Flex	Active
19214	2019 Ford E450 - Flex	Active
19215	2019 Ford E450 - Flex	Active
19216	2019 Ford E450 - Flex	Active
19217	2019 Ford E450 - Flex	Active
19218	2019 Ford E450 - Flex	Active
19219	2019 Ford E450 - Flex	Active
19220	2019 Ford E450 - Flex	Active
19221	2019 Ford E450 - Flex	Active
19222	2019 Ford E450 - Flex	Active
19223	2019 Ford E450 - Flex	Active
19224	2019 Ford E450 - Flex	Active
19225	2019 Ford E450 - Flex	Active
19226	2019 Ford E450 - Flex	Active
19227	2019 Ford E450 - Flex	Active
19228	2019 Ford E450 - Flex	Active
19229	2019 Ford E450 - Flex	Active
19230	2019 Ford E450 - Flex	Active
20201	2021 Ford E450 Champion - Para	Active
20202	2021 Ford E450 Champion - Para	Active
20203	2021 Ford E450 Champion - Para	Active
20204	2021 Ford E450 Champion - Para	Active
20205	2021 Ford E450 Champion - Para	Active
20206	2021 Ford E450 Champion - Para	Active
20207	2021 Ford E450 Champion - Para	Active
20208	2021 Ford E450 Champion - Para	Active
20209	2021 Ford E450 Champion - Para	Active
20210	2021 Ford E450 Champion - Para	Active
20211	2021 Ford E450 Champion - Para	Active
20212	2021 Ford E450 Champion - Para	Active
20213	2021 Ford E450 Champion - Para	Active
20214	2021 Ford E450 Champion - Para	Active
20215	2021 Ford E450 Champion - Para	Active

Riverside Revenue Assets (Cont.)

Unit No.	Description	FTA Status
20216	2021 Ford E450 Champion - Para	Active
20217	2021 Ford E450 Champion - Para	Active
20218	2021 Ford E450 Champion - Para	Active
20219	2021 Ford E450 Champion - Para	Active
20220	2021 Ford E450 Champion - Para	Active
20221	2021 Ford E450 Champion - Para	Active
20222	2021 Ford E450 Champion - Para	Active
20223	2021 Ford E450 Champion - Para	Active
20224	2021 Ford E450 Champion - Para	Active
20225	2021 Ford E450 Champion - Para	Active

Timpanogos Revenue Assets

Unit No.	Description	FTA Status
04008	2004 MCI Commuter	Active
04009	2004 MCI Commuter	Active
04010	2004 MCI Commuter	Active
04011	2004 MCI Commuter	Active
04012	2004 MCI Commuter	Active
04013	2004 MCI Commuter	Active
04014	2004 MCI Commuter	Active
04015	2004 MCI Commuter	Active
07023	2007 Gillig 40 Foot Bus	Contingency
07026	2007 Gillig 40 Foot Bus	Contingency
07028	2007 Gillig 40 Foot Bus	Contingency
07029	2007 Gillig 40 Foot Bus	Contingency
07030	2007 Gillig 40 Foot Bus	Contingency
07031	2007 Gillig 40 Foot Bus	Contingency
07055	2007 Gillig Canyon Service	Active
09029	2009 Gillig 40 Foot Bus	Active
09030	2009 Gillig 40 Foot Bus	Active
09031	2009 Gillig 40 Foot Bus	Active
09032	2009 Gillig 40 Foot Bus	Active
09033	2009 Gillig 40 Foot Bus	Active
09034	2009 Gillig 40 Foot Bus	Active
09035	2009 Gillig 40 Foot Bus	Active
09036	2009 Gillig 40 Foot Bus	Active
09037	2009 Gillig 40 Foot Bus	Active
09038	2009 Gillig 40 Foot Bus	Active
09039	2009 Gillig 40 Foot Bus	Active
09040	2009 Gillig 40 Foot Bus	Active
09041	2009 Gillig 40 Foot Bus	Active
09042	2009 Gillig 40 Foot Bus	Active
10051	2010 Gillig Hybrid Bus	Active
10052	2010 Gillig Hybrid Bus	Active
10053	2010 Gillig Hybrid Bus	Active
10054	2010 Gillig Hybrid Bus	Active
10055	2010 Gillig Hybrid Bus	Active
10056	2010 Gillig Hybrid Bus	Active
10057	2010 Gillig Hybrid Bus	Active
10058	2010 Gillig Hybrid Bus	Active
10059	2010 Gillig Hybrid Bus	Active
10060	2010 Gillig Hybrid Bus	Active
10061	2010 Gillig Hybrid Bus	Active
10062	2010 Gillig Hybrid Bus	Active
10063	2010 Gillig Hybrid Bus	Active
10064	2010 Gillig Hybrid Bus	Active
10065	2010 Gillig Hybrid Bus	Active
10066	2010 Gillig Hybrid Bus	Active
10067	2010 Gillig Hybrid Bus	Active

Unit No.	Description	FTA Status
10068	2010 Gillig Hybrid Bus	Active
10069	2010 Gillig Hybrid Bus	Active
10070	2010 Gillig Hybrid Bus	Active
11001	2011 Gillig Canyon Service	Active
11002	2011 Gillig Canyon Service	Active
11003	2011 Gillig Canyon Service	Active
17101	2017 New Flyer 60ft Artic	Active
17102	2017 New Flyer 60ft Artic	Active
17103	2017 New Flyer 60ft Artic	Active
17104	2017 New Flyer 60ft Artic	Active
17105	2017 New Flyer 60ft Artic	Active
17106	2017 New Flyer 60ft Artic	Active
17107	2017 New Flyer 60ft Artic	Active
17108	2017 New Flyer 60ft Artic	Active
17109	2017 New Flyer 60ft Artic	Active
17110	2017 New Flyer 60ft Artic	Active
17111	2017 New Flyer 60ft Artic	Active
17112	2017 New Flyer 60ft Artic	Active
17113	2017 New Flyer 60ft Artic	Active
17114	2017 New Flyer 60ft Artic	Active
17115	2017 New Flyer 60ft Artic	Active
17116	2017 New Flyer 60ft Artic	Active
17117	2017 New Flyer 60ft Artic	Active
17118	2017 New Flyer 60ft Artic	Active
17119	2017 New Flyer 60ft Artic	Active
17120	2017 New Flyer 60ft Artic	Active
17121	2017 New Flyer 60ft Artic	Active
17122	2017 New Flyer 60ft Artic	Active
17123	2017 New Flyer 60ft Artic	Active
17124	2017 New Flyer 60ft Artic	Active
17125	2017 New Flyer 60ft Artic	Active
21001	2021 Gillig 40 Foot Bus	Active
21002	2021 Gillig 40 Foot Bus	Active
21003	2021 Gillig 40 Foot Bus	Active
21004	2021 Gillig 40 Foot Bus	Active
21005	2021 Gillig 40 Foot Bus	Active
21006	2021 Gillig 40 Foot Bus	Active
21007	2021 Gillig 40 Foot Bus	Active
21008	2021 Gillig 40 Foot Bus	Active
21009	2021 Gillig 40 Foot Bus	Active
21010	2021 Gillig 40 Foot Bus	Active
21011	2021 Gillig 40 Foot Bus	Active
21012	2021 Gillig 40 Foot Bus	Active
21013	2021 Gillig 40 Foot Bus	Active
21014	2021 Gillig 40 Foot Bus	Active
21090	2021 MCI Commuter	Active