

Citibus COA:
Working Paper #2
Preliminary Preferred Alternative

TRANSPORTATION CONSULTANTS, INC.

AECOM

Prepared for:

City of Lubbock TEXAS

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Citibus Comprehensive Operational Analysis

Working Paper #2

Prepared for:

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Chapter I: Introduction and Review of Preliminary Alternatives

INTRODUCTION

Through its issuance of Request for Proposals (RFP) 19-14457-MA: Consulting Services for Comprehensive Operational Analysis (COA), the City of Lubbock for Citibus sought a qualified consultant to carry out a COA of its current local fixed-route bus, complementary paratransit services, and demand responsive services. The analysis will lead to recommendations for program and service design and improvements in overall system efficiency and operational effectiveness.

This project was awarded to LSC Transportation Consultants, Inc., a Colorado-based transit consultancy with a depth of experience in smaller cities like Lubbock that include a major university. Included on the LSC project team is staff from AECOM, a fully integrated professional and technical services firm with a worldwide presence and depth of experience with public transit planning.

PROJECT GOALS

The COA will define how Citibus transit operations change, adapt, and improve for the next five to ten years and beyond. The primary goals of the COA effort include:

1. Evaluating the current system, including efficiency and effectiveness of each route and service.
2. Incorporating quality opportunities for public and rider input into the study process to ensure needs and issues are understood.
3. Reviewing available data on travel patterns and demographics to help analyze whether the current fixed-route network is adequately addressing potential demand and changes in population and employment.
4. Exploring potential service changes that could better invest limited available service resources to improve ridership over the next five to ten years, and possibly utilizing non-traditional transit options such as micro-transit, express service, first mile/last mile connection, and/or hybrid models that would potentially increase ridership and serve more of the community.
5. Identifying gaps in coverage, service quality, or resources needed to address Lubbock's changing population and commute patterns.
6. Reviewing federal Title VI civil rights compliance to ensure services are provided on an equitable basis throughout the service area.
7. Improved connectivity between Citibus and SPARTAN, the rural provider, in the areas of the city where there is no bus service.

PRELIMINARY SERVICE CONCEPTS

The consultant team developed five preliminary service concepts in Working Paper #1 and presented the information to the Citibus Transit Board, the City of Lubbock City Council, the COA Study Advisory Committee, Citibus drivers and operations staff, the general public at open houses, and critical stakeholders during the third week of November, 2019.



The system alternatives were created as preliminary concepts for discussion, feedback, and development. They were not

intended to represent an all or nothing approach, but rather could be mixed and matched as desired. The alternatives balance various goals and priorities, as well as incorporate or address, in part, initial feedback received. The preliminary service concepts were developed at a high-level, with the understanding that more precise analysis and quantitative estimations would occur in future steps as we develop a preferred COA system alternative with route and service delivery details. The five preliminary service concepts included:

Alternative #1: Maintain coverage of existing service, more direct routing

- Maintains current coverage system
- Route 12 becomes two separate routes: a N Lubbock circulator and 4th Street
- Maintains NE Lubbock services
- New service to West End Center shopping
- Continues service to downtown and Mall transit centers
- Changes to improve efficiency and safety, including the routing at Quaker and Loop 289, as well as routing along I-27
- Cost neutral

Alternative #2: Maintain coverage, add microtransit

- Builds on Alternative 1
- New NE Lubbock route
- Introduces microtransit zones in NE, N, SE and SW Lubbock in Phase 1
- Expands service to new areas not currently served by Citibus – SW and SE
- All microtransit zones will connect to either the Mall or downtown transit centers
- Microtransit will operate same hours as fixed route and use same fares
- About 10% increase in costs

Alternative #3: Streamline routing with improved frequency and later service

- Streamlined service with more direct routing
- Continues service to downtown and Mall transit centers
- Extends weekday service on all routes to 9:00 p.m.
- High frequency route with 15-minute peak service on Route 34
- New crosstown route connecting N Lubbock, TTU, Boston Corridor, 82nd, and the Mall
- New Milwaukee corridor service
- Estimated 15% - 20% increase in costs

Alternative #4: Expanded service in SW, N, and SE Lubbock

- Builds on changes from Alternative 3
- New fixed-route service in N Lubbock to DPS
- New routing along MLK Corridor in E Lubbock to expand service coverage
- New Marsha Sharp Express route connecting downtown, TTU, and SW Lubbock (Milwaukee and 82nd Street corridors)
- Estimated 15% - 20% increase in costs

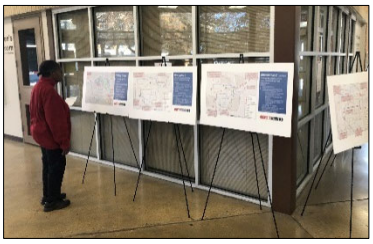
Alternative #5: Balanced approach - high frequency route, core routes and microtransit

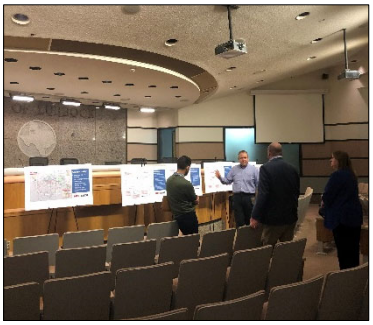
- Maintains two transit center system (downtown and Mall)

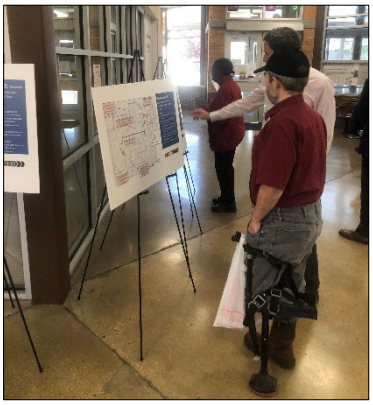
- Improved service to W Lubbock with two routes serving Workforce solutions and service to West End Center shopping
- Boston Crosstown route from N Lubbock to TTU and the Mall
- Improved coverage in NE Lubbock with microtransit zone
- Marsha Sharp Express route connecting downtown, TTU, and SW Lubbock (Milwaukee and 82nd Street corridors), connecting to SW Lubbock microtransit zone
- Improved coverage in SE Lubbock with microtransit
- Incorporates a tier system: 1) Express service (Marsha Sharp), 2) High frequency service with 15-minute headways (34th Street), and 3) Core system at 30-miunute headways (local routes)
- No expansion of span of service
- Estimated 15% - 20% increase in costs

PUBLIC OUTREACH









A key component of the consultant team's onsite trip during the third week of November, 2019, was to hold a variety of public open houses and stakeholder meetings to solicit public feedback on the five preliminary service concepts.

Public open houses were conducted at the Citibus downtown transfer plaza, as well as at the City of Lubbock City Council Chambers. The consultant team prepared a series of boards to illustrate each of the preliminary service concepts with maps, as well as provide key takeaways of each alternative. Comment forms were available for public feedback, and asked respondents to rate each option from 1 (very bad) to 5 (very good), as well as describe what they liked most and least about the options. For those who were unable to attend one of the public open houses, a link to an online survey with the same questions as the comment form was available on the project website.

A total of 41 responses were received on the survey/comment form. As shown in Table I-1, the preliminary service concept with the highest average score was #5 – Balanced Approach, while the preliminary service concept with the lowest average score was #1 – Maintain Coverage of Existing Service, More Direct Routing.

Table I-1: Results of Preliminary Service Concepts Survey

Alternative	Average Score
#1 - Maintain coverage of existing service, more direct routing	2.91
#2 - Maintain coverage, add microtransit	3.57
#3 - Streamline routing with improved frequency and later service	3.89
#4 - Expanded serivce in SW, N, and SE Lubbock	3.89
#5 - Balanced approach - high frequency route, core routes, and microtransit	3.94

Source: LSC, 2020.

Table I- 1: Results of Preliminary Service Concepts Survey

REPORT CONTENTS

Based on the feedback from the Citibus Transit Board, the City of Lubbock City Council, the COA Study Advisory Committee, Citibus drivers and operations staff, the general public, and critical stakeholders, the consultant team has refined the preliminary service concepts and developed a preliminary preferred system alternative, which is presented in this second Working Paper.

This Working Paper includes five chapters:

- Chapter II presents service details of the preliminary preferred alternative, including a system and route-by-route overview and discussion of cost, hours, ridership, and performance impacts.
- Chapter III provides discussion on priorities and phasing of future system investments relative to the service plan.
- Chapter IV discusses implementation and the supporting needs that go along with the preliminary preferred alternative, including staffing, vehicles, and infrastructure, as well as a high-level financial plan.
- Finally, Chapter V presents next steps, including details that will be flushed out in the final report and public outreach efforts that will be conducted on the preliminary preferred alternative.


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Chapter II provides service plan details for the preliminary preferred system alternative and all associated route changes. Service parameters, route changes, and route impacts are detailed on a route-by-route basis.

SYSTEM OVERVIEW

The recommendations presented in this section are designed to improve overall service with a plan that streamlines the system with more direct routing and fewer out of direction loops. The plan is focused on creating a sustainable transit service with improved productivity and continued coverage that incorporates new service methods such as an express route and microtransit.

The service plan is divided into two phases. Phase 1 outlines the service recommendations for the first five years with a focus on more direct routing, faster travel times, service to new growth areas and expansion of coverage through microtransit. Phase 2 continues the growth of microtransit and introduces a new fixed-route to the southwest area.

Phase 1 – Cost Neutral: Optimizing Fixed Route System/Introduction of Microtransit

Phase 1 is cost neutral with a focus on more direct and simpler routing which leads to faster travel times and a more user-friendly system, as shown in Figure II-1. In addition, Phase 1 brings service to new areas with the introduction of microtransit in northeast and southwest Lubbock; two new route segments serving the West End Center; a new crosstown route connecting north Lubbock, Texas Tech University and the South Plains Mall; service to southeast Lubbock; and the new Marsha Sharp Express route from downtown and Texas Tech University to the Milwaukee corridor and South Plains Mall. The system is built from the foundation of a stronger fixed-route system with layers of new service types. Phase 1 remains cost-neutral due to streamlining all of the routes, combining Routes 2 and 14, and reducing service on some routes to 60-minute headways.

Phase 2 – Expansion of Microtransit and Fixed Route to Southwest Lubbock

The implementation of Phase 2 includes additional resources. The system is built on phasing in new key microtransit zones including service in northwest and southeast Lubbock and introducing a fixed-route service in the high growth area along the Milwaukee and 98th Street corridors. The final buildout of the system introduces three new routes in the southwest, improved connections in the northeast, expansion of coverage in the northwest and southeast, and faster crosstown travel times with the Route 5 (Boston Avenue) and the Marsha Sharp Express. The Phase 2 routing is shown in Figure II-2.

Figure II-1: Phase 1 System

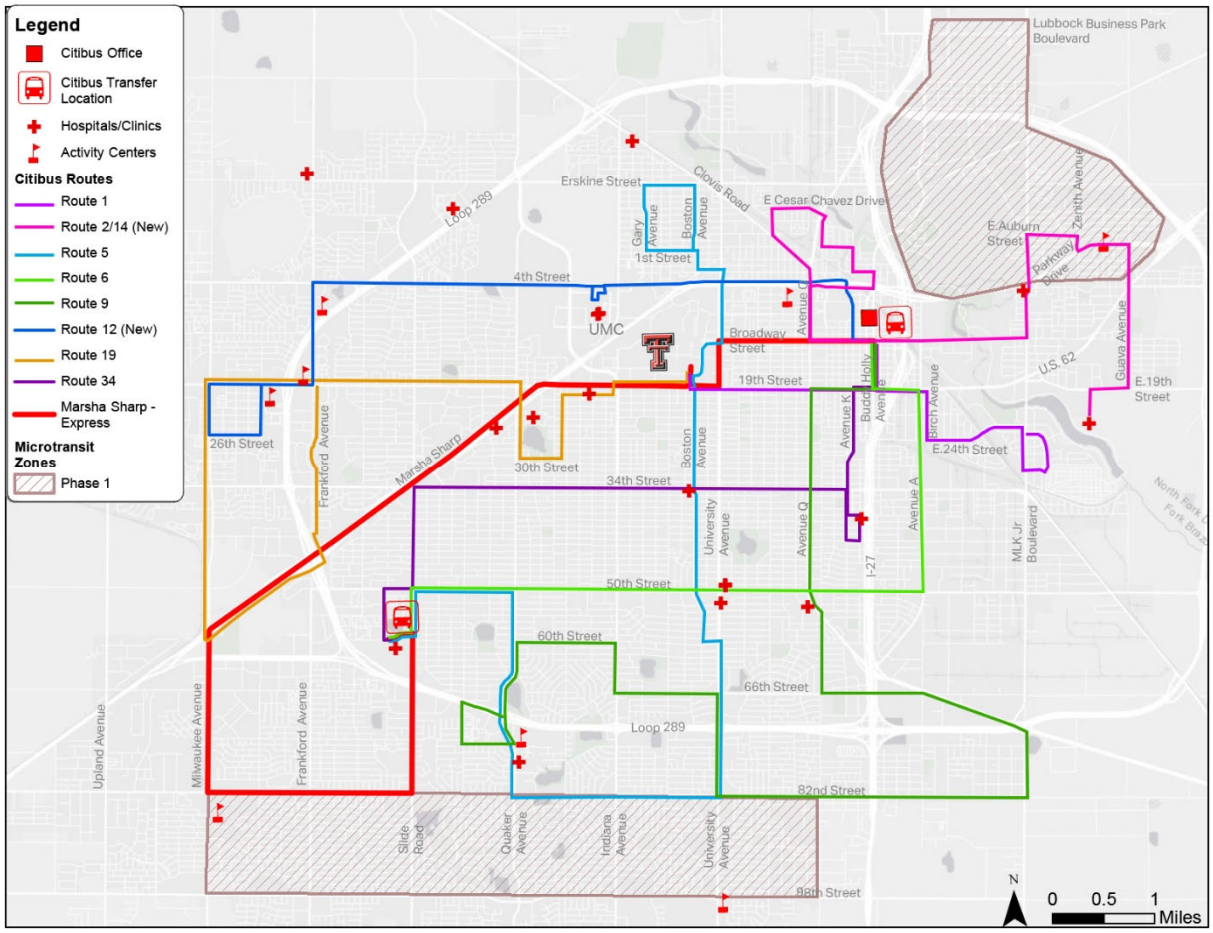
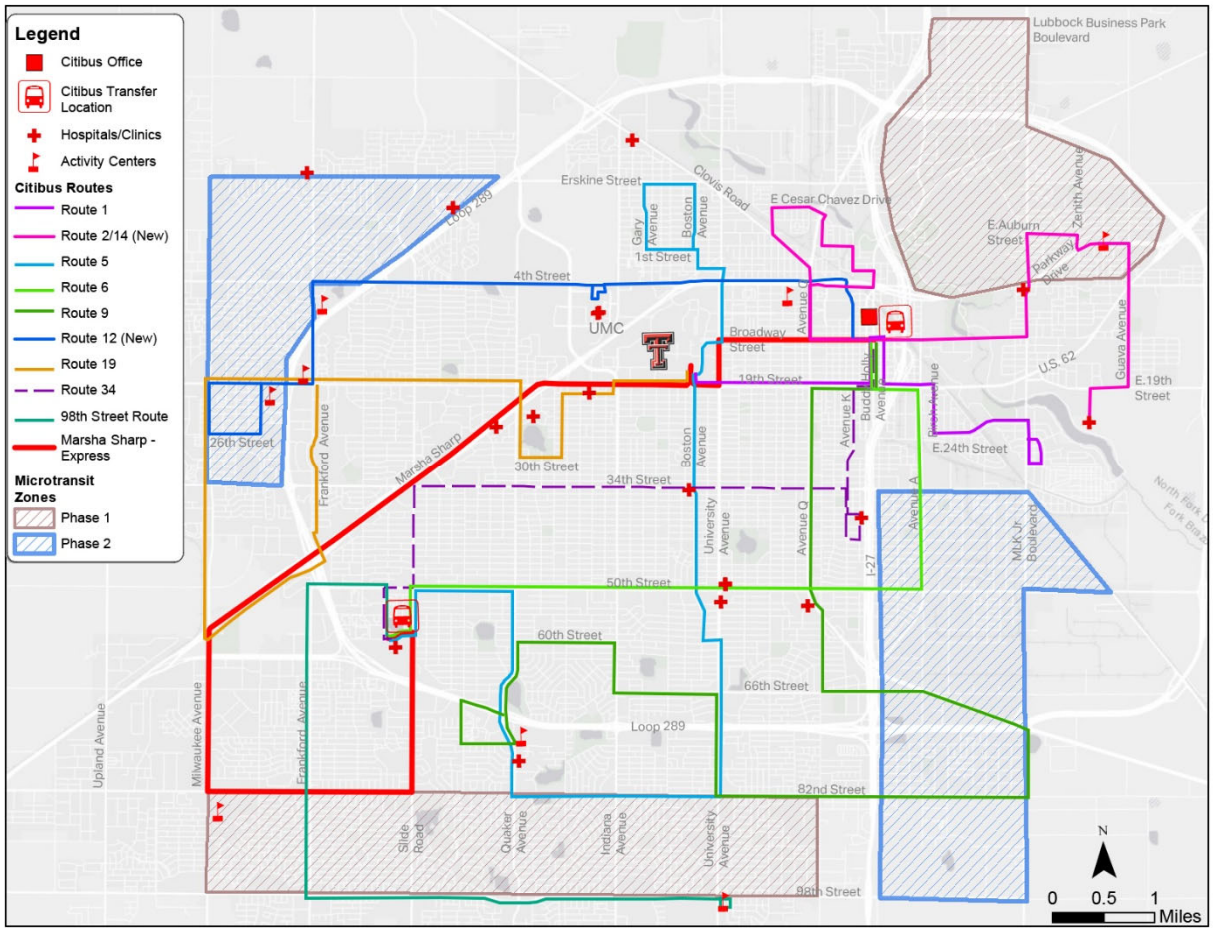


Figure II-2: Phase 2 System



What is Microtransit?

The preliminary preferred alternative contains an emerging form of public transportation called microtransit, which is a form of demand response transit that leverages smartphone technology using an app to match trip requests in real-time to dynamic/flexible routes in a defined service area. It typically operates with smaller vehicles, such as cars or vans, which are often electric.

What Are the Critical Success Factors?

Microtransit has been around for several years and many lessons have been learned in how to build a successful microtransit program:



- Smaller service area of one to four square miles, usually connecting to a transit center which transfers to frequent fixed-route service
- Medium density of housing
- Ability to group trips to/from key destination at similar times
- Fare structure that balances convenience and ridership
- Robust marketing and public education
- Accessible vehicles and call-in option for those without smartphones

Operational Considerations

Microtransit can be contracted turn-key with an experienced vendor or operated directly by the transit agency using purchased real-time ride-matching technology. Productivity is lower than fixed-route bus (microtransit typically serves between four and nine passengers per vehicle-hour) and costs may vary by the number of vehicles needed to serve the demand. When smaller vehicles are used, they can operate at lower cost per hour and provide more flexibility in where they serve. Residential neighborhoods may find that microtransit is less impactful than fixed-route bus service due to reduced noise and vehicle pollution.

Applicability for Lubbock

The preliminary preferred alternative contains four different microtransit zones in total. These zones are generally located in lower density areas with dispersed origin and destination travel patterns, which are not easily or efficiently served by fixed-route bus service.

ROUTE LEVEL OVERVIEW

The following section provides a route by route overview of Phase 1 and Phase 2.

Route 1

The revised Route 1 streamlines the routing to east Lubbock and adds new direct service to Texas Tech University with the Downtown Plaza in between the two segments. The primary corridor of the route is 19th Street, with service from the Texas Tech University transit center near 19th Street and University Avenue to MLK Jr. Boulevard and 32nd Street. The route operates on the east side of Avenue A south to 24th Street to MLK Jr. Boulevard, and terminates at the loop at 32nd Street, Teak Avenue, and 26th Street. The route provides a direct one-seat ride from east Lubbock to Texas Tech University. Figure II-3 displays the new routing.

The route operates with 60-minute headways all day long. It operates from 5:45 a.m. to 6:45 p.m. on weekdays, and from 7:45 a.m. to 6:45 p.m. on Saturdays. The route is an efficient service operating one bus with 2,915 annual revenue hours and 41,785 annual revenue miles. Service characteristics are shown in Tables II-1 and II-2.

Figure II-3: Proposed Route 1

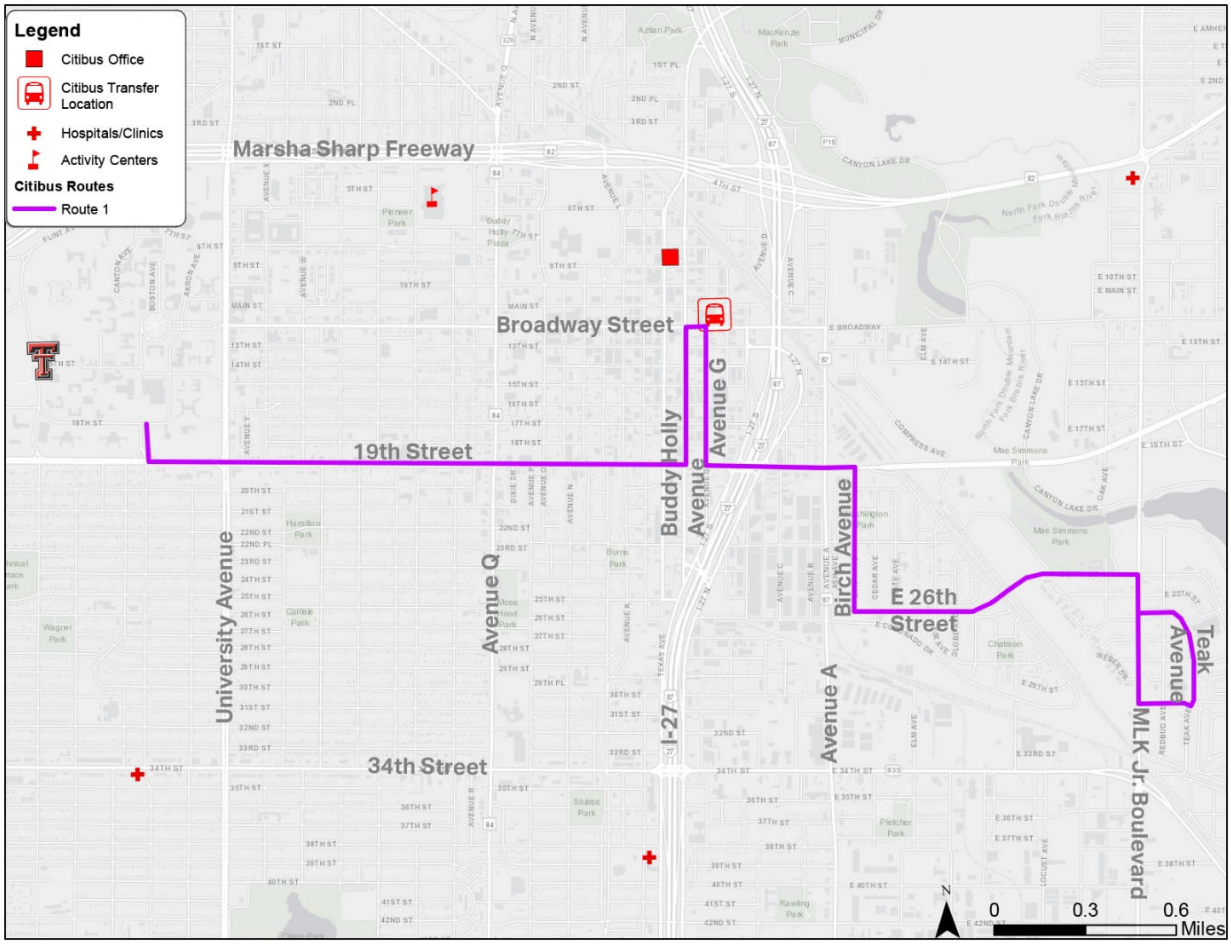


Table II- 1: Proposed Route 1 Service Parameters

Table II-1: Proposed Route 1 Service Parameters		
	Phase 1	Phase 2
Weekday Span	5:45 a.m. to 6:45 p.m.	5:45 a.m. to 6:45 p.m.
Weekday Peak Headway	60 minutes	60 minutes
Weekday Midday Headway	60 minutes	60 minutes
Saturday Span	7:45 a.m. to 6:45 p.m.	7:45 a.m. to 6:45 p.m.
Saturday Headway	60 minutes	60 minutes

Table II- 2: Proposed Route 1 Impacts

Table II-2: Proposed Route 1 Impacts		
	Phase 1	Phase 2
Annual Hours	2,915	2,915
Annual Miles	41,785	41,785
Peak Buses	1	1

Route 2/14 Combination

As shown in Figure II-4, Route 2/14 combines segments of Routes 2 and 14 in east Lubbock and Route 12 in the north with the Downtown Plaza in the middle of the route. From the north, the route operates through the neighborhoods to the east and west of Avenue Q, north of Marsha Sharp Freeway. The route continues south on Avenue Q past the Walmart, east on Broadway Street to the Downtown Plaza. The eastern portion of the route continues east on Broadway Street, north on MLK Jr. Boulevard, east on Auburn Street, south on Zenith Avenue and east on Parkway Street to the United Supermarket. From United Supermarket the route travels east on Parkway Street, south on Guava Avenue and west on 19th Street to the southern terminus at Sunrise Canyon STAR CARE. The route provides a one seat ride from east Lubbock to Walmart and the neighborhood to the north of Marsha Sharp.

The route will maintain the existing 30-minute headways of the current Route 2 and Route 14 on weekdays, and will operate with 60-minute headways on Saturdays. The span of service for the route is from 5:45 a.m. to 6:45 p.m. on weekdays, and from 6:45 a.m. to 6:45 p.m. on Saturdays. The peak pullout is two buses and the route will operate with 7,254 annual revenue hours and 123,173 annual revenue miles. Service characteristics and impacts are shown in Tables II-3 and II-4.

Figure II-4: Proposed Route 2/14 Combination

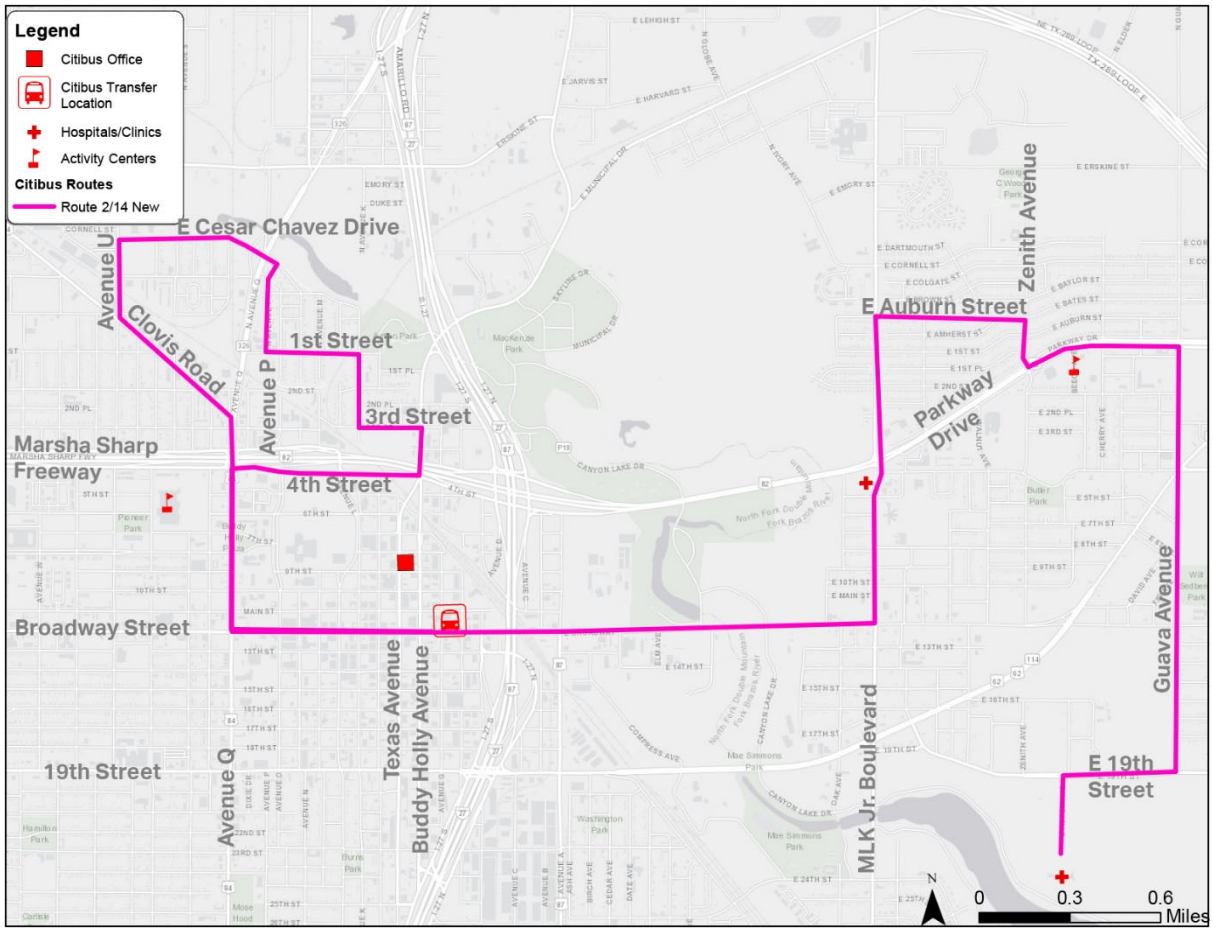


Table II-3: Proposed Route 2/14 Combination Service Parameters		
	Phase 1	Phase 2
Weekday Span	5:45 a.m. to 6:45 p.m.	5:45 a.m. to 6:45 p.m.
Weekday Peak Headway	30 minutes	30 minutes
Weekday Midday Headway	30 minutes	30 minutes
Saturday Span	6:45 a.m. to 6:45 p.m.	6:45 a.m. to 6:45 p.m.
Saturday Headway	60 minutes	60 minutes

Table II- 3 Proposed Route 2/14 Combination Service Parameters

Table II-4: Proposed Route 2/14 Combination Impacts		
	Phase 1	Phase 2
Annual Hours	7,254	7,254
Annual Miles	123,173	123,173
Peak Buses	2	2

Table II- 4: Proposed Route 2/4 Combination Impacts

Route 5 – Boston Avenue

Route 5 is a new north-south crosstown route providing direct service between two major transit generators - Texas Tech University and the South Plains Mall. The route will operate from the neighborhoods in the north near Erskine Road (currently served by Route 12) to the Texas Tech University campus, to the mall using the Boston Avenue and University Avenue corridors south to 82nd Street. The route continues west on 82nd Street, north on Quaker Avenue, west on 50th Street, and south on Slide Road to the mall. At the mall the route connects with Route 9, Route 34, and the Marsha Sharp Express. The route will also serve the Quaker Avenue Walmart. This will be the only route in the proposed system without a direct connection to the Downtown Plaza. Figure II-5 presents a map of the new routing for Route 5.

The route will operate with 30-minute weekday peak headways and 60-minute weekday, midday and Saturday headways. The span of service is from 5:35 a.m. to 6:15 p.m. on weekdays, and from 7:35 a.m. – 6:15 p.m. on Saturdays. In addition, the route will utilize three buses during the peak period with 7,972 annual revenue hours and 138,022 annual revenue miles. The route service characteristics are shown in Tables II-5 and II-6.

***Figure II-5*: Proposed Route 5**

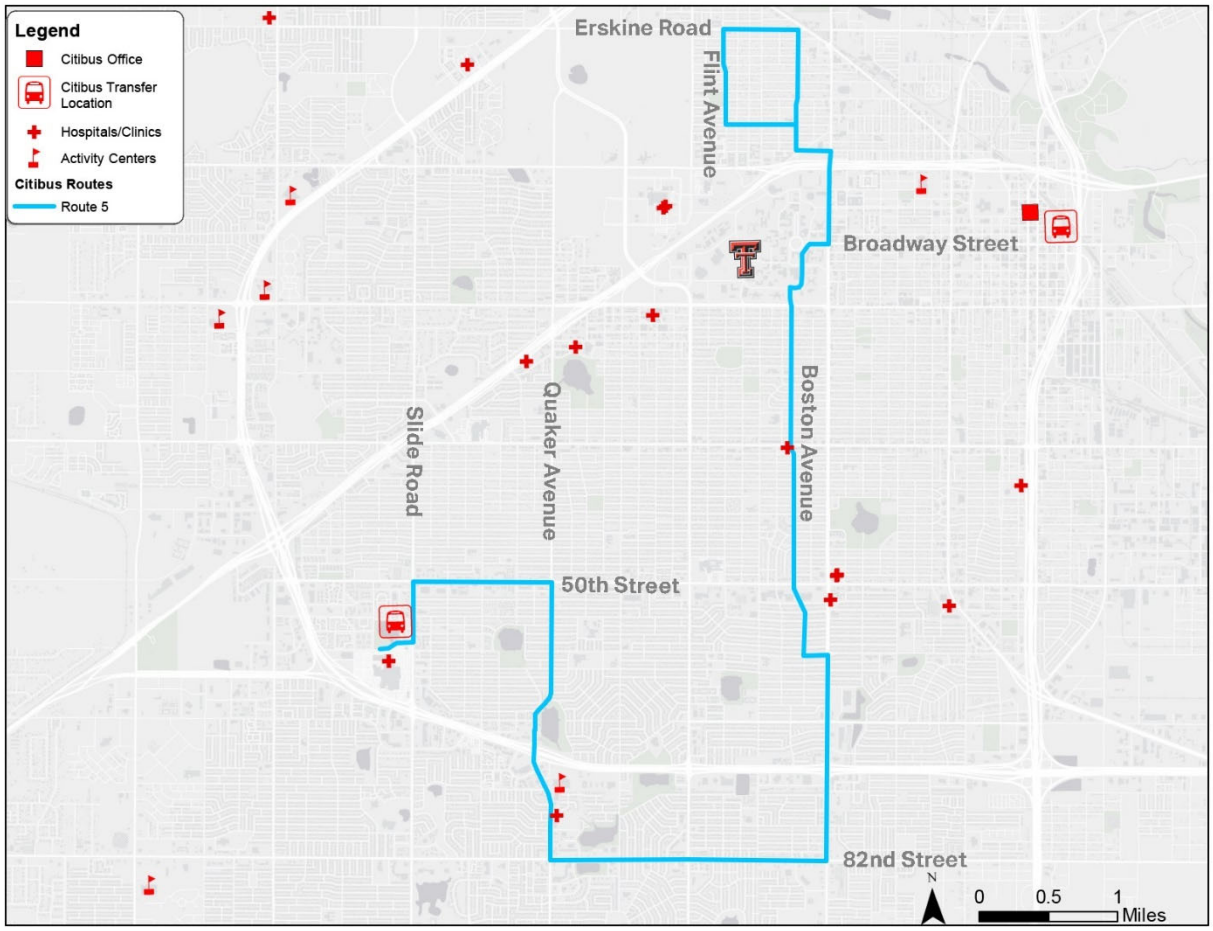


Table II- 5: Proposed Route 5 Service Parameters

Table II-5: Proposed Route 5 Service Parameters		
	Phase 1	Phase 2
Weekday Span	5:35 a.m. to 6:15 p.m.	5:35 a.m. to 6:15 p.m.
Weekday Peak Headway	30 minutes	30 minutes
Weekday Midday Headway	60 minutes	60 minutes
Saturday Span	7:35 a.m. to 6:15 p.m.	7:35 a.m. to 6:15 p.m.
Saturday Headway	60 minutes	60 minutes

Table II- 6: Proposed Route 5 Service Impacts

Table II-6: Proposed Route 5 Service Impacts		
	Phase 1	Phase 2
Annual Hours	7,972	7,972
Annual Miles	138,022	138,022
Peak Buses	3	3

Route 6 – 50th Street

The revised Route 6, as shown in Figure II-6, continues to provide direct service on 50th Street to the South Plains Mall, however the route replaces the circuitous routing along Buddy Holly Avenue and the I-27 frontage roads with service on Avenue A. The simplified direct routing introduces new service in east Lubbock on Avenue A between 19th Street and 50th Street, with improved service to the Larry Combest Community Health and Wellness Center and the residential area along Avenue A between 34th Street and 50th Street. At the South Plains Mall Transfer Center, the route connects with Route 5, Route 34, and the Marsha Sharp Express.

The route operates with 30-minute weekday peak headways and 60-minute weekday midday and Saturday headways. The service operates from 5:45 a.m. to 6:15 p.m. on weekdays and from 7:05 a.m. to 5:45 p.m. on Saturdays. The peak pullout is two buses and it operates with 5,272 annual revenue hours and 90,681 annual revenue miles. The service characteristics and impacts are shown in Tables II-7 and II-8.

Figure II-6: Proposed Route 6

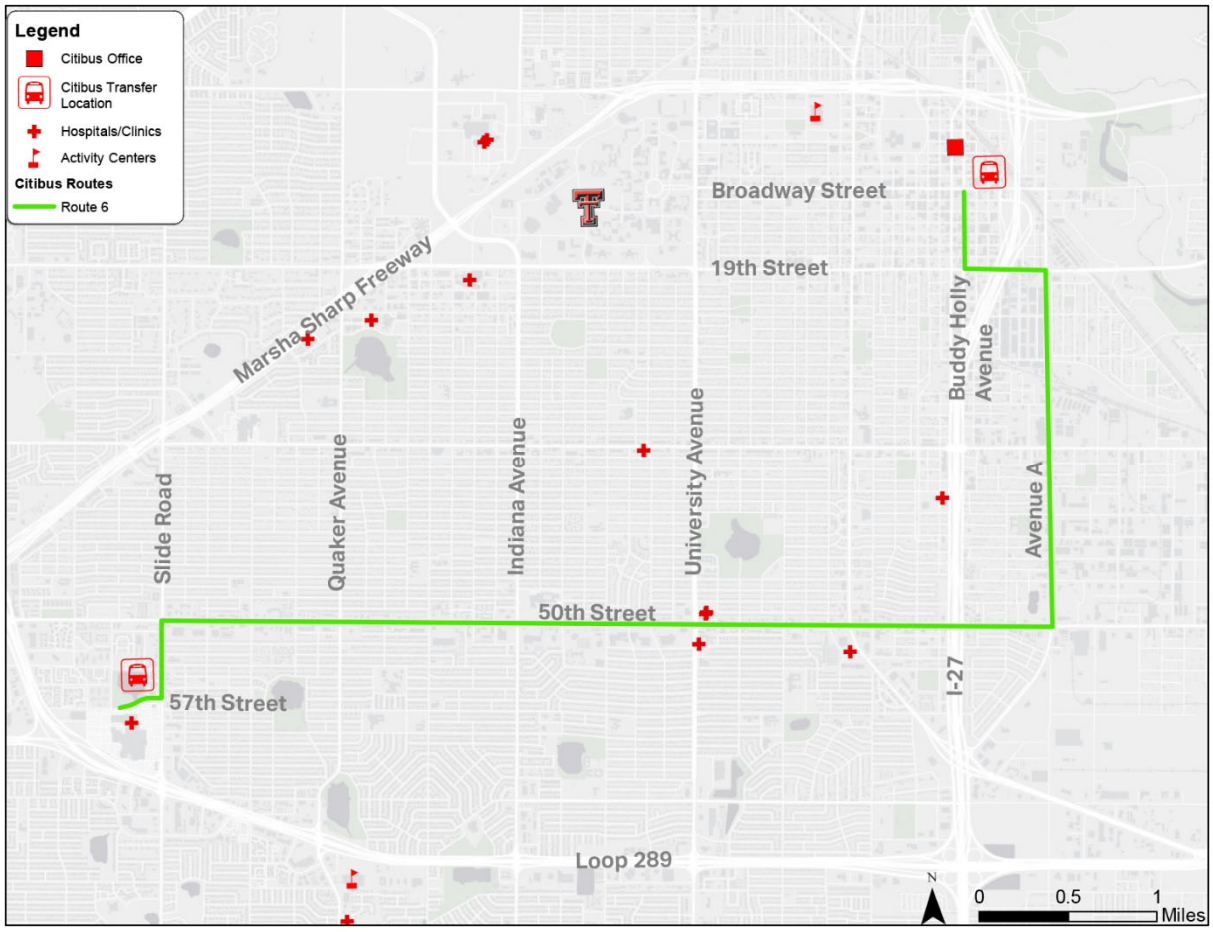


Table II-7: Proposed Route 6 Service Parameters		
	Phase 1	Phase 2
Weekday Span	5:45 a.m. to 6:15 p.m.	5:45 a.m. to 6:15 p.m.
Weekday Peak Headway	30 minutes	30 minutes
Weekday Midday Headway	60 minutes	60 minutes
Saturday Span	7:05 a.m. to 5:45 p.m.	7:05 a.m. to 5:45 p.m.
Saturday Headway	60 minutes	60 minutes

Table II- 7: Proposed Route 6 Service Parameters

Table II-8: Proposed Route 6 Impacts		
	Phase 1	Phase 2
Annual Hours	5,272	5,272
Annual Miles	90,681	90,681
Peak Buses	2	2

Table II- 8: Proposed Route 6 Impacts

Route 9 – Avenue Q

The proposed Route 9 takes over portions of the existing Routes 5 and 9 with service from downtown Lubbock to the Walmart on Quaker Avenue. The revised Route 9 introduces new service to southeast Lubbock on MLK Jr. Boulevard. As shown in Figure II-7, the route primarily operates south from downtown Lubbock on Avenue Q, east on 66th Street, south on MLK Jr. Boulevard, west on 82nd Street, and north on University Avenue before taking over segments of Route 5 on 66th Street, Indiana Avenue, 58th Street, and Quaker Avenue to the Walmart.

The route is designed to continue to provide service along the Avenue Q corridor and the neighborhoods in the south between University Avenue and Quaker Avenue, but with key lifeline services further to the southeast. Southeast Lubbock was identified as an important transit market through the public and stakeholder outreach effort.

Route 9 operates with 30-minute headways during the weekday peak and 60-minute headways during the weekday off peak and on Saturdays, as shown in Table II-9. The route's span of service is from 5:45 a.m. to 6:45 p.m. on weekdays, and from 7:15 a.m. to 6:15 p.m. on Saturdays. The peak pullout for the route is four buses operating 12,604 annual revenue hours and 207,274 annual revenue miles as shown in Table II-10.

Figure II-7: Proposed Route 9

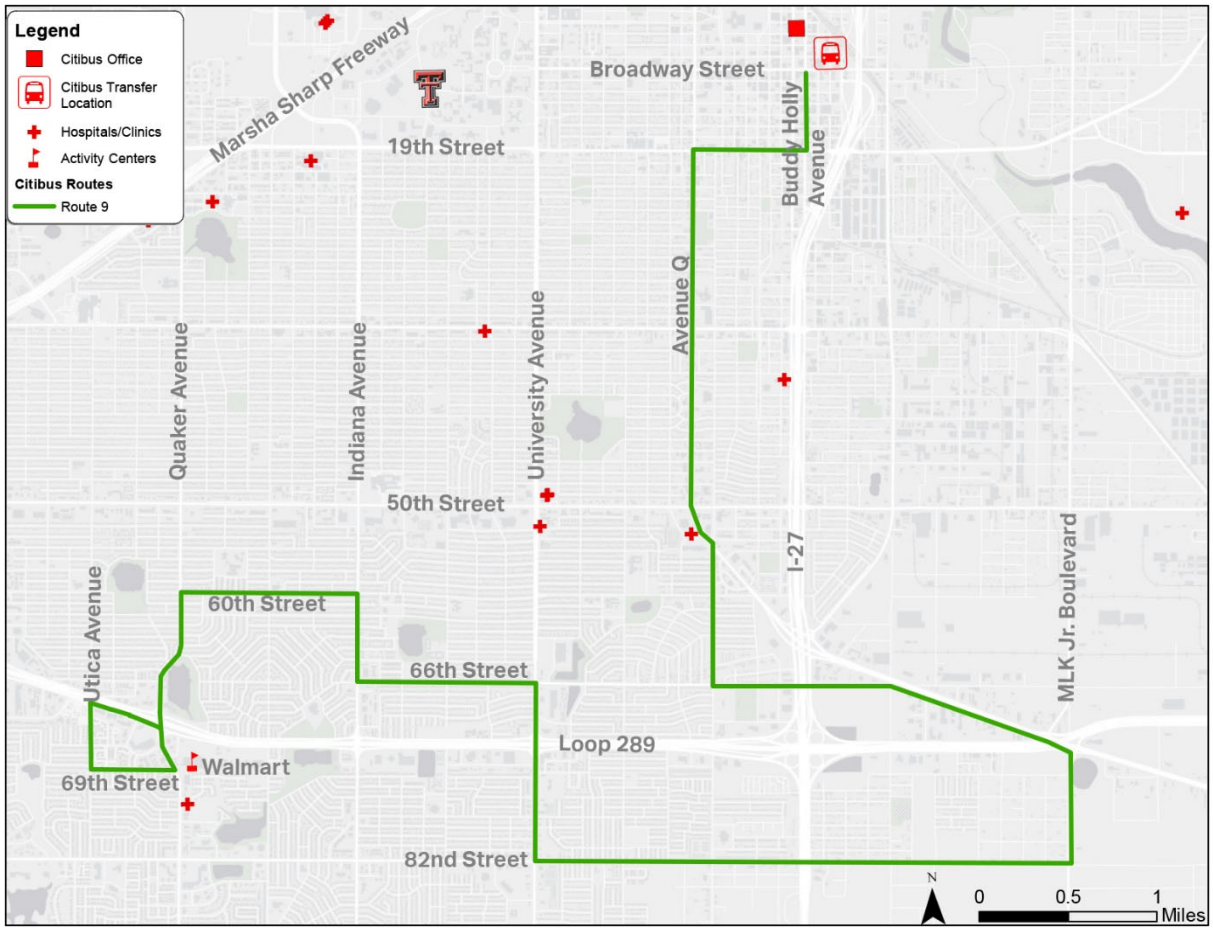


Table II-9: Proposed Route 9 Service Parameters		
	Phase 1	Phase 2
Weekday Span	5:45 a.m. to 6:45 p.m.	5:45 a.m. to 6:45 p.m.
Weekday Peak Headway	30 minutes	30 minutes
Weekday Midday Headway	60 minutes	60 minutes
Saturday Span	7:15 a.m. to 6:15 p.m.	7:15 a.m. to 6:15 p.m.
Saturday Headway	60 minutes	60 minutes

Table II- 9: Proposed Route 9 Service Parameters

Table II-10: Proposed Route 9 Impacts		
	Phase 1	Phase 2
Annual Hours	12,604	12,604
Annual Miles	207,274	207,274
Peak Buses	4	4

Table II- 10: Proposed Route 9 Impacts

Route 12 – 4th Street

The revised Route 12 is designed to provide faster service from the Downtown Plaza to the UMC Hospital and west Lubbock via 4th Street and Frankford Avenue, as shown in Figure II-8. The route reduces the travel time from downtown to Workforce Solutions from 60 minutes to 30 minutes. The route takes over the western portion of the current Route 12 with key destinations including UMC, Walmart, Social Security, Workforce Solutions, and the West End Center. The western terminus is a loop on Iola Avenue, 26th Street, Milwaukee Avenue, and 19th Street. The loop provides service to new areas including the residential areas on Iola Avenue and 26th Street, as well as the West End Center. As shown in Tables II-11 and II-12, the route operates on 60-minute headways all day from 5:25 a.m. to 6:45 p.m. on weekdays, and from 7:15 a.m. to 6:15 p.m. on Saturdays. The service operates with one bus with a total of 3,972 annual revenue hours and 66,730 annual revenue miles.

Figure II-8: Proposed Route 12

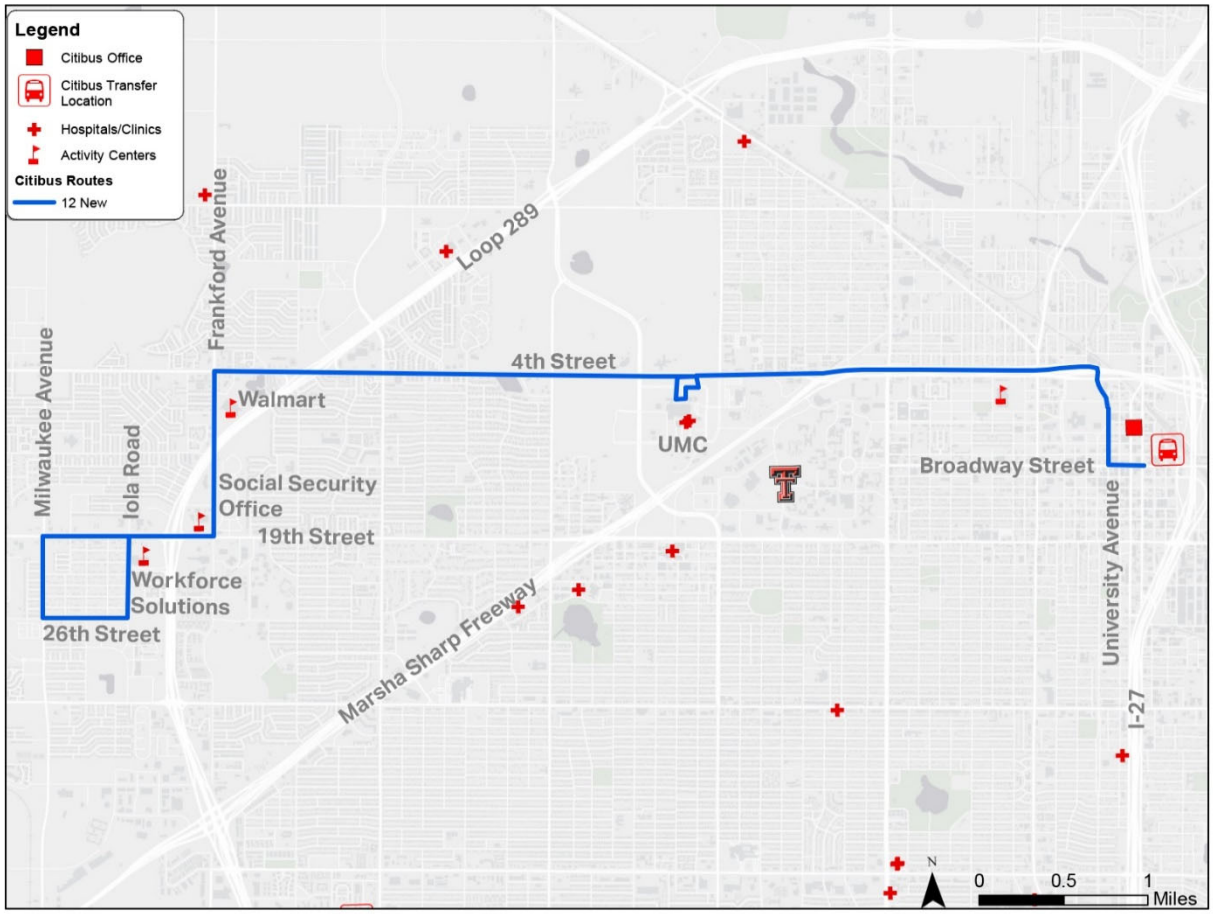


Table II- 11: Proposed Route 12 Service Parameters

Table II-11: Proposed Route 12 Service Parameters		
	Phase 1	Phase 2
Weekday Span	5:25 a.m. to 6:45 p.m.	5:25 a.m. to 6:45 p.m.
Weekday Peak Headway	60 minutes	60 minutes
Weekday Midday Headway	60 minutes	60 minutes
Saturday Span	7:15 a.m. to 6:15 p.m.	7:15 a.m. to 6:15 p.m.
Saturday Headway	60 minutes	60 minutes

Table II-12: Proposed Route 12 Impacts		
	Phase 1	Phase 2
Annual Hours	3,972	3,972
Annual Miles	66,730	66,730
Peak Buses	1	1

Table II- 12: Proposed Route 12 Impacts

Route 19 – 19th Street

As shown in Figure II-9, Route 19 operates a similar service as the existing Route 19, however the western portion of the route has been redesigned to provide less circuitous routing and more direct service to key activity areas, such as the West End Center. In addition, the route will no longer serve the South Plains Mall and instead will serve Workforce Solutions, retail at West End Center, the Milwaukee corridor, and new continuous service along Frankford Avenue from 19th Street to Marsha Sharp Freeway. The route will continue to serve the Covenant Medical Center Lakeside.

The route operates on 30-minute headways during the peak period on weekdays and on 60-minute headways during the weekday, midday and on Saturdays. The span of service is from 6:15 a.m. to 6:15 p.m. on weekdays, and from 8:15 a.m. to 6:15 p.m. on Saturdays. The route will operate with two peak vehicles and one vehicle during the off peak. Route 19 will have 5,110 total annual revenue hours and 88,556 total annual revenue miles. Service characteristics are shown in Tables II-13 and II-14.

Figure II-9: Proposed Route 19

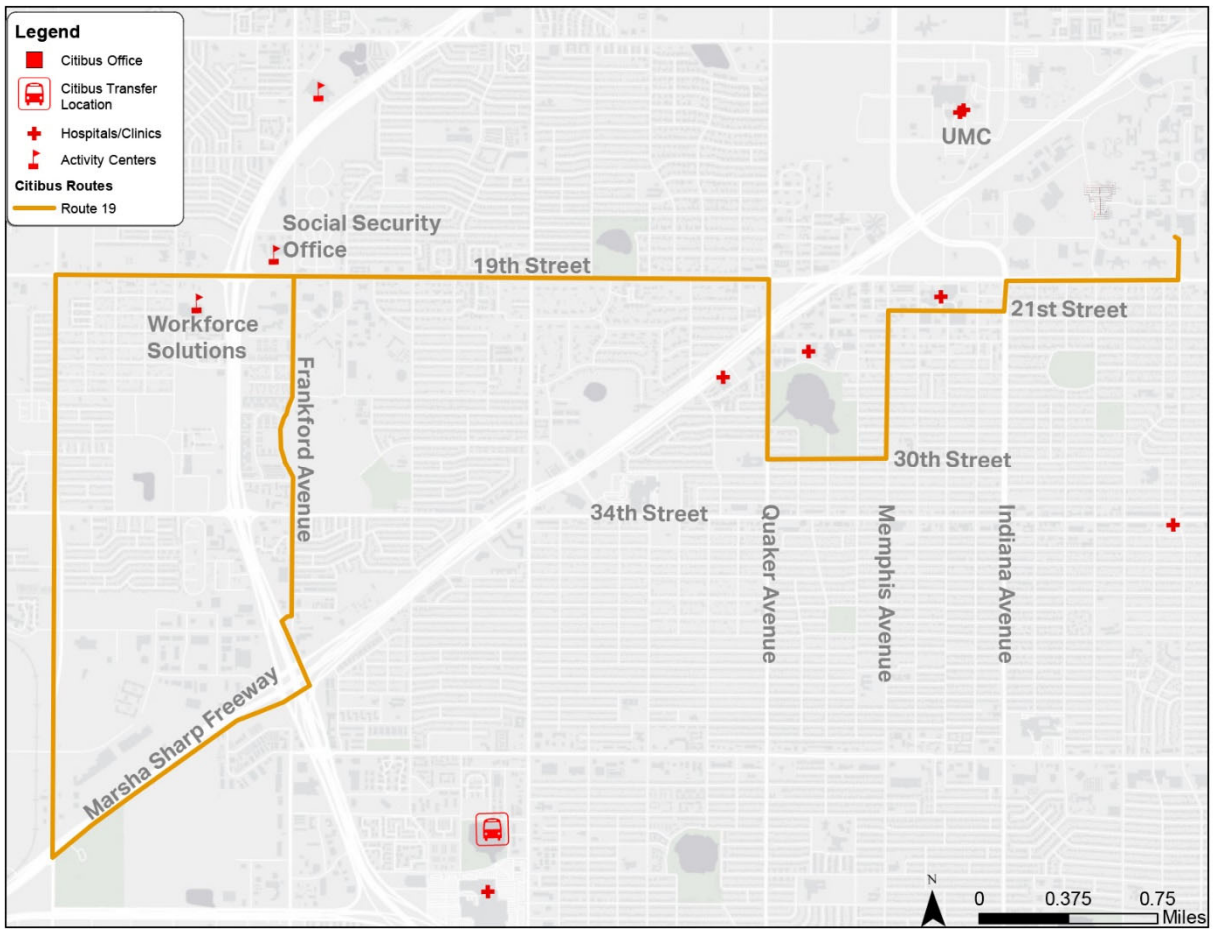


Table II-13: Proposed Route 19 Service Parameters		
	Phase 1	Phase 2
Weekday Span	6:15 a.m. to 6:15 p.m.	6:15 a.m. to 6:15 p.m.
Weekday Peak Headway	30 minutes	30 minutes
Weekday Midday Headway	60 minutes	60 minutes
Saturday Span	8:15 a.m. to 6:15 p.m.	8:15 a.m. to 6:15 p.m.
Saturday Headway	60 minutes	60 minutes

Table II- 13: Proposed Route 19 Service Parameters

Table II-14: Proposed Route 19 Impacts		
	Phase 1	Phase 2
Annual Hours	5,110	5,110
Annual Miles	88,556	88,556
Peak Buses	2	2

Table II- 14: Proposed Route 19 Impacts

Route 34

Route 34 will operate a similar routing as the existing Route 34 along Avenue K, 34th Street and Slide Road to the South Plains Mall. The only change to the route will be new service to the MHMR at Texas Avenue and 38th Street currently served by Route 6. At the South Plains Mall, the route will connect with Routes 5 and 6, as well as the Marsha Sharp Express. The new routing is shown in Figure II-10.

The service will improve to 30-minute headways all day on weekdays and 60-minute headways on Saturdays. Currently Route 34 has 30-minute peak and 60-minute off peak headways. The peak pullout for Route 34 is two buses and it will operate with 7,015 annual revenue hours and 117,285 annual revenue miles. The service characteristics are shown in Tables II-15 and II-16.

Figure II-10: Proposed Route 34



Table II- 15: Proposed Route 34 Service Parameters

Table II-15: Proposed Route 34 Service Parameters		
	Phase 1	Phase 2
Weekday Span	5:35AM to 6:15PM	5:35AM to 6:15PM
Weekday Peak Headway	30 minutes	30 minutes
Weekday Midday Headway	30 minutes	30 minutes
Saturday Span	7:35AM to 6:15PM	7:35AM to 6:15PM
Saturday Headway	60 minutes	60 minutes

Table II- 16: Proposed Route 34 Impacts

Table II-16: Proposed Route 34 Impacts		
	Phase 1	Phase 2
Annual Hours	7,015	7,015
Annual Miles	117,285	117,285
Peak Buses	2	2

Marsha Sharp Express

The Marsha Sharp Express is a new service with direct express service from the Downtown Plaza, Texas Tech University, and the South Plains Mall via Marsha Sharp Freeway, as shown in Figure II-11. The service was designed to provide faster service from downtown to the southwest area of Lubbock, addressing one of the most frequent comments received from stakeholders and the public. In addition to faster travel times between the two transit centers (Downtown Plaza and South Plains Mall), the route will also introduce new service along the Milwaukee Avenue and 82nd Street corridors where there has been rapid growth and new development. There is potential for the route to provide workforce trips from east Lubbock to the retail and commercial businesses in the southwest. The route may also attract reverse commuters from residential areas in the southwest to jobs at Texas Tech University and downtown Lubbock.

The route will operate on 15-minute peak and 30-minute off peak headways on weekdays from 6:30 a.m. to 6:00 p.m. The peak period will be longer with the transition to Phase 2. The route will operate five peak buses in Phase 1 and six peak buses in Phase 2. The total annual revenue hours in Phase 1 are 9,881 and increase to 11,858 revenue hours in Phase 2. The service characteristics for the route are provided in Tables II-17 and II-18.

Figure II-11: Proposed Marsha Sharp Express Service Parameters

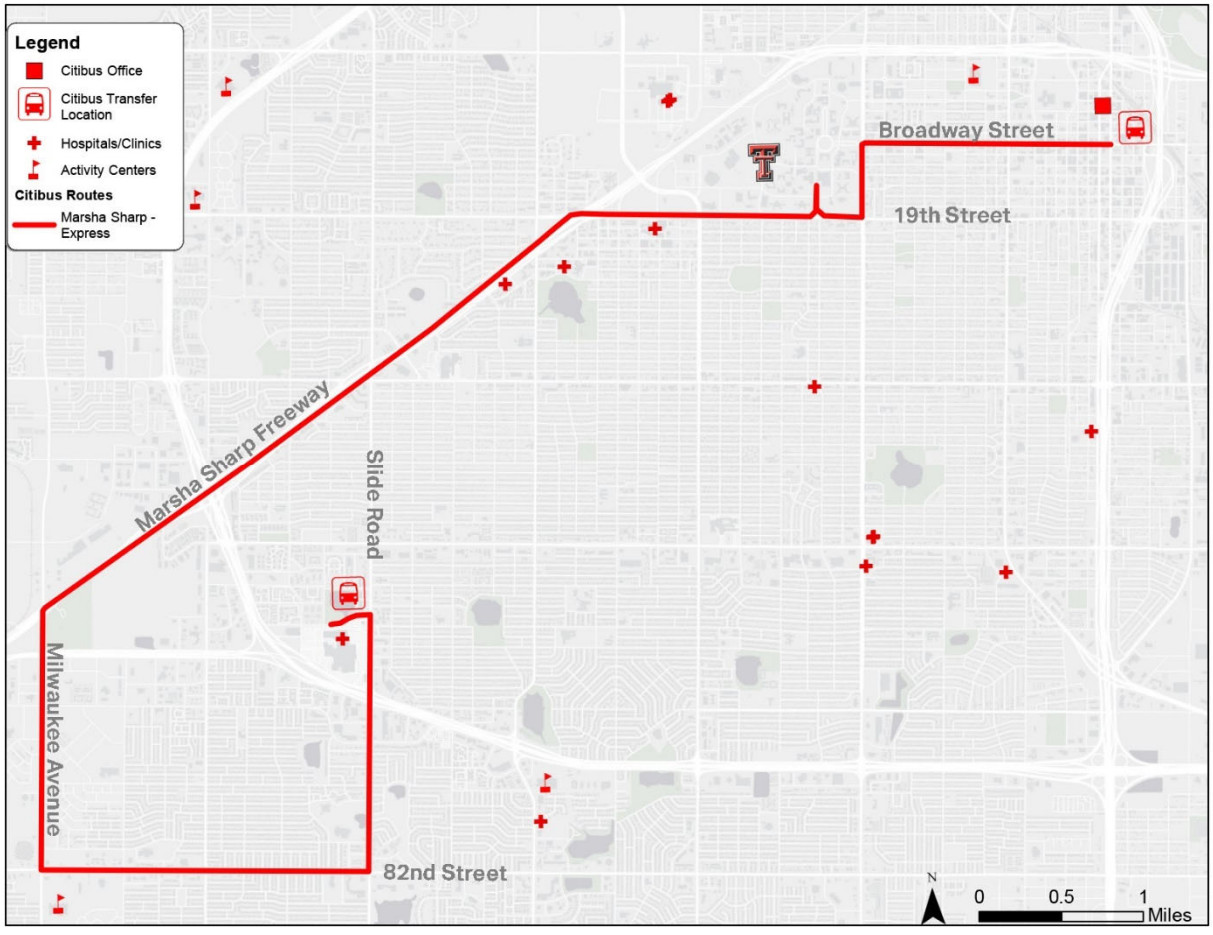


Table II-17: Proposed Marsha Sharp Express Service Parameters		
	Phase 1	Phase 2
Weekday Span	6:30 a.m. to 6:00 p.m.	6:30 a.m. to 6:00 p.m.
Weekday Peak Headway	15 minutes	15 minutes
Weekday Midday Headway	30 minutes	30 minutes
Saturday Span	No service	No service
Saturday Headway	No service	No service

Table II- 17: Proposed Marsha Sharp Express Service Parameters

Table II-18: Proposed Marsha Sharp Express Impacts		
	Phase 1	Phase 2
Annual Hours	9,881	11,858
Annual Miles	213,435	236,597
Peak Buses	5	6

Table II- 18: Proposed Marsha Sharp Express Impacts

98 Street Fixed Route

As shown in Figure II-12, Route 98 is a new Phase 2 service that will operate from the South Plains Mall to 98th Street and University Avenue via Milwaukee Avenue. The route introduces new local service in southwest Lubbock on the Milwaukee corridor further south to the 98th Street corridor, with service to numerous retail businesses including Market Street and Walmart. The route will continue to build on the fixed-route service in the area after the introduction of the Marsha Sharp Express in Phase 1. At the South Plains Mall, the route connects to Routes 5, 6, and 34, as well as the Marsha Sharp Express. Route 98 will begin service in Phase 2 and will operate at 60-minute headways all day on weekdays and on Saturdays. The service will operate with one bus and have a total of 3,580 annual revenue hours and 60,144 annual revenue miles. The service characteristics are shown in Tables II-19 and II-20.

Figure II-12: Proposed 98th Street Fixed Route

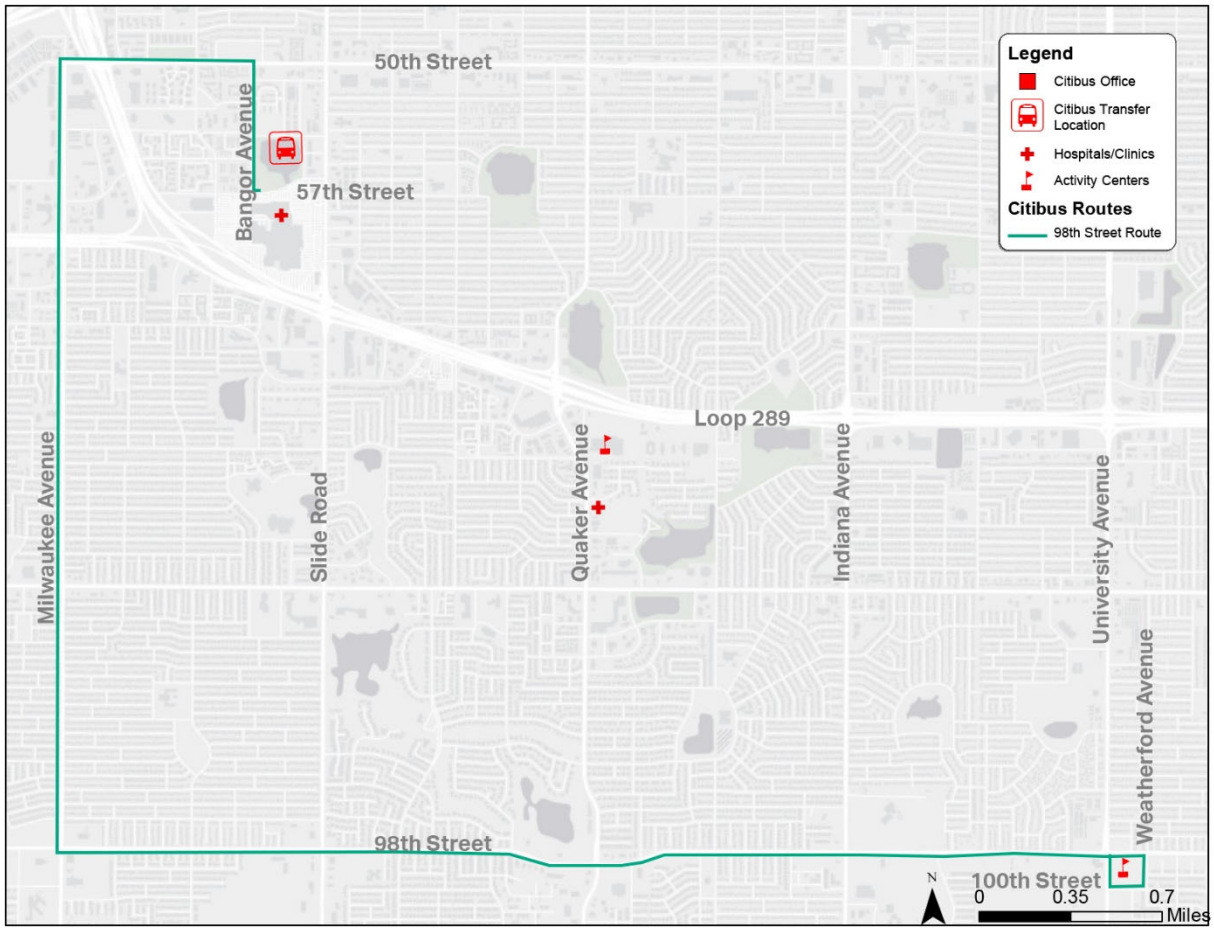


Table II- 19: Proposed 98 Street Fixed Route Service Parameters

Table II-19: Proposed 98 Street Fixed Route Service Parameters		
	Phase 1	Phase 2
Weekday Span	No service	6:30 a.m. to 6:30 p.m.
Weekday Peak Headway	No service	60 minutes
Weekday Midday Headway	No service	60 minutes
Saturday Span	No service	7:30 a.m. to 5:30 p.m.
Saturday Headway	No service	60 minutes

Table II- 20: Proposed 98 Street Fixed Route Impacts

Table II-20: Proposed 98 Street Fixed Route Impacts		
	Phase 1	Phase 2
Annual Hours	No service	3,580
Annual Miles	No service	60,144
Peak Buses	No service	1

Microtransit Zones

New microtransit zones will be introduced to provide service to lower density areas focused on workforce trips and lifeline service. In Phase 1, two microtransit zones will be incorporated into the system plan. The northeast zone will replace portions of the existing Route 14 and provide greater coverage north to Estacado High School, DPS, and the Lubbock Business Park. This will expand the reach of transit to the residential areas in northeast Lubbock and provide connections to key areas that have limited transit access in the current system. The zone will connect with Route 2/14 at the United Supermarket on Parkway Drive for direct connections to the Downtown Plaza Transit Center and Texas Tech University. Phase 1 will also include a southwest linear microtransit zone between Milwaukee Avenue to the west, Avenue P to east, 82nd Street to the north, and 98th Street to the south. The service will connect into the system with connections to the Marsha Sharp Express, Route 5, and Route 9 with direct service to the South Plains Mall and Downtown Plaza transit centers. The route is designed to provide service to the high growth area in the southwest for workforce and shopping trips.

Two more microtransit zones will be introduced in Phase 2 with service in southeast and northwest Lubbock. Both zones will provide service to new areas including retail and residential. The northwest zone will operate between Erskine Street to the north, 34th Street and Loop 289 to the south and east, and Milwaukee Avenue to the west. It will connect into the fixed route system with Routes 12 and 19 and provide direct service to Workforce Solutions and the West End Center. The southeast zone will provide lifeline services to underserved areas, and workforce trips to the light industrial businesses in the zone. The route will connect into the system to Routes 6 and 9 for trips to the Downtown Plaza and South Plains Mall transit centers. The microtransit zones are shown in Figure II-13.

All microtransit routes will operate from 6:15 a.m. to 6:15 p.m. on weekdays, and from 7:45 a.m. to 5:45 p.m. on Saturdays. Since microtransit operates as an on-demand service there is no way to calculate the exact service characteristics. Revenue-hour and revenue-mile estimates have been made based on potential service demand and peer service analysis. In Phase 1, the two zones will operate with two buses with an estimated 7,160 annual revenue hours and 111,553 annual revenue miles. Phase 2 will add two additional buses for a total of four microtransit vehicles with double the annual revenue hours (14,320) and annual revenue miles (223,106). The service characteristics are shown in Tables II-21 and II-22.

Figure II-13: Proposed Microtransit Zones

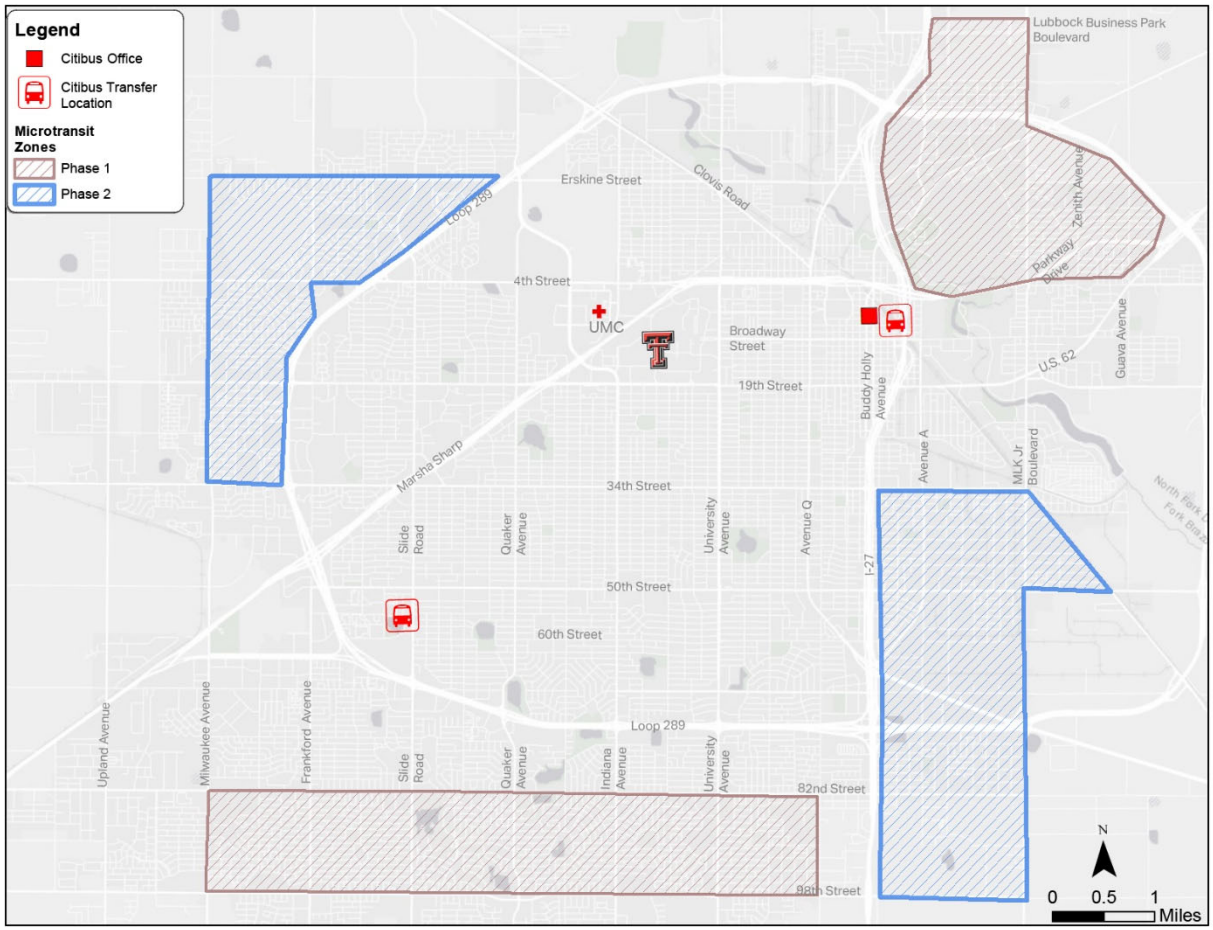


Table II- 21: Proposed Microtransit Service Parameters

Table II-21: Proposed Microtransit Service Parameters		
	Phase 1	Phase 2
Weekday Span	6:15 a.m. to 6:15 p.m.	6:15 a.m. to 6:15 p.m.
Saturday Span	7:45 a.m. to 5:45 p.m.	7:45 a.m. to 5:45 p.m.

Table II- 22: Proposed Microtransit Impacts

Table II-22: Proposed Microtransit Impacts		
	Phase 1	Phase 2
Annual Hours	7,160	14,320
Annual Miles	111,553	223,106
Peak Buses	2	4

This chapter describes some of the considerations associated with phasing Citibus COA recommended improvements over time. A discussion of investment priorities will happen as part of the preliminary preferred alternative presentations – the public input received will guide the development of the final recommended implementation plan and associated phasing.

PHASED APPROACH

The COA preliminary preferred alternative has been built around a phased approach.

Phase 1

Years 1-3

Phase 1 would be implementation of all the recommended COA changes to the fixed route structure, as well as the addition of the two microtransit zones for northeastern and southwestern Lubbock.

Phase 2

Years 4-5

Phase 2 would be implementation of two new microtransit zones in northwest and southeast Lubbock. This would be in addition to the two microtransit zones established in Phase 1, so that there would be four microtransit zones in total. Phase 2 would also implement the new 98th Street fixed-route service.

Phase 3

Beyond Five Years

Future Citibus system investments beyond five years could follow one of three potential paths, based on community priorities for continued Citibus improvement:

Path 1 - Increase geographic coverage to reach more areas

- Through larger microtransit areas or new fixed routes, this path would prioritize service expansion to cover new parts of Lubbock currently underserved or not served at all.
- Would not improve frequency or hours of service.

Path 2 - Invest in higher frequency of fixed routes

- With the Phase 1 changes to the fixed route system complete, this path would build on these improvements by adding buses to identified high-priority routes so that peak headways could be reduced to enable bus departures every 15 or 20 minutes
- Would not improve geographic coverage or hours of service.

Path 3 - Invest in longer span of service for fixed route and microtransit

- Building on Phase 1 and 2 changes, this path would prioritize more span of service (start and end times) for the COA recommended services.
- Could involve buses starting earlier, running later, more Saturday service, and/or new Sunday service.
- Would not affect frequency or coverage.

Phase 3 may take place over five years or more and incorporate each of these paths in succession, if funding is available.

PRIORITIZATION

Ahead of final COA plan development, the discussion around prioritization will occur during public outreach events, stakeholder discussions, and meetings of the project advisory committee, transit advisory board, and city council. The key prioritization questions that must be answered to inform prioritization of future investments are:

Is expanding the system geographically to serve more areas the top priority?

OR

Would improved frequency of the redesigned routes be the best way to build ridership?

OR

Would adding later night service and/or more weekend service provide the most benefits?

OR

Should more on-demand service be considered?

RESOURCE DEPENDENT

While Phase 1 of the COA is built around the existing financial and organizational capacity of Citibus, Phases 2 and 3 require more funding, more personnel, and possibly more buses. New sources of revenue, as well as new partnerships, will need to be developed long-term to support Phases 2 and 3.


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This chapter presents preliminary activities associated with implementing the preliminary preferred alternative, including the five-year operating and capital plans, and the financial plan.

IMPLEMENTATION PROGRAM

The program is based on implementing Phase 1 of the proposed system plan. This implementation program assumes that planning for the route restructuring will start upon approval of the COA. The implementation program will restructure the entire regular fixed-route bus network and implement two microtransit zones. All service changes are proposed to occur in the first year of service. While all of the route changes would occur in the first year after the COA approval, subsequent years would be dedicated to monitoring the system, making adjustments to service based on customer response and development, and determining if expansion should occur that would incorporate some of the Phase 2 recommendations. Capital facility improvements would happen over the course of several years, given the timing of grant applications, facility planning, and multi-year construction. Capital equipment (vehicles) investments would occur annually.

There are several steps required for implementing the system plan, much of it is already documented in the COA. As the system restructuring would constitute a major system change, public hearings will be needed for implementation. Route details and bus operations will need to be finalized to ensure that all streets are capable of supporting bus services and all turns can be made by a bus. New bus stops will need to be created for route segments not currently served by Citibus, but included in the COA service plan. Bus operators, along with the general public, will also need to be trained on the new route structure and system operations before implementation and during the first days of new service. Public materials will need to be adjusted to reflect the new routes.

System Implementation

The implementation of the new system would occur in the first year based on the route network presented in Chapter II. The projection of total revenue hours and miles are presented below on Table IV-1. Implementation will include not only fixed routes but two microtransit zones. Service parameters for the proposed Citibus system are presented on Table IV-2.

Table IV-1: Service Projections

	Current	Phase 1
Revenue Hours	69,539	69,155
Revenue Miles	1,011,198	1,198,494
Peak Fixed Route Buses	22	22
Peak Microtransit Vehicles	-	2

Table IV- 1: Service Projections

Table IV-2: Service Parameters					
Route	Weekday Span	Weekday Peak Headway	Weekday Midday Headway	Saturday Span	Saturday Headway
1	5:45 a.m. to 6:45 p.m.	60 minutes	60 minutes	7:45 a.m. to 6:45 p.m.	60 minutes
2-14 Combo	5:45 a.m. to 6:45 p.m.	30 minutes	30 minutes	6:45 a.m. to 6:45 p.m.	60 minutes
5	5:35 a.m. to 6:15 p.m.	30 minutes	60 minutes	7:35 a.m. to 6:15 p.m.	60 minutes
6	5:45 a.m. to 6:15 p.m.	30 minutes	60 minutes	7:05 a.m. to 5:45 p.m.	60 minutes
9	5:45 a.m. to 6:45 p.m.	30 minutes	60 minutes	7:15 a.m. to 6:15 p.m.	60 minutes
12	5:25 a.m. to 6:45 p.m.	60 minutes	60 minutes	7:15 a.m. to 6:15 p.m.	60 minutes
19	6:15 a.m. to 6:15 p.m.	30 minutes	60 minutes	7:35 a.m. to 6:15 p.m.	60 minutes
34	5:35 a.m. to 6:15 p.m.	30 minutes	30 minutes	7:35 a.m. to 6:15 p.m.	60 minutes
Marsha Sharp	6:30 a.m. to 6:00 p.m.	15 minutes	30 minutes	No Service	No Service
Microtransit	6:15 a.m. to 6:15 p.m.	On Demand	On Demand	7:45 a.m. to 5:45 p.m.	On Demand

Table IV- 2: Service Parameters

Capital Implementation

The capital program includes the purchase of replacement and expansion buses as well as other items that support bus operations. The only expansion vehicles needed for the Phase 1 system are microtransit vehicles. For most transit systems, microtransit services use vans. Much of the Citibus fleet is beyond its useful life and is ready for replacement, as shown on Table IV-3. Besides vehicles, the capital program also includes the following items:

- Safety and security enhancements
- Passenger amenities
- Replacement of the bus wash system in the maintenance facility
- Expansion and rehabilitation of the administration and maintenance facility
- Replacement of support vehicles
- Replacement of the shop truck
- Updates to computer systems and software
- Security cameras on transit vehicles
- Phone system upgrades
- A technical update to the COA after five years
- Miscellaneous capital items
- Satellite transit centers
- Dispatch upgrade to facilitate microtransit

Table IV-3: Vehicle Replacement/Purchase Schedule							
Vehicle Type	Currently Beyond Useful Life	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
40 Foot Transit Bus	36	8	12	3	3	3	3
35 Foot Transit Bus	20	14	8	3	3	3	3
Paratransit Van	25	6	12	1	3	3	2
Sedan	12	4	4	4		2	2
Microtransit Van		3					3

Table IV- 3: Vehicle Replacement/Purchase Schedule

The current fleet has many buses in use that are beyond the useful life of the vehicle. Citibus should follow an aggressive fleet replacement program to ensure reliability of the fleet and follow the

recommendations in the Citibus Transit Asset Management Plan. As Citibus implements the COA, it is possible that some neighborhood routes with lower frequency could be served by a smaller bus, such as a 22- to 25-passenger mid-duty bus. These buses would be lower capital acquisition and replacement cost and could provide a lower operating cost. Paratransit vehicles might double as fixed-route buses for the neighborhood routes. Microtransit vans could also be interchanged with paratransit buses, as needed, which allows for more fleet flexibility.

Transit Centers

The Phase 1 network changes focus around two new satellite transit centers that support the current Downtown Transfer Plaza. The first location would be a transit center on the Texas Tech University campus to better facilitate transfers between regular Citibus routes and TTU services, as well as serve Citibus crosstown routes. The other transfer point will be located at the South Plains Mall, which is already a point where many routes end. This would add amenities to this stop to make it a transfer point, allowing passengers to transfer to services that travel further west and south from the mall. These transfer points will not have the same level of amenity as the Downtown Transfer Plaza, but will need upgraded amenities beyond a simple bus stop and shelter. This could include enhanced signage and route maps, benches, multiple shelters, and improved lighting.



In addition, discussion has been brought up about moving Citibus' existing transit plaza. While the transit plaza should remain downtown Lubbock, potential sites could be located south or west of the existing facility. A future feasibility study is needed to help select a new location.

Staffing Changes

Changes to the system will have only a marginal impact on staffing. The modest expansion related to microtransit will require additional dispatch capabilities and operators for microtransit vehicles. Microtransit operators and vehicles would require the same licensing as paratransit operators.

To support the expanded service and major changes to the Citibus system, Citibus should add a planner to the administration staff. The planner will allow Citibus to be able to analyze any additional changes that are needed by working with local stakeholders, provide service monitoring, and prepare Title VI reports for major changes.

FINANCIAL PLAN

The financial plan considers both the operating costs and capital costs. Operating costs are presented on Table IV-4 for all services and show that total operating costs are expected to increase by approximately three percent per year. Table IV-5 presents the capital costs. The capital costs correspond with the capital projects and items presented earlier in this chapter. Capital costs vary from year to year based primarily on bus replacements and other items that need to be replaced. Capital costs are high in the early years due to the number of vehicles that need to be replaced that are already past their useful lives. If grant funding is not received for vehicle replacement in these years, the projected capital expenses will roll over into future years. Table IV-6 shows the financial plan, and costs and revenues, over the next five years. This table shows that approximately $9.6 million dollars in local funding will be needed in Fiscal Years 2021 and 2022, and that amount declines to $4.5 million in Fiscal Year 2024 when most of the fleet has been replaced. Much of the funding need has been identified as part of the 2019 through 2043, 25-year plan.

Table IV- 4: Total System Operating Cost Projection (Phase 1)

Table IV-4: Total System Operating Cost Projection (Phase 1)						
	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Operating Costs						
Texas Tech	$3,839,214	$3,956,590	$4,078,342	$4,204,647	$4,335,686	$4,471,647
Specil, Cecil, & Express	$309,594	$319,983	$330,769	$341,968	$353,597	$365,672
Fixed Route	$4,621,890	$4,756,953	$4,896,966	$5,042,124	$5,192,633	$5,348,703
Greyhound	$130,761	$135,992	$141,431	$147,089	$152,972	$159,091
CitiAccess	$3,241,488	$3,374,727	$3,514,110	$3,659,937	$3,812,518	$3,972,182
Planning	$191,125	$191,125	$191,125	$191,125	$191,125	$191,125
Administration	$1,507,443	$1,550,485	$1,595,186	$1,641,619	$1,689,858	$1,739,982
COA Technical Update						$205,000
Total Operating Cost:	**$13,841,516**	**$14,285,855**	**$14,747,930**	**$15,228,509**	**$15,728,388**	**$16,453,403**

Table IV- 5: Total Capital Cost Projection (Phase 1)

Table IV-5 Total Capital Cost Projection (Phase 1)						
	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Capital Costs						
Replace buses/vans*	$12,804,299	$13,064,885	$2,950,000	$2,950,000	$2,950,000	$2,950,000
Safety and security enhancements	$21,200	$21,600	$22,000	$22,400	$22,800	$23,300
Passenger amenities/public art/enhancements	$42,400	$43,200	$44,100	$45,000	$45,900	$46,800
Replace bus wash facility*	$250,000					
Admin/Maint office renovation/expansion	$20,000,000	$20,000,000				
Replace support vehicles	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000
Replace shop truck						$50,000
Miscellaneous capital items	$46,400	$45,200	$172,900	$170,600	$168,300	$120,900
Update computer equipment/software	$10,000	$10,000	$11,000	$12,000	$13,000	$14,000
Security cameras on buses/paratransit vehicles	$5,000	$5,000				
Upgrade/replace phone system						$45,000
Satelite Transit Centers			$5,000,000			
Microtransit Vehicles	$270,000					

Table IV- 6: Financial Plan

Table IV-6 Financial Plan						
	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Total Operating Cost	$13,841,516	$14,285,855	$14,747,930	$15,228,509	$15,728,388	$16,453,403
Total Capital Cost	$33,549,299	$33,289,885	$8,300,000	$3,300,000	$3,300,000	$3,350,000
Total Cost:	**$47,390,815**	**$47,575,740**	**$23,047,930**	**$18,528,509**	**$19,028,388**	**$19,803,403**
Federal Revenue Share	$30,874,419	$30,936,261	$7,016,000	$6,883,000	$6,956,000	$7,071,000
State Operating Assitance	$763,959	$794,517	$826,298	$859,350	$893,724	$929,473
Technical Studies (MPO)	$53,700	$53,700	$53,700	$53,700	$53,700	$53,700
Directly Generated Sources (fares and other)	$6,058,485	$6,119,070	$6,180,261	$6,242,063	$6,304,484	$6,367,529
Local Funding	$9,640,251	$9,672,191	$8,971,672	$4,490,395	$4,820,480	$5,381,702


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Chapter V: Strategic Questions and Next Steps

This chapter reviews questions to be answered during community discussions of this report, process for soliciting input, overview of the Final Report, and timing of next steps.

STRATEGIC QUESTIONS

The preliminary preferred alternative presented in this report represents another step in the COA Plan project process and is not the final alternative for Citibus – much discussion is needed around key strategic questions such as:

- What is the impact of all the proposed changes on existing ridership? Are potential negative impacts worth positive improvements for existing riders and the potential to attract new riders?
- How should the microtransit zones be adapted and finalized to maximize effectiveness?
- What are the community priorities for implementation of the changes and how are changes phased over time?
- Is the community willing to accept possibly walking a little further, or making a transfer, in order to access much more direct and higher frequency service?
- What additional resources are needed to support implementation of the preliminary preferred alternative?
- How can the final service plan be refined to help maximize constrained financial resources; for example, having less hours of service on certain routes in favor of longer service hours on other routes?
- If new funding resources become available, what are the top priorities for additional investments? Should Citibus invest in additional service for the routes and services defined in the preliminary preferred alternative or should other new services, such as new microtransit zones, be funded first? A prioritized "wish list" should be developed.
- How does the final service plan impact existing funding partners and how can the impacts be addressed or mitigated?
- What capital project improvements are needed to support the preliminary preferred alternative and how are those projects, such as improvements to the transfer point at the mall and a possible new transit center at TTU, planned and funded over time?
- How are other Citibus services such as paratransit and the existing night service impacted by the preliminary preferred alternative?

The answers to these questions will guide the development of the final COA service plan and help ensure successful implementation.

Community Input



In order to answer some of these strategic questions, we are planning to hold a series of community open houses throughout Lubbock during late April 2020. These open houses will present the preliminary preferred alternatives information contained in this Working Paper through an interactive format with maps and visuals with opportunity for public comment. Results of these open houses will be included in the Final COA.

Immediately following the open houses, a community-wide online survey will be available in English and Spanish, and will remain open for four weeks to allow those who are unable to attend the open houses a chance to provide feedback on the preliminary preferred alternative.

DRAFT FINAL REPORT

The Draft Final Report, to be completed by July 2020, will build on this report and include consideration of the following critical aspects:

- Organizational Capacity Analysis
    - Including human resource and administration requirements for plan implementation
- Major Capital Projects Plan
    - Including needed bus stop improvements, as well as analysis of the proposed TTU transit hub and mall transfer center associated costs and timeframe
- Future Priorities for Other New or Expanded Services
    - Including consideration of how potential windfall funds might be put to use in expanding on the preliminary preferred alternative or implementing other new services not included in the preliminary preferred alternative
- Final Alternative Plan
    - Including summary of input on the preliminary preferred alternative from the project study advisory committee, the Lubbock Transit Advisory Board, stakeholder presentations, and community open houses
- Strategic Implementation
    - Including fully detailed route and service plan, updated cost allocation structure, detailed financial plan, consideration of a fare-free system, funding development plan, performance measures, implementation timeline, and discussion of partnerships needed

NEXT STEPS

We are entering the final few months of the COA plan development. The timeline for the remaining tasks is:

