CITY OF EL PASO | SUN METRO

FINAL REPORT

JUNE 2024


sunmetro
sunmetro
sunmetro

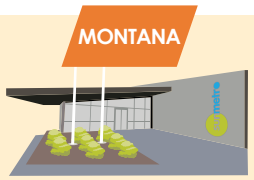
CONTENTS

1 | EXECUTIVE SUMMARY

SYSTEM OVERVIEW

Sun Metro is the City of El Paso's public transportation provider. Sun Metro is a city department that mainly relies on a local half-cent sales tax, federal grant funding, and fare revenue to operate 52 bus routes, paratransit service, and one streetcar line.

Sun Metro's mission is to connect the community through high-quality transit services. Over the past decade, Sun Metro has launched and expanded BRIO, its successful Bus Rapid Transit (BRT) network. Sun Metro has also opened a historic Streetcar line and two new transit centers within the past five years.



2014 — **OCTOBER**
BRIO Mesa corridor

2015 — **JANUARY**
Bicentennial Council Transit Operations Center

2018 — **MARCH**
Northgate Transit Center

2018 — **NOVEMBER**
El Paso Streetcar

2019 — **SEPTEMBER**
BRIO Alameda and Dyer corridors

2022 — **NOVEMBER**
BRIO Montana and Upper East Side Transit Center

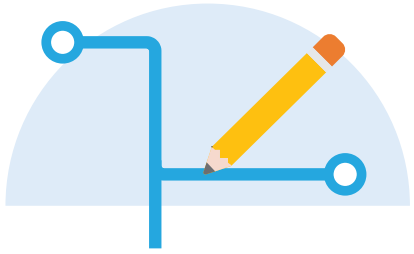
SUN METRO RISING

Sun Metro Rising is the first comprehensive evaluation of the entire Sun Metro system since city voters approved the half-cent tax increase for transit funding in 1987.

INITIAL PROJECT GOALS INCLUDED THE FOLLOWING:

Analyzing ridership trends and changing travel patterns.

Engaging riders, stakeholders, and Sun Metro staff.



Redesigning the Sun Metro route network to optimize service.

Developing a framework for sustainable system growth.

STUDY TIMELINE

Sun Metro Rising consisted of three phases over a two-year period.

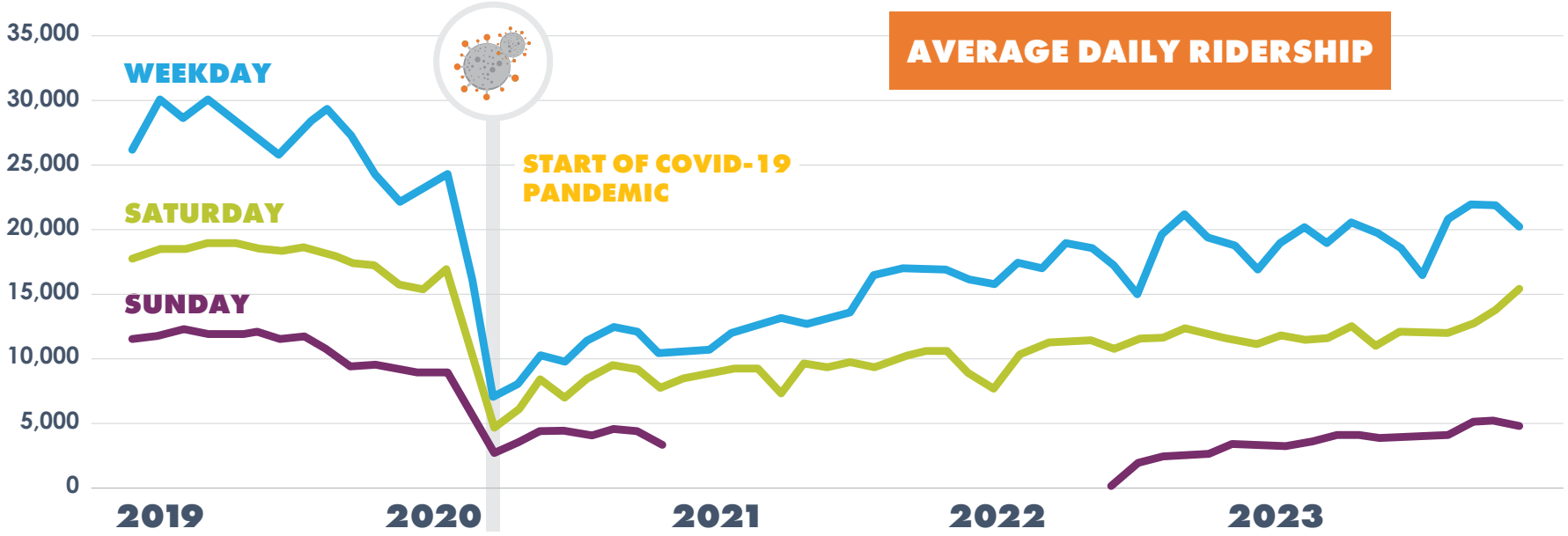
The first phase was a comprehensive analysis of system design, ridership performance, market conditions, and rider characteristics – detailed in a **STATE OF THE SYSTEM** report. The second phase included a peer review and the creation of service concepts, which were shared with riders and staff. A series of recommendations were developed during the final phase based on community, staff, and City Council feedback.

As the concluding deliverable of the Sun Metro Rising, this **FINAL REPORT** is a guiding document for optimizing and expanding Sun Metro service for El Paso residents and visitors over the next several years.

EXISTING CONDITIONS

RIDERSHIP RECOVERY

Like all transit systems, Sun Metro experienced an unprecedented ridership decline at the onset of the COVID-19 pandemic. However, system ridership has been increasing steadily since March 2020 and is now at 83% of pre-pandemic levels.

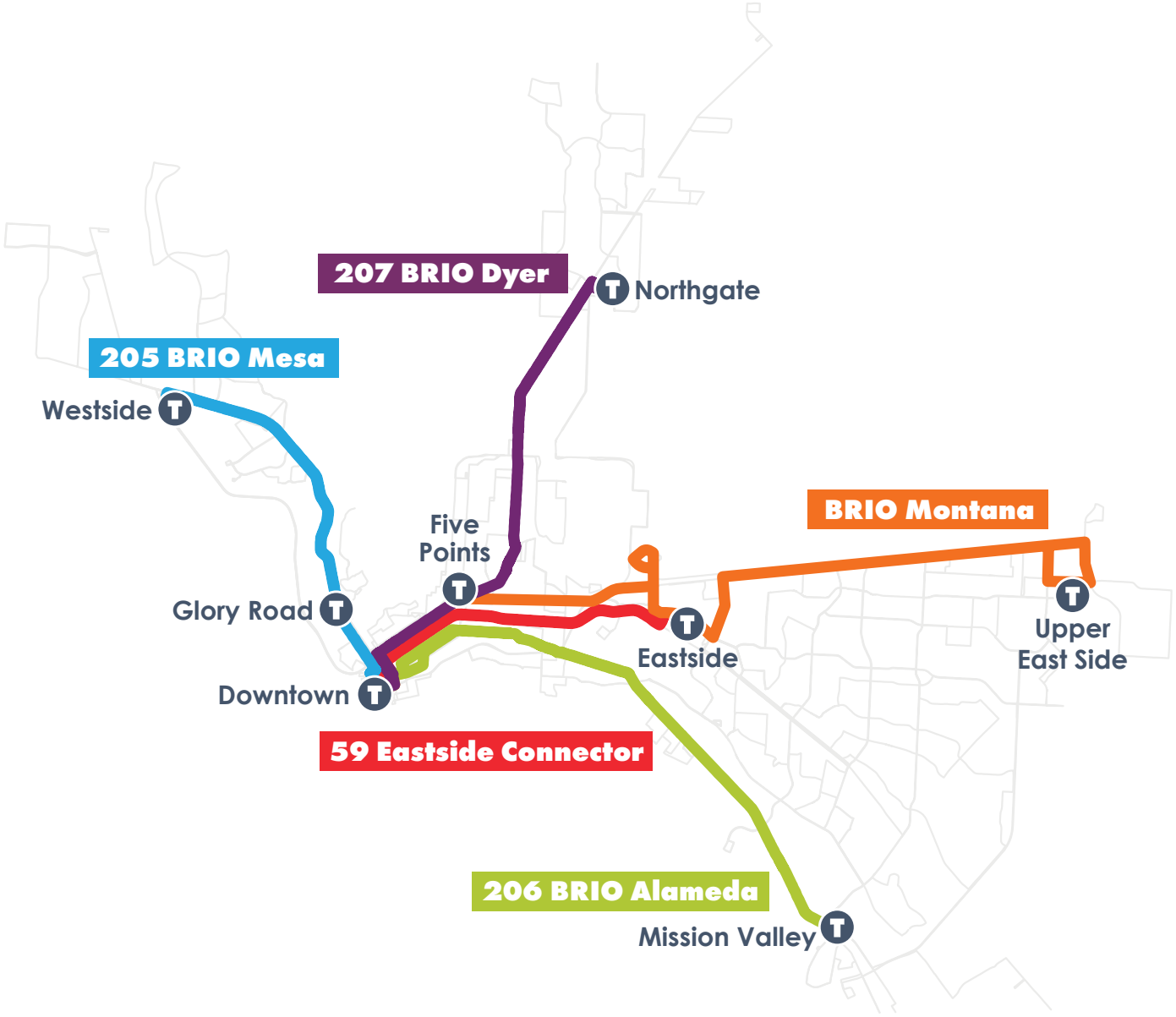


BRIO

Sun Metro's four BRIO routes serve as the backbone of its transit network. Collectively, BRIO routes connect with all transit centers and 47 of 48 non-BRIO routes.

BRIO routes provide fast and frequent service with buses running every 10-15 minutes. BRIO stations spaced farther apart than typical Sun Metro bus stops to maximize speed.

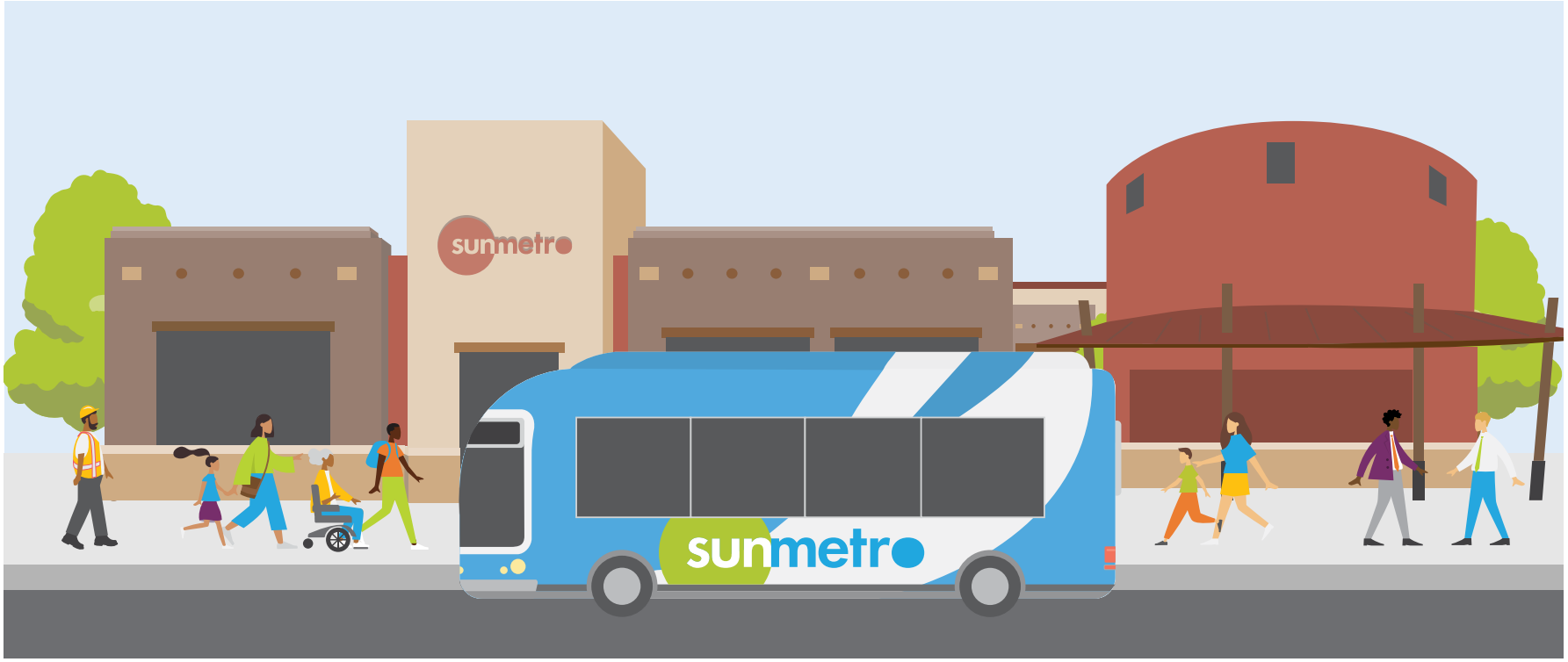
BRIO routes alone account for 40% of Sun Metro's ridership. BRIO routes and the underlying local routes that run on the same segments account for 65% of system ridership.



TRANSIT CENTERS

The Sun Metro route network is supported by eight transit centers that serve as safe and comfortable connection points for riders and vital layover locations for bus operators.

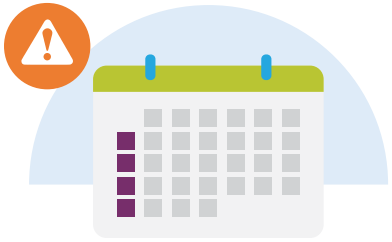
Transit centers include a range of amenities such as indoor waiting areas, restrooms, real-time arrival information, and parking.



KEY CHALLENGES

Most Sun Metro routes are infrequent.

While BRIO and Route 59 Eastside Connector operate frequent service throughout the day, most other Sun Metro routes run every 45-90 minutes. Infrequent schedules result in long waits and missed connections at bus stops and transit centers.

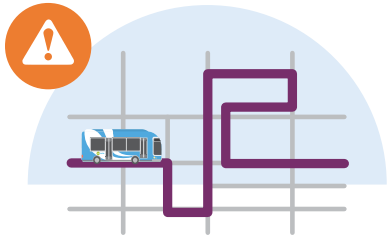


Sunday service is very limited.

Only 11 of 52 Sun Metro routes currently operate on Sunday. Sunday service was suspended in December 2020 during the COVID-19 pandemic due to low ridership and driver shortages. Sunday service was partially restered in June 2022 and continues to be a high priority for Sun Metro riders.

Sun Metro routes do not run late into the night.

Many Sun Metro routes, including BRIO, do not operate beyond 9pm on weekdays. The lack of late-night service presents mobility challenges for second shift employees, particularly those in retail and service sectors.



Several routes are indirect and inefficient.

While BRIO and most Eastside routes are direct, several routes in the Westside, Central, and North Hills areas include one-way loops and time-consuming deviations. These design features result in inefficient service that is inconvenient for most riders.

RIDER CHARACTERISTICS

A May 2023 survey of Sun Metro bus riders revealed the following key findings:

Sun Metro riders are **shifting to BRIO routes.**

Approximately **one-quarter** of Sun Metro riders **live in Ciudad Juarez.**

More than half of transit trips are to **work or shopping.**

Most riders take Sun Metro at **least five days a week.**

50% of riders use a day, week, or monthly pass to pay for their trip

Sun Metro has a high percentage of **long-time riders.**

Most Sun Metro riders **rely on transit** to get where they need to go.

One out of three riders are college or high school **students.**

Nearly **one in three** riders work **late night** hours.

Most Sun Metro riders are **satisfied with service.**

RIDER FEEDBACK

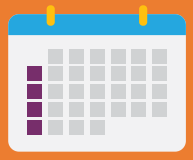
Proposed route and schedule modifications were presented to Sun Metro riders and the broader community in November 2022.

Outreach events included pop-up meetings at six transit centers, virtual and in-person public meetings, social media posts, and an online survey. Riders were mostly supportive of the proposals and provided feedback on potential service expansion options.

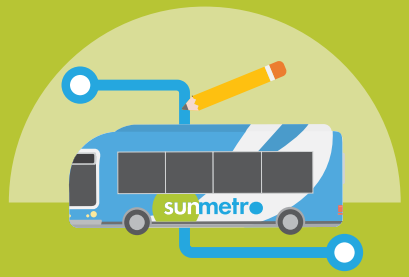
Sun Metro riders have mostly **positive reactions to proposed route changes.**

Sun Metro riders would like **improved bus stops along local routes.**

Community has expressed need of **restoring Sunday service.**



RECOMMENDATIONS



Restructure the route network to simplify and strengthen service.

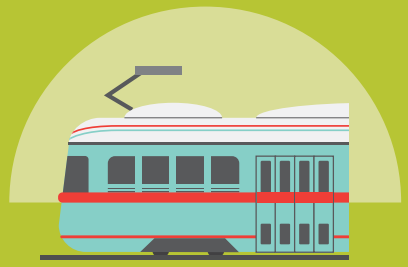
The recommended local route network will optimize service by upgrading frequencies, improving connections, reducing travel times, and simplifying alignments. The redesigned local route network will provide a solid foundation for future system growth.

Continue to restore Sunday service.

Restoring Sunday service to all Sun Metro routes will significantly improve access to employment and shopping, as well as places of worship and recreational activities.

Invest in more frequent service.

Over time, Sun Metro should incrementally upgrade route frequencies to further enhance service and elevate the entire transit system. These improvements will require more buses and drivers, as well as increased operating funds.



Continue to maximize the potential of the Streetcar.

Over the past year, Sun Metro has expanded Streetcar days and hours of operation, resulting in steadily increasing ridership. Sun Metro should continue to offer the robust and flexible schedule and promote the service as a viable circulator for visitors, employees, and residents.

Strategically pilot microtransit service.

Microtransit is a zone-based, on-demand service that utilizes smaller, nimbler vehicles. Microtransit works best in low-density areas that cannot support fixed-route service. Sun Metro should pilot microtransit in Pebble Hills to improve connectivity to the new Upper East Transit Center.

Develop a comprehensive bus stop improvement plan.

Most Sun Metro bus stops lack seating and shelter. Many stops fail to meet minimum accessibility standards. Current bus stop signage is outdated with minimal information. A multi-year bus stop improvement plan would enhance comfort and perceived safety for existing and potential riders.

Strengthen BRIO by implementing transit priority treatments.

As Sun Metro's premium service, BRIO offers higher-capacity vehicles, enhanced stations, and frequent schedules. Sun Metro should maximize BRIO speed and reliability by investing in transit priority treatments such as bus lanes, queue jumps, and signal priority.

Establish mobility hubs at the highest ridership bus stops.

El Paso Community College Valle Verde Campus and Zaragoza Bridge Port of Entry are among the most active bus stops within the city. Sun Metro should upgrade and expand pedestrian and bike access, wayfinding, and amenities at these locations.

Take a prudent approach to updating and transitioning the fleet.

Sun Metro's bus and paratransit fleet consists of Compressed Natural Gas (CNG) vehicles. While the department plans to continue purchasing CNG vehicles to replace retired vehicles, Sun Metro may consider applying for FTA Lo-No Emissions capital grants to pilot electric or hydrogen buses.

Adopt service guidelines and performance standards.

Service guidelines assist in decisions regarding service modification, implementation, and/or discontinuation. Performance monitoring is critical in balancing limited resources and ensuring cost-effective services. Adopting guidelines and standards will increase consistency and transparency.

Strengthen partnerships with major institutions and employers.

Sun Metro can increase transit access and attract new riders by adopting pass programs with major institutions such as University of Texas-El Paso, El Paso Community College, El Paso Unified School District, and Texas Tech Medical Center.

Gauge the community's support for additional transit investment.

Sun Metro has relied on a half-cent sales tax to fund operations for over 35 years. Several major cities in Texas collect a three-quarter cent or full cent sales tax for transit. The City of El Paso may consider gauging the community's support for an increased transit sales tax.


El Paso's Children's
brio

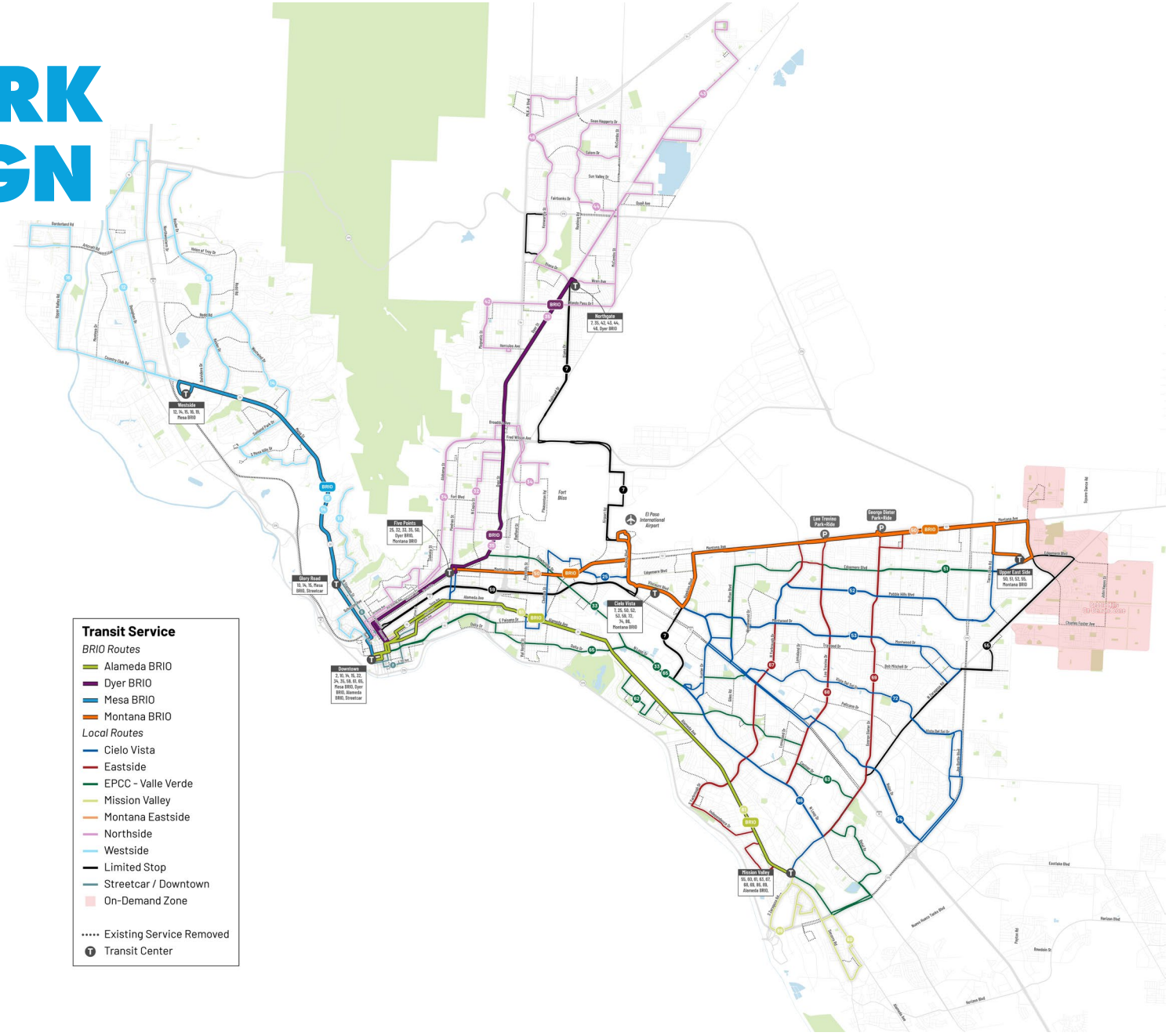
2 | SERVICE RECOMMENDATIONS

This chapter details immediate service recommendations and future expansion priorities.

NETWORK REDESIGN

The recommended Sun Metro route network will optimize service by simplifying alignments, upgrading frequencies, improving connections, and reducing travel times.

The redesigned local route network will provide a solid foundation for future growth.



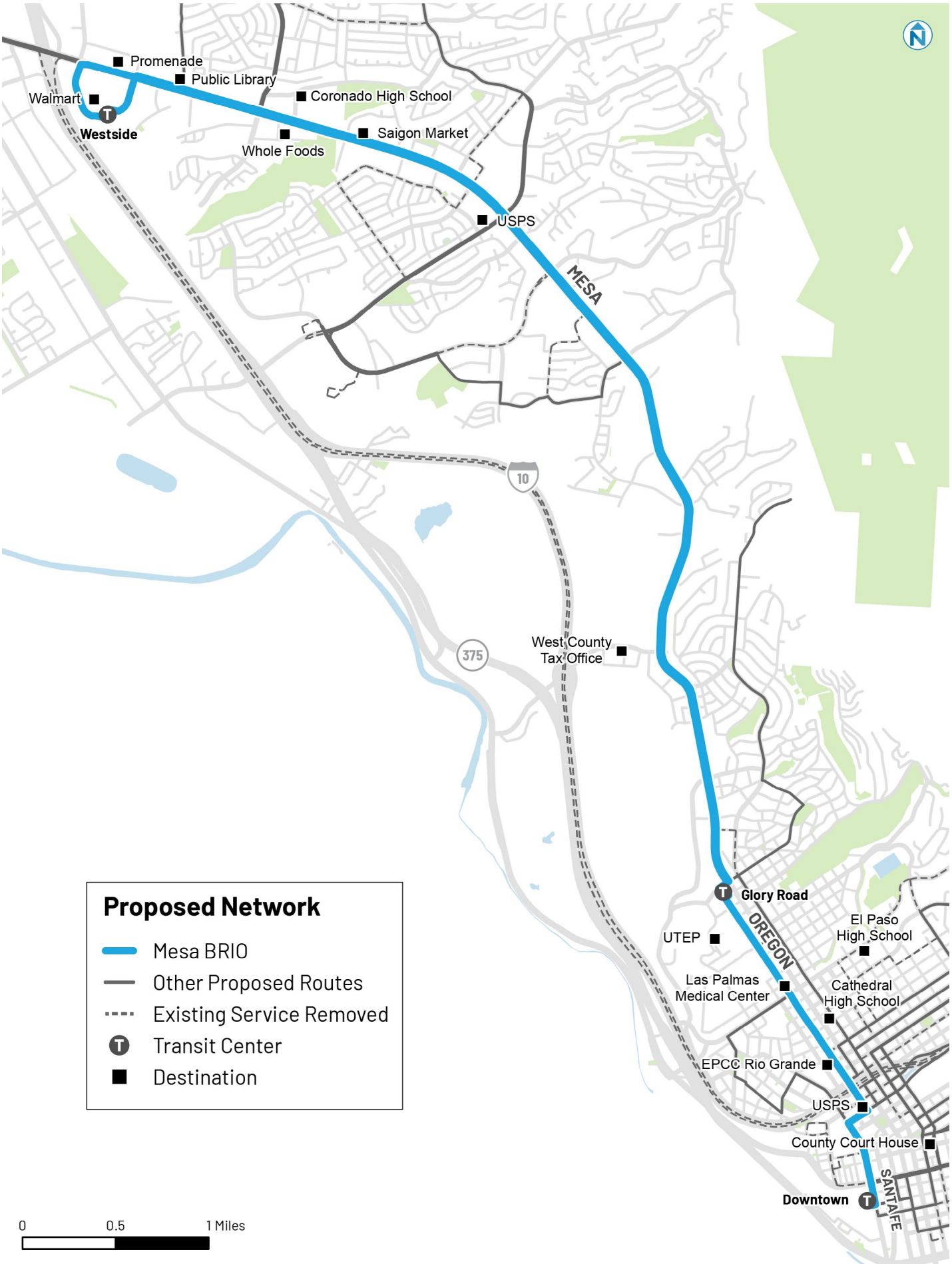
205 Mesa

BRIO

Route 205, more commonly known as the Mesa BRIO, is a Bus Rapid Transit (BRT) corridor that serves Downtown, Westside, and Glory Road Transit Centers. Other major destinations include the University of Texas at El Paso (UTEP), Providence Hospital Memorial Campus, Las Palmas Medical Center, and the Mesa Walmart Supercenter.

No routing changes are recommended for the Mesa BRIO. Recommended schedule changes include later and earlier service to improve job and education access.

	Day	Start	End	Frequency	Buses	Daily Hours
Existing Service	Weekday	5:00 AM	8:25 PM	15	6	86.5
	Saturday	8:00 AM	7:15 PM	20	4	42.3
	Sunday	8:00 AM	6:15 PM	20	4	38.3
Phase 1 Service	Weekday	5:00 AM	9:00 PM	15	6	96.0
	Saturday	7:00 AM	8:00 PM	20	4	52.0
	Sunday	8:00 AM	7:00 PM	20	4	44.0
Full Buildout Service	Weekday	5:00 AM	11:00 PM	15	6	108.0
	Saturday	6:30 AM	10:00 PM	20	4	62.0
	Sunday	8:00 AM	8:00 PM	20	4	48.0


Promenade
Public Library
Walmart
Westside
Coronado High School
Saigon Market
Whole Foods
USPS
MESA
10
375
West County
Tax Office
Glory Road
OREGON
UTEP
El Paso
High School
Las Palmas
Medical Center
Cathedral
High School
EPCC Rio Grande
USPS
County Court House
Downtown
SANTA FE
Proposed Network
Mesa BRIO
Other Proposed Routes
Existing Service Removed
Transit Center
Destination
0
0.5
1 Miles

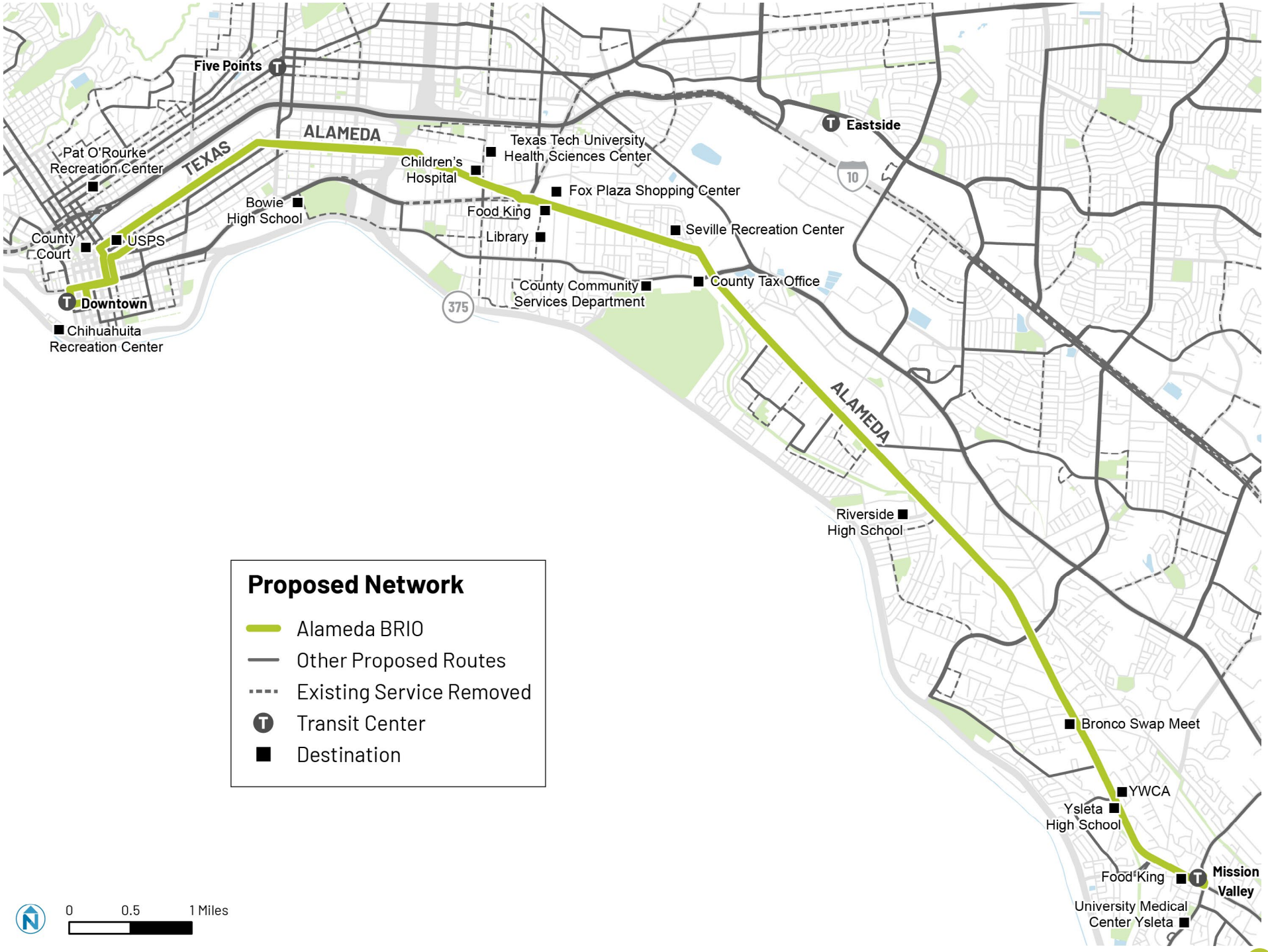
206 Alameda

BRIO

Route 206, more commonly known as the Alameda BRIO, is a BRT corridor that serves Downtown and Mission Valley Transit Centers. Other major destinations include the University Medical Center and Fox Plaza Shopping Center. Sun Metro introduced the Alameda BRIO in 2019.

No routing changes are recommended for the Alameda BRIO. Recommended schedule changes include later and earlier service to improve job and education access.

	Day	Start	End	Frequency	Buses	Daily Hours
Existing Service	Weekday	5:00 AM	8:25 PM	15	8	115.3
	Saturday	8:00 AM	6:45 PM	25	4	48.8
	Sunday	8:00 AM	6:35 PM	25	4	38.0
Phase 1 Service	Weekday	5:00 AM	9:00 PM	15	8	128.0
	Saturday	7:00 AM	8:00 PM	20	5	65.0
	Sunday	8:00 AM	7:00 PM	25	4	44.0
Full Buildout Service	Weekday	5:00 AM	11:00 PM	15	8	144.0
	Saturday	6:30 AM	10:00 PM	20	5	77.5
	Sunday	8:00 AM	8:00 PM	20	5	60.0


Five Points
ALAMEDA
TEXAS
Pat O'Rourke Recreation Center
Bowie High School
County Court
USPS
Downtown
Chihuahuita Recreation Center
Children's Hospital
Texas Tech University Health Sciences Center
Fox Plaza Shopping Center
Food King
Library
Seville Recreation Center
County Community Services Department
County Tax Office
375
Eastside
10
ALAMEDA
Riverside High School
Bronco Swap Meet
YWCA
Ysleta High School
Food King
Mission Valley
University Medical Center Ysleta
Proposed Network
Alameda BRIO
Other Proposed Routes
Existing Service Removed
Transit Center
Destination
0
0.5
1 Miles

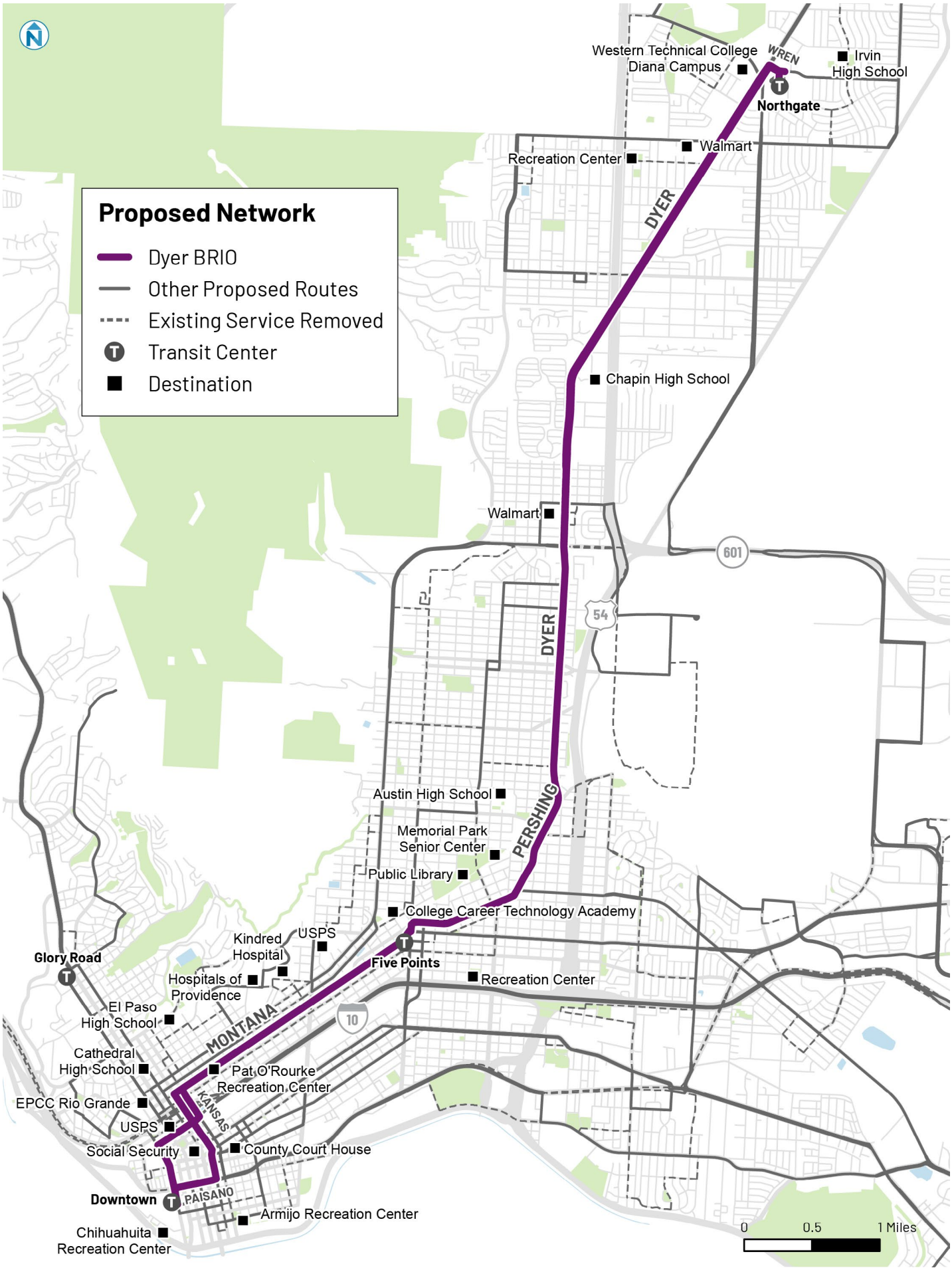
207 Dyer

BRIO

Route 207, more commonly known as the Dyer BRIO, is a BRT corridor that serves Downtown, Five Points, and Northgate Transit Centers. Other major destinations include the Dyer Walmart Supercenter. Sun Metro introduced the Dyer BRIO in 2019.

No routing changes are recommended for the Dyer BRIO. Recommended schedule changes include later and earlier service to improve job and education access.

	Day	Start	End	Frequency	Buses	Daily Hours
Existing Service	Weekday	5:00 AM	8:25 PM	15	8	115.3
	Saturday	8:00 AM	6:45 PM	25	4	48.8
	Sunday	8:00 AM	6:35 PM	25	4	38.0
Phase 1 Service	Weekday	5:00 AM	9:00 PM	15	8	128.0
	Saturday	7:00 AM	8:00 PM	20	5	65.0
	Sunday	8:00 AM	7:00 PM	25	4	44.0
Full Buildout Service	Weekday	5:00 AM	11:00 PM	15	8	144.0
	Saturday	6:30 AM	10:00 PM	20	5	77.5
	Sunday	8:00 AM	8:00 PM	20	5	60.0


Proposed Network
Dyer BRIO
Other Proposed Routes
Existing Service Removed
Transit Center
Destination
Western Technical College Diana Campus
WREN
Irvin High School
Northgate
Walmart
Recreation Center
DYER
Chapin High School
Walmart
601
54
DYER
Austin High School
PERSHING
Memorial Park Senior Center
Public Library
College Career Technology Academy
Kindred Hospital
USPS
Glory Road
Five Points
Recreation Center
Hospitals of Providence
El Paso High School
MONTANA
10
Cathedral High School
Pat O'Rourke Recreation Center
EPCC Rio Grande
KANSAS
USPS
Social Security
County Court House
Downtown
PAISANO
Armijo Recreation Center
Chihuahuita Recreation Center
0
0.5
1 Miles

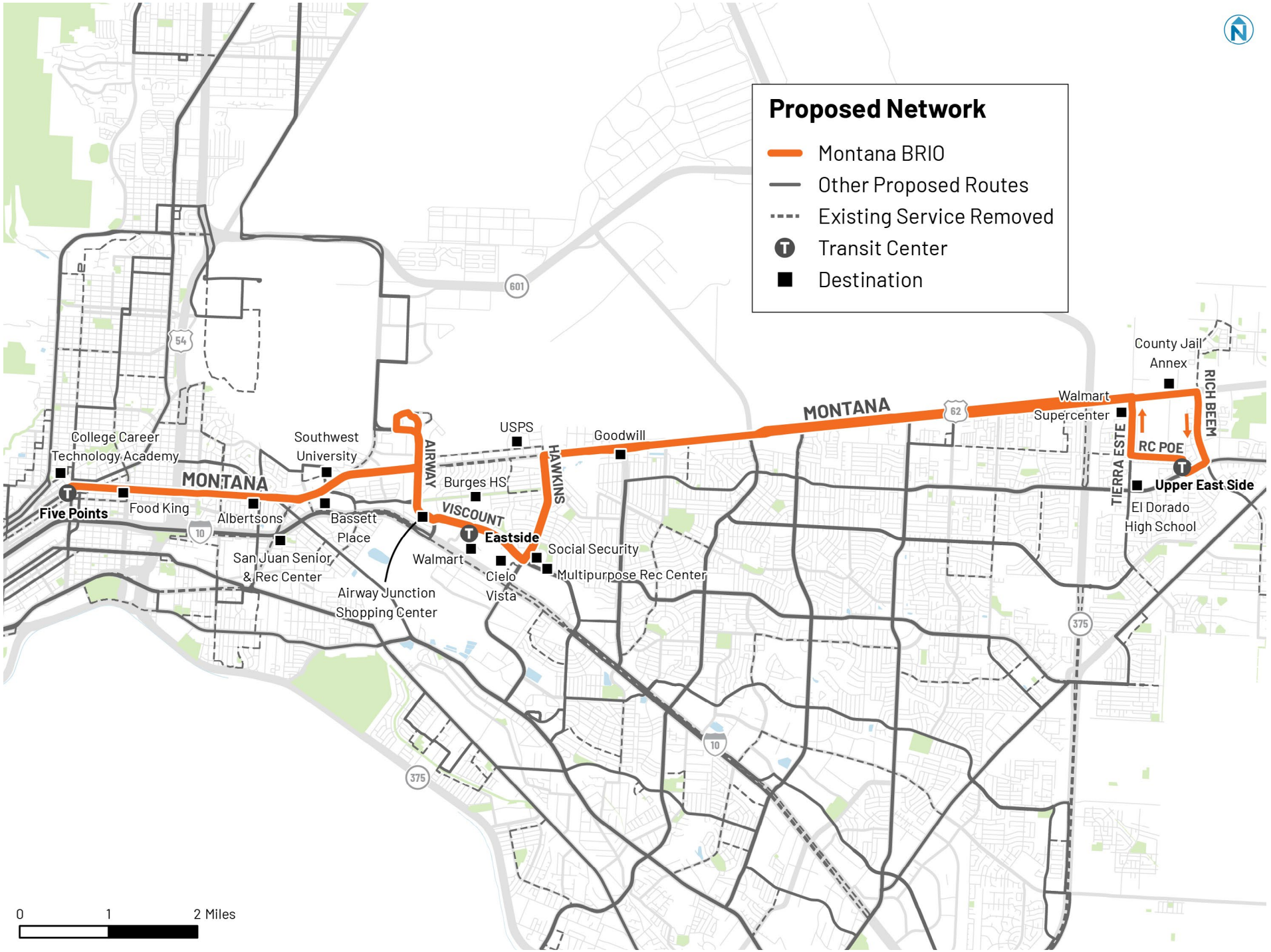
208 Montana

BRIO

Route 208, more commonly known as the Montana BRIO, is a BRT corridor that serves Five Points, Cielo Vista (one block away), and Upper East Transit Centers. Other major destinations include Bassett Place, El Paso International Airport, the Cielo Vista Walmart Supercenter, and Cielo Vista Mall. Sun Metro introduced the Montana BRIO in 2023.

No routing changes are recommended for the Montana BRIO. Recommended schedule changes include later and earlier service to improve job and education access.

	Day	Start	End	Frequency	Buses	Daily Hours
Existing Service	Weekday	5:00 AM	8:40 PM	15	8	116.3
	Saturday	8:00 AM	6:45 PM	25	4	41.3
	Sunday	8:00 AM	6:45 PM	25	4	39.7
Phase 1 Service	Weekday	5:00 AM	9:00 PM	15	8	128.0
	Saturday	7:00 AM	8:00 PM	20	5	65.0
	Sunday	8:00 AM	7:00 PM	25	4	44.0
Full Buildout Service	Weekday	5:00 AM	11:00 PM	15	8	144.0
	Saturday	5:30 AM	10:00 PM	20	5	82.5
	Sunday	8:00 AM	8:00 PM	20	5	60.0


Proposed Network
Montana BRIO
Other Proposed Routes
Existing Service Removed
Transit Center
Destination
MONTANA
MONTANA
AIRWAY
VISCOUNT
HAWKINS
TIERRA ESTE
RICH BEEM
RC POE
College Career Technology Academy
Five Points
Food King
Albertsons
Southwest University
Bassett Place
San Juan Senior & Rec Center
Airway Junction Shopping Center
Walmart
Burges HS
Eastside
USPS
Goodwill
Cielo Vista
Social Security
Multipurpose Rec Center
Walmart Supercenter
County Jail Annex
Upper East Side
El Dorado High School
601
54
10
62
375
0
1
2 Miles

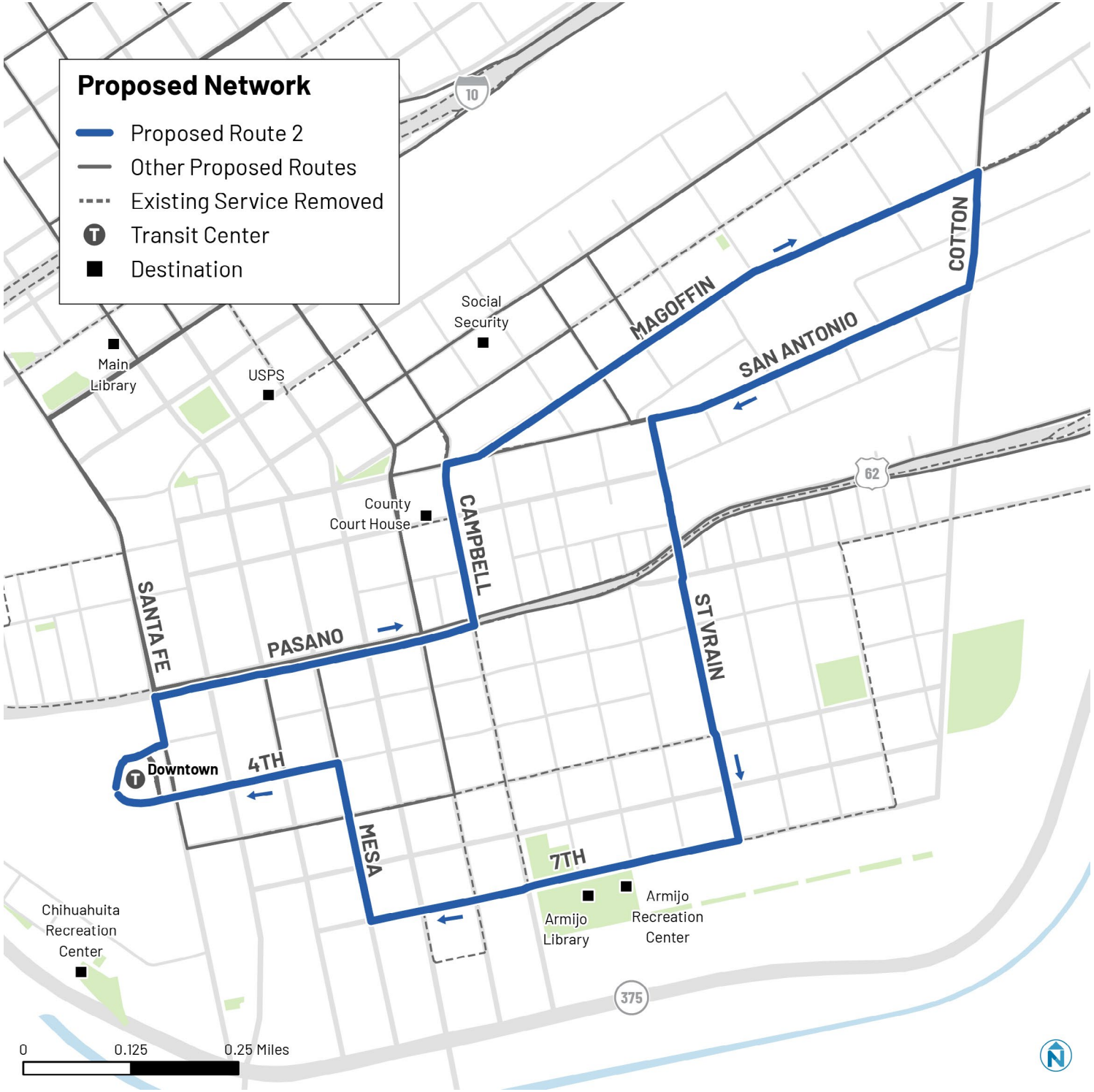
2 El Segundo

Circulator

Route 2 is a local route that serves Downtown and Five Points Transit Centers. Other major destinations include the Government District, Armijo Recreation Center, and Armijo Library.

Route 2 should be redesigned as a frequent circulator route connecting El Segundo Barrio and McGoffin neighborhoods with the Downtown Transit Center, Government District, Armijo Recreation Center, and Armijo Library.

	Day	Start	End	Frequency	Buses	Daily Hours
Existing Service	Weekday	5:45 AM	8:42 PM	50	1	15.0
	Saturday	5:45 AM	8:42 PM	50	1	15.0
	Sunday	No service				
Phase 1 Service	Weekday	5:00 AM	9:00 PM	20	1	16.0
	Saturday	7:00 AM	8:00 PM	20	1	13.0
	Sunday	8:00 AM	7:00 PM	20	1	11.0
Full Buildout Service	Weekday	5:00 AM	10:00 PM	20	1	17.0
	Saturday	7:00 AM	9:00 PM	20	1	14.0
	Sunday	8:00 AM	7:00 PM	20	1	11.0


Proposed Network
Proposed Route 2
Other Proposed Routes
Existing Service Removed
Transit Center
Destination
10
Social Security
MAGOFFIN
COTTON
SAN ANTONIO
Main Library
USPS
62
County Court House
CAMPBELL
SANTA FE
PASANO
ST VRAIN
Downtown
4TH
MESA
7TH
Armijo Library
Armijo Recreation Center
Chihuahuita Recreation Center
375
0
0.125
0.25 Miles

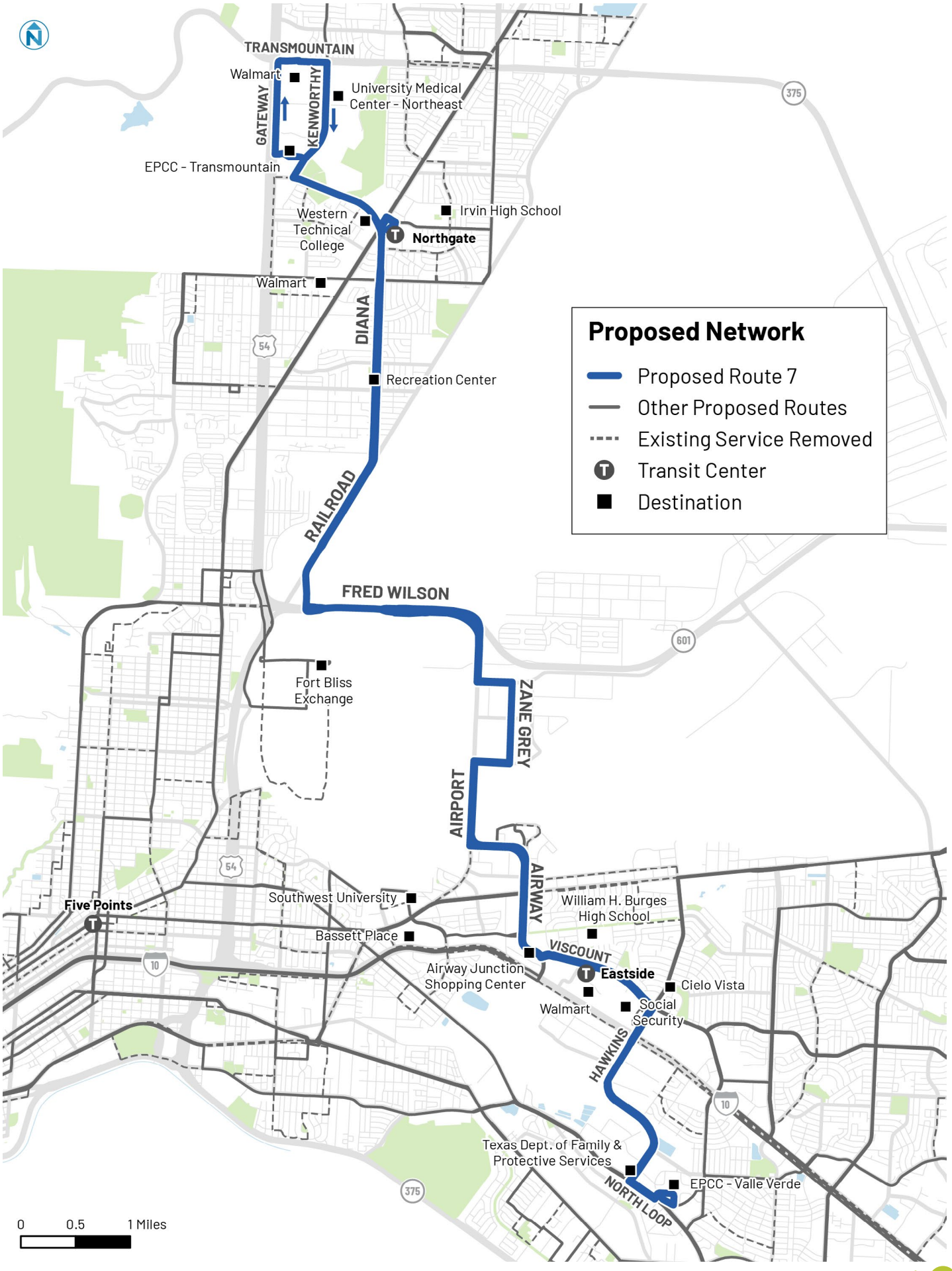
7 EPCC Connector

Limited

Route 7 is a limited stop route that serves Northgate and Cielo Vista Transit Centers. Other major destinations include the Transmountain Walmart Supercenter, Cielo Vista Mall, and El Paso Community College Valle Verde and Transmountain Campuses. Route 7 should be realigned from Gateway, Geronimo, and Montana to Airway.

Recommended schedule changes include more frequent weekday service and the addition of Sunday service.

	Day	Start	End	Frequency	Buses	Daily Hours
Existing Service	Weekday	5:00 AM	8:25 PM	15	6	86.5
	Saturday	8:00 AM	7:15 PM	20	4	42.3
	Sunday	8:00 AM	6:15 PM	20	4	38.3
Phase 1 Service	Weekday	5:00 AM	9:00 PM	15	6	96.0
	Saturday	7:00 AM	8:00 PM	20	4	52.0
	Sunday	8:00 AM	7:00 PM	20	4	44.0
Full Buildout Service	Weekday	5:00 AM	11:00 PM	15	6	108.0
	Saturday	6:30 AM	10:00 PM	20	4	62.0
	Sunday	8:00 AM	8:00 PM	20	4	48.0


TRANSMOUNTAIN
Walmart
GATEWAY
KENWORTHY
University Medical Center - Northeast
EPCC - Transmountain
Western Technical College
Irvin High School
Northgate
Walmart
DIANA
Recreation Center
RAILROAD
FRED WILSON
Fort Bliss Exchange
ZANE GREY
AIRPORT
AIRWAY
Five Points
Southwest University
Bassett Place
William H. Burges High School
VISCOUNT
Eastside
Airway Junction Shopping Center
Walmart
Cielo Vista
Social Security
HAWKINS
Texas Dept. of Family & Protective Services
EPCC - Valle Verde
NORTH LOOP
Proposed Network
Proposed Route 7
Other Proposed Routes
Existing Service Removed
Transit Center
Destination
0
0.5
1 Miles

10 Sunset Heights/Stanton

Local

Route 10 is a local route that serves Downtown and Glory Road Transit Centers. Other major destinations include UTEP, Providence Hospital Memorial Campus, and Las Palmas Medical Center.

Route 10 should be consolidated with Route 11 to improve all-day access to UTEP and downtown. Recommended schedule changes include more frequent weekday service and the addition of Sunday service. It is recommended that a smaller, cutaway bus be assigned to Route 10 to navigate narrow residential streets.

	Day	Start	End	Frequency	Buses	Daily Hours
Existing Service	Weekday	5:45 AM	7:20 PM	50	1	13.6
	Saturday	6:35 AM	7:20 PM	50	1	12.8
	Sunday	No service				
Phase 1 Service	Weekday	6:00 AM	8:00 PM	60	1	14.0
	Saturday	7:00 AM	7:00 PM	60	1	12.0
	Sunday	No service				
Full Buildout Service	Weekday	6:00 AM	8:00 PM	30	2	28.0
	Saturday	7:00 AM	7:00 PM	60	1	12.0
	Sunday	7:00 AM	6:00 PM	60	1	11.0


Proposed Network
Proposed Route 10
Other Proposed Routes
Existing Service Removed
Transit Center
Destination
STANTON
WINTER
BALTIMORE
OREGON
SCHUSTER
MUNDY
YANDELL
SANTA FE
Glory Road
Downtown
The University of Texas at El Paso
Las Palmas Medical Center
El Paso High School
Cathedral High School
EPCC RG
Main Library
Social Security
USPS
County Court House
Armijo Library
10
85
375
62
0
0.5
1 Miles

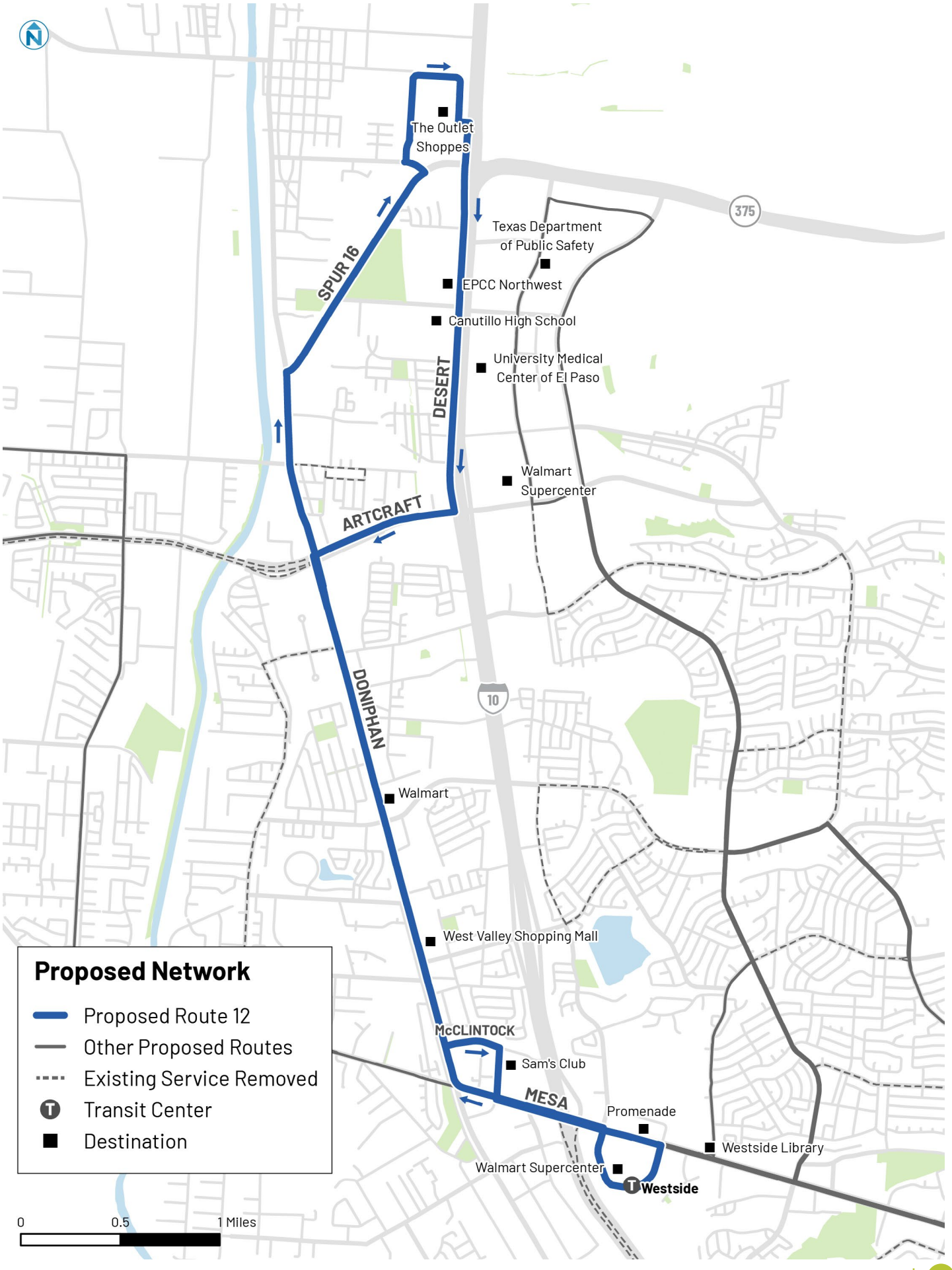
12 Doniphan

Feeder

Route 12 is a feeder route that serves Westside Transit Center. Other major destinations include the Mesa Walmart Supercenter.

Route 12 should be extended to El Paso Community College Northwest Campus and the Outlet Shoppes at El Paso. Recommended schedule changes include more frequent weekday service and the addition of Sunday service.

	Day	Start	End	Frequency	Buses	Daily Hours
Existing Service	Weekday	5:00 AM	8:03 PM	55	1	12.9
	Saturday	5:00 AM	8:03 PM	55	1	12.9
	Sunday	No service				
Phase 1 Service	Weekday	5:00 AM	8:00 PM	60	1	15.0
	Saturday	6:00 AM	7:00 PM	60	1	13.0
	Sunday	No service				
Full Buildout Service	Weekday	5:00 AM	8:00 PM	30	2	30.0
	Saturday	6:00 AM	7:00 PM	60	1	13.0
	Sunday	7:00 AM	6:00 PM	60	1	11.0


The Outlet Shoppes
SPUR 16
Texas Department of Public Safety
375
EPCC Northwest
Canutillo High School
University Medical Center of El Paso
DESERT
Walmart Supercenter
ARTCRAFT
DONIPHAN
10
Walmart
West Valley Shopping Mall
McCLINTOCK
Sam's Club
MESA
Promenade
Westside Library
Walmart Supercenter
Westside
Proposed Network
Proposed Route 12
Other Proposed Routes
Existing Service Removed
Transit Center
Destination
0
0.5
1 Miles

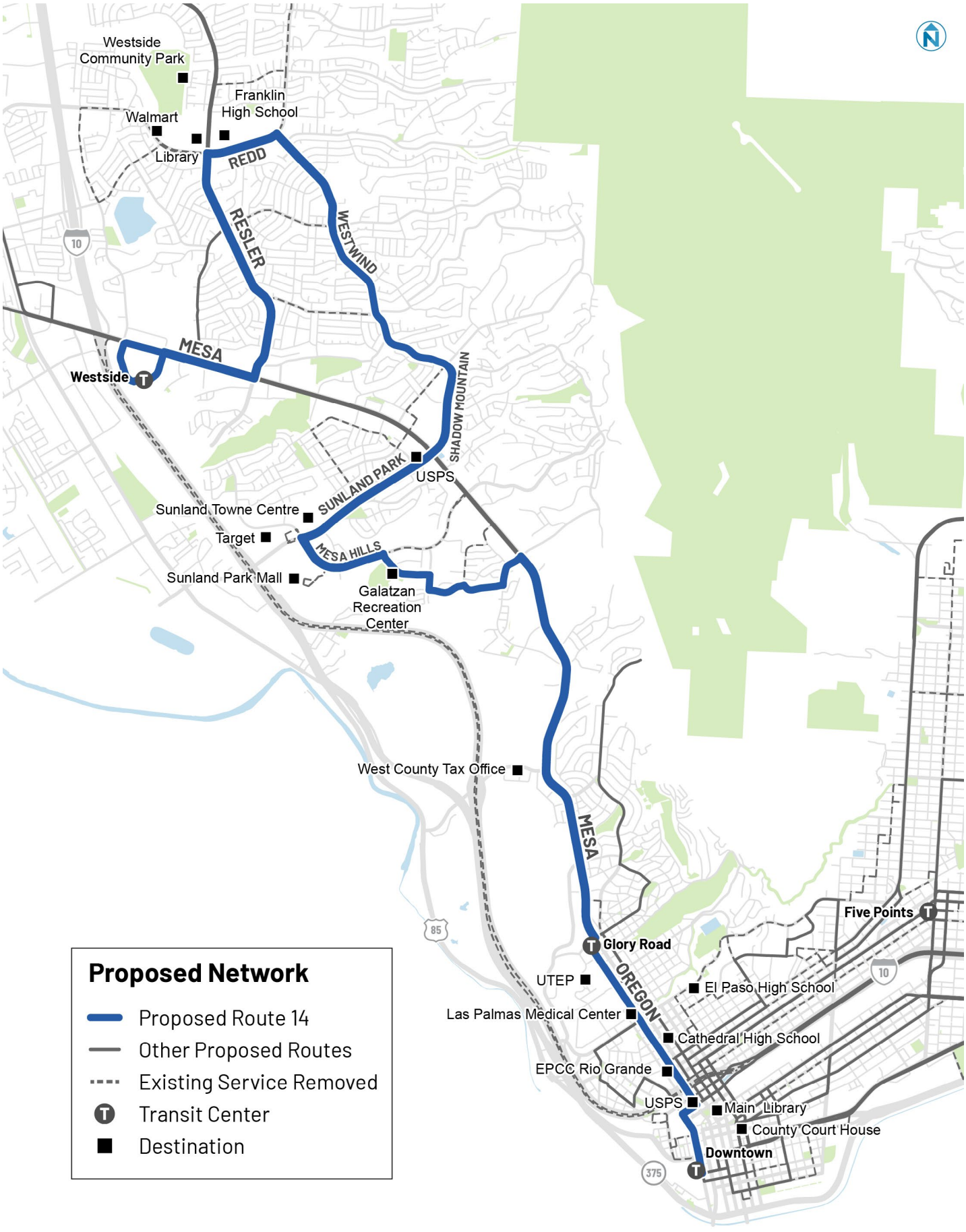
14 Westwind

Local

Route 14 is a local route that currently serves Downtown and Glory Road Transit Centers. Other major destinations include the Mesa Walmart Supercenter, Sunland Park Mall, UTEP, Providence Hospital Memorial Campus, and Las Palmas Medical Center.

Route 14 should be realigned from High Ridge to Redd and extended to Westside Transit Center. Recommended schedule changes include more frequent weekday service and the addition of Sunday service.

	Day	Start	End	Frequency	Buses	Daily Hours
Existing Service	Weekday	5:35 AM	9:27 PM	35	4	59.7
	Saturday	5:35 AM	10:02 PM	50	3	45.3
	Sunday	No service				
Phase 1 Service	Weekday	5:00 AM	10:00 PM	30	5	85.0
	Saturday	6:00 AM	9:00 PM	50	3	45.0
	Sunday	No service				
Full Buildout Service	Weekday	5:00 AM	11:00 PM	30	5	90.0
	Saturday	6:00 AM	9:00 PM	50	3	45.0
	Sunday	7:00 AM	9:00 PM	50	3	42.0


Westside Community Park
Franklin High School
Walmart
Library
REDD
RESLER
WESTWIND
SHADOW MOUNTAIN
MESA
Westside
SUNLAND PARK
USPS
Sunland Towne Centre
Target
MESA HILLS
Sunland Park Mall
Galatzan Recreation Center
West County Tax Office
MESA
Glory Road
OREGON
UTEP
Las Palmas Medical Center
EPCC Rio Grande
USPS
Five Points
El Paso High School
Cathedral High School
Main Library
County Court House
Downtown
10
85
375
Proposed Network
Proposed Route 14
Other Proposed Routes
Existing Service Removed
Transit Center
Destination
0
0.5
1 Miles

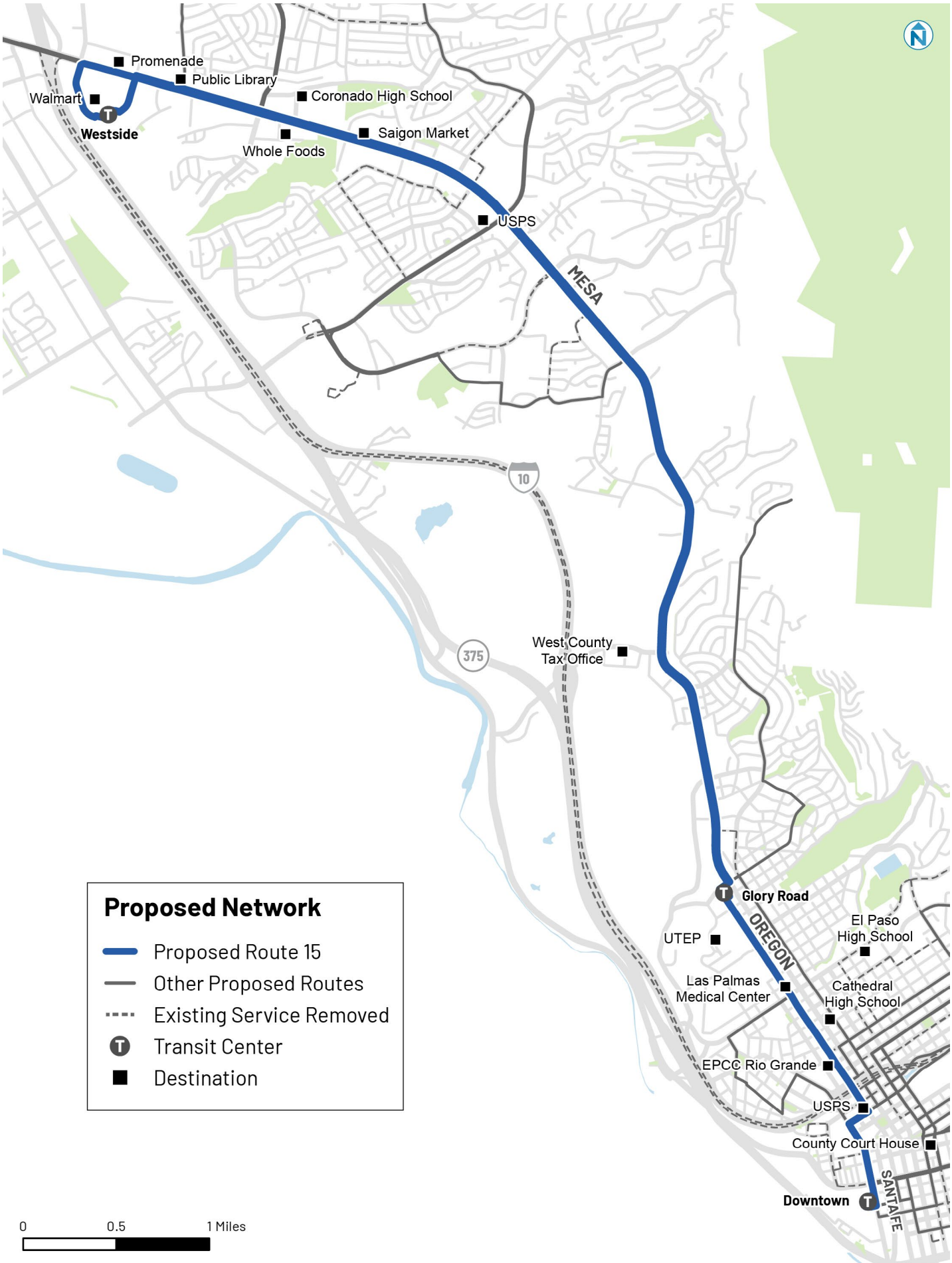
15 Mesa

Local

Route 15 is a local route that serves Westside, Glory Road and Downtown Transit Centers. Other major destinations include the Mesa Walmart Supercenter, UTEP, Providence Hospital Memorial Campus, and Las Palmas Medical Center.

Route 15 should be extended to Downtown Transit Center each trip to have the same alignment as the Mesa BRIO. Recommended schedule changes include more frequent service and the addition of Sunday service.

	Day	Start	End	Frequency	Buses	Daily Hours
Existing Service	Weekday	4:55 AM	9:12 PM	35	2	33.2
	Saturday	4:25 AM	9:10 PM	60	1	17.5
	Sunday	No service				
Phase 1 Service	Weekday	5:00 AM	10:00 PM	45	2	34.0
	Saturday	6:00 AM	9:00 PM	45	2	30.0
	Sunday	7:00 AM	8:00 PM	45	2	26.0
Full Buildout Service	Weekday	5:00 AM	11:00 PM	45	2	36.0
	Saturday	6:00 AM	10:00 PM	45	2	32.0
	Sunday	7:00 AM	8:00 PM	45	2	26.0


Promenade
Public Library
Walmart
Coronado High School
Westside
Whole Foods
Saigon Market
USPS
MESA
10
375
West County
Tax Office
Glory Road
OREGON
UTEP
El Paso
High School
Las Palmas
Medical Center
Cathedral
High School
EPCC Rio Grande
USPS
County Court House
SANTA FE
Downtown
Proposed Network
Proposed Route 15
Other Proposed Routes
Existing Service Removed
Transit Center
Destination
0
0.5
1 Miles

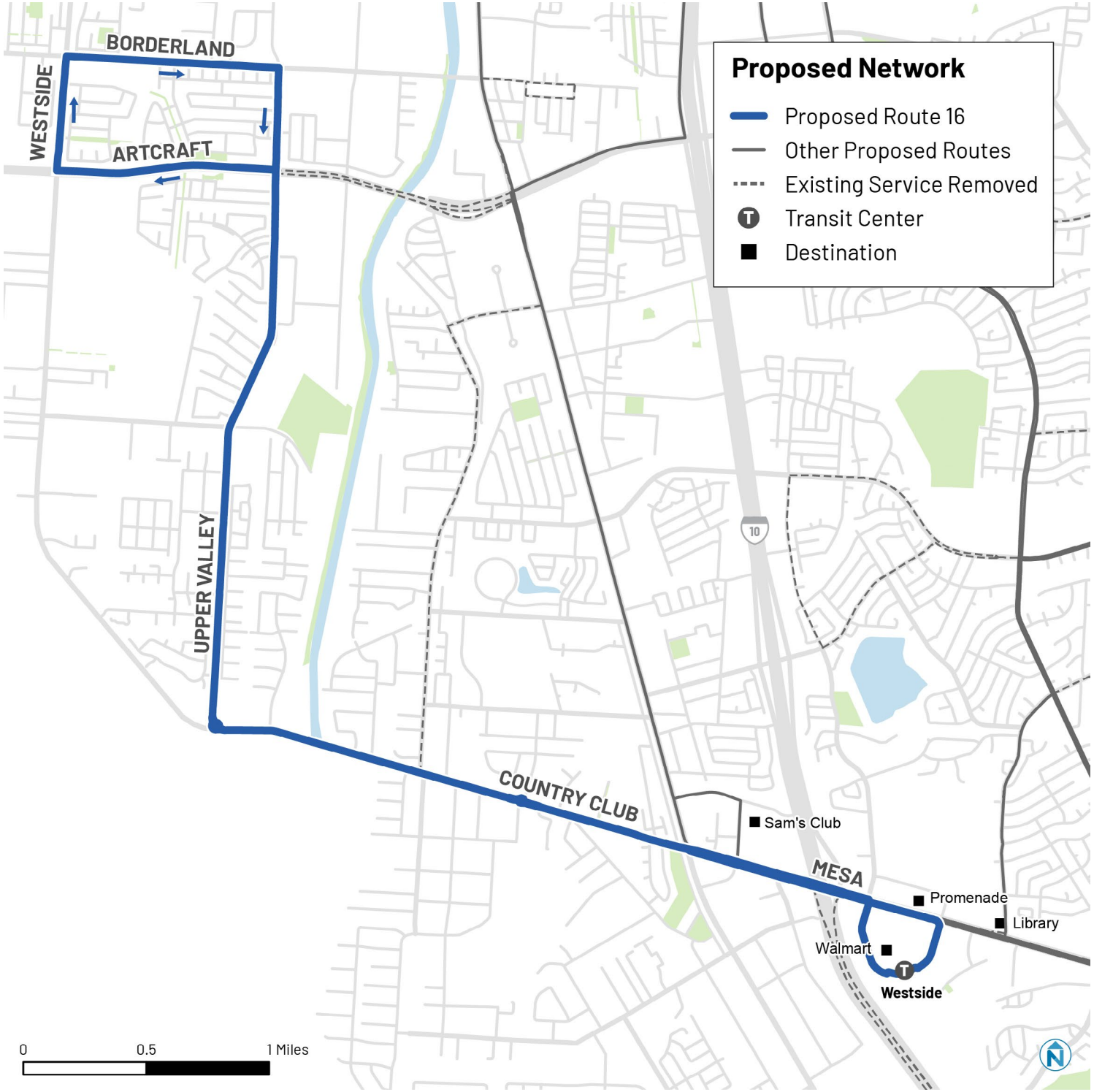
16 Upper Valley

Feeder

Route 16 is a feeder route that serves Westside Transit Center. Other major destinations include the Mesa Walmart Supercenter.

Route 16 should be realigned to operate two-way on Upper Valley and Country Club. Recommended schedule changes include more frequent weekday service and the addition of weekend service.

	Day	Start	End	Frequency	Buses	Daily Hours
Existing Service	Weekday	7:40 AM	8:55 AM	75	1	1.3
	Saturday	No service				
	Sunday	No service				
Phase 1 Service	Weekday	7-9am	2-5pm	60	1	5.0
	Saturday	No service				
	Sunday	No service				
Full Buildout Service	Weekday	7:00 AM	5:00 PM	60	1	10.0
	Saturday	8:00 AM	4:00 PM	60	1	8.0
	Sunday	8:00 AM	4:00 PM	60	1	8.0


Proposed Network
Proposed Route 16
Other Proposed Routes
Existing Service Removed
Transit Center
Destination
BORDERLAND
WESTSIDE
ARTCRAFT
UPPER VALLEY
COUNTRY CLUB
MESA
10
Sam's Club
Promenade
Library
Walmart
Westside
0
0.5
1 Miles

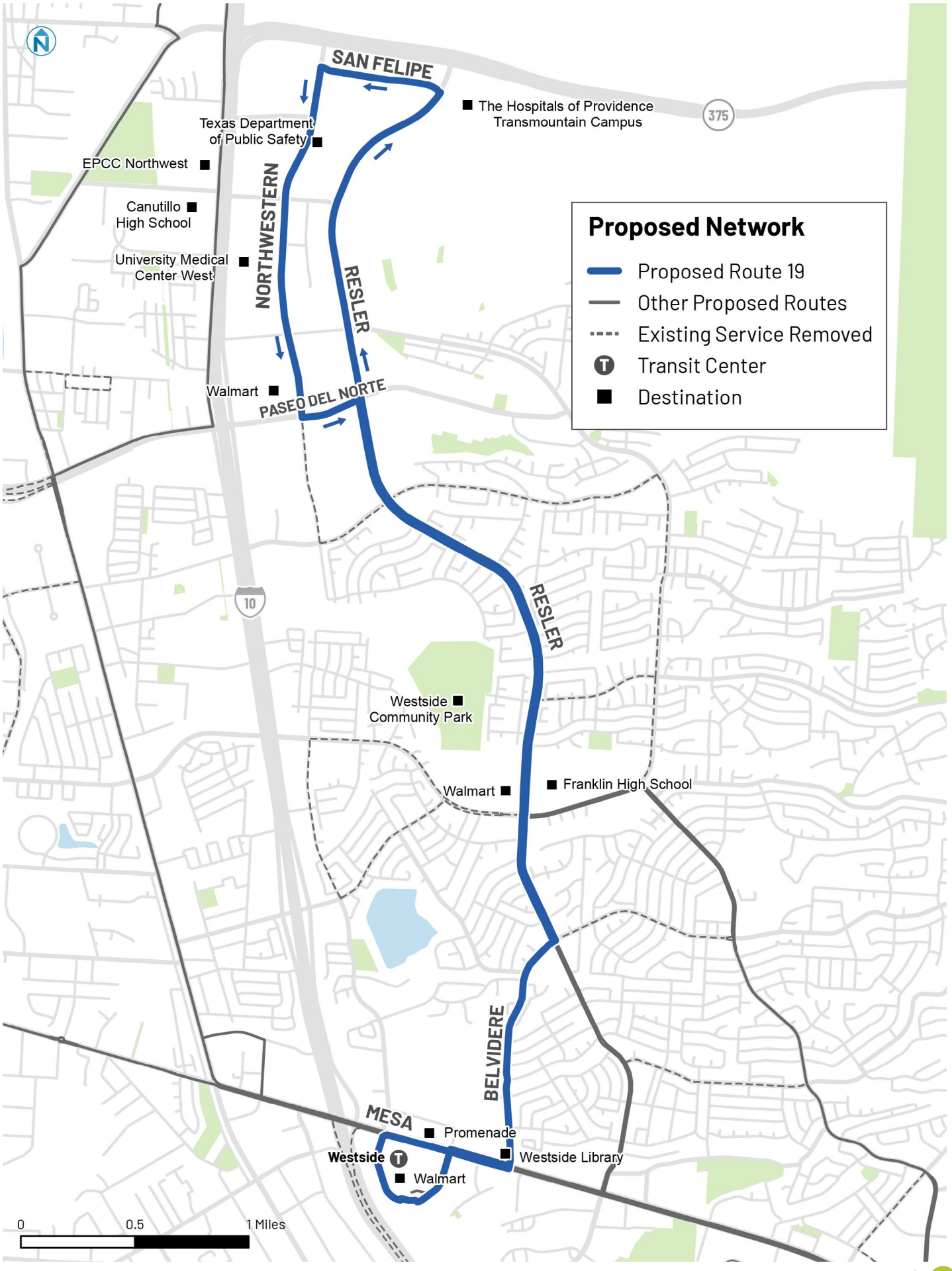
19 Resler

Feeder

Route 19 is a feeder route that serves Westside Transit Center.

Route 19 should be streamlined along Resler. Recommended schedule changes include more frequent weekday service and the addition of Sunday service.

	Day	Start	End	Frequency	Buses	Daily Hours
Existing Service	Weekday	5:00 AM	9:10 PM	65	1	13.9
	Saturday	7:30 AM	8:25 PM	65	1	8.5
	Sunday	No service				
Phase 1 Service	Weekday	6:00 AM	9:00 PM	60	1	15.0
	Saturday	6:00 AM	8:00 PM	60	1	14.0
	Sunday	No service				
Full Buildout Service	Weekday	6:00 AM	9:00 PM	30	2	30.0
	Saturday	6:00 AM	8:00 PM	60	1	14.0
	Sunday	7:00 AM	6:00 PM	60	1	11.0


SAN FELIPE
The Hospitals of Providence Transmountain Campus
375
Texas Department of Public Safety
EPCC Northwest
Canutillo High School
University Medical Center West
NORTHWESTERN
RESLER
Walmart
PASEO DEL NORTE
10
RESLER
Westside Community Park
Walmart
Franklin High School
BELVIDERE
MESA
Promenade
Westside
Westside Library
Walmart
0
0.5
1 Miles
Proposed Network
Proposed Route 19
Other Proposed Routes
Existing Service Removed
Transit Center
Destination

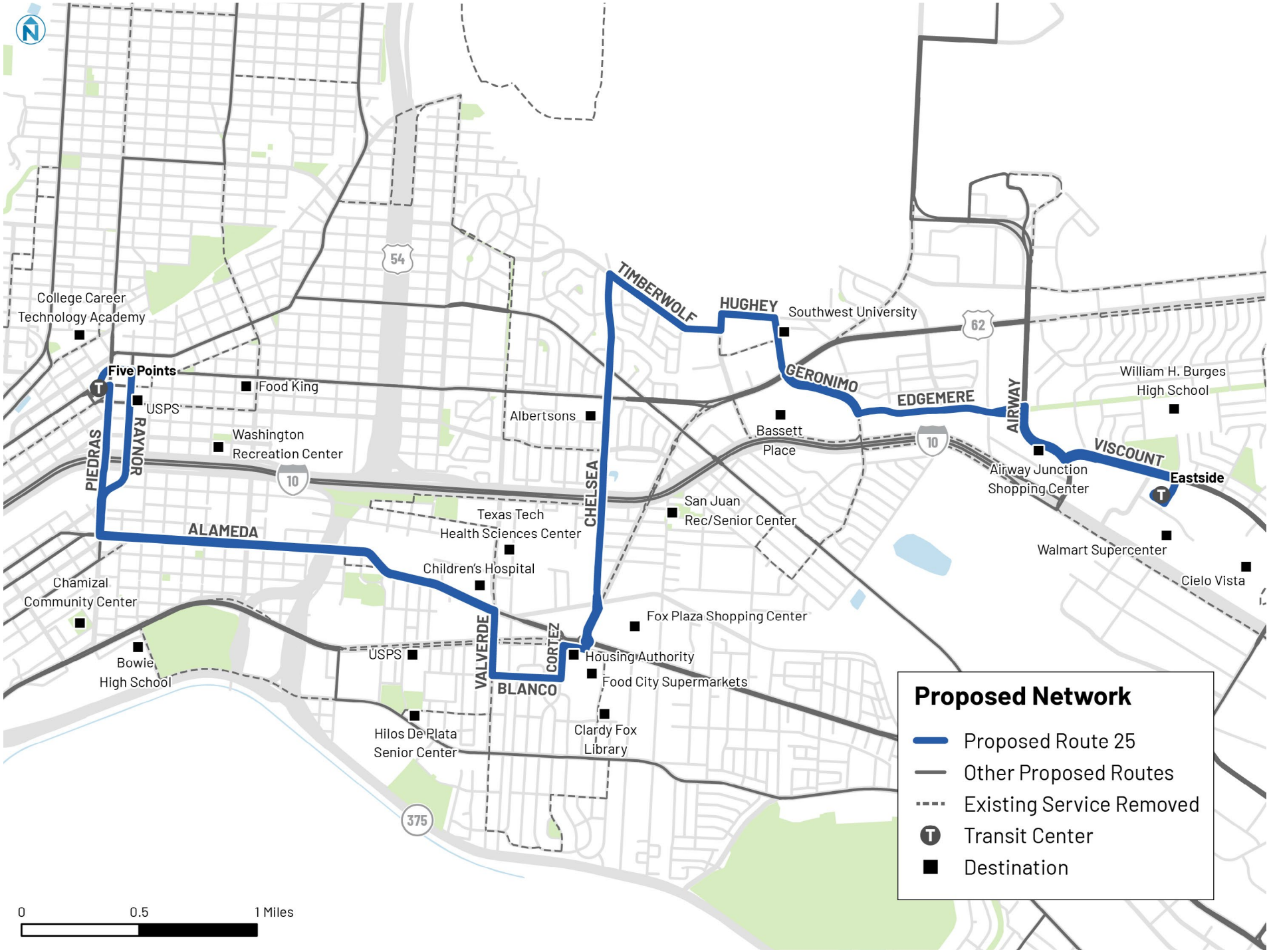
25 Chelsea

Local

Route 25 is a local route that currently serves Cielo Vista Transit Center. Other major destinations include University Medical Center, Fox Plaza, Bassett Place, the Cielo Vista Walmart, and Cielo Vista Mall.

Route 25 should be streamlined along Alameda, Chelsea, Geronimo, and Viscount. Route 25 should also be extended to Five Points Transit Center. Recommended schedule changes include more frequent service and the addition of Sunday service.

	Day	Start	End	Frequency	Buses	Daily Hours
Existing Service	Weekday	6:18 AM	8:00 PM	90	1	13.7
	Saturday	6:18 AM	7:24 PM	90	1	13.1
	Sunday	No service				
Phase 1 Service	Weekday	6:00 AM	8:00 PM	40	2	28.0
	Saturday	6:00 AM	7:00 PM	40	2	26.0
	Sunday	No service				
Full Buildout Service	Weekday	5:00 AM	9:00 PM	30	3	48.0
	Saturday	6:00 AM	8:00 PM	40	2	28.0
	Sunday	7:00 AM	7:00 PM	40	2	24.0


College Career
Technology Academy
Five Points
USPS
Food King
Washington
Recreation Center
PIEDRAS
RAYNOR
ALAMEDA
Chamizal
Community Center
Bowie
High School
USPS
Texas Tech
Health Sciences Center
Children's Hospital
VALVERDE
CORTEZ
BLANCO
Hilos De Plata
Senior Center
Albertsons
CHELSEA
TIMBERWOLF
HUGHEY
Southwest University
GERONIMO
EDGEMERE
AIRWAY
Bassett
Place
San Juan
Rec/Senior Center
Housing Authority
Food City Supermarkets
Fox Plaza Shopping Center
Clardy Fox
Library
William H. Burges
High School
VISCOUNT
Eastside
Airway Junction
Shopping Center
Walmart Supercenter
Cielo Vista
54
62
10
10
375
0
0.5
1 Miles
Proposed Network
Proposed Route 25
Other Proposed Routes
Existing Service Removed
Transit Center
Destination

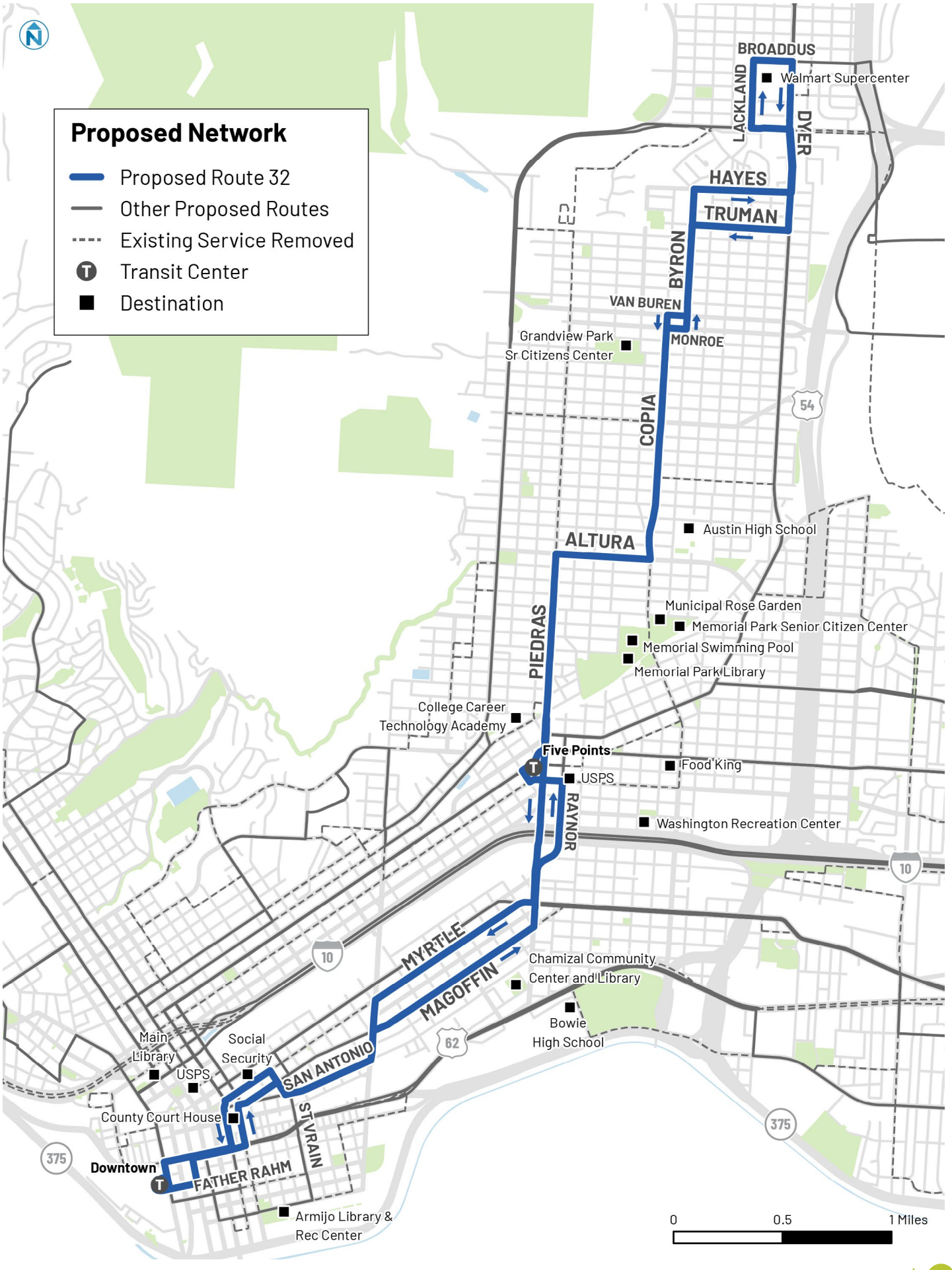
32 Copia

Local

Route 32 is a local route that currently serves Five Points Transit Center. Other major destinations include the Dyer Walmart.

Route 32 should be consolidated with Route 2 and extended to Downtown Transit Center to provide more transit destinations from Grandview. The current extension to Fort Bliss should be served by Route 34. Recommended schedule changes include more frequent service and the addition of Sunday service.

	Day	Start	End	Frequency	Buses	Daily Hours
Existing Service	Weekday	5:30 AM	9:08 PM	50	1	15.6
	Saturday	5:30 AM	7:50 PM	50	1	14.3
	Sunday	No service				
Phase 1 Service	Weekday	5:30 AM	8:30 PM	40	2	30.0
	Saturday	5:30 AM	7:00 PM	40	2	27.0
	Sunday	No service				
Full Buildout Service	Weekday	5:30 AM	8:30 PM	30	3	45.0
	Saturday	5:30 AM	7:00 PM	40	2	27.0
	Sunday	7:00 AM	7:00 PM	40	2	24.0


Proposed Network
Proposed Route 32
Other Proposed Routes
Existing Service Removed
Transit Center
Destination
BROADDUS
Walmart Supercenter
LACKLAND
DYER
HAYES
TRUMAN
BYRON
VAN BUREN
MONROE
Grandview Park
Sr Citizens Center
COPIA
54
ALTURA
Austin High School
PIEDRAS
Municipal Rose Garden
Memorial Park Senior Citizen Center
Memorial Swimming Pool
Memorial Park Library
College Career
Technology Academy
Five Points
Food King
USPS
RAYNOR
Washington Recreation Center
10
MYRTLE
MAGOFFIN
Chamizal Community
Center and Library
Bowie
High School
62
Main
Library
Social
Security
USPS
SAN ANTONIO
County Court House
ST VRAIN
375
Downtown
FATHER RAHM
Armijo Library &
Rec Center
0
0.5
1 Miles

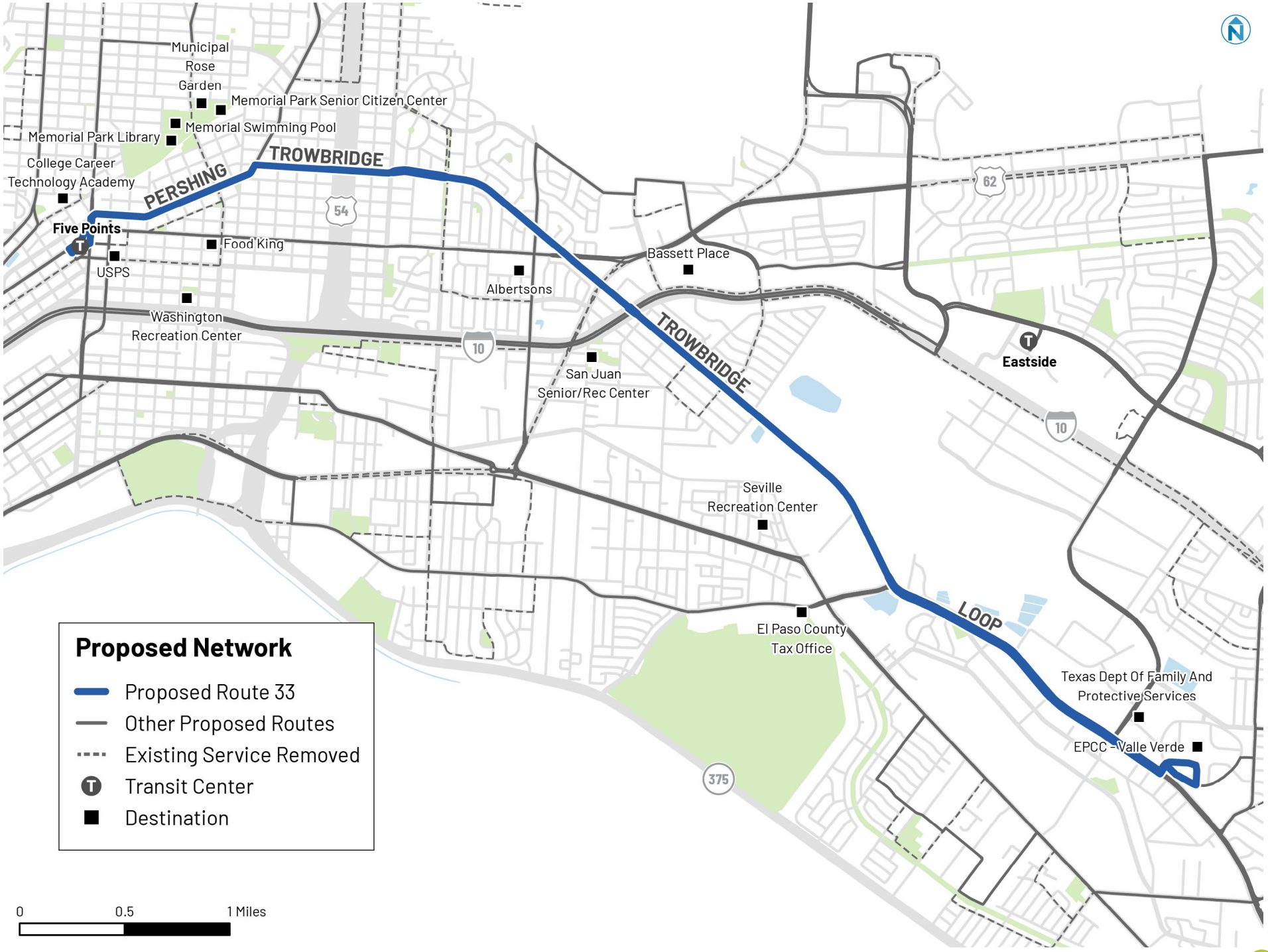
33 Trowbridge

Local

Route 33 is a local route that serves Five Points Transit Center. Other major destinations include El Paso Community College Valle Verde Campus.

Route 33 should be streamlined to Trowbridge to improve access to El Paso Community College Valle Verde Campus. Recommended schedule changes include more frequent weekday service and the addition of Sunday service.

	Day	Start	End	Frequency	Buses	Daily Hours
Existing Service	Weekday	4:35 AM	7:50 PM	80	1	15.3
	Saturday	4:35 AM	6:30 PM	80	1	13.9
	Sunday	No service				
Phase 1 Service	Weekday	5:00 AM	8:00 PM	60	1	15.0
	Saturday	6:00 AM	7:00 PM	60	1	13.0
	Sunday	No service				
Full Buildout Service	Weekday	5:00 AM	8:00 PM	30	2	30.0
	Saturday	6:00 AM	7:00 PM	60	1	13.0
	Sunday	8:00 AM	6:00 PM	60	1	10.0


Municipal Rose Garden
Memorial Park Senior Citizen Center
Memorial Swimming Pool
Memorial Park Library
College Career Technology Academy
PERSHING
TROWBRIDGE
54
Five Points
Food King
USPS
Washington Recreation Center
Albertsons
Bassett Place
62
10
TROWBRIDGE
San Juan Senior/Rec Center
Eastside
10
Seville Recreation Center
LOOP
El Paso County Tax Office
Texas Dept Of Family And Protective Services
EPCC - Valle Verde
375
Proposed Network
Proposed Route 33
Other Proposed Routes
Existing Service Removed
Transit Center
Destination
0
0.5
1 Miles

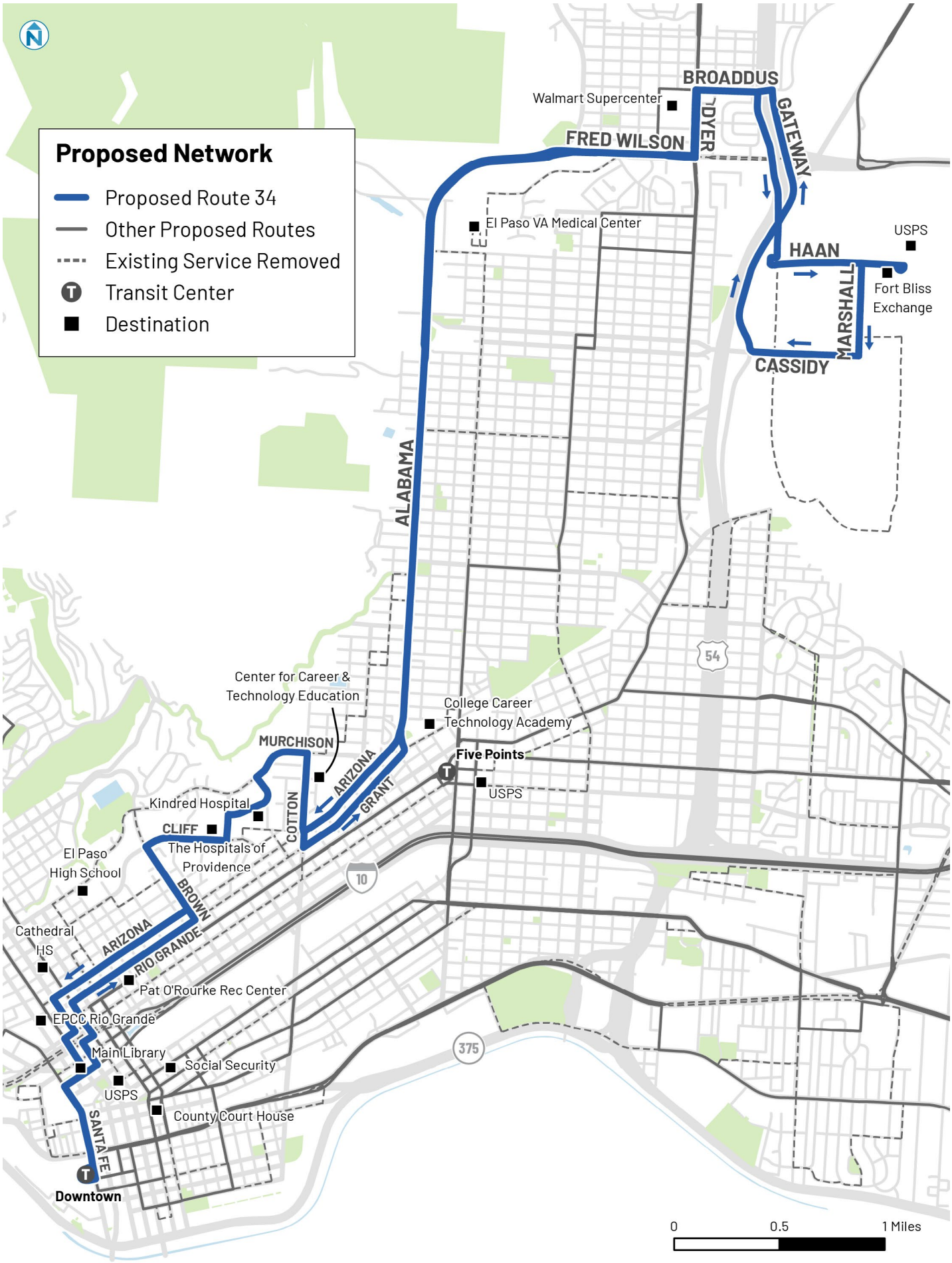
34 Alabama

Local

Route 34 is a local route that currently serves Downtown and Five Points Transit Centers.

Route 34 should be consolidated with Route 36 to improve access to Hospitals of Providence Sierra Campus and Kindred Hospital El Paso. Also, Route 34 should be extended to Fort Bliss, which is currently served by Route 32. Recommended schedule changes include more frequent weekday service and the addition of Sunday service.

	Day	Start	End	Frequency	Buses	Daily Hours
Existing Service	Weekday	5:05 AM	8:35 PM	45	2	24.3
	Saturday	7:45 AM	5:45 PM	60	1	10.0
	Sunday	No service				
Phase 1 Service	Weekday	5:00 AM	9:00 PM	45	2	32.0
	Saturday	7:00 AM	8:00 PM	45	2	26.0
	Sunday	No service				
Full Buildout Service	Weekday	5:00 AM	10:00 PM	30	3	51.0
	Saturday	6:00 AM	9:00 PM	45	2	30.0
	Sunday	7:00 AM	7:00 PM	45	2	24.0


Proposed Network
Proposed Route 34
Other Proposed Routes
Existing Service Removed
Transit Center
Destination
BROADDUS
Walmart Supercenter
FRED WILSON
DYER
GATEWAY
El Paso VA Medical Center
USPS
HAAN
Fort Bliss Exchange
MARSHALL
CASSIDY
ALABAMA
54
Center for Career & Technology Education
College Career Technology Academy
MURCHISON
ARIZONA
GRANT
Five Points
USPS
Kindred Hospital
COTTON
CLIFF
The Hospitals of Providence
El Paso High School
BROWN
10
Cathedral HS
ARIZONA
RIO GRANDE
Pat O'Rourke Rec Center
EPCC Rio Grande
Main Library
Social Security
USPS
County Court House
375
SANTA FE
Downtown
0
0.5
1 Miles

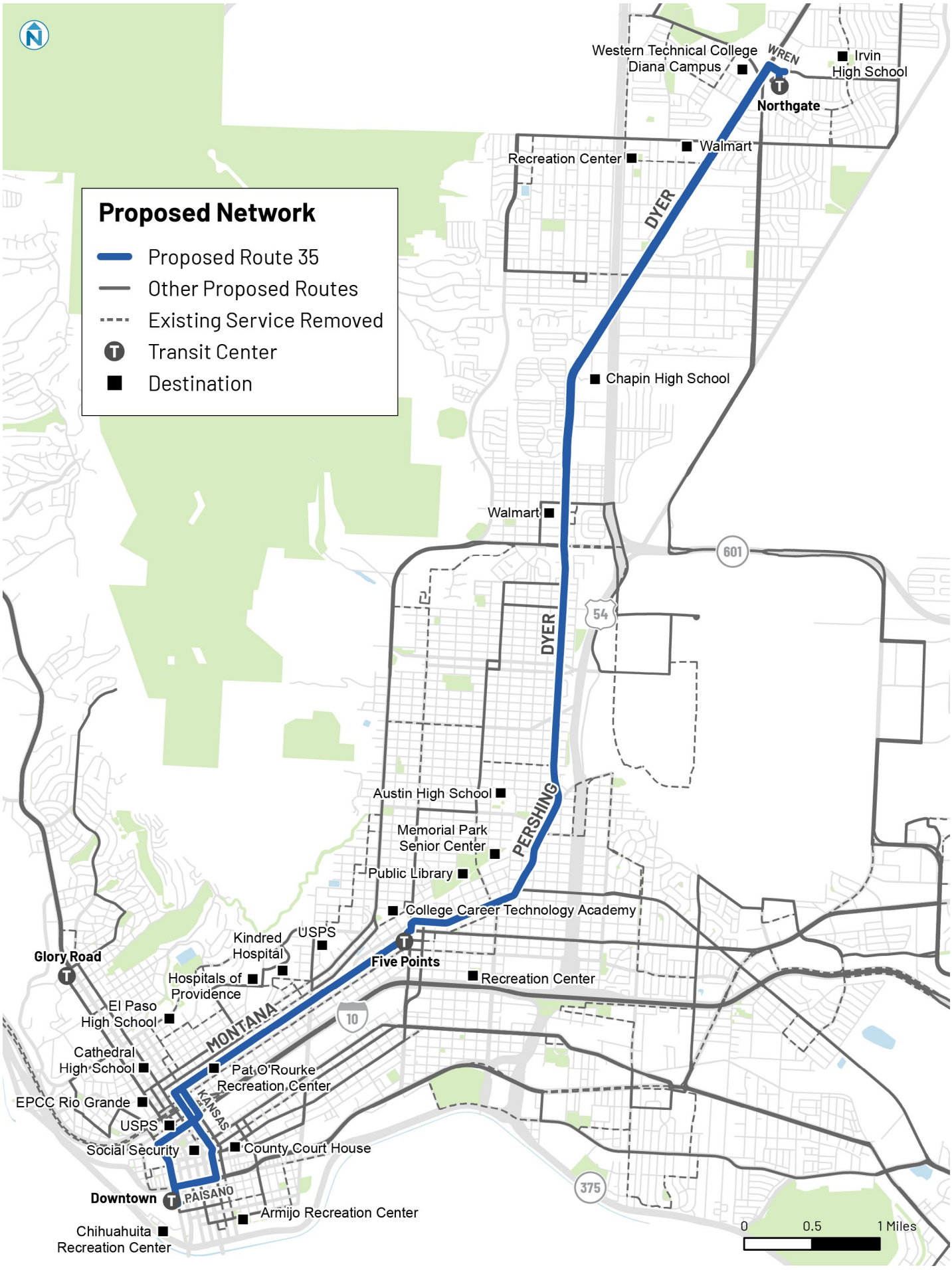
35 Dyer

Local

Route 35 is a local route that currently serves Five Points and Northgate Transit Centers. Other major destinations include the Dyer Walmart Supercenter.

Route 35 should be realigned and extended to Downtown Transit Center to have the same alignment as the Dyer BRIO. Recommended schedule changes include more frequent service and the addition of Sunday service.

	Day	Start	End	Frequency	Buses	Daily Hours
Existing Service	Weekday	5:10 AM	10:05 PM	60	1	16.9
	Saturday	6:10 AM	10:05 PM	60	1	15.9
	Sunday	No service				
Phase 1 Service	Weekday	5:00 AM	10:00 PM	40	3	51.0
	Saturday	6:00 AM	9:00 PM	60	2	30.0
	Sunday	7:00 AM	8:00 PM	60	2	26.0
Full Buildout Service	Weekday	5:00 AM	11:00 PM	40	3	54.0
	Saturday	6:00 AM	9:00 PM	60	2	30.0
	Sunday	7:00 AM	8:00 PM	60	2	26.0


Proposed Network
Proposed Route 35
Other Proposed Routes
Existing Service Removed
Transit Center
Destination
Western Technical College Diana Campus
WREN
Irvin High School
Northgate
Walmart
Recreation Center
DYER
Chapin High School
Walmart
601
54
DYER
PERSHING
Austin High School
Memorial Park Senior Center
Public Library
College Career Technology Academy
Kindred Hospital
USPS
Five Points
Recreation Center
Glory Road
Hospitals of Providence
El Paso High School
MONTANA
10
Cathedral High School
Pat O'Rourke Recreation Center
EPCC Rio Grande
KANSAS
USPS
Social Security
County Court House
Downtown
PAISANO
Armijo Recreation Center
Chihuahuita Recreation Center
375
0
0.5
1 Miles

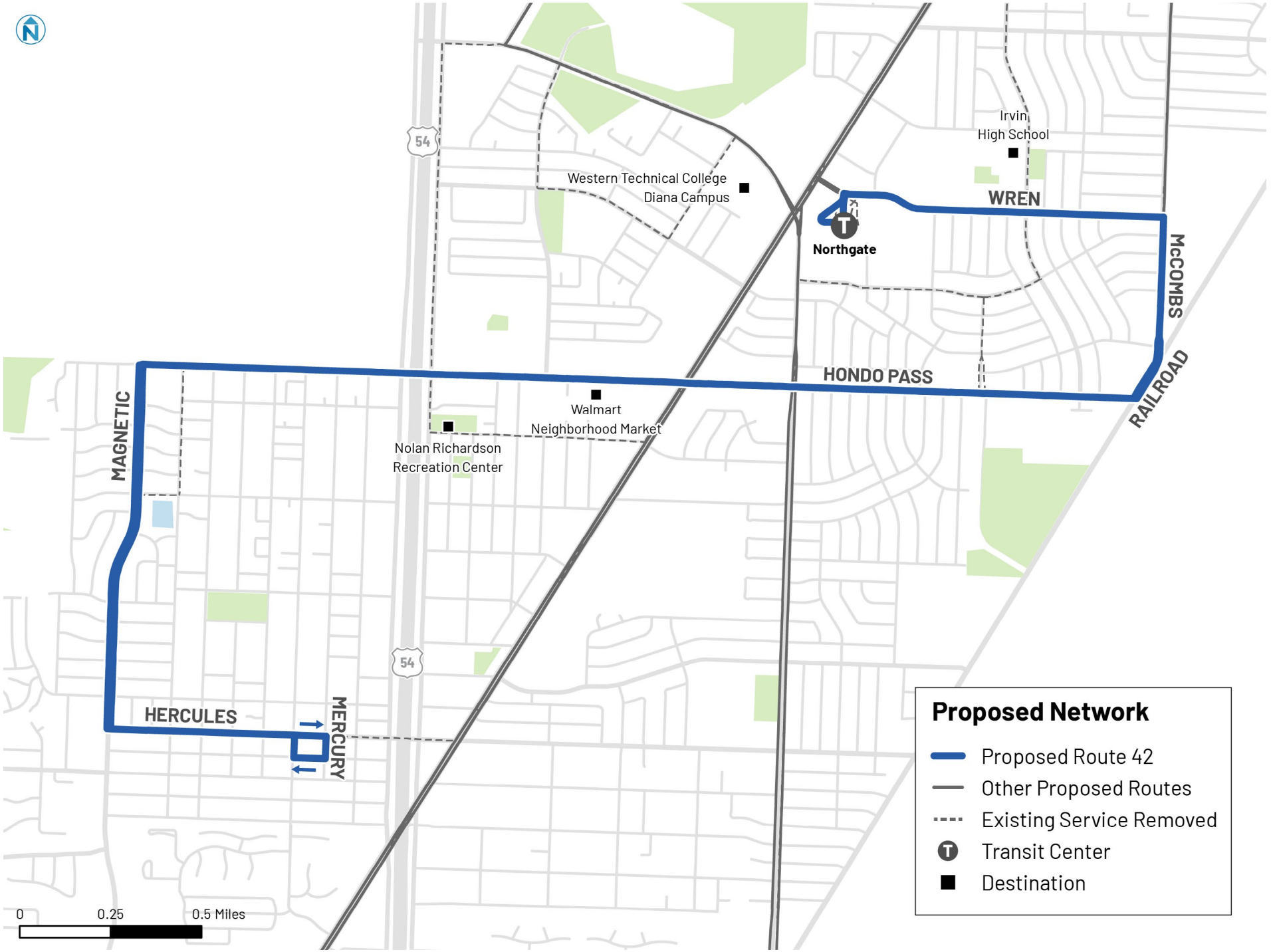
42 Hondo Pass

Feeder

Route 42 is a proposed feeder route that serves Northgate Transit Center.

Route 42 would provide service along segments of Hondo Pass and Magnetic currently served by Routes 35 and 44.

	Day	Start	End	Frequency	Buses	Daily Hours
Existing Service	Weekday	No service				
	Saturday	No service				
	Sunday	No service				
Phase 1 Service	Weekday	6:00 AM	8:00 PM	60	1	14.0
	Saturday	7:00 AM	7:00 PM	60	1	12.0
	Sunday	No service				
Full Buildout Service	Weekday	4:30 AM	10:30 PM	30	3	54.0
	Saturday	4:30 AM	8:30 PM	45	2	32.0
	Sunday	7:00 AM	6:00 PM	45	2	22.0


54
Western Technical College
Diana Campus
Irvin
High School
WREN
Northgate
McCOMBS
HONDO PASS
RAILROAD
Walmart
Neighborhood Market
Nolan Richardson
Recreation Center
MAGNETIC
54
HERCULES
MERCURY
0
0.25
0.5 Miles
Proposed Network
Proposed Route 42
Other Proposed Routes
Existing Service Removed
Transit Center
Destination

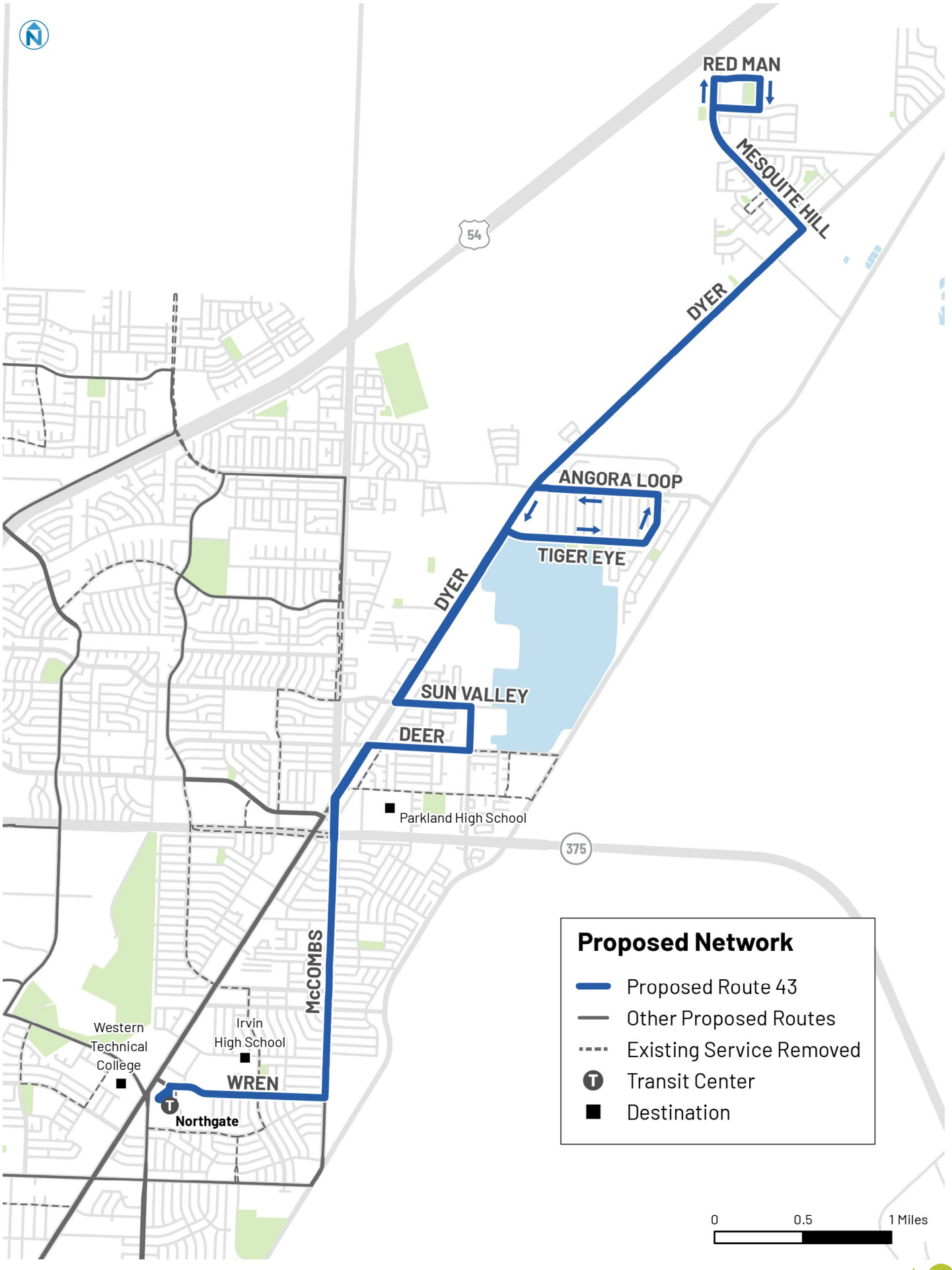
43 Montalvo Park

Feeder

Route 43 is a feeder route that serves Northgate Transit Center.

Minor routing changes are recommended for Route 43. Recommended schedule changes include more frequent service and the addition of Sunday service.

	Day	Start	End	Frequency	Buses	Daily Hours
Existing Service	Weekday	4:30 AM	10:30 PM	60	1	18.0
	Saturday	4:30 AM	8:30 PM	60	1	16.0
	Sunday	No service				
Phase 1 Service	Weekday	4:30 AM	10:30 PM	45	2	36.0
	Saturday	4:30 AM	8:30 PM	45	2	32.0
	Sunday	No service				
Full Buildout Service	Weekday	4:30 AM	10:30 PM	30	3	54.0
	Saturday	4:30 AM	8:30 PM	45	2	32.0
	Sunday	7:00 AM	6:00 PM	45	2	22.0


RED MAN
MESQUITE HILL
DYER
54
ANGORA LOOP
TIGER EYE
DYER
SUN VALLEY
DEER
Parkland High School
375
McCOMBS
Western
Technical
College
Irvin
High School
WREN
Northgate
Proposed Network
Proposed Route 43
Other Proposed Routes
Existing Service Removed
Transit Center
Destination
0
0.5
1 Miles

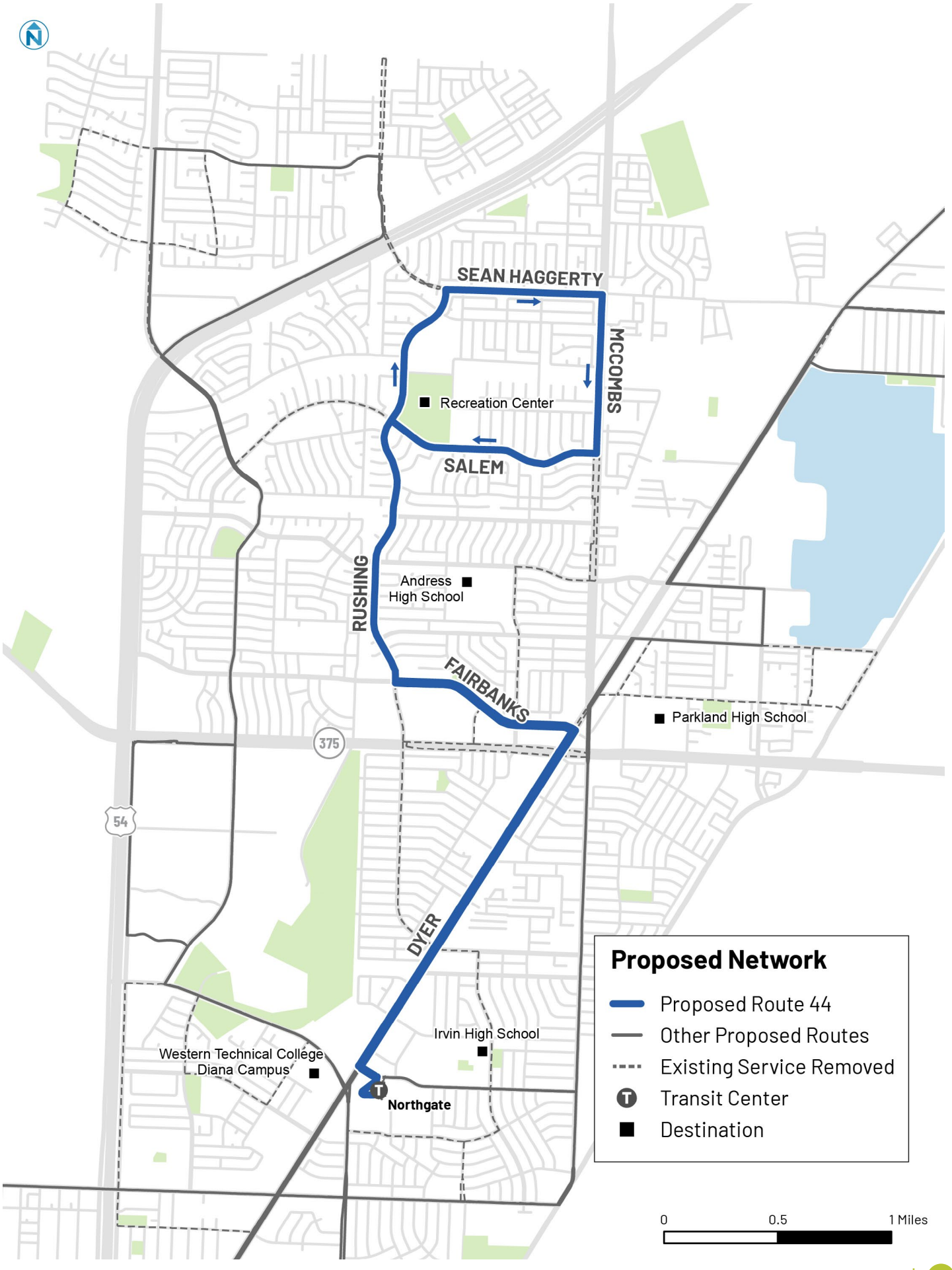
44 Sun Valley

Feeder

Route 44 is a feeder route that serves Northgate Transit Center.

Route 44 should be streamlined along Dyer, Fairbanks, and Rushing. Recommended schedule changes include more frequent service.

	Day	Start	End	Frequency	Buses	Daily Hours
Existing Service	Weekday	5:20 AM	9:57 PM	80	1	16.6
	Saturday	5:20 AM	8:37 PM	80	1	15.3
	Sunday	7:00 AM	6:17 PM	80	1	11.2
Phase 1 Service	Weekday	5:30 AM	10:00 PM	60	1	16.5
	Saturday	5:30 AM	8:30 PM	60	1	15.0
	Sunday	7:00 AM	7:00 PM	60	1	12.0
Full Buildout Service	Weekday	5:30 AM	10:00 PM	30	2	33.0
	Saturday	5:30 AM	8:30 PM	60	1	15.0
	Sunday	7:00 AM	7:00 PM	60	1	12.0


SEAN HAGGERTY
MCCOMBS
Recreation Center
SALEM
RUSHING
Andress
High School
FAIRBANKS
Parkland High School
375
54
DYER
Irvin High School
Western Technical College
Diana Campus
Northgate
Proposed Network
Proposed Route 44
Other Proposed Routes
Existing Service Removed
Transit Center
Destination
0
0.5
1 Miles

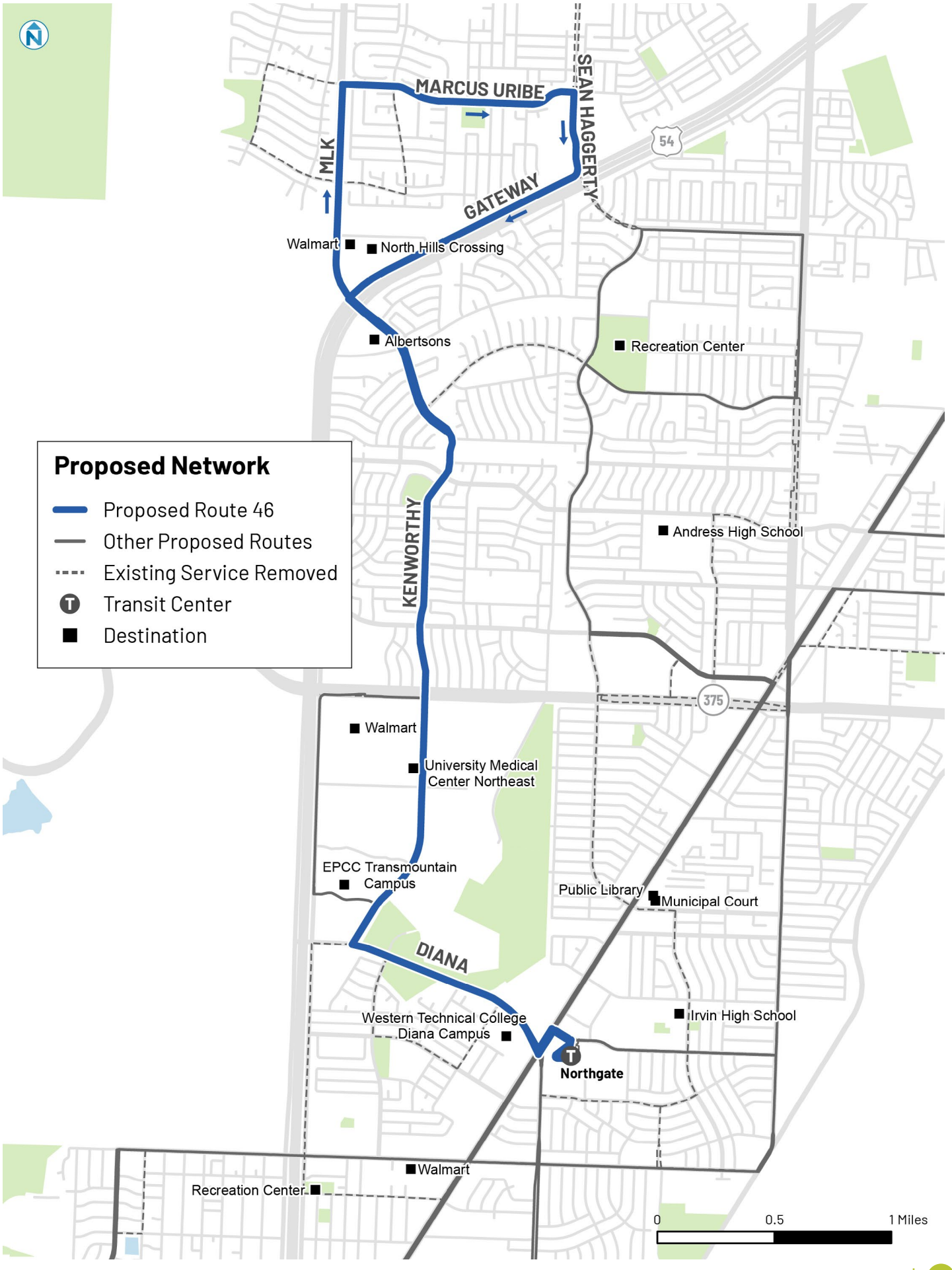
46 North Hills

Feeder

Route 46 is a feeder route that serves Northgate Transit Center.

Route 46 should be streamlined along Kenworthy. Recommended schedule changes include more frequent weekday service and the addition of Sunday service.

	Day	Start	End	Frequency	Buses	Daily Hours
Existing Service	Weekday	5:08 AM	9:38 PM	60	1	16.5
	Saturday	9:43 AM	7:38 PM	60	1	9.9
	Sunday	No service				
Phase 1 Service	Weekday	5:00 AM	9:00 PM	60	1	16.0
	Saturday	6:00 AM	7:30 PM	60	1	13.5
	Sunday	No service				
Full Buildout Service	Weekday	5:00 AM	9:00 PM	30	2	32.0
	Saturday	6:00 AM	7:30 PM	60	1	13.5
	Sunday	7:00 AM	6:00 PM	60	1	11.0


MARCUS URIBE
SEAN HAGGERTY
MLK
GATEWAY
54
Walmart
North Hills Crossing
Albertsons
Recreation Center
KENWORTHY
Andress High School
375
Walmart
University Medical Center Northeast
EPCC Transmountain Campus
Public Library
Municipal Court
DIANA
Western Technical College Diana Campus
Irvin High School
Northgate
Walmart
Recreation Center
0
0.5
1 Miles
Proposed Network
Proposed Route 46
Other Proposed Routes
Existing Service Removed
Transit Center
Destination

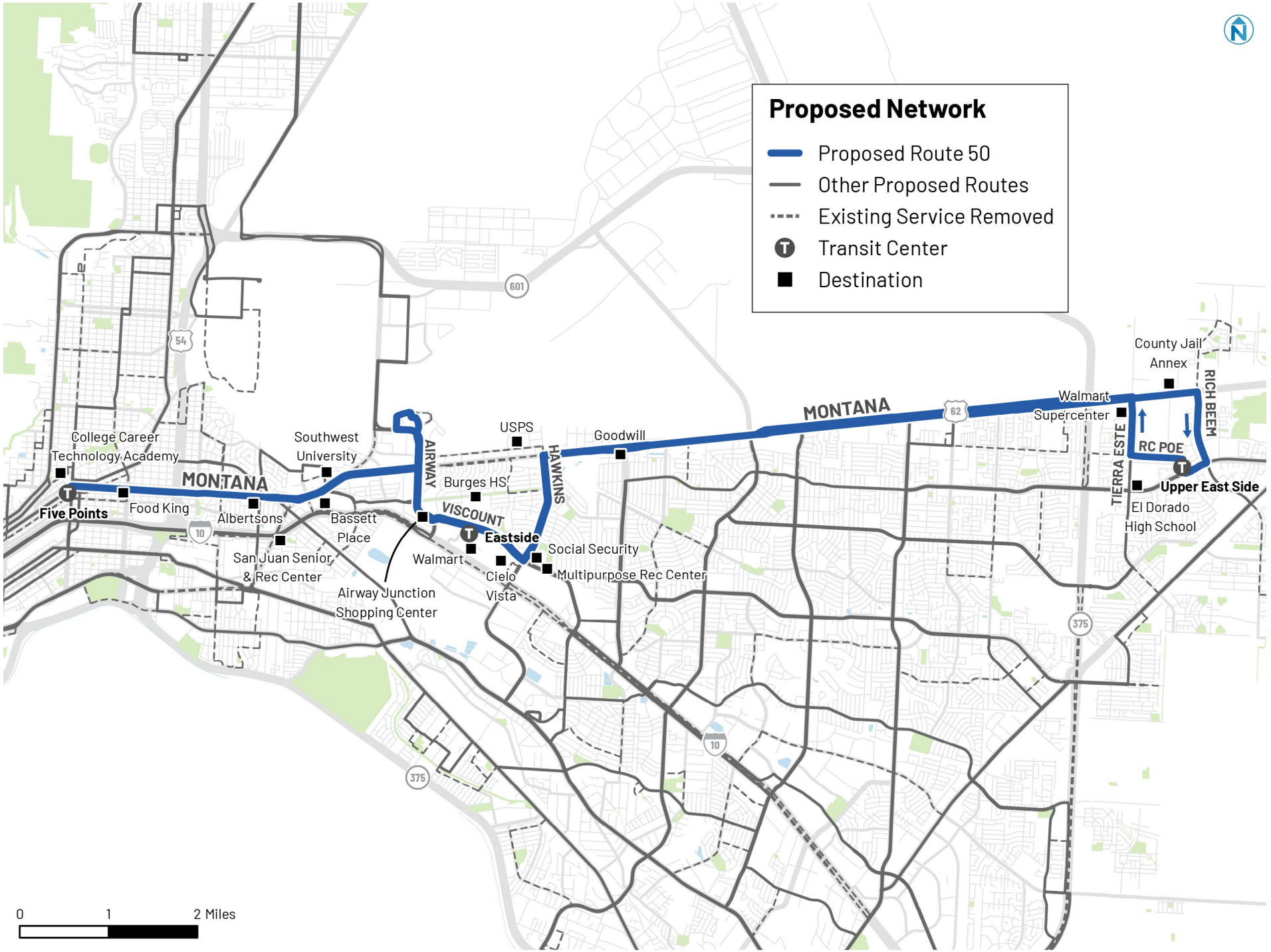
50 Montana

Local

Route 50 is a local route that serves Five Points and Cielo Vista Transit Centers. Other major destinations include Bassett Place, El Paso International Airport, the Cielo Vista Walmart Supercenter, and Cielo Vista Mall.

Route 50 should be realigned and extended to Upper East Transit Center to have the same alignment as the Montana BRIO. Recommended schedule changes include more frequent weekday service.

	Day	Start	End	Frequency	Buses	Daily Hours
Existing Service	Weekday	5:00 AM	10:15 PM	60	2	33.4
	Saturday	5:00 AM	10:10 PM	60	2	32.1
	Sunday	7:00 AM	5:55 PM	60	2	19.8
Phase 1 Service	Weekday	5:00 AM	10:00 PM	60	2	34.0
	Saturday	6:00 AM	9:00 PM	60	2	30.0
	Sunday	7:00 AM	8:00 PM	60	2	26.0
Full Buildout Service	Weekday	5:00 AM	11:00 PM	40	3	54.0
	Saturday	6:00 AM	9:00 PM	60	2	30.0
	Sunday	7:00 AM	8:00 PM	60	2	26.0


Proposed Network
Proposed Route 50
Other Proposed Routes
Existing Service Removed
Transit Center
Destination
MONTANA
MONTANA
AIRWAY
HAWKINS
VISCOUNT
RICH BEEM
TIERRA ESTE
RC POE
Five Points
College Career Technology Academy
Food King
Albertsons
Southwest University
Bassett Place
San Juan Senior & Rec Center
Airway Junction Shopping Center
Walmart
Burges HS
Eastside
USPS
Goodwill
Cielo Vista
Social Security
Multipurpose Rec Center
Walmart Supercenter
County Jail Annex
Upper East Side
El Dorado High School
601
54
10
62
375
0
1
2 Miles

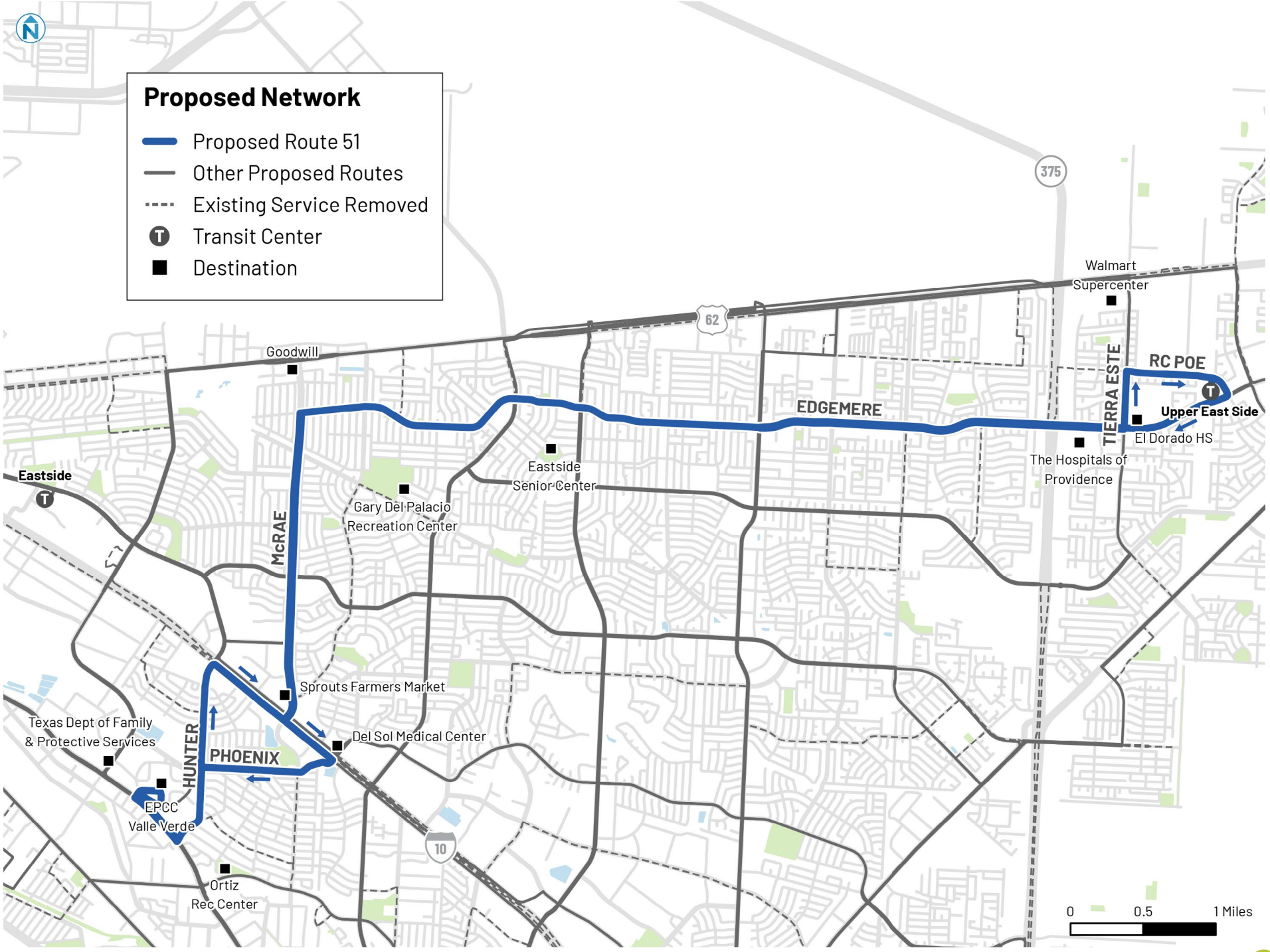
51 Edgemere

Local

Route 51 is a local route that currently serves Cielo Vista and Upper East Transit Center.

Route 51 should be realigned from Cielo Vista Transit Center to El Paso Community College Valle Verde Campus to provide a direct connection from the Upper East Transit Center to El Paso Community College Valle Verde Campus. Recommended schedule changes include more frequent service and the addition of Sunday service.

	Day	Start	End	Frequency	Buses	Daily Hours
Existing Service	Weekday	5:45 AM	10:20 PM	100	1	16.6
	Saturday	5:45 AM	10:20 PM	100	1	16.6
	Sunday	No service				
Phase 1 Service	Weekday	6:00 AM	10:00 PM	50	2	32.0
	Saturday	6:00 AM	9:00 PM	50	2	30.0
	Sunday	No service				
Full Buildout Service	Weekday	6:00 AM	10:00 PM	40	3	48.0
	Saturday	6:00 AM	9:00 PM	50	2	30.0
	Sunday	7:00 AM	6:00 PM	50	2	22.0


Proposed Network
Proposed Route 51
Other Proposed Routes
Existing Service Removed
Transit Center
Destination
375
62
10
Walmart Supercenter
Goodwill
RC POE
Upper East Side
EDGEMERE
TIERRA ESTE
El Dorado HS
The Hospitals of Providence
Eastside
Eastside Senior Center
Gary Del Palacio Recreation Center
McRAE
Sprouts Farmers Market
Del Sol Medical Center
PHOENIX
HUNTER
Texas Dept of Family & Protective Services
EPCC Valle Verde
Ortiz Rec Center
0
0.5
1 Miles

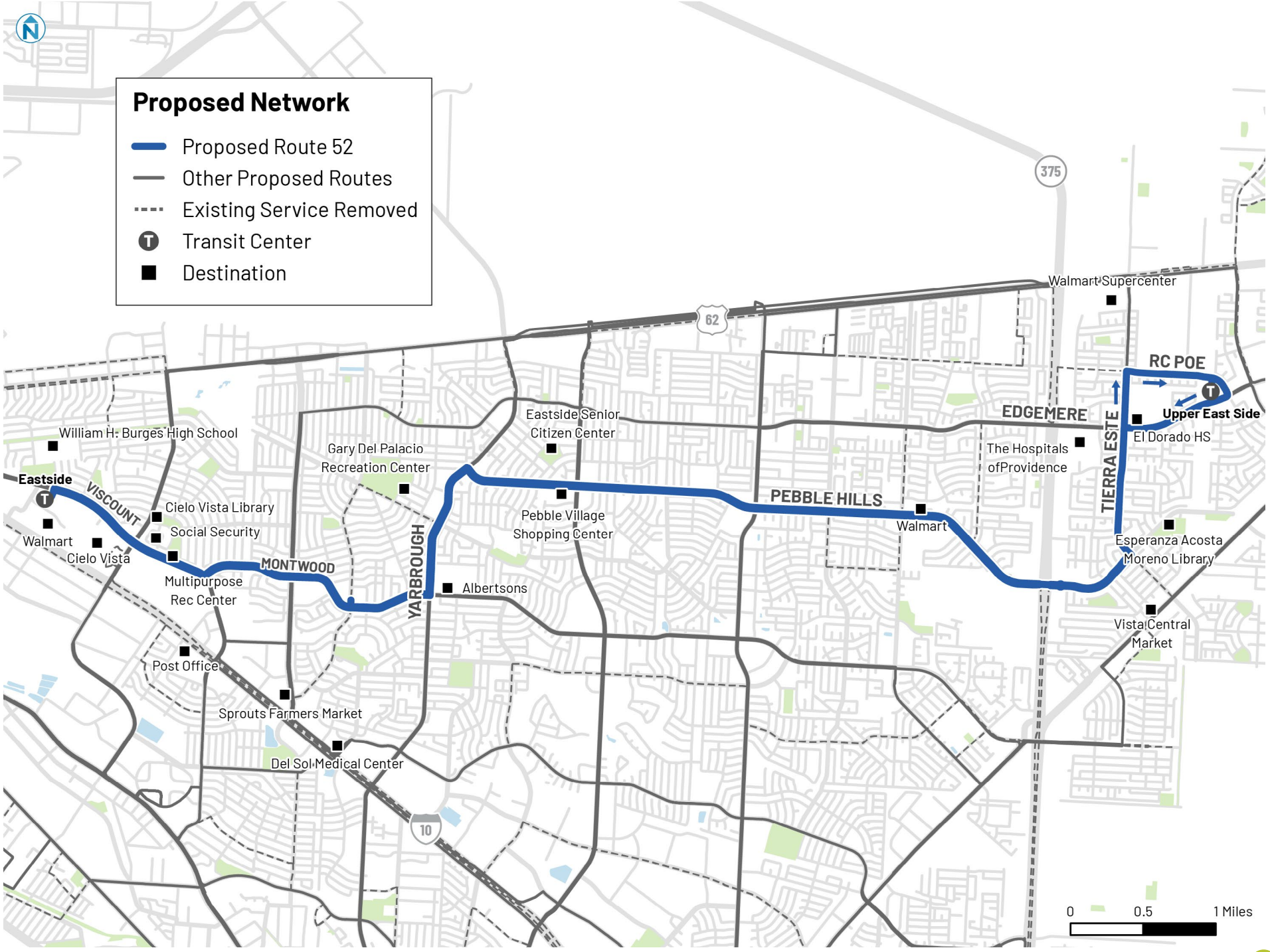
52 Pebble Hills

Local

Route 52 is a local route that serves Cielo Vista and Upper East Transit Centers. Other major destinations include the Cielo Vista Walmart and Cielo Vista Mall.

Route 52 should be streamlined along Pebble Hills. Recommended schedule changes include more frequent service and the addition of Sunday service.

	Day	Start	End	Frequency	Buses	Daily Hours
Existing Service	Weekday	6:00 AM	8:40 PM	120	1	14.7
	Saturday	6:00 AM	8:40 PM	120	1	14.7
	Sunday	No service				
Phase 1 Service	Weekday	6:00 AM	10:00 PM	50	2	32.0
	Saturday	6:00 AM	9:00 PM	50	2	30.0
	Sunday	No service				
Full Buildout Service	Weekday	5:00 AM	10:00 PM	40	3	51.0
	Saturday	6:00 AM	9:00 PM	50	2	30.0
	Sunday	7:00 AM	6:00 PM	50	2	22.0


Proposed Network
Proposed Route 52
Other Proposed Routes
Existing Service Removed
Transit Center
Destination
375
62
10
Walmart Supercenter
RC POE
Upper East Side
El Dorado HS
EDGEMERE
TIERRA ESTE
The Hospitals ofProvidence
Eastside Senior Citizen Center
Gary Del Palacio Recreation Center
William H. Burges High School
Eastside
VISCOUNT
Cielo Vista Library
Social Security
Walmart
Cielo Vista
Multipurpose Rec Center
MONTWOOD
YARBROUGH
Albertsons
Pebble Village Shopping Center
PEBBLE HILLS
Walmart
Esperanza Acosta Moreno Library
Vista Central Market
Post Office
Sprouts Farmers Market
Del Sol Medical Center
0
0.5
1 Miles

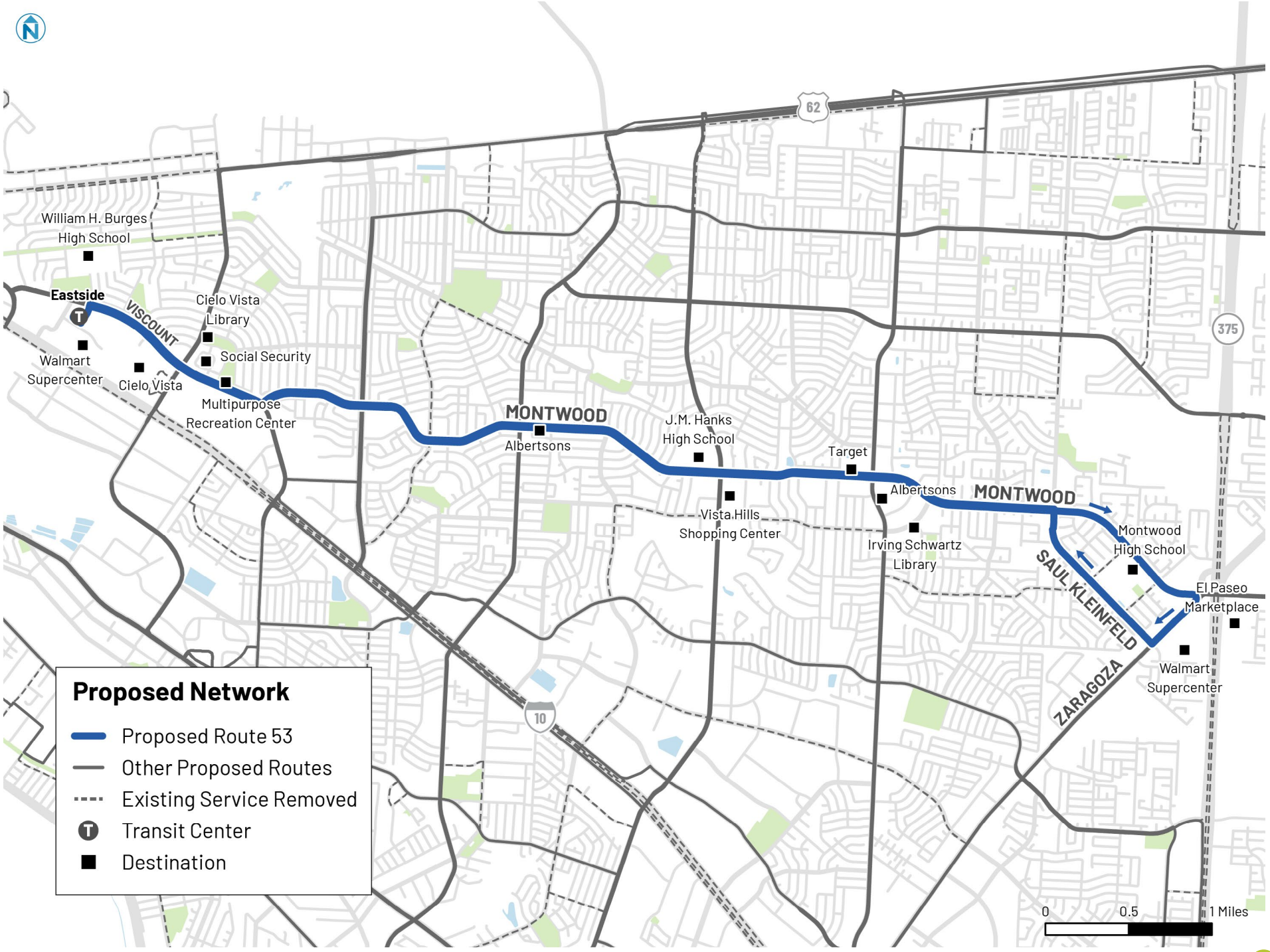
53 Montwood

Local

Route 53 is a local route that serves Cielo Vista Transit Center.

Route 53 should be streamlined along Montwood. Recommended schedule changes include more frequent service.

	Day	Start	End	Frequency	Buses	Daily Hours
Existing Service	Weekday	5:30 AM	9:48 PM	35	2	31.4
	Saturday	5:30 AM	8:38 PM	35	2	29.1
	Sunday	7:00 AM	6:00 PM	70	1	11.0
Phase 1 Service	Weekday	5:30 AM	10:00 PM	30	3	49.5
	Saturday	5:30 AM	10:00 PM	30	3	49.5
	Sunday	7:00 AM	8:30 PM	60	2	27.0
Full Buildout Service	Weekday	5:30 AM	11:00 PM	30	3	52.5
	Saturday	5:30 AM	11:00 PM	30	3	52.5
	Sunday	7:00 AM	11:30 PM	45	2	33.0


William H. Burges
High School
Eastside
VISCOUNT
Cielo Vista
Library
Walmart
Supercenter
Cielo Vista
Social Security
Multipurpose
Recreation Center
MONTWOOD
Albertsons
J.M. Hanks
High School
Target
Albertsons
MONTWOOD
Vista Hills
Shopping Center
Irving Schwartz
Library
Montwood
High School
SAUL KLEINFELD
El Paseo
Marketplace
ZARAGOZA
Walmart
Supercenter
62
375
10
Proposed Network
Proposed Route 53
Other Proposed Routes
Existing Service Removed
Transit Center
Destination
0
0.5
1 Miles

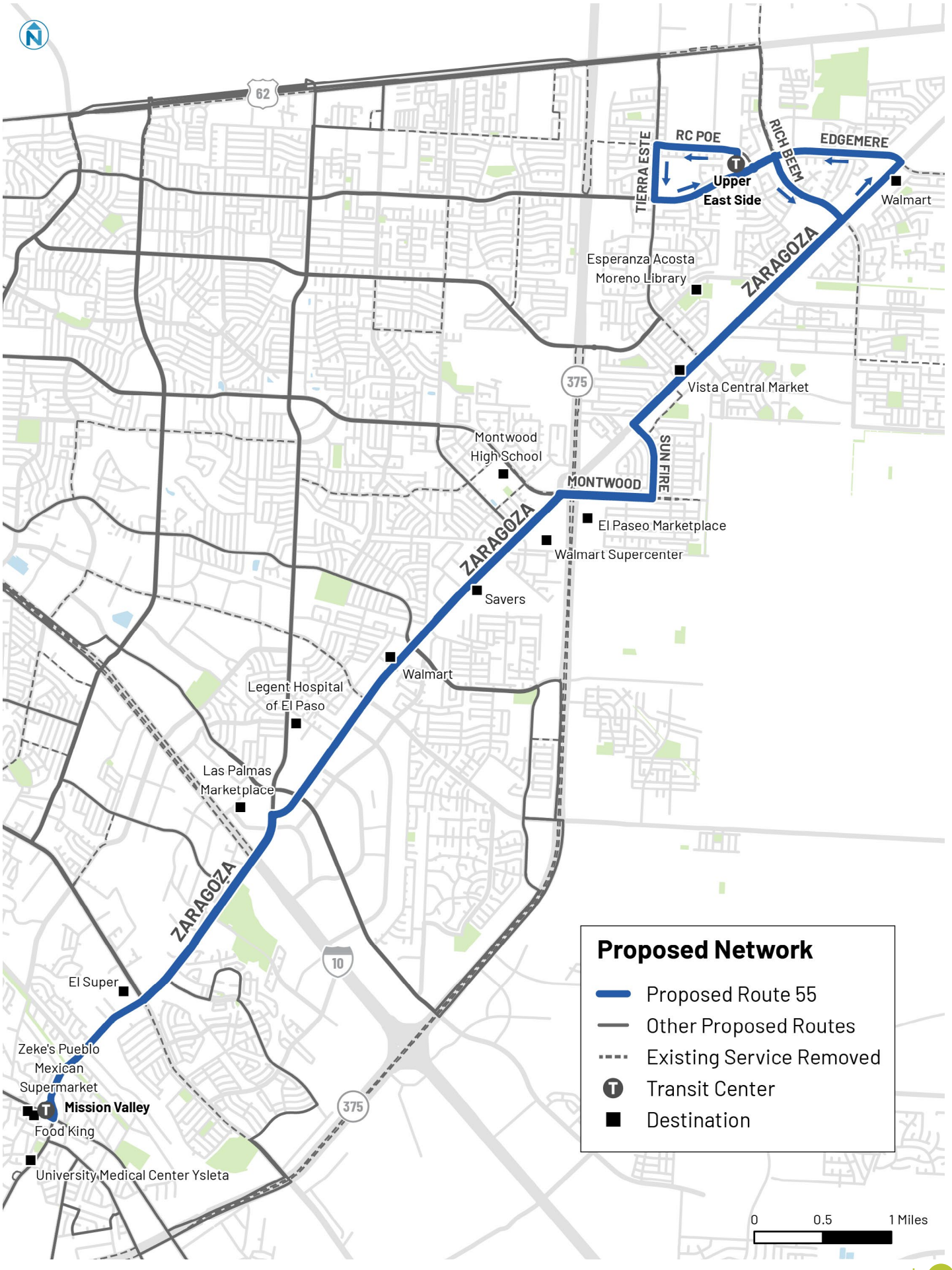
55 Zaragoza

Limited

Route 55 is a proposed limited stop route that would serve Mission Valley and Upper East Transit Centers.

Route 55 would provide fast service along Zaragoza with limited bus stops.

	Day	Start	End	Frequency	Buses	Daily Hours
Existing Service	Weekday	No service				
	Saturday	No service				
	Sunday	No service				
Phase 1 Service	Weekday	5:00 AM	9:00 PM	45	2	32.0
	Saturday	5:00 AM	9:00 PM	45	2	32.0
	Sunday	No service				
Full Buildout Service	Weekday	5:00 AM	9:00 PM	30	3	48.0
	Saturday	5:00 AM	9:00 PM	45	2	32.0
	Sunday	7:00 AM	6:00 PM	45	2	22.0


62
RC POE
TIERRA ESTE
RICH BEEM
EDGEMERE
Upper
East Side
Walmart
Esperanza Acosta
Moreno Library
ZARAGOZA
375
Vista Central Market
Montwood
High School
SUN FIRE
MONTWOOD
El Paseo Marketplace
Walmart Supercenter
ZARAGOZA
Savers
Walmart
Legent Hospital
of El Paso
Las Palmas
Marketplace
ZARAGOZA
10
El Super
Zeke's Pueblo
Mexican
Supermarket
Mission Valley
Food King
375
University Medical Center Ysleta
Proposed Network
Proposed Route 55
Other Proposed Routes
Existing Service Removed
Transit Center
Destination
0
0.5
1 Miles

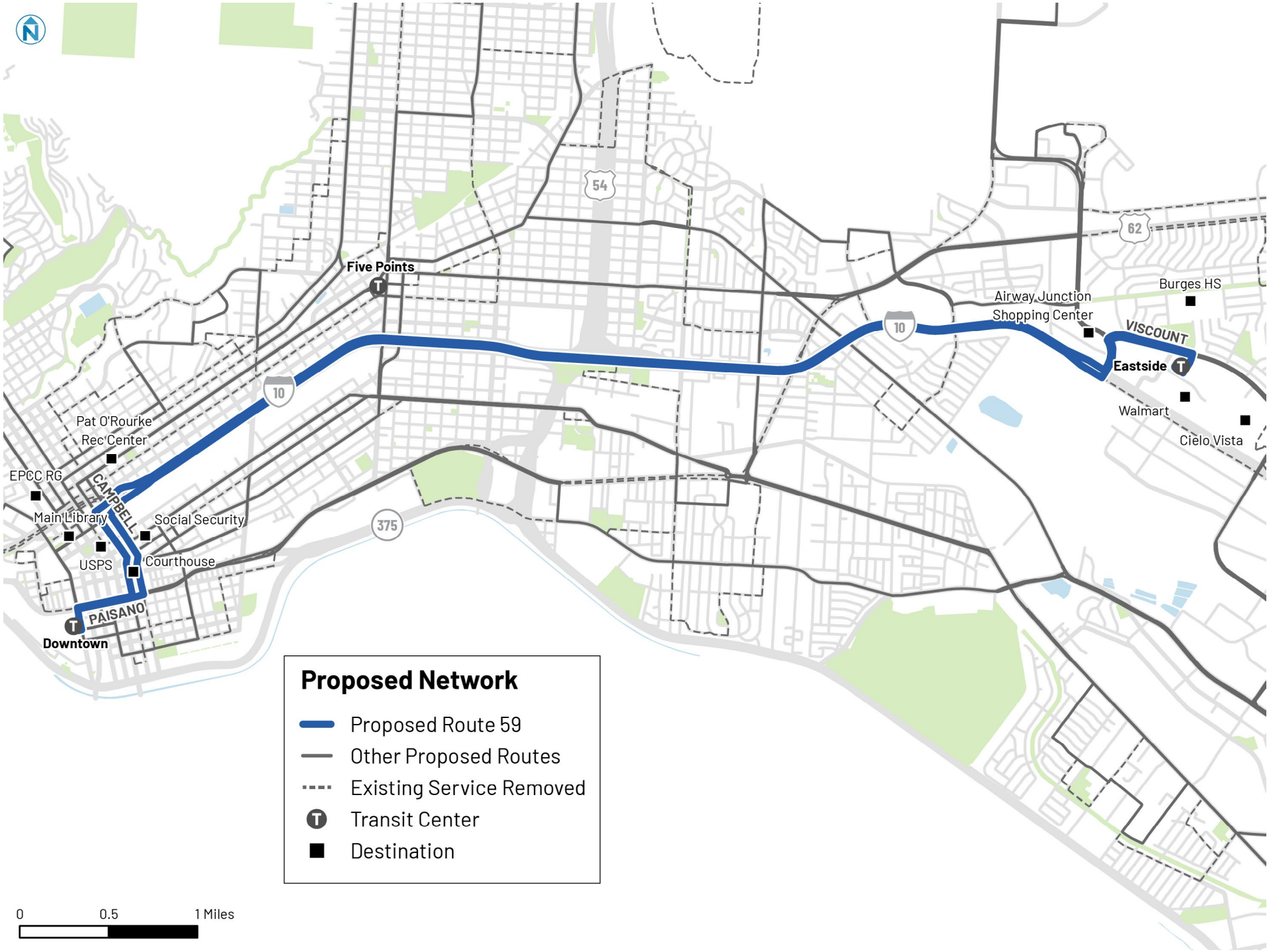
59 Eastside Connector

Express

Route 59 is a high-ridership express route that serves Downtown and Cielo Vista Transit Centers. Other major destinations include the Cielo Vista Walmart and Cielo Vista Mall.

No routing changes are recommended for Route 59. Only slight schedule adjustments are recommended to ensure on-time performance.

	Day	Start	End	Frequency	Buses	Daily Hours
Existing Service	Weekday	4:45 AM	9:06 PM	14	4	62.6
	Saturday	4:45 AM	9:06 PM	14	4	62.5
	Sunday	7:00 AM	6:35 PM	28	2	22.7
Phase 1 Service	Weekday	4:30 AM	10:00 PM	15	4	70.0
	Saturday	5:00 AM	9:00 PM	15	4	64.0
	Sunday	7:00 AM	7:00 PM	30	2	24.0
Full Buildout Service	Weekday	4:30 AM	10:00 PM	15	4	70.0
	Saturday	5:00 AM	9:00 PM	15	4	64.0
	Sunday	7:00 AM	8:00 PM	30	2	26.0


Five Points
Airway Junction
Shopping Center
Burges HS
VISCOUNT
Eastside
Walmart
Cielo Vista
Pat O'Rourke
Rec Center
EPCC RG
CAMPBELL
Main Library
Social Security
USPS
Courthouse
PAISANO
Downtown
10
54
62
375
Proposed Network
Proposed Route 59
Other Proposed Routes
Existing Service Removed
Transit Center
Destination
0
0.5
1 Miles

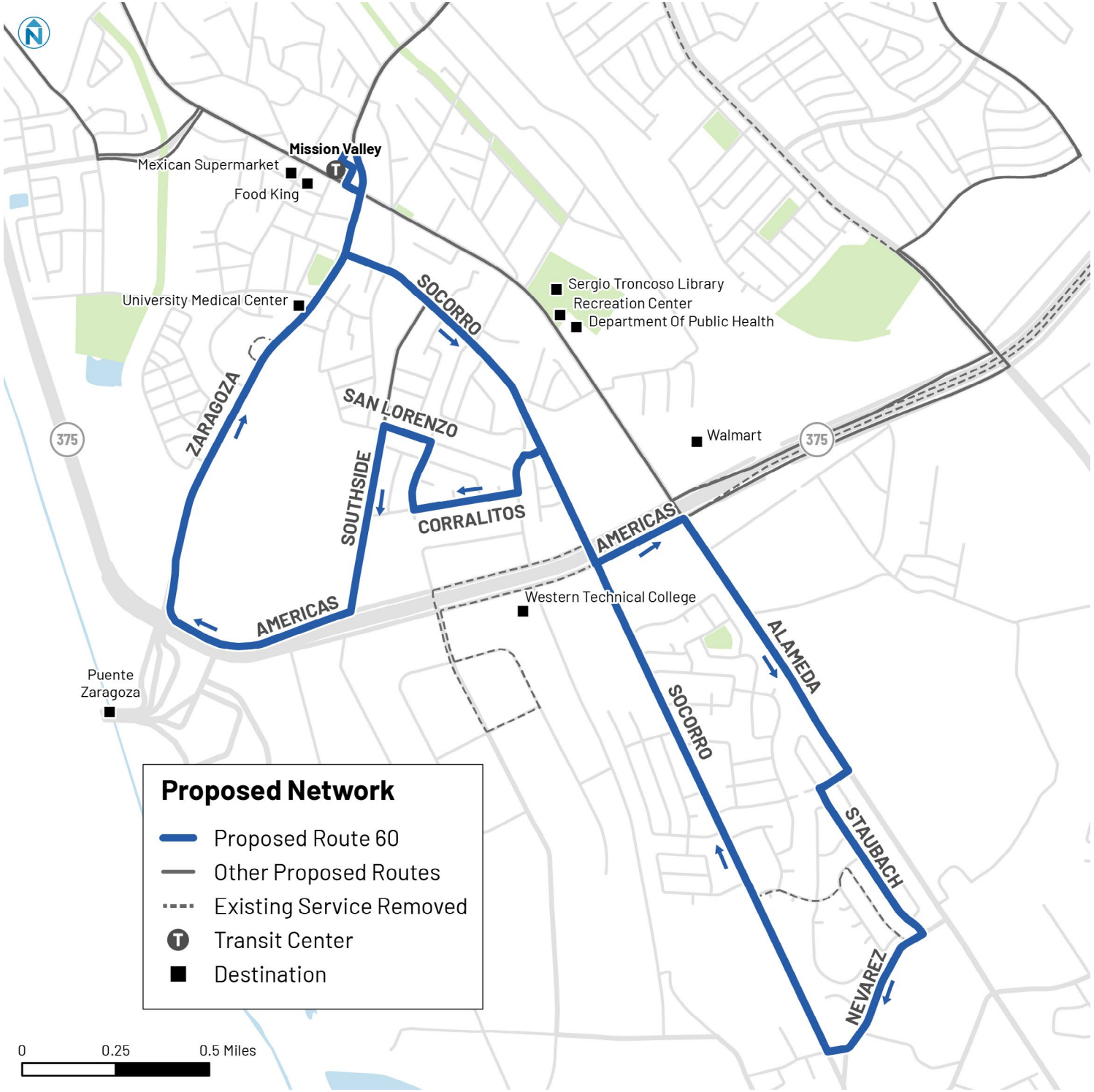
60 Socorro

Feeder

Route 60 is a feeder route that serves Mission Valley Transit Center.

Minor routing adjustments are recommended for Route 60 to improve operations. Recommended schedule changes include later Sunday service.

	Day	Start	End	Frequency	Buses	Daily Hours
Existing Service	Weekday	4:10 AM	9:48 PM	30	2	34.3
	Saturday	4:10 AM	8:48 PM	60	1	16.6
	Sunday	7:10 AM	6:48 PM	60	1	11.6
Phase 1 Service	Weekday	4:00 AM	10:00 PM	20	2	36.0
	Saturday	4:00 AM	9:00 PM	40	1	17.0
	Sunday	7:00 AM	7:00 PM	40	1	12.0
Full Buildout Service	Weekday	4:00 AM	10:00 PM	20	2	36.0
	Saturday	4:00 AM	9:00 PM	40	1	17.0
	Sunday	7:00 AM	8:00 PM	40	1	13.0


Mission Valley
Mexican Supermarket
Food King
University Medical Center
SOCORRO
Sergio Troncoso Library
Recreation Center
Department Of Public Health
ZARAGOZA
SAN LORENZO
SOUTHSIDE
CORRALITOS
375
Walmart
AMERICAS
Western Technical College
ALAMEDA
Puente
Zaragoza
SOCORRO
STAUBACH
NEVAREZ
Proposed Network
Proposed Route 60
Other Proposed Routes
Existing Service Removed
Transit Center
Destination
0
0.25
0.5 Miles

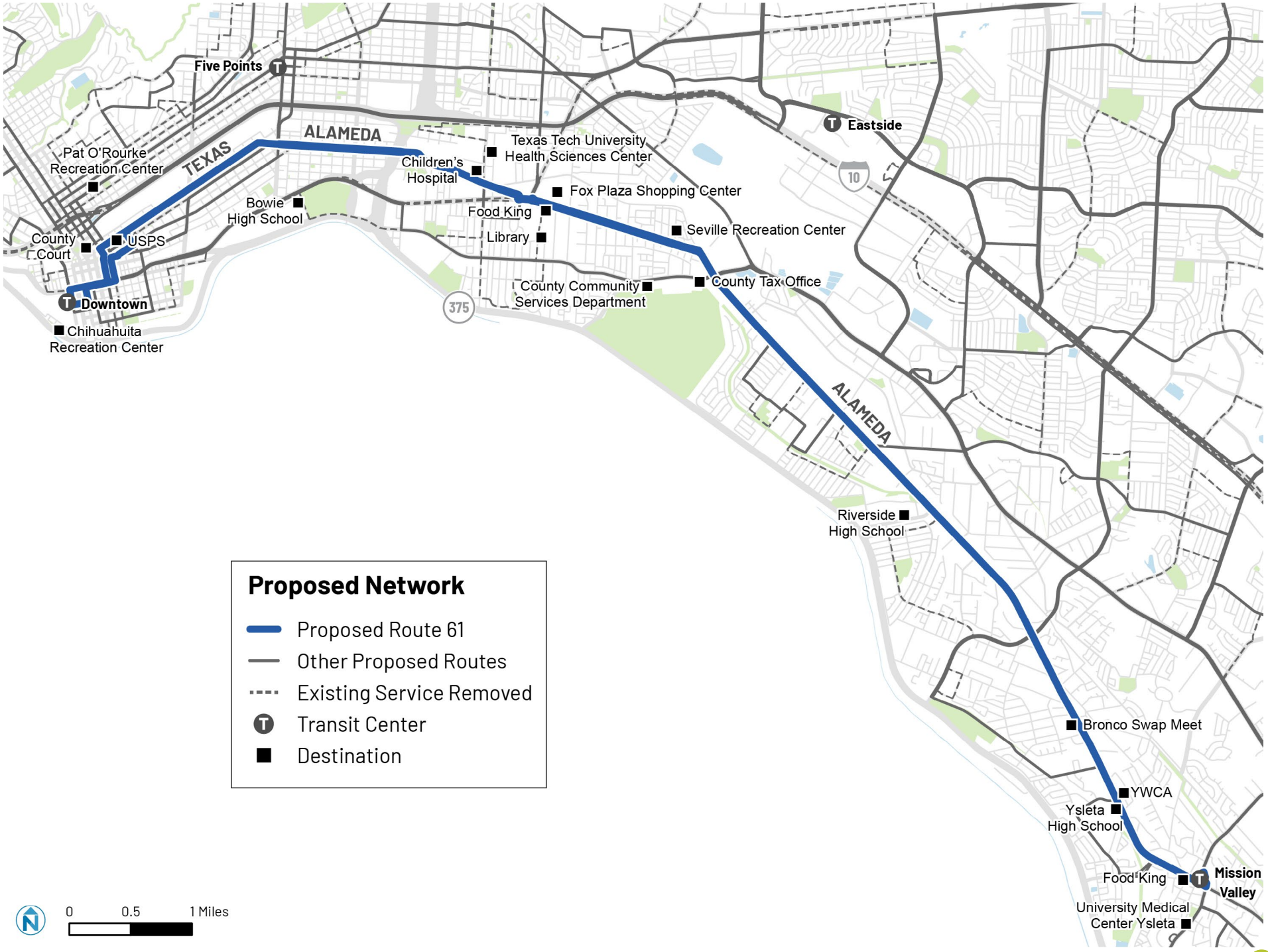
61 Alameda

Local

Route 61 is a local route that serves Downtown and Mission Valley Transit Centers. Other major destinations include University Medical Center and Fox Plaza.

Route 61 should be extended to Mission Valley Transit Center to provide the same alignment as the Alameda BRIO. Recommended schedule changes include more frequent service and the addition of Sunday service.

	Day	Start	End	Frequency	Buses	Daily Hours
Existing Service	Weekday	4:30 AM	9:47 PM	90	1	17.3
	Saturday	4:30 AM	9:15 PM	90	1	16.8
	Sunday	No service				
Phase 1 Service	Weekday	5:00 AM	10:00 PM	45	3	51.0
	Saturday	6:00 AM	9:00 PM	45	3	45.0
	Sunday	7:00 AM	8:00 PM	45	3	39.0
Full Buildout Service	Weekday	5:00 AM	11:00 PM	45	3	54.0
	Saturday	6:00 AM	10:00 PM	45	3	48.0
	Sunday	7:00 AM	8:00 PM	45	3	39.0


Five Points
ALAMEDA
TEXAS
Pat O'Rourke Recreation Center
Bowie High School
Children's Hospital
Texas Tech University Health Sciences Center
Fox Plaza Shopping Center
Food King
Library
Seville Recreation Center
Eastside
10
County Court
USPS
Downtown
Chihuahuita Recreation Center
375
County Community Services Department
County Tax Office
ALAMEDA
Riverside High School
Bronco Swap Meet
YWCA
Ysleta High School
Food King
Mission Valley
University Medical Center Ysleta
Proposed Network
Proposed Route 61
Other Proposed Routes
Existing Service Removed
Transit Center
Destination
0
0.5
1 Miles

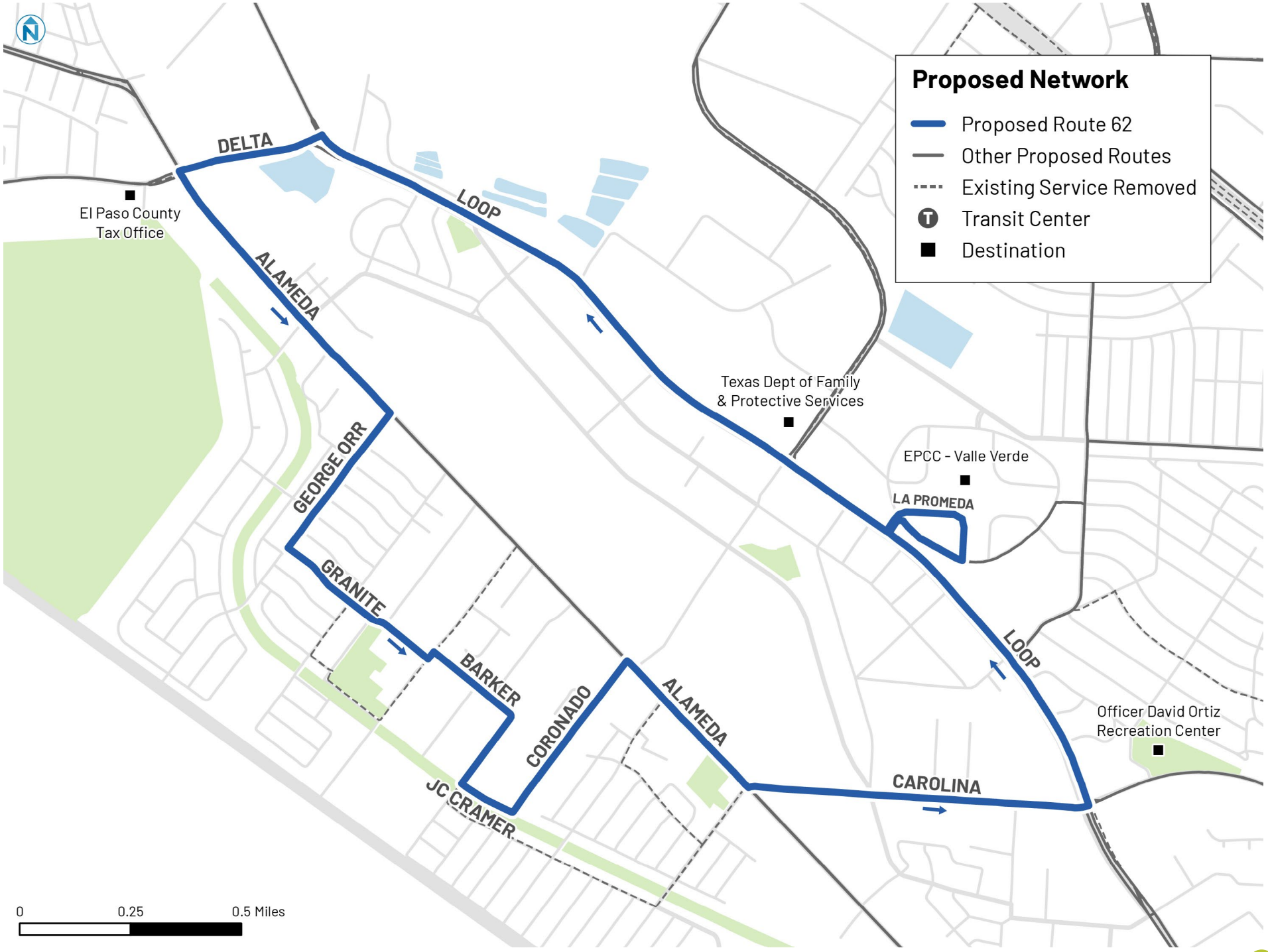
62 Lakeside

Local

Route 62 is a local route that currently connects the Lakeside and Valle Verde neighborhoods with Downtown. Route 62 ends at the Government District and does not serve the Downtown Transit Center.

The eastern segment of existing Route 62 should be extended to the El Paso Community College Valle Verde Campus and operate as a counter-clockwise circulator. The middle segment of existing Route 62 will be served by the redesigned Route 65. The western segment of existing Route 62 will continue to be served by Route 61 and the Alameda BRIO. It is recommended that a smaller, cutaway bus be assigned to Route 62 to navigate narrow residential streets.

	Day	Start	End	Frequency	Buses	Daily Hours
Existing Service	Weekday	5:52 AM	9:12 PM	90	1	15.3
	Saturday	5:52 AM	8:36 PM	90	1	14.7
	Sunday	No service				
Phase 1 Service	Weekday	5:30 AM	9:30 PM	30	1	16.0
	Saturday	6:30 AM	8:30 PM	30	1	14.0
	Sunday	No service				
Full Buildout Service	Weekday	5:30 AM	9:30 PM	30	1	16.0
	Saturday	6:30 AM	8:30 PM	30	1	14.0
	Sunday	7:30 AM	7:30 PM	30	1	12.0


Proposed Network
Proposed Route 62
Other Proposed Routes
Existing Service Removed
Transit Center
Destination
DELTA
LOOP
ALAMEDA
El Paso County
Tax Office
Texas Dept of Family
& Protective Services
EPCC - Valle Verde
LA PROMEDA
GEORGE ORR
GRANITE
BARKER
CORONADO
ALAMEDA
LOOP
Officer David Ortiz
Recreation Center
CAROLINA
JC CRAMER
0
0.25
0.5 Miles

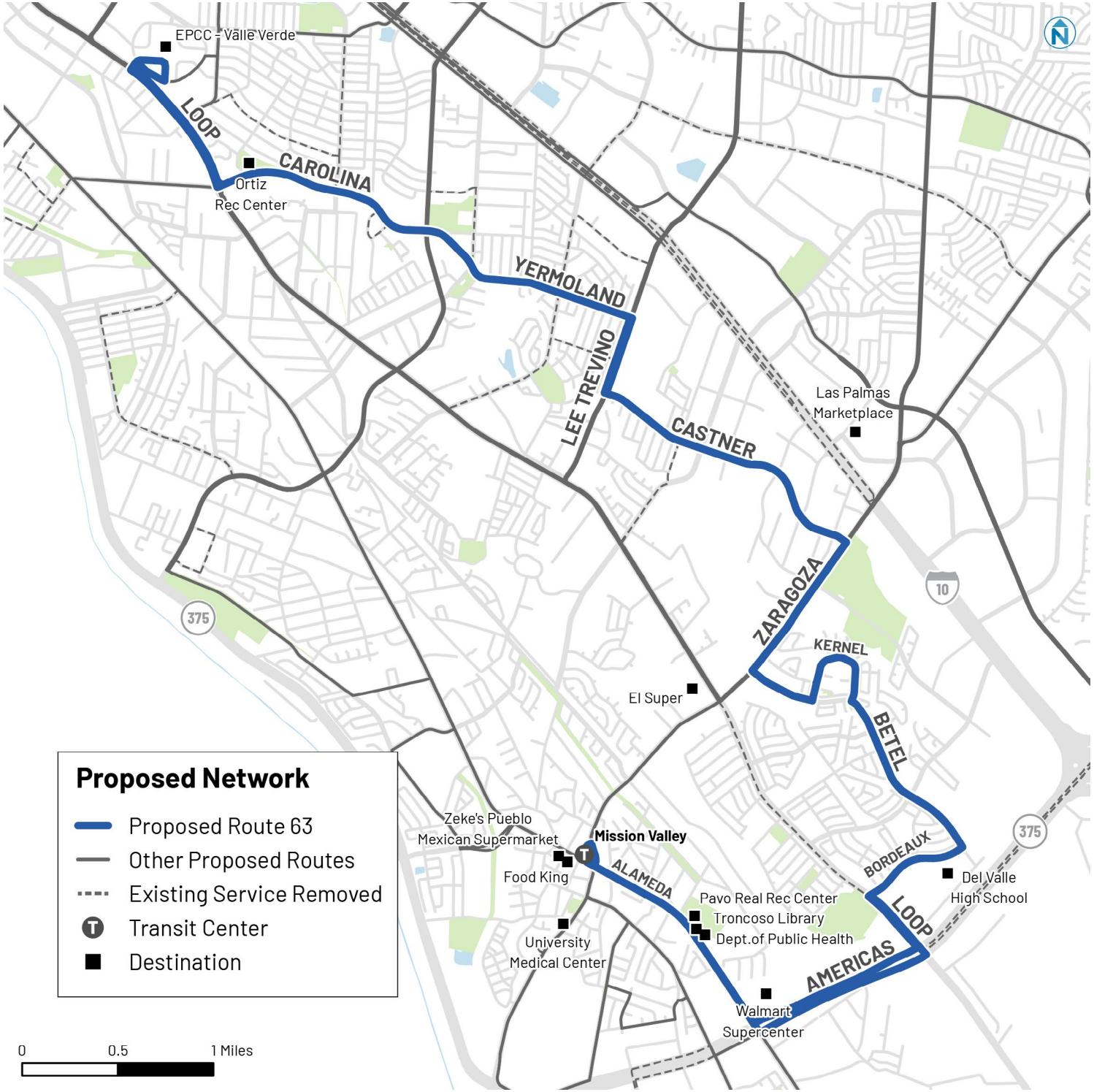
63 North Carolina

Local

Route 63 is a local route that currently serves Cielo Vista and Mission Valley Transit Centers. Other major destinations include El Paso Community College Valle Verde Campus.

Route 63 should be shortened to El Paso Community College Valle Verde Campus and streamlined along Yermoland, Castner, and Betel. Recommended schedule changes include more frequent weekday service and the addition of Sunday service.

	Day	Start	End	Frequency	Buses	Daily Hours
Existing Service	Weekday	5:28 AM	10:28 PM	60	2	26.9
	Saturday	5:28 AM	9:28 PM	60	2	24.9
	Sunday	No service				
Phase 1 Service	Weekday	5:30 AM	10:30 PM	60	2	34.0
	Saturday	5:30 AM	9:30 PM	60	2	32.0
	Sunday	No service				
Full Buildout Service	Weekday	5:30 AM	10:30 PM	30	4	68.0
	Saturday	5:30 AM	9:30 PM	60	2	32.0
	Sunday	7:00 AM	6:00 PM	60	2	22.0


EPCC - Valle Verde
LOOP
CAROLINA
Ortiz
Rec Center
YERMOLAND
LEE TREVINO
CASTNER
Las Palmas
Marketplace
ZARAGOZA
KERNEL
BETEL
El Super
375
10
Proposed Network
Proposed Route 63
Other Proposed Routes
Existing Service Removed
Transit Center
Destination
Zeke's Pueblo
Mexican Supermarket
Food King
Mission Valley
ALAMEDA
University
Medical Center
Pavo Real Rec Center
Troncoso Library
Dept.of Public Health
BORDEAUX
Del Valle
High School
LOOP
AMERICAS
Walmart
Supercenter
0
0.5
1 Miles

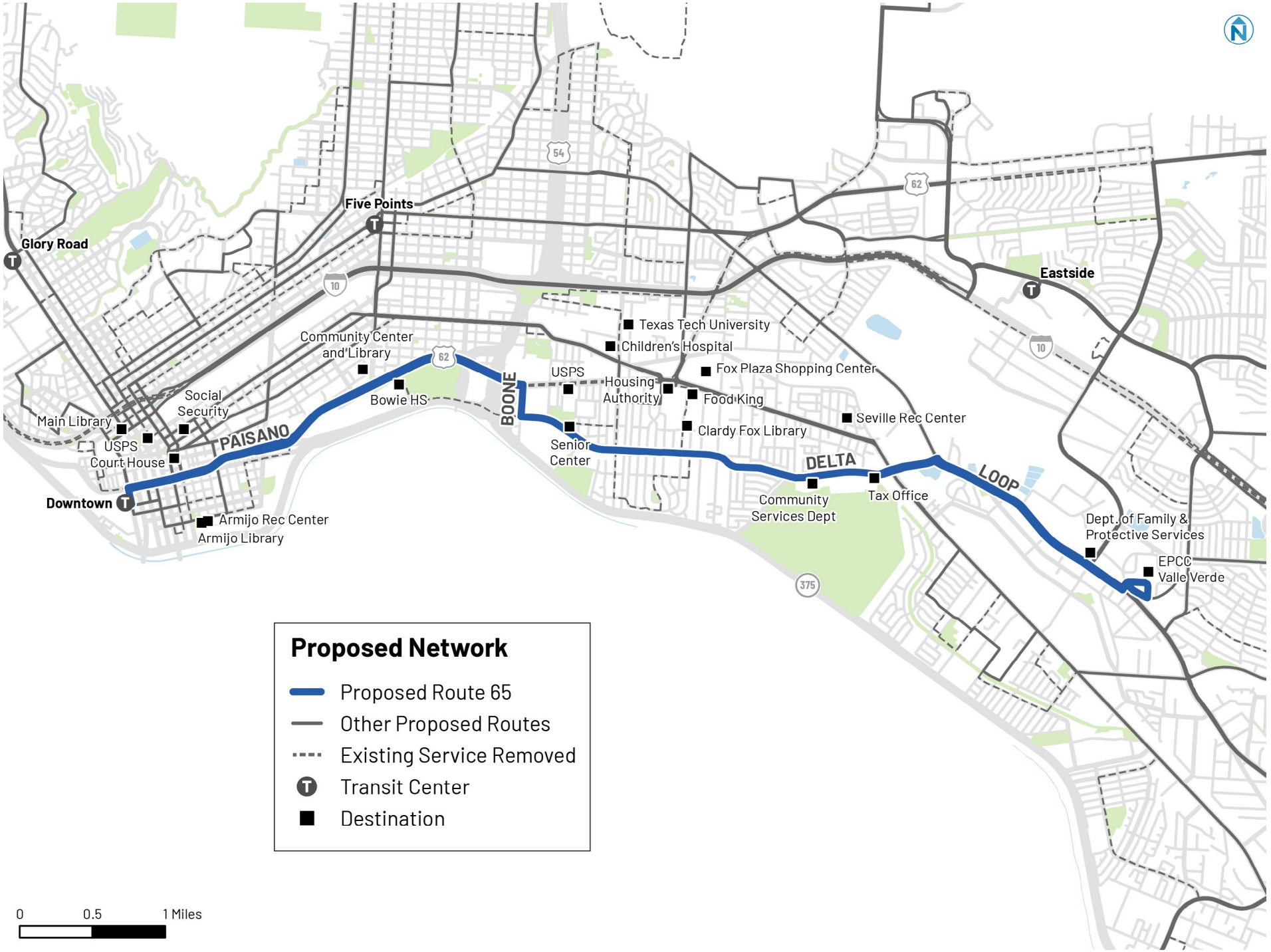
65 Valle Verde

Local

Route 65 is a local route that serves Downtown Transit Center. Other major destinations include University Medical Center, Fox Plaza, and El Paso Community College Valle Verde Campus.

Route 65 should be realigned from Alameda to Delta to provide more transit destinations from Val Verde. Recommended schedule changes include more frequent service.

	Day	Start	End	Frequency	Buses	Daily Hours
Existing Service	Weekday	5:10 AM	9:37 PM	45	2	36.6
	Saturday	5:10 AM	9:37 PM	45	2	42.2
	Sunday	8:10 AM	5:55 PM	90	1	9.8
Phase 1 Service	Weekday	5:00 AM	9:30 PM	45	2	33.0
	Saturday	6:30 AM	9:30 PM	45	2	30.0
	Sunday	8:00 AM	6:30 PM	45	2	21.0
Full Buildout Service	Weekday	5:00 AM	10:30 PM	30	3	52.5
	Saturday	6:30 AM	9:30 PM	45	2	30.0
	Sunday	7:00 AM	7:30 PM	45	2	25.0


Glory Road
Five Points
Eastside
Downtown
Main Library
USPS
Court House
Social
Security
Community Center
and Library
Bowie HS
PAISANO
BOONE
USPS
Texas Tech University
Children's Hospital
Housing
Authority
Fox Plaza Shopping Center
Food King
Clardy Fox Library
Seville Rec Center
Senior
Center
DELTA
LOOP
Community
Services Dept
Tax Office
Dept. of Family &
Protective Services
EPCC
Valle Verde
Armijo Rec Center
Armijo Library
54
62
10
375
Proposed Network
Proposed Route 65
Other Proposed Routes
Existing Service Removed
Transit Center
Destination
0
0.5
1 Miles

67 Yarbrough

Local

Route 67 is a local route that serves Lee Trevino Park & Ride but does not currently serve a transit center.

Route 67 should be extended to Mission Valley Transit Center. Recommended schedule changes include more frequent service and the addition of Sunday service.

	Day	Start	End	Frequency	Buses	Daily Hours
Existing Service	Weekday	5:29 AM	8:02 PM	80	1	14.5
	Saturday	6:46 AM	6:52 PM	80	1	12.1
	Sunday	No service				
Phase 1 Service	Weekday	6:00 AM	9:00 PM	60	2	30.0
	Saturday	7:00 AM	7:00 PM	60	2	24.0
	Sunday	No service				
Full Buildout Service	Weekday	6:00 AM	10:00 PM	40	3	48.0
	Saturday	6:00 AM	8:00 PM	60	2	28.0
	Sunday	7:00 AM	7:00 PM	60	2	24.0


MONTANA
62
LEE TREVINO
EDGEMERE
Eastside Senior Center
Eastside
Gary Del Palacio Recreation Center
YARBOROUGH
Albertsons
10
Del Sol Medical Center
Towne East Shopping Center
Walmart Supercenter
Bel Air High School
10
YARBOROUGH
Walmart
375
INDEPENDENCE
Bronco Swap Meet
PRADO
YWCA
Ysleta High School
ALAMEDA
Mission Valley
Zeke's Pueblo
Mexican Supermarket
Food King
University Medical Center
Proposed Network
Proposed Route 67
Other Proposed Routes
Existing Service Removed
Transit Center
Destination
0
0.5
1 Miles

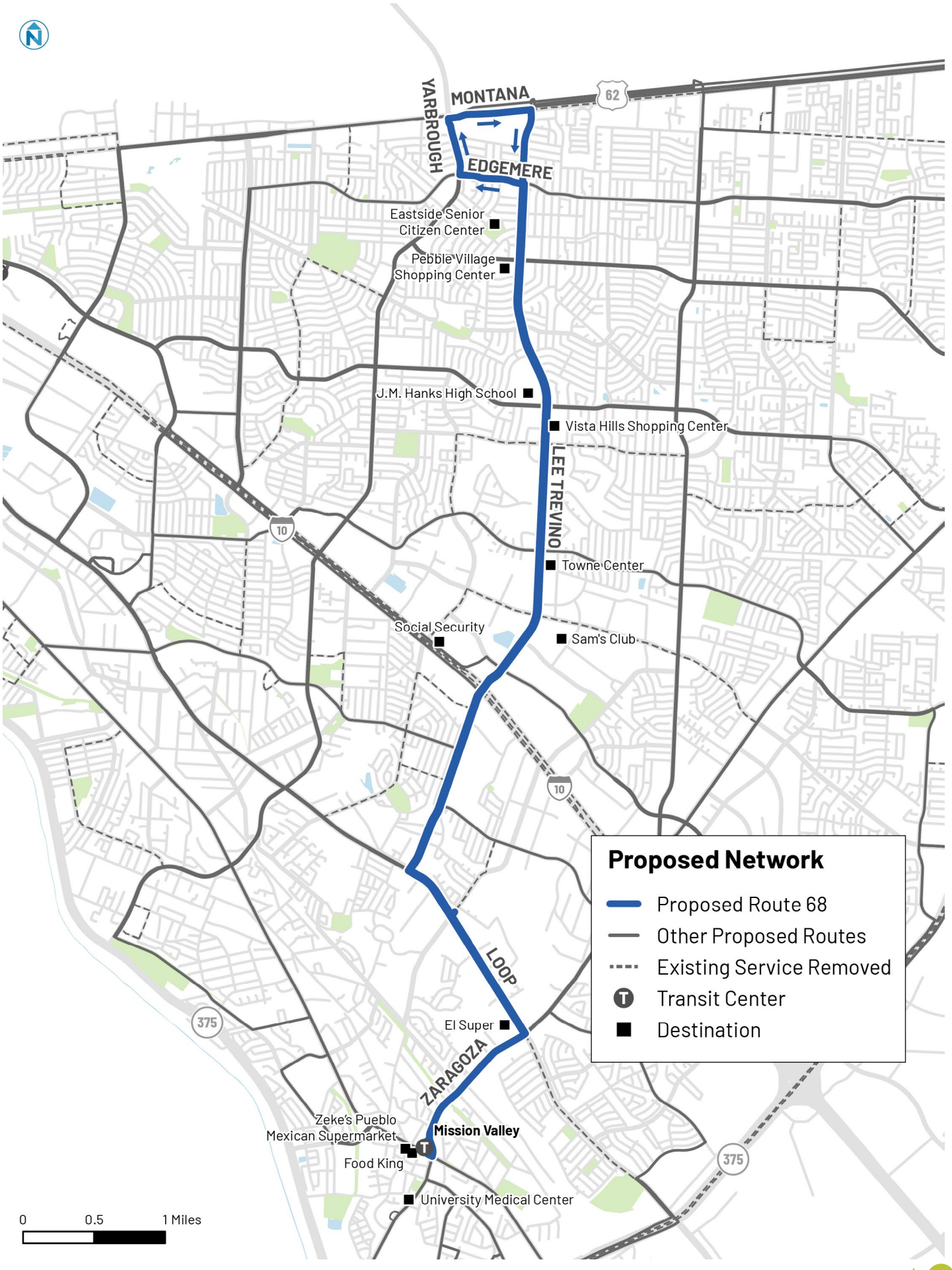
68 Lee Trevino

Local

Route 68 is a local route that serves Mission Valley Transit Center Transit Center and Lee Trevino Park & Ride.

Route 68 should be streamlined along Lee Trevino. Recommended schedule changes include more frequent weekday service and the addition of Sunday service.

	Day	Start	End	Frequency	Buses	Daily Hours
Existing Service	Weekday	5:21 AM	10:10 PM	45	2	32.1
	Saturday	5:21 AM	9:25 PM	45	2	31.1
	Sunday	No service				
Phase 1 Service	Weekday	5:30 AM	10:00 PM	45	2	33.0
	Saturday	5:30 AM	8:30 PM	45	2	30.0
	Sunday	No service				
Full Buildout Service	Weekday	5:30 AM	10:00 PM	30	3	49.5
	Saturday	5:30 AM	8:30 PM	45	2	30.0
	Sunday	7:00 AM	7:00 PM	45	2	24.0


MONTANA
62
YARBROUGH
EDGEMERE
Eastside Senior Citizen Center
Pebble Village Shopping Center
J.M. Hanks High School
Vista Hills Shopping Center
LEE TREVINO
10
Towne Center
Social Security
Sam's Club
10
LOOP
375
El Super
ZARAGOZA
Zeke's Pueblo Mexican Supermarket
Mission Valley
Food King
University Medical Center
375
0
0.5
1 Miles
Proposed Network
Proposed Route 68
Other Proposed Routes
Existing Service Removed
Transit Center
Destination

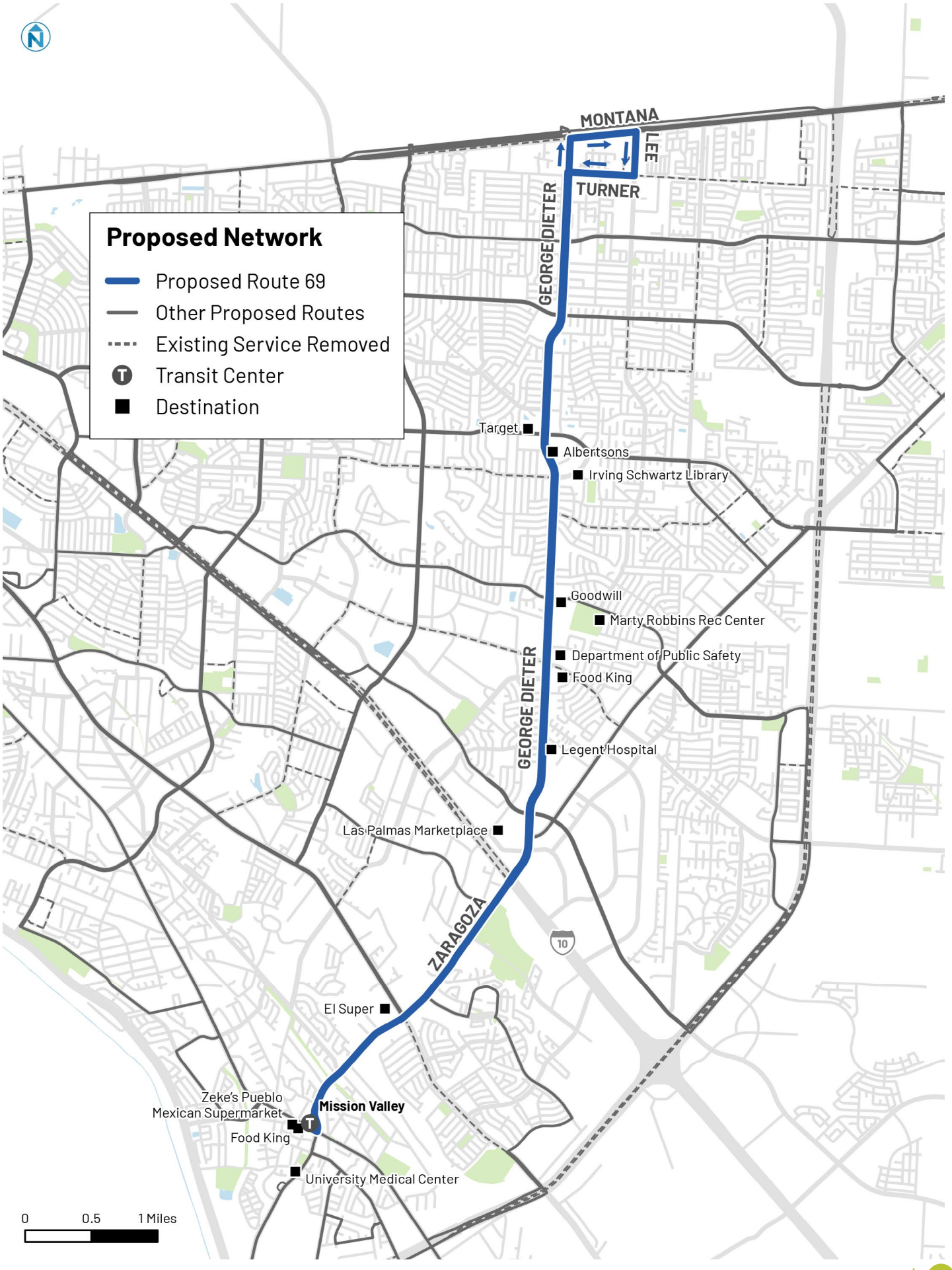
69 George Dieter

Local

Route 69 is a local route that serves Mission Valley Transit Center Transit Center and George Dieter Park & Ride.

No routing changes are recommended for Route 69. Recommended schedule changes include more frequent weekday service and the addition of Sunday service.

	Day	Start	End	Frequency	Buses	Daily Hours
Existing Service	Weekday	5:10 AM	8:45 PM	45	2	29.7
	Saturday	6:40 AM	8:45 PM	45	2	26.7
	Sunday	No service				
Phase 1 Service	Weekday	5:00 AM	9:30 PM	45	2	33.0
	Saturday	6:30 AM	8:00 PM	45	2	27.0
	Sunday	No service				
Full Buildout Service	Weekday	5:00 AM	10:30 PM	30	3	52.5
	Saturday	5:30 AM	8:00 PM	45	2	29.0
	Sunday	7:00 AM	7:00 PM	45	2	24.0


Proposed Network
Proposed Route 69
Other Proposed Routes
Existing Service Removed
Transit Center
Destination
MONTANA
LEE
TURNER
GEORGE DIETER
Target
Albertsons
Irving Schwartz Library
Goodwill
Marty Robbins Rec Center
Department of Public Safety
Food King
Legent Hospital
Las Palmas Marketplace
ZARAGOZA
10
El Super
Zeke's Pueblo
Mexican Supermarket
Food King
Mission Valley
University Medical Center
0
0.5
1 Miles

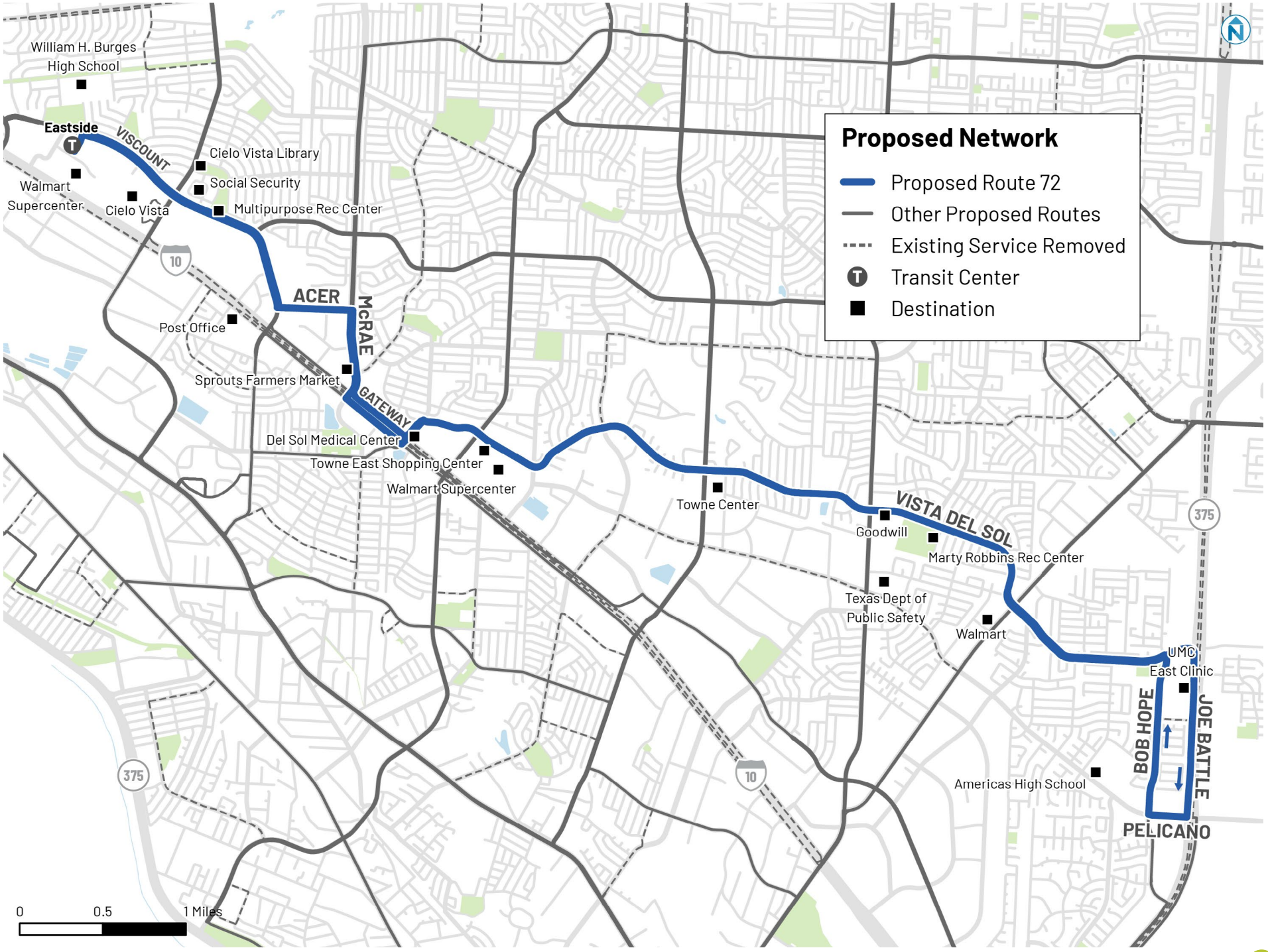
72 Vista Del Sol

Local

Route 72 is a local route that serves Cielo Vista Transit Center.

Route 72 should be streamlined along Viscount and Vista Del Sol. Recommended schedule changes include more frequent service and the addition of Sunday service.

	Day	Start	End	Frequency	Buses	Daily Hours
Existing Service	Weekday	6:45 AM	8:10 PM	90	1	13.4
	Saturday	6:45 AM	6:40 PM	90	1	11.9
	Sunday	No service				
Phase 1 Service	Weekday	6:00 AM	8:00 PM	60	2	28.0
	Saturday	6:00 AM	8:00 PM	60	2	28.0
	Sunday	No service				
Full Buildout Service	Weekday	5:00 AM	8:00 PM	40	3	45.0
	Saturday	5:00 AM	8:00 PM	60	2	30.0
	Sunday	7:00 AM	6:00 PM	60	2	22.0


Proposed Network
Proposed Route 72
Other Proposed Routes
Existing Service Removed
Transit Center
Destination
William H. Burges High School
Eastside
VISCOUNT
Cielo Vista Library
Social Security
Multipurpose Rec Center
Walmart Supercenter
Cielo Vista
10
ACER
McRAE
Post Office
Sprouts Farmers Market
GATEWAY
Del Sol Medical Center
Towne East Shopping Center
Walmart Supercenter
Towne Center
VISTA DEL SOL
Goodwill
Marty Robbins Rec Center
Texas Dept of Public Safety
Walmart
375
UMC East Clinic
BOB HOPE
JOE BATTLE
Americas High School
PELICANO
0
0.5
1 Miles

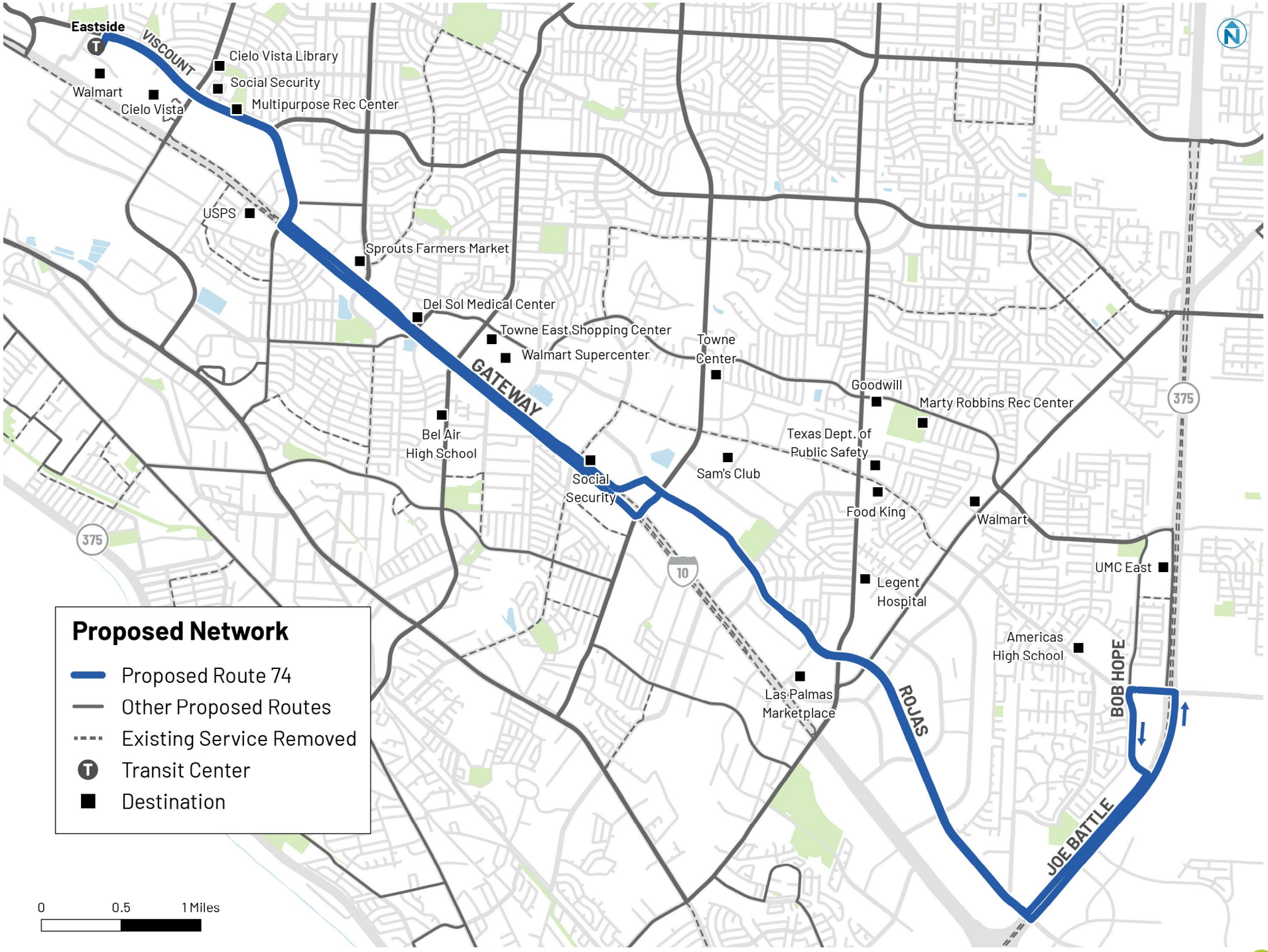
74 Gateway/Rojas

Local

Route 74 is a local route that serves Cielo Vista Transit Center.

Route 74 should be streamlined along Gateway and Rojas. Recommended schedule changes include more frequent service and the addition of Sunday service.

	Day	Start	End	Frequency	Buses	Daily Hours
Existing Service	Weekday	5:30 AM	8:28 PM	90	1	15.0
	Saturday	5:30 AM	8:28 PM	90	1	15.0
	Sunday	No service				
Phase 1 Service	Weekday	6:00 AM	8:00 PM	60	2	28.0
	Saturday	6:00 AM	8:00 PM	60	2	28.0
	Sunday	No service				
Full Buildout Service	Weekday	6:00 AM	8:00 PM	40	3	42.0
	Saturday	6:00 AM	8:00 PM	60	2	28.0
	Sunday	7:00 AM	6:00 PM	60	2	22.0


Eastside
VISCOUNT
Cielo Vista Library
Social Security
Multipurpose Rec Center
Walmart
Cielo Vista
USPS
Sprouts Farmers Market
Del Sol Medical Center
Towne East Shopping Center
Walmart Supercenter
GATEWAY
Towne Center
Goodwill
Marty Robbins Rec Center
375
Bel Air High School
Texas Dept. of Public Safety
Sam's Club
Social Security
Food King
Walmart
375
10
UMC East
Legent Hospital
Americas High School
BOB HOPE
Las Palmas Marketplace
ROJAS
JOE BATTLE
Proposed Network
Proposed Route 74
Other Proposed Routes
Existing Service Removed
Transit Center
Destination
0
0.5
1 Miles

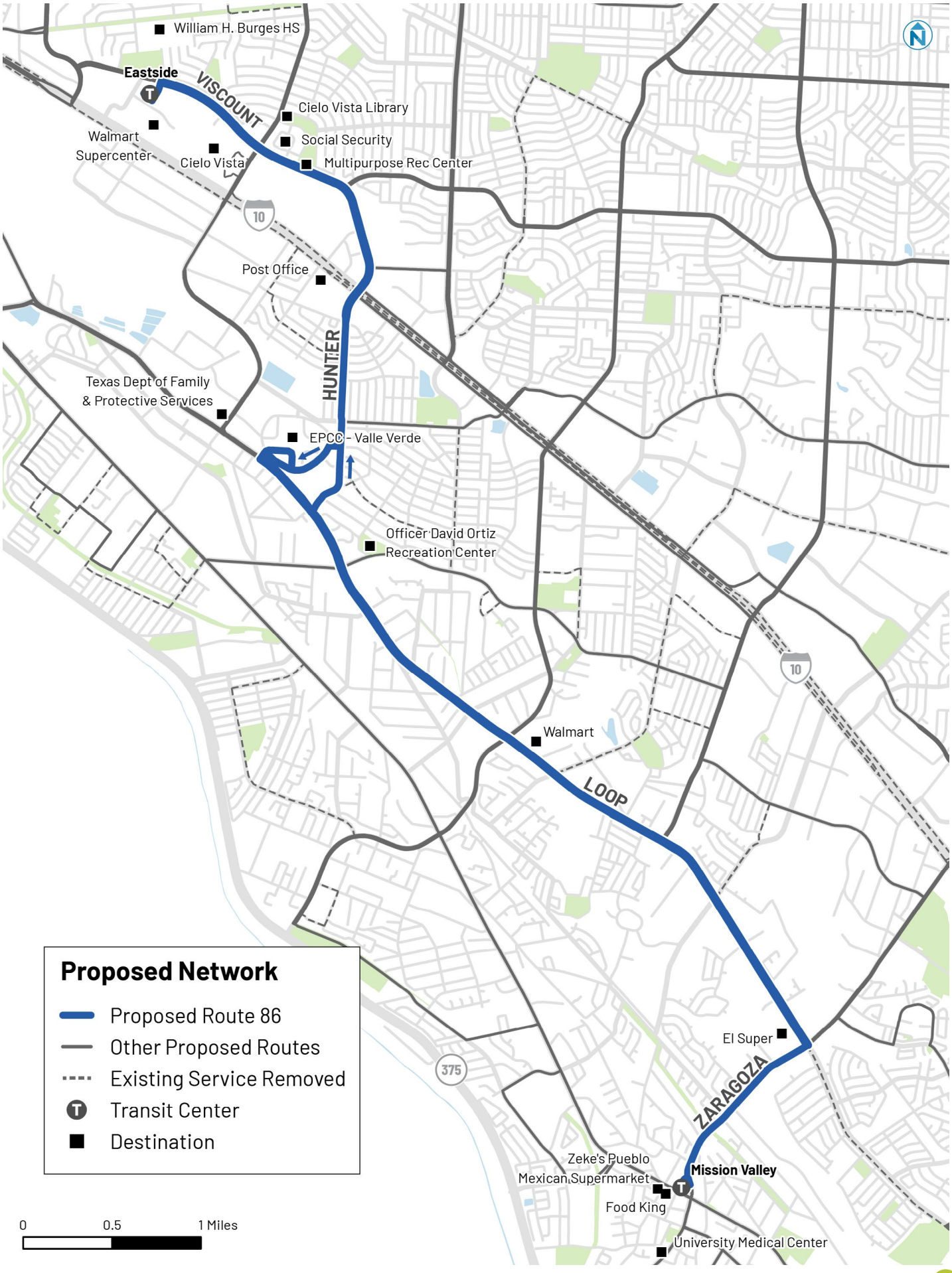
86 North Loop

Local

Route 86 does not currently serve a transit center. Its primary destination is El Paso Community College Valle Verde Campus.

Route 86 should be extended to Cielo Vista and Mission Valley Transit Centers. Recommended schedule changes include more frequent service and the addition of Sunday service.

	Day	Start	End	Frequency	Buses	Daily Hours
Existing Service	Weekday	5:45 AM	10:22 PM	60	1	16.6
	Saturday	5:45 AM	7:22 PM	60	1	13.6
	Sunday	No service				
Phase 1 Service	Weekday	6:00 AM	9:00 PM	45	2	30.0
	Saturday	6:00 AM	7:30 PM	45	2	27.0
	Sunday	No service				
Full Buildout Service	Weekday	6:00 AM	9:00 PM	30	3	45.0
	Saturday	6:00 AM	7:30 PM	45	2	27.0
	Sunday	7:00 AM	6:00 PM	45	2	22.0


William H. Burges HS
Eastside
VISCOUNT
Cielo Vista Library
Social Security
Multipurpose Rec Center
Walmart Supercenter
Cielo Vista
10
Post Office
HUNTER
Texas Dept of Family & Protective Services
EPCC - Valle Verde
Officer David Ortiz Recreation Center
Walmart
LOOP
10
375
El Super
ZARAGOZA
Zeke's Pueblo Mexican Supermarket
Mission Valley
Food King
University Medical Center
Proposed Network
Proposed Route 86
Other Proposed Routes
Existing Service Removed
Transit Center
Destination
0
0.5
1 Miles

89 Zaragoza Bridge

Feeder

Route 89 is a feeder route that serves Mission Valley Transit Center. It operates as a shuttle connection with the Zaragoza Bridge Port of Entry.

No routing changes are recommended for Route 89. Recommended schedule changes include more frequent weekday service and later service.

	Day	Start	End	Frequency	Buses	Daily Hours
Existing Service	Weekday	4:40 AM	8:45 PM	25	1	16.1
	Saturday	4:40 AM	8:45 PM	25	1	16.1
	Sunday	6:40 AM	5:40 PM	25	1	11.0
Phase 1 Service	Weekday	4:30 AM	8:45 PM	25	1	16.3
	Saturday	5:00 AM	8:45 PM	25	1	15.8
	Sunday	6:30 AM	5:45 PM	25	1	11.3
Full Buildout Service	Weekday	4:30 AM	9:45 PM	15	2	34.5
	Saturday	5:00 AM	8:45 PM	25	1	15.8
	Sunday	6:30 AM	7:45 PM	25	1	13.3


Proposed Network
Proposed Route 89
Other Proposed Routes
Existing Service Removed
Transit Center
Destination
Zeke's Pueblo Mexican Supermarket
Food King
Mission Valley
ALAMEDA
SOCORRO
Pavo Real Rec Center
Troncoso Library
University Medical Center
ZARAGOZA
SOUTHSIDE
AMERICAS
375
375
Western Technical College
Puente Zaragoza
0
0.25
0.5 Miles

ELIMINATED ROUTES

Route		Action / Alternative
04	Union Plaza Circulator	Consolidate with Route 2 and Streetcar
05	Far East / Eastside Terminal Express	Replace with new Route 55
06	Far East/ Mission Valley Express	Replace with new Route 55
08	Gateway Circulator	Replace with Route 74
11	Mesita via Kern Place	Consolidate with Route 10
13	Coronado Hills Circulator	Replace with new Route 14
21	Chelmont Via Raynolds	Replace with Route 25
24	Delta Via Second Ward	Replace with Route 65
26	Five Points / UMC	Replace with Route 25
36	Beaumont Hospital / Highland	Consolidate with Route 34
37	Northgate Via Dyer	Consolidate with Route 35
54	RC Poe Via Montwood	Replace with Route 52, 53, and 55
56	RC Poe / Far East Circulator	Replace with microtransit
58	Montana / Turner	Consolidate with Route 50
62	GovtDistrict Via Lakeside	Replace with new Route 62
64	Mission Valley via Alameda	Replace with Route 61
66	Valle Verde via North Loop	Replace with Alameda BRIO, Routes 61, and 65
76	Montwood Express	Discontinue
87	CVTC via Valle Verde	Consolidate with Route 7
90	Westside to Eastside Express	Discontinue due to low ridership

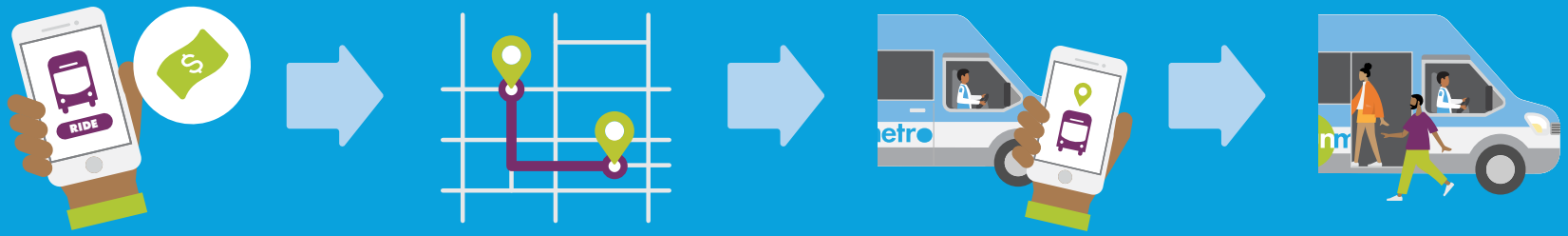
MICROTRANSIT

Microtransit is one way to provide transit in low-density communities that may not be able to support fixed bus routes. Microtransit is a flexible, shared, on-demand transit service. Unlike a fixed bus route, there are no schedules or route maps. Instead, trips can only be taken if they start and end in specific zones.

Microtransit allows agencies to provide flexible transportation without significant infrastructure investments. Most microtransit programs utilize software to plan trips. Microtransit has the potential to shorten wait times, reduce travel times, and improve first mile/last mile connections. Typically, riders request microtransit trips by downloading and using an app. However, riders without smartphones can also access the service by calling customer service.

HOW MICROTRANSIT WORKS

1. **Rider requests and pays for ride**
2. **Microtransit software creates trip itinerary**
3. **Trip itinerary is provided to driver and rider**
4. **Driver picks up riders to complete trip**

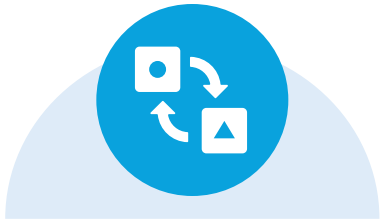


MICROTRANSIT APPLICATIONS

Microtransit service is typically implemented as a means of expanding transit coverage, replacing existing bus service, or facilitating connections to transit hubs or major destinations. Microtransit service can also be implemented to achieve multiple applications.

SERVICE EXPANSION

Microtransit can increase mobility in areas not already covered by Sun Metro. These areas may have some demand for transit service but cannot support full-scale fixed-route bus service. Transit coverage gaps frequently exist due to infrastructure challenges such as street or sidewalk network connectivity, naturally occurring barriers, or areas that have experienced recent growth. Over time, as ridership and/or densities increase, the microtransit zone can be transitioned to fixed-route service.



SERVICE REPLACEMENT

Microtransit zones can also replace underperforming routes or route segments, potentially mobility in a more convenient and cost-effective manner. Microtransit that replaces fixed-route service should have similar hours of operation and not require more vehicles.

SERVICE CONNECTION

Microtransit zones can also be designed to connect riders to a transit center or high-frequency service, such as BRIO. Other connections could include activity centers, such as shopping centers, schools, or employment centers.

MICROTRANSIT OPERATING MODELS

Microtransit riding rules can vary depending on Sun Metro's goals and needs and balance service flexibility and efficiency. However, the most common microtransit delivery types are described below.

CURB-TO-CURB

The curb-to-curb model allows riders to travel between any two curbside points within a designated zone. This model provides the most flexibility and data points but is typically less efficient than other models.

VIRTUAL STOPS

The virtual stops model permits travel to and from pre-defined virtual stops within the microtransit zone. Virtual stops typically include major intersections in neighborhoods and destinations such as grocery stores, retail centers, schools, colleges, hospitals, clinics, libraries, and community centers. This model is less flexible but more efficient than the curb-to-curb model.

FIRST MILE/LAST MILE CONNECTION

This first mile/last mile connection model limits travel to/from a specific point of interest, typically a transit center or activity center, as either the trip origin or destination. The corresponding origin or destination can be anywhere within the zone. This model promotes broader system connectivity and is effective in areas just beyond walking distance to a transit center or activity center.

RECOMMENDATION MICROTRANSIT PILOT:

PEBBLE HILLS

Pebble Hills is a low-density, mostly residential area in Upper East El Paso along the city limits. The area is currently served by Route 56, which is among the lowest ridership routes in the system. Route 56 runs every 45 minutes and has a 4.5-hour midday service gap.

In 2023, Sun Metro opened the new Upper East Transit Center at the intersection of Edgemere Blvd and RC Poe Rd. This facility serves at the eastern terminal of the Montana BRIO and several local routes. The residential streets in the area are not ideal for large buses and Zaragoza Road is a high-speed corridor that is considered a barrier to many pedestrians.

Replacing Route 56 with all-day microtransit service covering a 7.5 square mile area would provide a more flexible service option for Pebble Hills residents. Virtual stops are recommended to provide direct access to the Upper East Side Transit Center and destinations along Zaragoza Road. One vehicle is recommended at pilot startup.

RECOMMENDED PILOT PROCESS

Identify area and application

- Service expansion
- Service replacement
- Service connection

Select operating model

- Boundaries
- Points of interest
- Virtual stops

Set zone parameters

- Boundaries
- Points of interest
- Virtual stops

Define operation characteristics

- Span of service
- Goal wait time
- Pick-up and drop-off rules
- Vehicle needs

Implement pilot service

- Marketing materials
- Outreach campaign
- Travel training

Monitor performance

- Ridership productivity
- % of shared rides
- On-time performance

Service Modification

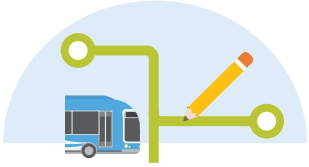
- Adjust service
- Discontinue service
- Transition to fixed-route

SERVICE EXPANSION PLAN

After restructuring the local route network, Sun Metro should restore Sunday service on all routes and incrementally upgrade route schedules to further enhance service and elevate the entire transit system.

The following prioritized service expansion distributes system improvements over a multi-year period.

PHASE 1
2024



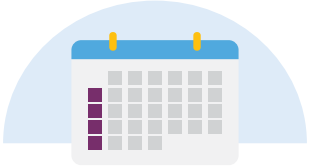
Redesign the entire Sun Metro route network.

Implement route and schedule recommendations.

Replace Route 56 Pilot microtransit service in Pebble Hills.

Annual Service Hours	Peak Vehicles
490,000	99

PHASE 2
2025



Restore Sunday service on 24 routes.

Routes 7, 10, 12, 14, 19, 25, 32, 33, 34, 42, 43, 46, 51, 52, 55, 62, 63, 67, 68, 69, 72, 72, 84, and 86.

Annual Service Hours	Peak Vehicles
515,000	99

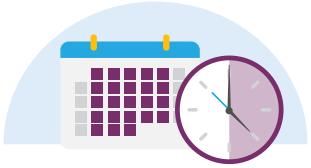
PHASE 3
2026

Extend night service on all BRIO routes.

10:00 p.m. on weekdays, 9:00 p.m. on Saturday, and 8:00 p.m. on Sunday

Annual Service Hours	Peak Vehicles
540,000	99

PHASE 4
2027 – 2030



Upgrade weekday frequencies on select Eastside routes.

Routes 50, 55, 63, 67, 68, 69.

Upgrade weekday frequencies on select Northside routes.

Routes 33, 34, 42, 43, 44, 46.

Upgrade weekday frequencies on Routes 7, 10, and 12. Add weekend service to Route 16.

Upgrade weekday frequencies on select Mission Valley routes.

Routes 25, 32, 51, 52, 63, 65, 72, 74, 86, 89.

Annual Service Hours			
565,000	**590,000**	**615,000**	**650,000**
Peak Vehicles			
105	**112**	**117**	**127**

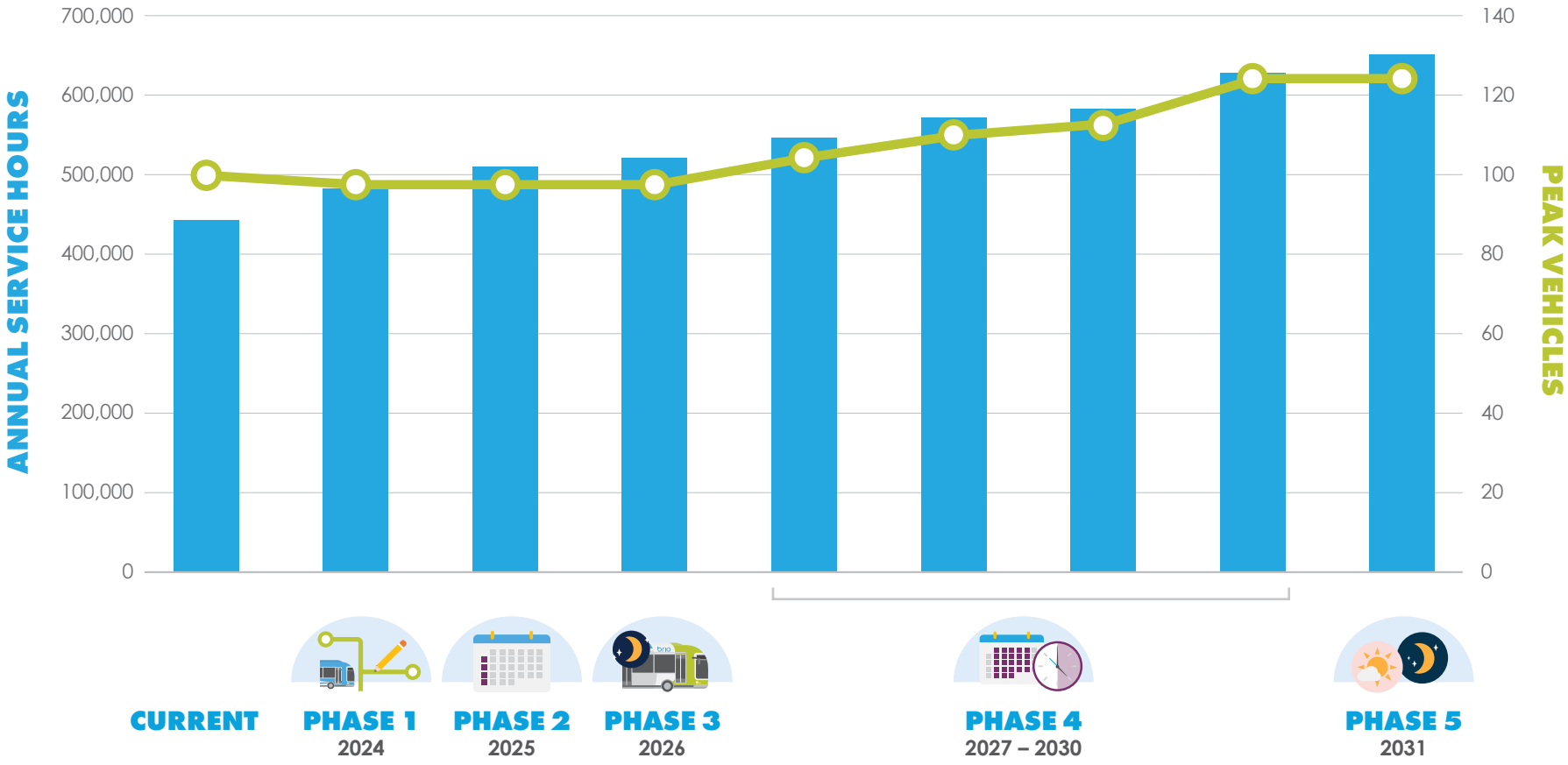
PHASE 5
2031

Extend night and morning service on 14 local routes.

Routes 14, 15, 25, 34, 35, 50, 53, 61, 65, 67, 69, 84, and 89.

Annual Service Hours
670,000
Peak Vehicles
127

SERVICE EXPANSION RESOURCES




sunmetro
sunmetro
59 EASTSIDE CONNECTOR
sunmetro

3 | CAPITAL AND INFRASTRUCTURE INVESTMENTS

This chapter recommends various capital and infrastructure investments to support and elevate Sun Metro services.

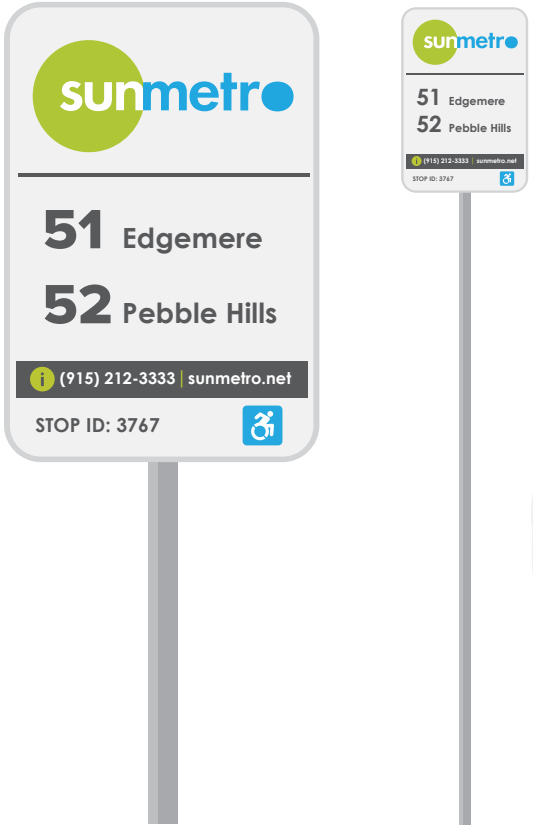
BUS STOP SIGNAGE UPGRADE

Existing Sun Metro bus stop signage lacks basic information riders. Existing signage includes a generic bus icon with a smiley face, a "no parking" symbol, routes serviced by the stop, and the Sun Metro customer service number without an area code.

Well-designed bus stop signage provides useful information while simultaneously marketing transit service. New signage should be installed at all Sun Metro stops. Each sign should include the following:

- Sun Metro logo
- Route numbers and names
- Sun Metro customer service number with area code
- Sun Metro website address
- Unique bus stop identification number, which can be used to access schedule information
- ADA-accessible symbol indicating that the stop and buses are accessible

RECOMMENDED SIGNAGE



EXISTING SIGNAGE

BUS STOP IMPROVEMENT PLAN

The development of a systemwide bus stop improvement plan would assist Sun Metro in enhancing comfort and perceived safety for existing and potential riders.

Bus stop improvement plans vary in terms of goals, budgets, and timelines, however, most plans include the following phases:

PHASE 1

CONDUCT A COMPREHENSIVE INVENTORY

Sun Metro currently has approximately 2,400 active bus stops. The recommended network restructure will result in the deactivation of 665 stops and the addition of 265 stops, reducing the total number of stops to 2,000. Conducting a detailed inventory is the first step in developing a plan to improve bus stop spacing, placement, accessibility, and amenities.

PHASE 2

ESTABLISH A BUS STOP CLASSIFICATION TO PROVIDE GUIDANCE ON AMENITY UPGRADES

This phase involves developing a bus stop classification based on average daily ridership and service type. Each bus stop classification would include corresponding required and optional amenities.

PHASE 3

OPTIMIZE BUS STOP SPACING

The distance between bus stops impacts travel times and the overall rider experience. Stops spaced farther apart increase bus speeds but also reduce rider access. Stops spaced closer together increase rider access, but also reduce bus speeds. Most riders want transit service that balances access and speed, and the spacing of stops is a key component of determining that balance. Analyzing bus stop spacing at the route and segment level along with ridership and on-time performance data is essential in determining optimal bus stop spacing.

PHASE 4

ADJUST PLACEMENT OF INDIVIDUAL BUS STOPS

Bus stop placement involves balancing access, safety, operational efficiency, and adjacent land use. All stops should be fully accessible with a concrete landing and access to a sidewalk or pathway that connects to an intersection. When siting a stop, considerations should be given to the origins and destinations it is serving. In most cases, bus stops should be placed at intersections to maximize pedestrian safety; however, infrastructure considerations can affect stop placement, including right-of-way availability and the cost of installation and/or maintenance. For these reasons, each new or relocated bus stop must be examined on a case-by-case basis to determine their exact location.

PHASE 5

DEVELOP A PRIORITIZATION PLAN FOR UPGRADING STOPS

The final phase of a bus stop improvement plan involves developing a prioritization plan that may weigh a combination of factors, including but not limited to high need populations, ridership, sidewalk conditions, proximity to destinations, and customer requests. After developing an upgrade prioritization scoring system, individual bus stops should be scored, followed by street segments. Upgrading bus stops along a continuous corridor is typically more cost effective than upgrading individual bus stops spread over a large geographic area.

Recently upgraded bus stop at Zaragoza Bridge Port of Entry

SPEED & RELIABILITY IMPROVEMENTS

Transit operators are finding new and innovative ways to implement transit priority treatments to improve and/or maintain speed and reliability within their service areas.

Locally adopted congestion mitigation strategies call for increased transit service and accessibility. This has the potential to not only improve customer satisfaction but maintain or reduce operating costs as traffic in the region continues to increase.

Transit speed and reliability treatments may include, but are not limited to, combinations of **capital (infrastructure)**, **policies**, and **technology**.

CAPITAL IMPROVEMENTS

Capital Improvement projects and programs involve construction and/or physical changes to buses, stops, and the built environment.

SERVICE IMPROVEMENTS

Service Improvement projects and programs involve changes to where and when bus routes operate or how they operate as a system

POLICY AND TECHNOLOGY

Policy and Technology Improvement policies and projects that may affect how riders access transit services and information; or internal agency/municipal operations.

WHAT ARE THE OBJECTIVES OF TRANSIT PRIORITY TREATMENTS?

Speed is the ability of transit vehicles to move along their routes in reasonable amounts of time.

Reliability is the ability for transit vehicles to arrive at stops at consistent and predictable times.

Outcomes from a robust transit priority treatment program include faster travel times, safer traveling environments, improved schedule reliability, increased rider confidence, and a better user experience.

SPEED & RELIABILITY INVESTMENT OPPORTUNITIES

TRANSIT ACCESSWAYS AND HOTSPOTS:

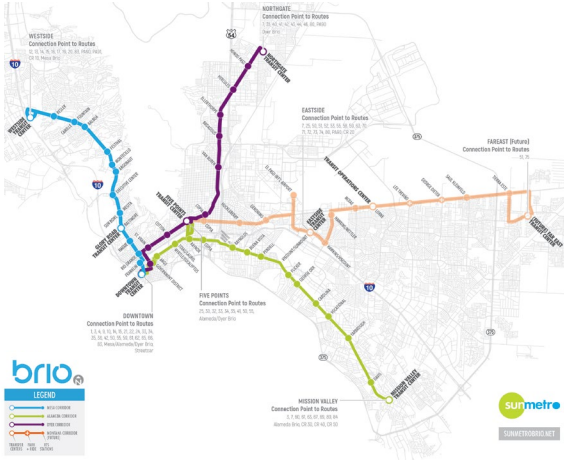
This study recommends a more detailed assessment of traffic conditions and combined fixed route frequencies along accessways and at intersections immediately surrounding the transit centers (TCs) in the Sun Metro network. Potential bus rapid transit (BRT) corridors and roadways surrounding transit centers that could benefit from speed and reliability improvements. Improvements to these roadways would complement the service improvements identified as part of the Recommended Network and increase travel speeds and make service more reliable.

Using industry best practices, Nelson\Nygaard assembled potential treatments to apply to the identified corridors and transit accessways/ intersections. These treatments are suggested starting points -- further refinement is needed based on site-specific conditions, available funding, and overall benefit relative to cost. Acknowledging capital funding limitations, this COA considered a range of potential treatments that should be developed to best match the existing site conditions to improve transit speed and reliability in targeted locations. Potential treatments included within the following sections include descriptive and contextual information typically associated with implementation:

- General description of capital components, constructability, operating strategies or tactics, and/or policies
- Under what conditions or circumstances the treatments are deployed
- How effective are the treatments in reducing delay / improving speed
- Common complementary investments, policies, or strategies
- The potential impacts and tradeoffs of implementation
- Other considerations affecting variations in design, deployment, and implementation

CORRIDORS:

Since the BRIO corridors are the backbones of Sun Metro network and the face of the system, these corridors are a priority area to align the investment in top of the line vehicles and stations with a premium operating environment that maximizes the efficiency and productivity of services.



BRIO system.

NETWORK DATA COLLECTION AND PERFORMANCE ANALYSIS

If funding becomes available in the future, a more robust assessment of fixed route on schedule reliability, time performance, and travel delay may be conducted to identify additional opportunities for transit speed and reliability investments outside of the target conditions identified above. There are several scales at which key performance indicators (KPIs) and other metrics of transit speed and reliability can be evaluated, based on project need and other service goals.

SYSTEMWIDE

An agency typically conducts a systemwide analysis when there have been significant changes in the residential population or number of jobs along fixed routes or high-frequency/quality routes.

PROJECT-SPECIFIC

Project-specific evaluations are carried out to justify or monitor the performance of capital infrastructure investments supporting transit priority.

PERSON/RIDER-LEVEL

Understanding the user experience at the rider level for typical scenarios to improve overall journey times and minimize transfers and delays. This includes access time to transit, wait time, and the journey time itself.

LINE-LEVEL

An agency may evaluate a specific transit route or line when there are particular, ongoing challenges on the route, such a delays due to congestion.

LOCATION-SPECIFIC

Monitoring indicators such as delay, throughput, and reliability help an agency or jurisdiction understand challenges and successes at a particular location.

GAP ANALYSIS

Gap analysis looks at barriers to mobility access, racial and social equity impacts, climate impacts, and more.

Once the desired goals and level of analysis have been established, appropriate metrics can be selected to evaluate or justify transit priority treatments. While evaluation metrics and threshold may be used at multiple scales, each scale may require a unique set of data or evaluation approach.

SUMMARY OF POTENTIAL TRANSIT SPEED AND RELIABILITY BENEFITS

Travel Time Savings/ Delay Reduction

Accessibility & Connectivity

Safety

Customer Experience

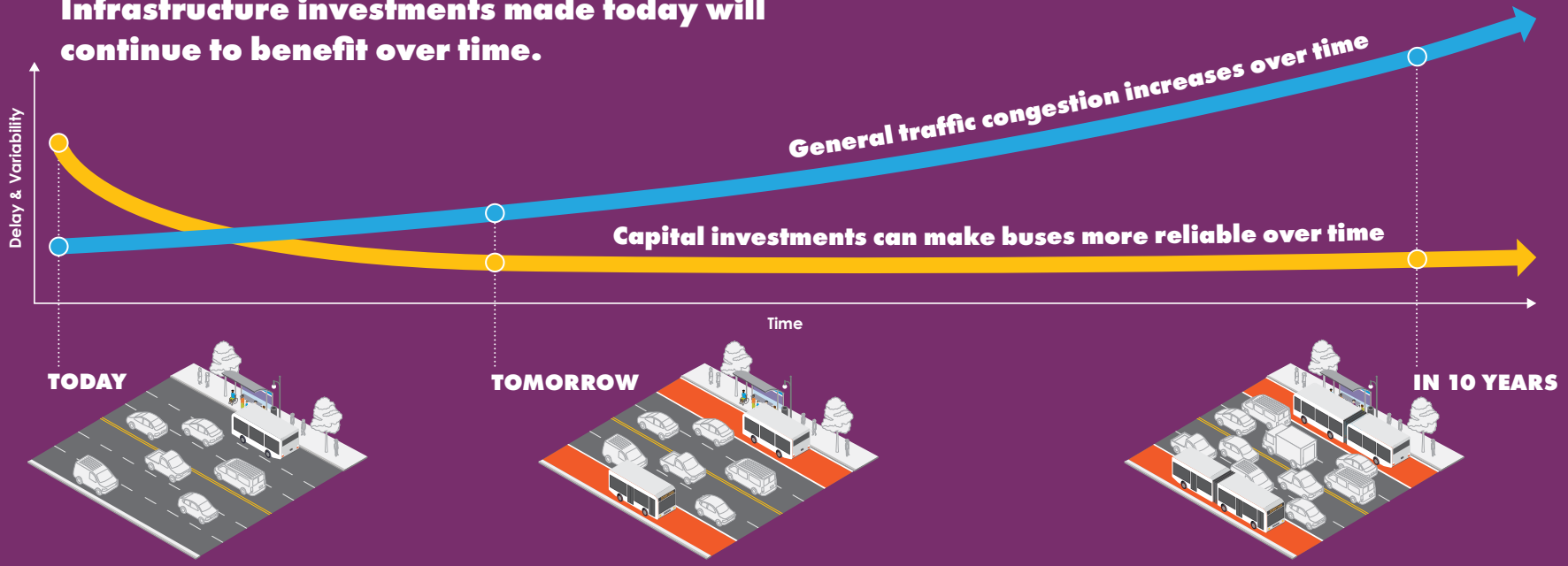
CAPITAL IMPROVEMENTS					
A	BUS LANES	✓	✓	✓	
B	CURB EXTENSIONS/BULB OUTS	✓	✓	✓	✓
C	LEVEL BOARDING	✓	✓	✓	
D	RIGHT TURN FACILITATION	✓		✓	
E	BUS - BICYCLE TREATMENTS		✓	✓	
F	FLOATING BUS ISLANDS	✓	✓	✓	
OPERATIONS AND TECHNOLOGY					
A	TRANSIT SIGNAL PRIORITY (TSP)	✓		✓	
B	QUEUE JUMP/BYPASS	✓			
C	FAR SIDE BUS STOPS	✓		✓	
D	ALL DOOR BOARDING AND OFF BOARD FARE COLLECTION	✓		✓	✓
E	NETWORK REALIGNMENT	✓			✓

CAPITAL IMPROVEMENTS

Capital projects and programs involve construction and/or physical changes to the built environment (infrastructure) supporting buses and stops.

As roadway congestion continues to worsen with time, infrastructure investments and treatments that prioritize transit vehicle movements can improve travel speeds—preserving and maintaining scheduled service frequencies without adding more resources (buses) and higher operating costs.

Infrastructure investments made today will continue to benefit over time.



CAPITAL IMPROVEMENT DESIGN TREATMENTS

COST-COORDINATION METRICS

Each design treatment described in this section includes a range of typical cost and implementation level of effort, defined as follows:

COST (PER LOCATION OR PER MILE)

$	Below $25,000
$$	$25,001 to $100,000
$$$	$100,001 to $500,000
$$$$	$500,001 or above

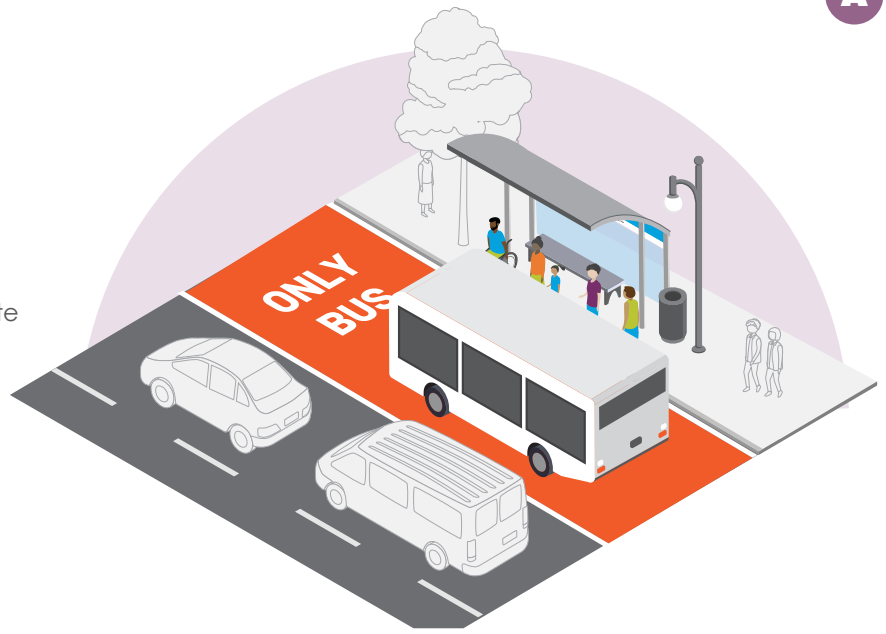
IMPLEMENTATION LEVEL OF EFFORT

LOW	Does not typically require interagency coordination or agreements
MODERATE	Some coordination or formal agreements with affected agency(ies) or municipality(ies) typically required
HIGH	Requires approval or authorization by outside agency or municipality with jurisdictional authority

BUS LANES

Bus Lanes provide a dedicated space for transit vehicles to operate, providing the most significant improvements schedule reliability and reducing travel times by keeping buses out of traffic. Bus lanes can have many variations in how they operate and how the space is used at different times.

COST: VARIES **COORDINATION: VARIES**



WHAT ARE THE BENEFITS?

Travel Time: Buses are able to bypass congested segments of roadway in their own lane, keeping buses and riders on schedule during congested traffic periods.

Safety: Potentially decreases conflicts between buses and auto when operating in shared travel lanes.

Accessibility: Bus lanes may be used by multiple routes that operate along the roadway segment.

WHEN IS IT USED?

Bus lanes are often deployed in **urbanized areas** that have an established roadway grid network with alternative routing options for existing auto traffic. Other conditions that may warrant bus lanes include, but are not limited to:

- Major arterials with sufficient right-of-way (ROW) and traffic conditions that support construction of new bus lanes or conversion of existing, underutilized lanes.
- Roadways serving existing/emerging high-density land use patterns
- High ridership lines that experience high delay due to traffic congestion; or where increased capacity is warranted to meet demand (crowding at bus stop locations).

WHAT KINDS OF BUS LANES MIGHT BE APPROPRIATE?

Bus lanes could be exclusive to transit vehicles, or permit other vehicles under certain conditions. Hours of operation may also range from 24-7 to peak commute hours only. Potential bus lane configurations that may be considered within the Sun Metro service area include, but are not limited to the following:

Side running bus lanes in San Francisco, CA.

Side Running Bus Lanes:

Buses run in the right-most travel lane (nearest the curb) with restricted access for all other vehicles.

- Right-turning vehicles may be restricted to designated intersections and movements may be signal controlled.
- Buses are not delayed by interactions with parking or loading vehicles; however adequate enforcement is necessary.
- Can have flexible uses throughout the day depending on conditions, such as parking or shared bus-bicycle use.
- May be used in rapid bus operations as couplet along 1-way street pairs in downtown areas.

BAT Lanes in Portland, OR.

Restricted Access Business Access and Transit (BAT):

Bus lanes that allow intermittent access for vehicles turning at intersections and vehicular access to driveways.

- Buses benefit from reduced travel times, improving reliability while maintaining business and community access.
- Right turns from BAT lanes can impede transit speeds.

Peak-only sign in Seattle, WA.

Restricted Access Peak-Only Lanes:

Bus lanes that are reserved for transit at peak travel periods (such as the morning and evening commute) and are used for general traffic or parking at other times.

- Typically considered applicable to corridors with high peak-period bus frequency and generally high traffic volumes and on corridors with predictable bus delay due to peak-period vehicle traffic.
- Allows off-peak parking and lane access to non-transit vehicles.

WHAT DOES IT LOOK LIKE?

Dedicated bus lanes may require repurposing existing travel or parking lane(s), or additional right of way (ROW) to support new construction. Lanes may include barrier separation for dedicated transit (bus or rail) use; or non-separated facilities that allow mixed traffic or limited auto operations.

- Physical barriers (e.g., bollards, hard curbs, etc.) may be installed to prevent non-transit vehicles from entering the bus lane.
- Combinations of low-cost investments such as signage, red paint, or tinted asphalt, painted letters and symbols can be used to indicate exclusive bus use of the lane.
- Roadway reconstruction, or expansion may be required dependent upon the existing conditions, construction materials (ex – asphalt or concrete)

Bus Lane keeping bus out of traffic in Washington DC.

COMPLEMENTARY TREATMENTS

Transit Signal Priority to extend green time for buses approaching signalized intersections.

SEE PAGE 27

Bus stop/station platform location and amenities to promote safe, comfortable, and accessible connections to the station.

Modified designs of existing roadway and utility infrastructure to accommodate appropriate choices of bus lane treatment should be considered.

WHERE MAY THIS BE APPROPRIATE FOR SUN METRO?

The City of El Paso and Sun Metro may consider further study and supportive analyses of the following conditions prior to the deployment of transit speed and reliability improvements.

- BRIO Corridors or roadway segments where implementation of high frequency service are proposed; OR that support operation of multiple fixed routes that result in high frequency service (combined headways).
- Downtown El Paso, where the roadway grid capacity supports conversion of travel lanes and shifting some autos onto parallel roads (ex 1-way streets).
- Roadways where the City of El Paso has jurisdictional control.
    - Segments of Santa Fe Ave, Kansas St, Campbell St, Paisano Dr.

OTHER CONSIDERATIONS

- Dedicated Bus Lanes are designated by signage and pavement markings for exclusive transit use and may be on a separate right-of-way, concurrent with adjacent traffic or contraflow with adjacent traffic. Dedicated bus lanes may also be shared with bicyclists and emergency vehicles.
- Installation of bus lanes may result in reduction of auto-carrying capacity of roadways, and analysis of traffic impacts on the surrounding roadway network may be needed to justify proposed investments or demonstrate the potential effects of implementation.
- Treatments may require modifications to the existing roadway(s), the anticipated traffic volumes, and resultant life-cycle maintenance requirements.
- Higher cost projects include additional right of way or physical barriers, lower cost projects can include repurposing existing travel lanes with signage and pavement markings.
    - Ex - red paint or tinted asphalt is currently being used as an experimental treatment approved by FHWA and may require permitting for use within some jurisdictions. It has been effective as a quick-build deployment strategy but requires additional maintenance.
- Bus lane design and implementation should be accompanied by traffic studies to justify installation and mitigation of potential traffic, curb management, and parking impacts.
- Buses equipped with cameras and enabling legislation to allow citations against cars driving in bus lanes will increase compliance and ensure speed and reliability.
- Commuter or express bus routes are often permitted to travel in freeway high occupancy vehicle (HOV) lanes and Toll facilities on highways.

Peak only signage.

CURB EXTENSIONS/ BUS BULB OUTS

Pedestrian and Bicycle accessibility treatments near bus stops are crucial connections supporting the user experience. Bus bulbs extend the curb ("curb extensions") and bus stop boarding area into an existing parking lane, shoulder/ emergency lane, or bicycle lane so buses can pick up or drop off customers without exiting the travel lane.

COST: $ **COORDINATION: LOW**

WHAT ARE THE BENEFITS?

Travel Time: Allows buses to make in-lane stops, reducing dwell time by 15-30 seconds per stop by eliminating delays from buses pulling out of lanes at stops and waiting for a gap in traffic to proceed.

Safety: Reduces pedestrian exposure to vehicles by shortening the crossing distance on the side of the intersection with the bulb out.

Accessibility: In-lane stops ensure buses can reach the curb and board passengers with mobility devices.

Customer Experience: Bus bulbs create more space for passenger amenities while maintaining a clear pedestrian path on the sidewalk.

WHEN IS IT USED?

- Stop locations with existing on-street parking.
- Stops where transit passenger volumes require a larger dedicated waiting area than is available on the sidewalk.
- Streets with high pedestrian activity, where sidewalk width or available ROW leaves limited space for boarding areas and amenities.

WHAT DOES IT LOOK LIKE?

- Bulb out length should accommodate for the typical number of buses expected at the stop at one time, as well as accommodate safe loading and unloading at front and rear doors.
- Can be created with concrete, asphalt, or temporary materials. Colored concrete can be used to indicate the bus stop platform.
- Can be installed near side or far side of intersection, or mid-block.

A Bus Bulb Out in ??, ??.

COMPLEMENTARY TREATMENTS

Transit Signal Priority to get buses through signalized intersections more efficiently to reach far side stops.

SEE PAGE 27

Bus Lanes can improve safety by mitigating potential traffic conflicts with autos queuing behind buses when stops are placed in-lane.

SEE PAGE 7

All-Door and Level Boarding at stop locations to decrease dwell time delays.

SEE PAGE 36 SEE PAGE 14

Floating Bus Stop (island) may be considered at locations with right-side bicycle facilities to safely channel bicycles through the station boarding area and mitigate conflicts with transit riders.

SEE PAGE 22

WHERE MAY THIS BE APPROPRIATE FOR SUN METRO?

Roadways in the historic core of El Paso (5 points to Downtown) where existing on street parking and/or bicycle lanes may exist.

- Magoffin, Texas, Montana, Campbell, Kansas, San Antonio

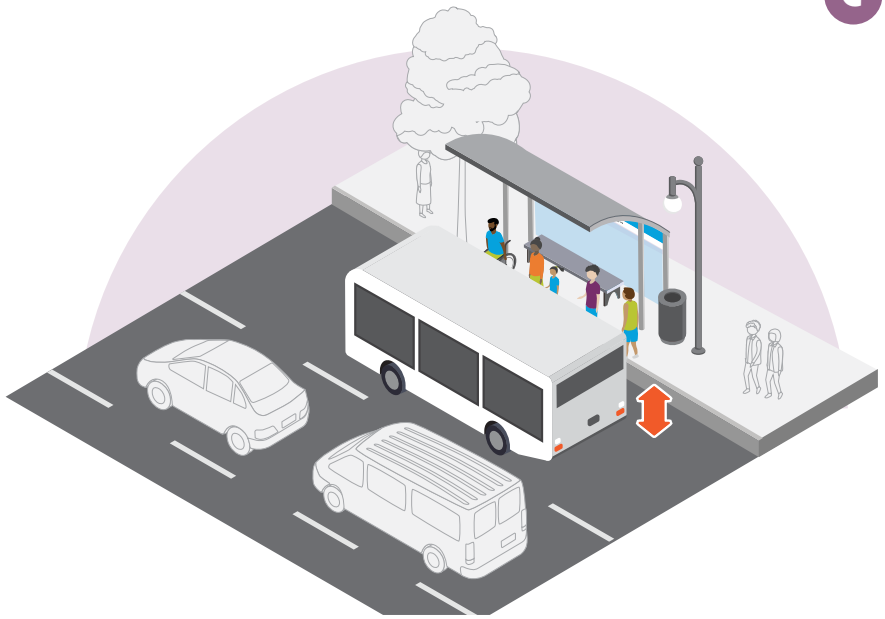
OTHER CONSIDERATIONS

- Coordination of potential curb management impacts to commercial and/or residential parking/loading spaces with affected stakeholders may result in additional mitigation or in-kind replacement.
- May not be ideal when there is only one lane of traffic because this can cause traffic backups into the intersection, creating potential safety and operational issues.
- When implementing bus bulb outs, stormwater management, such as drainage modifications, may be needed. Inlets between the existing curb and bulb out preserve water flow without requiring new drainage.
    - Green features like bioswales or planters improve streetscape and stormwater recapture.
- Where applicable, the bus bulb out return radius must accommodate local street sweeping vehicle operating needs.

A Bus Bulb Out in Los Angeles, CA.

LEVEL BOARDING

Level boarding means the height of the curb at the bus stop (bus platform) closely matches the floor height of buses. This supports fast and easy access for passenger loading and unloading – meaning that buses do not have to kneel or deploy ramps as often to board people using mobility devices.



COST: $$ **COORDINATION: MODERATE**

WHAT ARE THE BENEFITS?

Travel Time: Level boarding reduces dwell time at bus stops and allows all passengers to quickly get on and off vehicles.

Safety: Riders are exposed to less risk of injury when stepping on/off the bus.

Accessibility: In addition to people using mobility devices, level boarding makes accessing transit easier for people with strollers, carts, or bicycles.

WHEN IS IT USED?

- Most effective in bus routes/stops with high ridership.
- Stop locations where riders are known to include seniors and customers with mobility assistance devices, carts, strollers, and bicycles.
- Typical infrastructure for rail (streetcar, light rail) and rail-like (BRT) services.

WHAT DOES IT LOOK LIKE?

- A platform/curb/curb height of approximately 8-14 inches to match the floor height of most transit vehicles.
- May require sloped transitions at edges to seamlessly connect with adjacent sidewalk and curb heights
- Railings and/or detectable warning strips/ surfaces may be installed along the edge of the boarding platform.
- Curbs are designed with a slope or curve (concave) shape to allow the driver to pull the bus within 2 inches of the curb without scraping the bus wheels.

Source: Flickr Creative Commons

Level Boarding in Eugene, OR.

COMPLEMENTARY TREATMENTS

Low Floor Buses are often preferred as part of new fleet procurement as a way of providing easier and more user-friendly access for all passengers.

All Door Boarding that allows customers to board a transit vehicle at any open door to reduce dwell times and variability.

SEE PAGE 36

Bus Bulb Outs emphasizes bus stop location as separate boarding areas from the sidewalk and pedestrian realm.

SEE PAGE 11

WHERE MAY THIS BE APPROPRIATE FOR SUN METRO?

BRIO stations are designed for near-level boarding and compatible with low-floor buses, available on newer-model vehicles. Any future expansions of BRIO service should include level boarding provisions.

OTHER CONSIDERATIONS

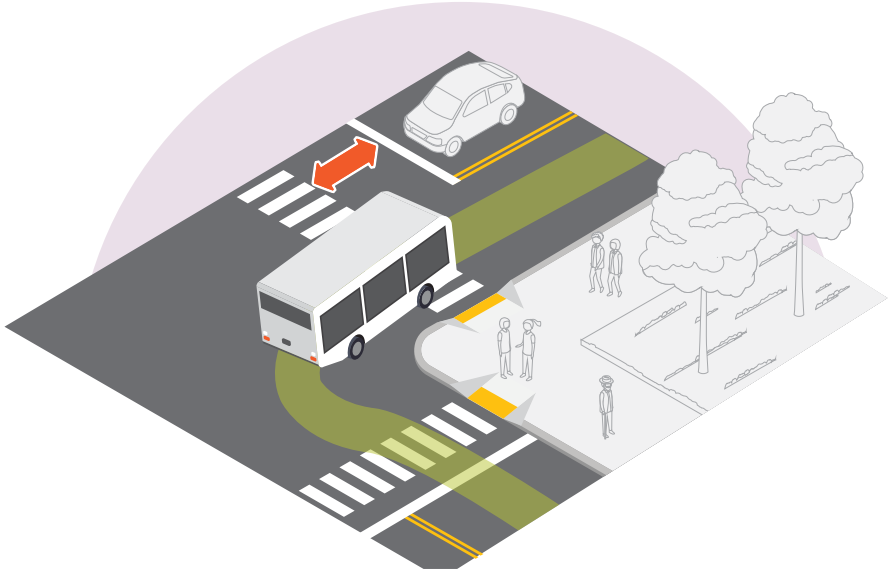
- Installation requires rebuilding the bus boarding area (sidewalk infrastructure, stormwater management, etc.).
- Level boarding platforms may be a required capital component within grant funding opportunities (ex – FTA capital improvement grant (CIG) program)
- The door opening height and ramp deployment mechanisms on all existing and proposed fleet vehicles should be considered when designing and constructing level boarding platforms.
- Incorporate design considerations for station architecture and conduits for intelligent information systems, fiber optics, power, etc..

Level Boarding Platform.

RIGHT TURN FACILITATION

Support the wide turning radii for buses making right turns through modifications to existing lane striping and marking at intersections; as well as potential changes to on-street parking, curb or travel lane geometry.

COST: $ **COORDINATION: LOW**



WHAT ARE THE BENEFITS?

Travel Time: Reduces transit delay from buses waiting for cars to pass before making right turns.

Safety: Design treatments can be used to ensure a safe environment while also helping buses turn right.

WHEN IS IT USED?

- Where bus routes require a right turn.
- Intersections with known acute angles or other site conditions (narrow lane widths and turning radii) causing potentially insufficient turning radius for buses and commercial/ freight vehicles.

WHAT DOES IT LOOK LIKE?

- **Recessed stop bars.** Move stop bars back to improve turning radius for buses to maneuver through the intersection.
- Travel lane restriping or restriping stop bars.
- Signage and pavement markings prohibiting parking.
- Keeps the curb space near corners of the intersection clear by restricting on-street parking 40-60 feet from the intersection.

Recessed stop bar in Brooklyn, NY.

OTHER CONSIDERATIONS

- Restrictions or removals of on-street parking are recommended only where necessary.
- In extreme circumstances, reconstruction of curb and sidewalk at corners may be required to improve the turning radius for buses and freight vehicles, increasing project cost.
- These treatments also support freight vehicle movements.

WHERE MAY THIS BE APPROPRIATE FOR SUN METRO?

Roadways utilized for access and egress to Sun Metro TCs, where multiple fixed routes may be turning as they approach the TC.

Site specific locations with known turning radius challenges.

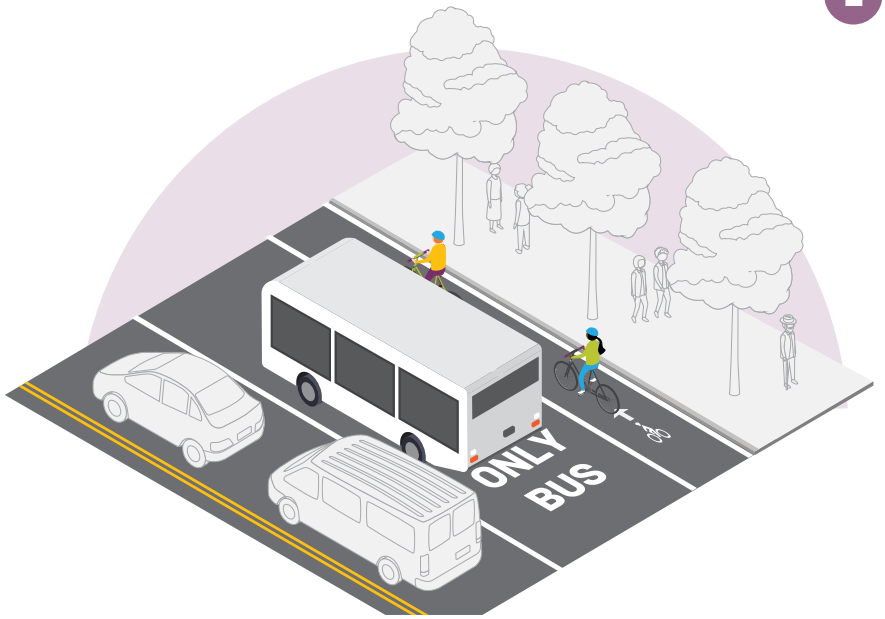
- Santa Fe @ 4th; Cotton, 5 Points, [Operator input*]

BUS - BICYCLE TREATMENTS

Many corridors with transit also have or are planned to have bicycle facilities. Bicycle treatments can be designed to reduce bus-bicycle conflicts, or create shared bus-bicycle spaces.

COST: $

COORDINATION: MODERATE



WHAT ARE THE BENEFITS?

Accessibility: Integrating transit with bicycling infrastructure ensures a truly multimodal place with comfortable access by foot, bicycle, or bus.

Safety: Dedicated space for transit and bicycle facilities can create more safe and convenient environments for all modes.

WHEN IS IT USED?

Most communities have existing bike facilities and adopted plans for their future bicycle and transit networks.

A transit priority project affords opportunity to improve bus-bike interactions if an existing facility is in place, or to coordinate the planning and design of both a new bicycling facility and a high-quality transit service.

WHAT DOES IT LOOK LIKE?

Bus-bike lanes are designed to maximize compatibility between both modes with the given space, including ensuring fast and reliable operation through in-lane transit stops. Caltrans defines bicycle lanes into two major categories relevant to transit[1].

- **Bicycle Lanes or Buffered Bicycle Lanes (Class II)** use striping to mark space for bicyclists.
- **Protected bicycle lanes or cycle tracks (Class IV)** have a vertical (barrier) separation between drivers and bicyclists.

Burnside Bridge bus lane and buffered bike lane with flexible bollards (candlestick posts) in Portland, OR.

Midtown Detroit, MI bike and pedestrian facilities.

COMPLEMENTARY TREATMENTS

Dedicated Bike Signals installed near busy stops or signalized intersections where buses are turning can help organize various transit, bicycle and pedestrian movements, reducing bicycle conflicts and improving traffic flow.

Shared Bus-Bicycle Lanes is a dedicated travel lane shared by both buses and bicyclists.

SEE PAGE 19

Floating Bus Stop (island) are bus bulb outs separated from the sidewalk by a bicycle lane. This helps reduce bicycle and passenger conflicts.

SEE PAGE 22

WHERE MAY THIS BE APPROPRIATE FOR SUN METRO?

Downtown El Paso roadways considered for implementation of bus lanes and aligned with Plan El Paso bicycle network recommendations.

- Segments of Santa Fe Ave, Kansas St, Campbell St, Paisano Dr.

[1]*See reference to Caltrans bicycleways: http://lvbicyclecoalition.org/wp-content/uploads/2017/12/caltrans-d4-bicycle-plan_bicycleway-classification-brochure_072517.pdf*

OTHER CONSIDERATIONS

- Dedicated bus and bicycle facilities are preferred over shared bus-bicycle lanes. This facility is not appropriate on streets with high bus volumes or speeds and will not be comfortable for cyclists of "All Ages and Abilities"[2].
- Stop locations should be designed to separate people bicycling from boarding passengers where possible.
- Enforcement is typically needed to reduce drivers parking in the bus-bicycle lane.
- Right turns across bus-bicycle lanes may need to be restricted or signalized.
- Incorporating bus and bicycle priority signalization at intersections may require additional traffic analyses to mitigate potential impacts to signal phasing and traffic delay.
- Pedestrian and Bicycle accessibility treatments near bus stops are crucial connections supporting the user experience

A shared bus-bike lane in Seattle, WA.

- Dedicated spaces, delineated through signage and pavement markings, should be considered so bicyclists can safely queue at the intersection.
- Traffic signal timing should be adjusted to include any potential the bicycle signal phases. Adjusting signal timing may increase bus travel delay.
- If the Dedicated Bicycle Signal is used to separate through bicycle movements from right turning vehicles, then right turn on red must be prohibited when the signal is active.
- Provide additional coach operator training dealing with bicyclists in a shared environment.

[1]*See additional explanation: https://nacto.org/publication/urban-bicycleway-design-guide/designing-ages-abilities-new/ages-abilities-user/*

FLOATING BUS ISLANDS

Floating Bus Islands are bus stops on bulb outs separated from the sidewalk by a bicycle lane. Floating bus islands allow buses to stop in the general-purpose travel lane while allowing bicyclists to pass seamlessly behind the bus stop.

COST: $ - $$$

COORDINATION: LOW

WHAT ARE THE BENEFITS?

Travel Time: Typically increases in-lane bus speeds and reduces dwell time by 15-30 seconds per stop by eliminating delays from buses waiting for a gap in traffic to proceed. Reduces delay caused by buses having to wait for bicyclists to pass before pulling over to the stop.

Accessibility: Provides space for stop amenities such as shelters, benches, and informational kiosks.

Safety: May act as pedestrian refuge island, shortening the crossing distance on the intersection leg with the bus island. Reduces conflicts between the bus operator and the person bicycling, as well as provides a buffer for cyclists and pedestrians from the traffic lane.

WHEN IS IT USED?

- Streets with moderate to high transit frequency, transit ridership, or bicycling volume.
- Segments with separated bicycle/pedestrian lanes and areas with heavy traffic and bicycle/pedestrian safety concerns.
- If sidewalk width permits, Floating Bus Islands may be applied to streets with curbside transit stops and a bicycle facility.

WHAT DOES IT LOOK LIKE?

- **Floating Bus Lane.** One of many types of bus lane where buses run in the right lane, but are offset from the curb by street parking, curb extensions, or bicycle facilities.
- **Floating Bus Island Stop** with bicycle lane at sidewalk level or at street level.
    - Concrete, asphalt, or temporary platform 8-10' wide and long enough to accommodate the front and rear doors of buses using the stop
    - May require repurposing existing parking spaces or a travel lane.

Dexter Ave Buffered Bike Lanes with Bus Boarding Islands.

COMPLEMENTARY TREATMENTS

Class II or Class IV Bicycle Treatments are offset from bus stop boarding areas, but require additional signage and marking to mitigate potential conflicts with riders.

All-Door and Level Boarding at stop locations to decrease dwell time delays.

SEE PAGE 36 SEE PAGE 14

WHERE MAY THIS BE APPROPRIATE FOR SUN METRO?

High ridership stations on roadways designated for Class II and Class IV bicycle facilities (GIS overlay*)

OTHER CONSIDERATIONS

- If bicycle facilities exist or are planned, Floating Bus Islands maintain continuity of the bicycle lanes, but require consideration of how customers will cross bicycle lanes or street traffic to access the bus stop.
- Pedestrian and Bicycle accessibility treatments near bus stops are crucial connections supporting the user experience.

Floating Bus Island in Seattle, WA.

OPERATIONS & TECHNOLOGY

Design of streets and the auto congestion on those streets are significant contributing factors of transit travel time delay.

Another factor—how service is operated, can also be optimized to provide fast, reliable transit. The following section describes potential Operational and Technology strategies that complement design treatments to make transit service faster and more reliable.

OPERATIONS AND TECHNOLOGY TREATMENTS

COST-COORDINATION METRICS

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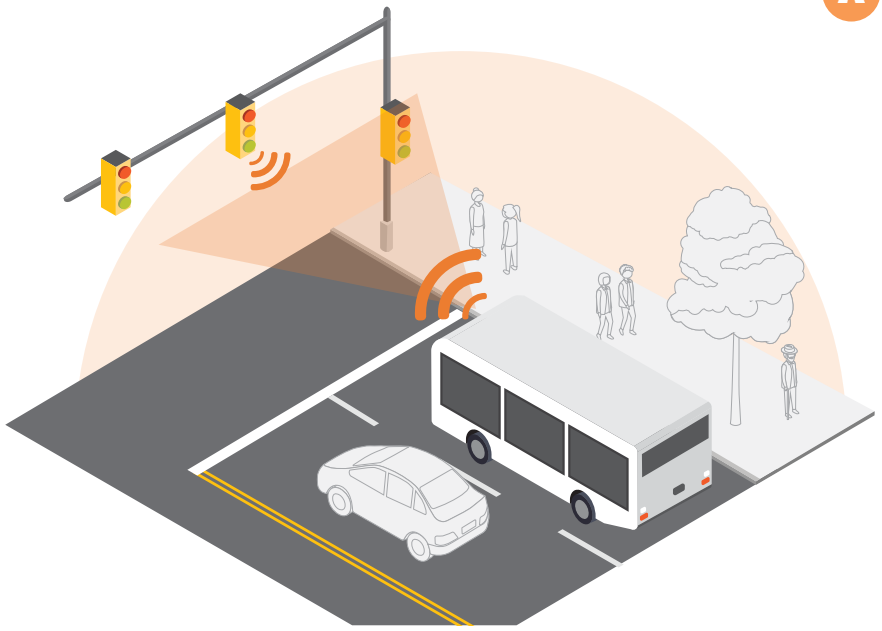
IMPLEMENTATION LEVEL OF EFFORT

LOW	Does not typically require interagency coordination or agreements
MODERATE	Some coordination or formal agreements with affected agency(ies) or municipality(ies) typically required
HIGH	Requires approval or authorization by outside agency or municipality with jurisdictional authority

TRANSIT SIGNAL PRIORITY (TSP)

TSP is a technology that allows buses to move through traffic signals without delay. There are multiple variations in how TSP can be implemented. At the basic level, TSP allows transit vehicles to communicate with signals to extend green lights, end red lights early, and/or add a bus-only signal phase.



COST: $$ - $$$$ **COORDINATION: HIGH**

WHAT ARE THE BENEFITS?

Travel Time: TSP can reduce delay by up to 50% at target intersections (NACTO). TSP applied along a stretch of transit corridor allows the bus to take advantage of coordinated signal progression and cumulatively reduce end-to-end travel times by up to 10%.

Safety: TSP reduces potential for conflicts between transit vehicles and cyclists, pedestrians, and motorists at signalized intersections.

WHEN IS IT USED?

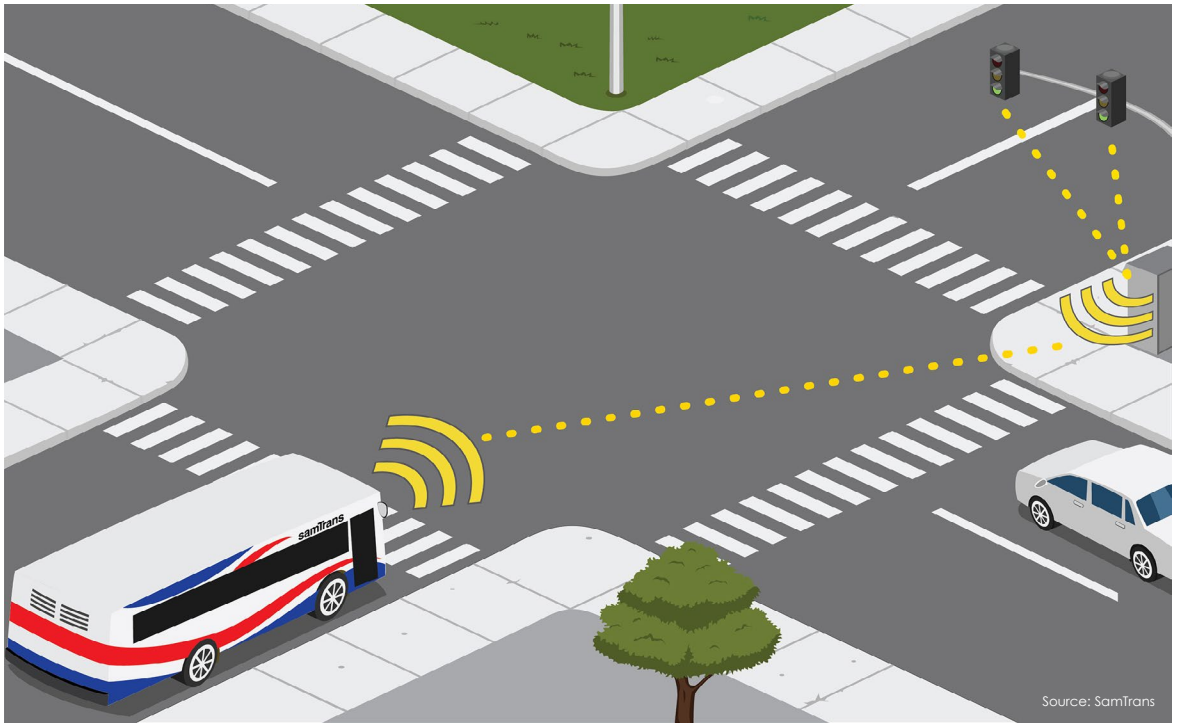
- Signalized intersections with a far-side stop or no transit stop, allowing the bus to clear the intersection without waiting at a signal.
- The usefulness of TSP depends on both geometric and operational factors, including roadway facility type, general traffic volume and capacity, signal spacing, and cycle length.

HOW DOES IT WORK?

TSP transmission (emitter) equipment onboard buses communicates with upcoming traffic signals as it approaches. Receivers at signalized intersections will initiate:

- **Signal Priority (green extension)** prolongs the green light so the bus can clear the intersection.
- **Bus-Only Phases and sequence changes** triggers a special bus-only green 'through' signal phases (paired with queue jump lanes); or bus-only left turn phase (turn lane may be shared with autos or may be bus-only).

Multiple types of TSP communication technology are commonly available (including line-of-sight, GPS, and microwave), each having relative benefits and tradeoffs.



Transit Signal Priority on El Camino Real in Bay Area, CA.

Source: NACTO

Signal Priority green extension.

COMPLEMENTARY TREATMENTS

Far Side Bus Stops: TSP is optimized when stops are far side.

SEE PAGE 33

Queue Jumps: TSP works well at signalized intersections where existing infrastructure, traffic conditions, and stop location supports queue jump implementation.

SEE PAGE 30

WHERE MAY THIS BE APPROPRIATE FOR SUN METRO?

TSP receivers and controller equipment should be installed at all signalized intersections along BRIO corridors.

OTHER CONSIDERATIONS

- Network or corridor TSP improvements may span across multiple jurisdictions, traffic signal systems, and support operations by multiple transit providers.
- Requires a high degree of coordination (interagency agreements) between the agencies responsible for signals and transit operations.
- Updating transit vehicle and traffic signal design guidelines / protocols to support TSP emitters and receivers.
- May not be effective where traffic congestion is so severe that the bus is unable to communicate effectively with TSP receivers.
- A traffic study may be needed for each intersection to determine the potential impacts of implementing TSP.
- Potential for capital costs increases for new and/or upgrades to existing infrastructure and technologies, including but not limited to signal mast arm, controller cabinets, on board transit vehicles, etc.

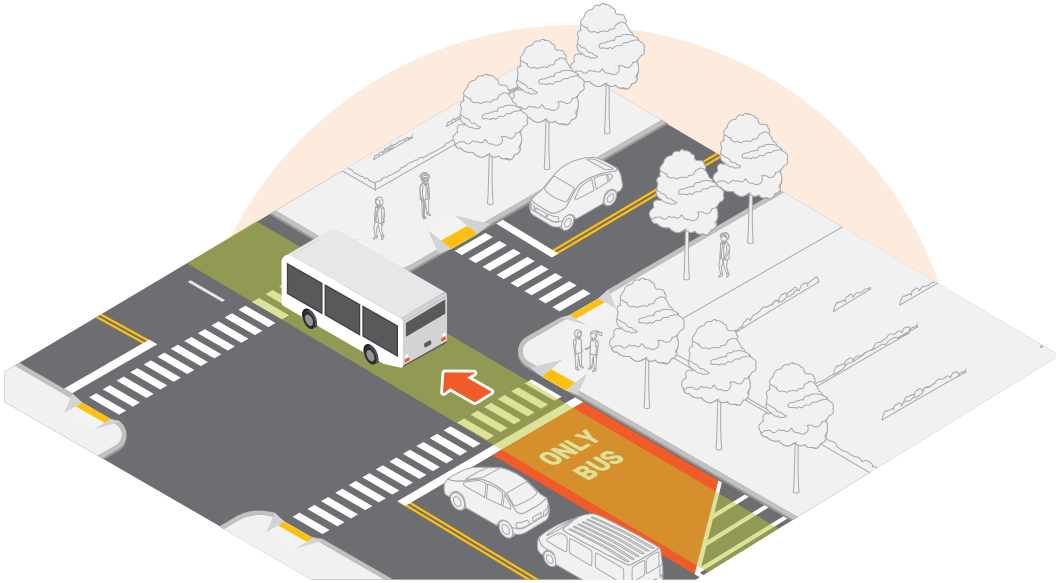
Transit-only signal in Johannesburg BRT.

QUEUE JUMP/BYPASS

Queue jumps and queue bypasses designate spaces that allow buses to proceed through a signalized intersection ahead of general traffic.

COST: $$ - $$$

COORDINATION: HIGH



WHAT ARE THE BENEFITS?

Travel Time: Queue jumps can reduce bus delay at congested intersections where buses may experience delays due to traffic queues spanning multiple signal phases:

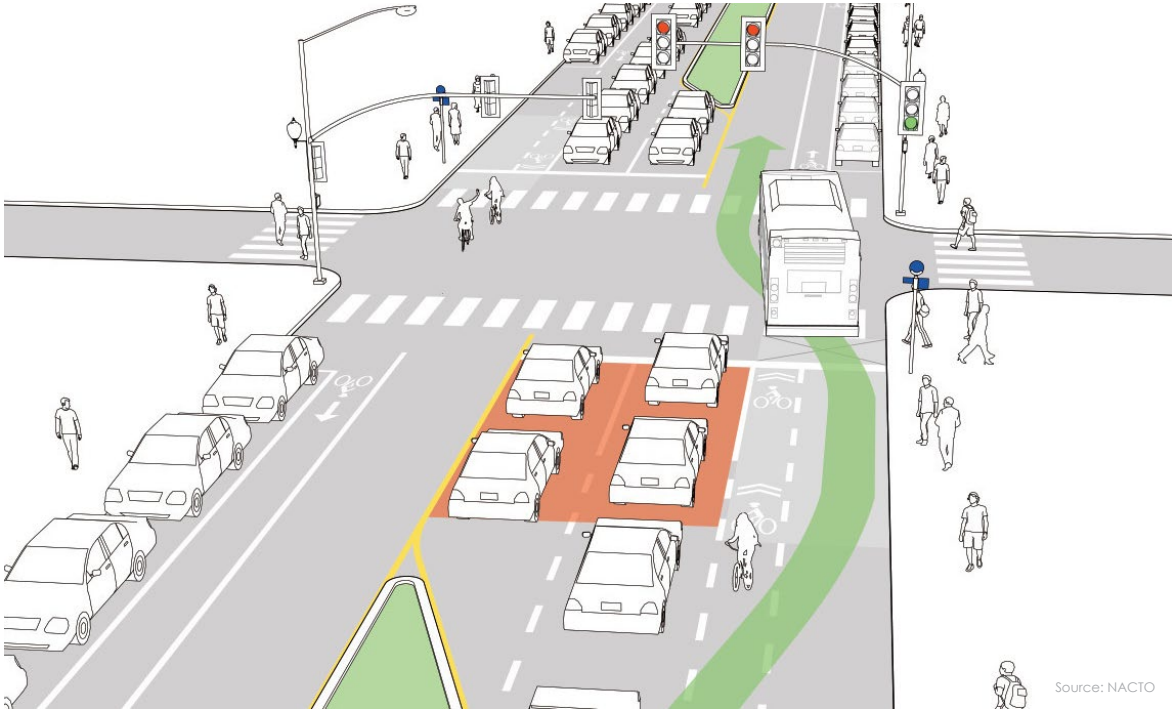
- Delay at traffic lights is cumulative throughout the transit trip, and benefits experienced by users may vary depending on trip length and conditions between the trip origin and destination.
- Queue jump lanes and signalization improvements may improve transit travel times along a corridor by up to 25% or 30%.

WHEN IS IT USED?

- Can be used along a corridor with existing lane geometry that supports installation, at spot locations with high delay or nearside bus stops.
- When a dedicated right turn lane is present and volumes are high.

WHAT DOES IT LOOK LIKE?

- Queue jump/bypass lanes are indicated with signage and pavement markings.
- A receiving lane for the bus on the far side of the intersection is preferred; if there is no receiving lane a bus-only signal phase is required.
- Queue jump efficiency decreases if right turn volumes are greater than 150 during peak hours.
- Installation may require roadway modifications such as widening or repaving, as well as modifications to existing traffic signals and controllers.



Source: NACTO

Utilizing right turn lane and intersection median to facilitate queue jump in Portland, OR.

WHAT TYPES OF QUEUE JUMPS ARE THERE?

- **Queue jump/right turn except bus lanes** allow buses to utilize right-turn only lanes with autos to bypass the queue at a traffic signal and receive a transit signal phase to merge back into through traffic lanes.
- **Queue bypass/transit approach lanes** are bus-only lanes to the left of right turn pockets.
- A **transit signal phase** can be used with either queue jumps or queue bypasses. It gives the bus a green light while general traffic waits at the red light; on the far side of the intersection the bus can merge into the travel lane seamlessly while traffic is still stopped.

COMPLEMENTARY TREATMENTS

Queue jumps are more effective when buses are equipped with **Transit signal priority (TSP)** to provide transit-only signal phase for buses to advance through the intersection and merge back into travel lanes ahead of autos.

SEE PAGE 27

Bus pullout lanes: may be constructed at near-side bus stops in conjunction with queue jump and TSP.

Queue jumps in advance of far-side bus stops may mitigate potential auto queuing behind stopped buses during passenger loading and unloading.

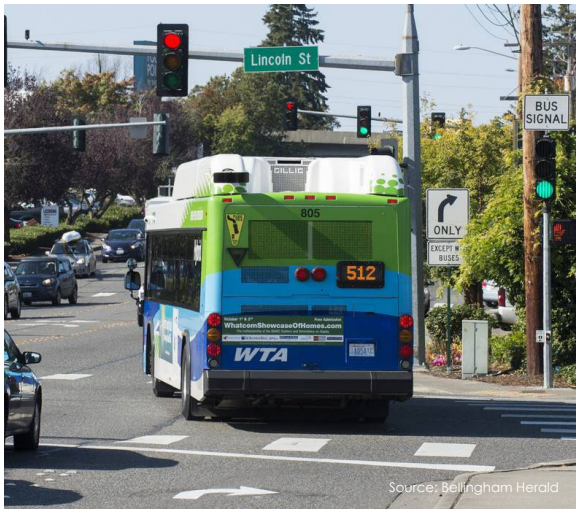
WHERE MAY THIS BE APPROPRIATE FOR SUN METRO?

Roadways with travel lane geometry that features right turn only lanes and/or paved shoulder capable of supporting transit vehicles operating at low speeds.

OTHER CONSIDERATIONS

- Analyses of auto turning movement and other traffic operating conditions should be conducted to assess potential impacts to traffic delay, signal timing and cycles.
- In some cases, opportunities for queue jumps may be identified along major corridors where ROW was preserved for potential widening.
- TSP detection equipment can increase the cost of implementation.

Bypass lane in Chandler, AZ.

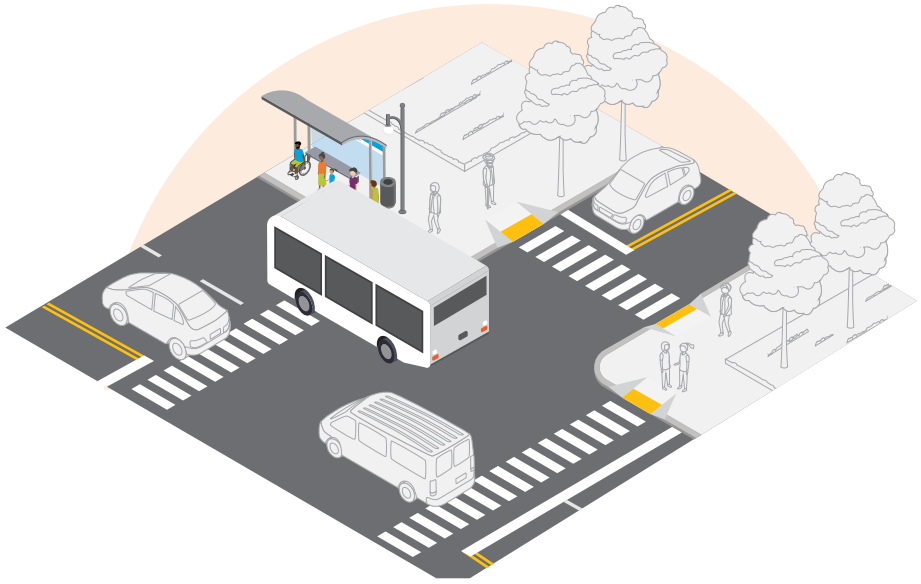


Queue jump signal.

FAR SIDE BUS STOPS

Far Side Bus Stops are located after an intersection, allowing the bus to travel through the intersection before stopping to load and unload customers.

COST: $ - $$ **COORDINATION: LOW**



WHAT ARE THE BENEFITS?

Travel Time: Far-side stops reduce delays from traffic signals. They can potentially save up to 4 to 9 seconds per stop, on average.

Reliability: Reduce potential for stop-and-go service when buses can travel through the intersection before reaching the bus stop.

Safety: Conflicts with right-turning drivers and pedestrians and cyclists traveling through the intersection are minimized or eliminated.

WHEN IS IT USED?

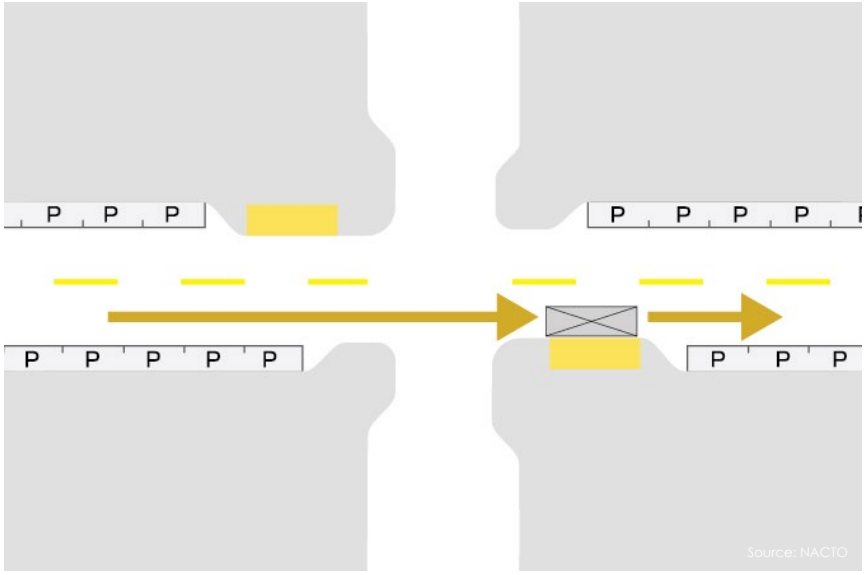
Most transit agencies prefer far-side stops as a general policy – allowing buses to clear signalized intersections before boarding and alighting at station stops (particularly beneficial in locations with long signal cycles or short green signal times).

WHAT DOES IT LOOK LIKE?

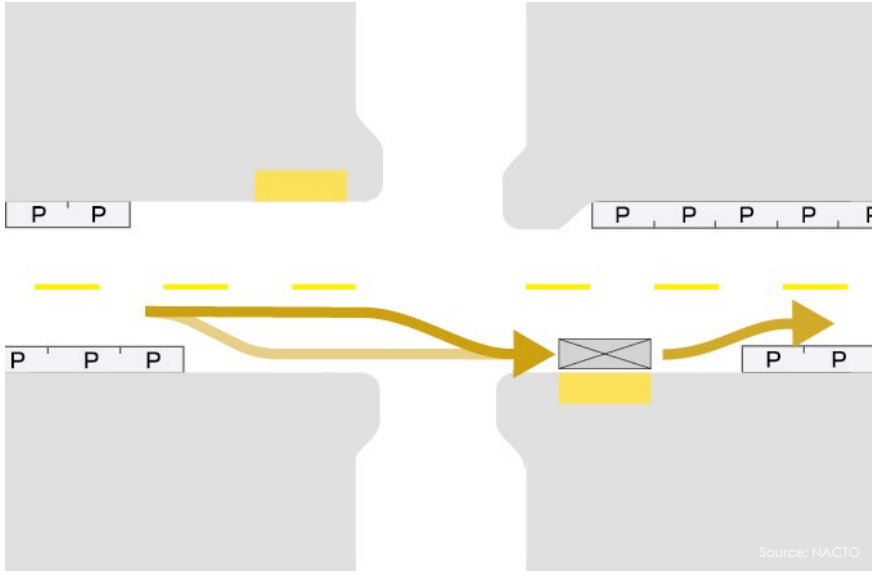
- Colored concrete can be used to demarcate the bus stop loading area.
- Bus stop length should accommodate the typical number of buses expected at the stop at one time.
- Aim for at least 10' between the crosswalk and the back of the bus to facilitate safety and visibility for intersection users.

Far Side, In-lane Stops at the far side of an intersection have the highest benefit to transit operations since buses can stop in the general purpose travel lane and proceed directly after stopping for loading and unloading.

Far Side, Pull-Out Stops should only be used on streets with high posted speed limits (approximately 35 to 40 mph or above).



An illustration of a Far Side, In-lane stop.



An illustration of a Far Side, Pull-out stop.

COMPLEMENTARY TREATMENTS

Transit signal priority (TSP) allows buses to clear intersections before reaching Far Side Bus Stops.

SEE PAGE 27

Bus Bulb Outs (curb extensions) may be used to bring boarding area into the parking lane or bicycle lane so buses can pick up or drop off customers without exiting the travel lane.

SEE PAGE 11

Bus Pullouts designate space on the shoulder or parking lane for buses to exit travel lanes for loading and unloading but require buses to wait for a gap in traffic before proceeding.

Bus Stop Balancing: Bus stop locations should be optimized to reduce delays caused by unnecessary or excessive stopping.

WHERE MAY THIS BE APPROPRIATE FOR SUN METRO?

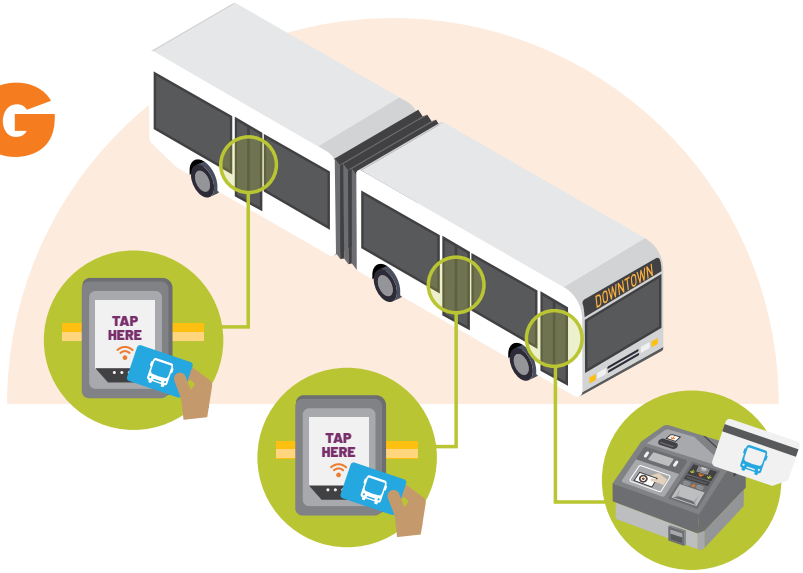
Recommended to incorporate near side and far side stop placement guidance within comprehensive Sun Metro bus stop design guidelines.

OTHER CONSIDERATIONS

- Transit agencies typically prefer far-side stops, but other factors to consider include location of activity centers or transfer activity. These considerations may mean a stop at the near side of the intersection or between intersections (midblock) provides the best customer service.
- Pedestrian and Bicycle accessibility treatments near bus stops are crucial connections supporting the user experience

Far side bus stop in downtown Los Angeles, CA.

ALL DOOR BOARDING & OFF BOARD FARE COLLECTION



All Door Boarding and Off Board Fare Collection are operational policies that allow customers to board a transit vehicle at any open door and pay fares before boarding.

COST: $ - $$

COORDINATION: MODERATE

WHAT ARE THE BENEFITS?

Travel Time: Off-board fare collection can significantly reduce passenger boarding times, with dwell per passenger falling from about 4 seconds to 2–2.5 seconds (NACTO), approximately 40% to 50%.

Reliability: All Door Boarding can lead to up to 10% improvement in on-time performance by reducing dwell times at stops

Safety: Reduces customers crowding at the door.

Customer Experience: Riders can use several payment methods to ride transit, including credit and debit cards, cash, and mobile payment systems; Riders can purchase multiple fare types, and can integrate regional fare systems when agencies collaborate.

WHEN IS IT USED?

Curbside fare machines are costly to install and maintain; use on high-frequency or high-volume corridors where reduced dwell time is a priority.

WHAT DOES IT LOOK LIKE?

- Ticket vending machines at stops and/ or smartphone applications to enable Off Board Fare Payment and All Door Boarding.
- Account-based (reloadable) smart cards
- Install an adequate number of machines to handle the expected number of passengers purchasing tickets during peak hours, especially if all customers must collect Proof of Payment tickets to board.
- Off Board payment purchase instructions should be clear, simple, and well communicated, potentially in multiple languages.
- Off Board payment and ticket vending machines require connections to electrical utilities as well as communications network
- Requires the use of either off-board payment systems or all door proof-of-payment systems (such as cash and card front door payment and rear-door card readers).
- Timeline can be a few months, to use existing infrastructure and develop a mobile app, or a few years, with new equipment and fare media.

All door boarding on LA Metro Rapid Line in Los Angeles, CA.

COMPLEMENTARY TREATMENTS

Fare Capping and intelligent fare payment / collection systems

Bus Stop Placement: Bus stops should be located at optimal locations to maximize the benefits of All Door Boarding throughout a bus route.

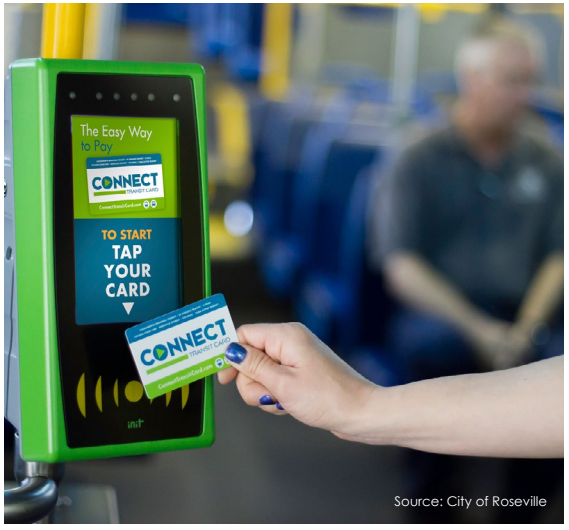
Level Boarding: Facilitates faster and more reliable boarding, further reducing dwell times and variability.

SEE PAGE 14

WHERE MAY THIS BE APPROPRIATE FOR SUN METRO?

All door boarding may be deployed on BRIO and fixed routes where fare collection (ticket scanning) equipment is installed onboard vehicles.

Expand ticket vending locations to promote customer adoption of new fare payment system



Card reader at the rear door entrance.

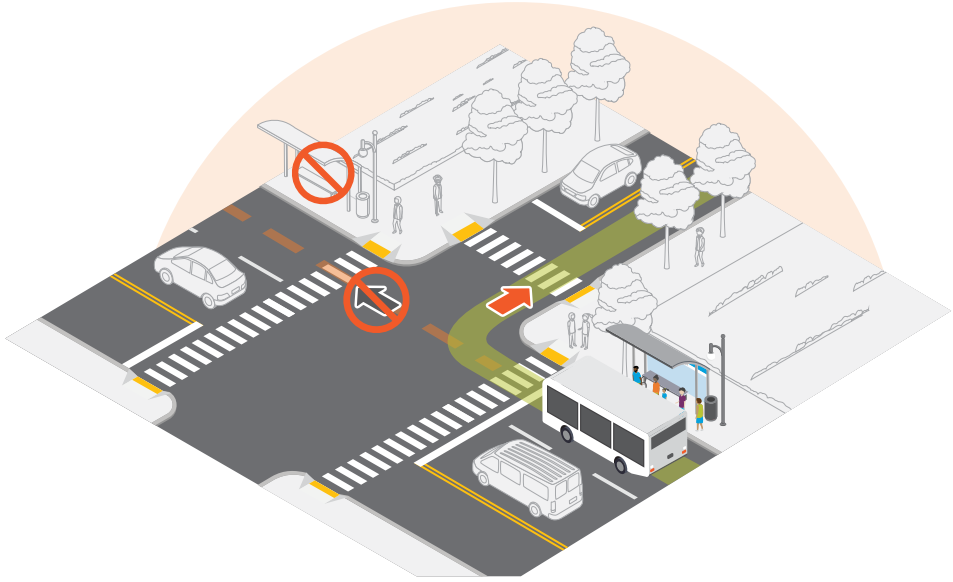
OTHER CONSIDERATIONS

- Implementing off board ticketing machines may be expensive at scale, and locations should be strategically selected at high ridership and transfer locations.
- Potentially requires implementation of fare inspections by dedicated staff but reduces fare validation done by bus drivers.
- Most effective when implemented across an entire system, which requires greater upfront capital than a phased approach, and reduces confusion for transit customers about which routes in a system have All Door Boarding and which do not.
- Gather information before and after implementation; invest in automatic passenger counters or employ short-term counting staff, to assess boarding times, volumes, and improvements
- Interagency agreements may be required to standardized fare structures and accommodate reciprocal acceptance of fare payment media at bus stops served by multiple transit operators

Station vending machine in San Bernadino, CA.

NETWORK REALIGNMENT

Bus service on direct paths is readily understood to customers and makes the most efficient use of transit resources. Over time, bus routes can become circuitous as routes are modified due to changing land uses, passenger needs, or political requests. Investment in transit priority affords opportunity to modify bus routing to provide the most direct path possible. Service adjustments include strategic changes to a bus route's alignment and/or underlying service operations.



COST: $ - $$ **COORDINATION: MODERATE**

WHAT ARE THE BENEFITS?

Faster Service: A 2013 survey of 41 transit agencies found that route design changes were the second most successful strategy for improving bus speeds.[3]

Reliability: Eliminates circuitous route deviations and branching for more reliable, simplified service and scheduling for users and trip planning.

Reduced Cost: Can reduce the number of vehicles needed to operate the route due to faster end-to-end travel times.

WHEN IS IT USED?

Adjustments should be considered anywhere that land use, traffic volumes, or passenger needs have changed recently.

[3]*DDOT Bus Priority Toolbox*

WHAT DOES IT LOOK LIKE?

- **Route re-alignment** may remove unnecessary turns, cut service to a low-ridership location, avoid a particularly congested area, or take advantage of a faster parallel route.
- **Bus stop consolidation** may be considered in conjunction with route modifications.

AVOID COMPLICATED ROUTINGS

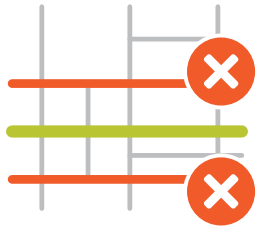
A simpler route structure will attract more riders than a complex one

AVOID ALTERNATIVE PATTERNS

Only use alternative patterns when there is a very sound reason

OPERATE ROUTES ON ARTERIAL STREETS

Keep routes on arterial streets to make transit service easier to understand and operate



BETTER CHOICES, NOT MORE CHOICES

Providing better service on fewer routes provides most riders with better options

OTHER CONSIDERATIONS

- A data-based study and public outreach process to evaluate how route adjustments will impact existing riders should be carried out prior to making changes, with emphasis on how low-income and other transit-dependent populations will be affected.
- Consider potential Title VI impacts to ADA riders and paratransit service accessibility.
- Many agencies are using first mile/last mile strategies (TNC, microtransit, etc.) to serve lower density areas where fixed-route is not the most effective service delivery option.

WHERE MAY THIS BE APPROPRIATE FOR SUN METRO?

Sun Metro Rising service recommendations are centered around a comprehensive network redesign to optimize operations, streamline route alignments, reduce rider travel time, and maximize connectivity with BRIO.

NEW TRANSIT FACILITIES

PARK-AND-RIDES

Traditional park-and-rides are most effective when situated in outlying areas that are adjacent to a sizable population commuting to an activity center with parking constraints or significant travel time.

Additional park-and-ride best practices include:

- Sufficient and separate curb space for transit vehicles
- Located at least 12 miles or 30 minutes to the primary destination
- Served by direct express bus or other rapid transit
- Served by multiple trips during peak travel periods
- Conveniently accessed by a highway or other major thoroughfare
- Designed with operational safety and rider security
- Accessible by foot, bike, personal auto, or drop-off
- Wheelchair accessible spaces
- Bike parking and locks
- Electric vehicle charging
- Security cameras and lighting
- Scalable and adaptable design

Each Sun Metro Transit Center, with the exception of Five Points includes parking spaces for riders. Sun Metro also maintains Park-and-Rides along the north side of Montana Avenue at George Dieter Drive and Lee Trevino Drive. Overall, Sun Metro provides more than 1,400 parking spaces. Due to extremely low utilization, no new park-and-rides are recommended for Sun Metro at this time.

MOBILITY HUBS

Mobility hubs are more than ordinary bus stops or isolated commuter park-and-ride lots.

Mobility hubs are also not full-fledged transit centers. Mobility hubs are facilities that connect multiple modes of transportation, including:

- Transit
- Walking
- Cycling
- Microtransit
- Micromobility, such as bikeshare or scooter share
- Vanpools and carpools
- Private shuttles
- Taxis or ridehailing

Mobility hubs typically include amenities, such as seating, shelter, wayfinding, and commercial lockers. Mobility hubs can be built within the public right-of-way or off-street. No two mobility hubs are alike as each facility is designed to meet the specific needs of its users. Mobility hubs are most successful at major activity centers with high transit ridership and pedestrian traffic. The best candidates for mobility hubs in El Paso are:

- El Paso Community College Valle Verde Campus
- University Medical Center
- Zaragoza Bridge Port of Entry (U.S. Customs and Border Protection)

Sun Metro should consider partnering with these institutions to evaluate the potential opportunities and benefits of upgrading existing bus stops to mobility hubs.

4 | POLICY RECOMMENDATIONS

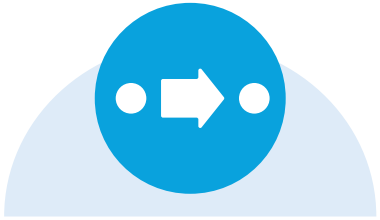
This chapter specifies strategies to successfully implement the Sun Metro Rising plan.

SERVICE DESIGN GUIDELINES

Service design guidelines are a planning tool are used to expand service to new areas or modify existing routes. Sun Metro strives to serve as many local area residents, students, workers, and visitors as they can with their available resources.

Service features that attract one type of rider to transit can deter other riders, requiring a balance these types of competing demands. However, there are certain service design principles that will improve service for nearly all riders. This section describes practices that will attract the most riders and balance competing demands.

For people to use transit, service should be designed so that it is easy to understand. In this way, current and potential riders can grasp and use the transportation options available to take them where and when they want to go with ease. Service guidelines aim to make service intuitive, logical, and easy to understand. Most transit networks are very complicated, and simplification is a key value in creating networks that people can navigate easily to make many kinds of trips.



ROUTE DIRECTNESS

Routes should be designed to operate as directly as possible to maximize average speed for the bus and minimize travel time for passengers while maintaining access to service. Fast and direct routes tend to be useful to more people than circuitous routes. Even if a trip requires transferring between two routes, it is likely to be faster than a trip using a circuitous route.

ROUTE ALIGNMENT

Routes should operate along the same alignment in both directions to make it easy for riders to know how to return to their trip origin. Exceptions can be made in cases where such operation is not possible due to one-way streets, turn restrictions, or near the end of a route where the bus must turn around. In those cases, routes should be designed so that the opposite directions parallel each other as closely as possible. Other exceptions include shuttle and circulator routes. While routes that include large loops or several deviations maximize transit coverage, they also result in out-of-direction travel that is not intuitive or attractive to potential customers.

ROUTE DEVIATIONS

Routes should not deviate from the most direct alignment unless there is a compelling reason. Potential destinations to deviate service include major shopping centers, employment sites, schools, etc. In these cases, the benefits of deviating from the primary alignment must be weighed against the inconvenience caused to passengers already on board. Additional considerations include the impact on overall route productivity, the increase time added as a result of the deviation, and the schedule coordination with connecting services. In most cases, where route deviations are provided, they should be provided on an all-day basis. Exceptions include early morning or late-night trips to schools or employment centers with limited hours.

ARTERIAL STREETS

All frequent local and local routes should operate on major roadways. The operation of bus service along arterials makes transit service faster and easier for riders to understand and use. Current and potential riders typically have a general knowledge of an area's arterial road system and use that knowledge for geographic points of reference.

SCHEDULES

A consistent pattern to the schedule is strongly recommended. While frequencies may vary during the day according to demand, it should not vary with apparent randomness from one trip to the next. Whenever possible, routes should also have clockface frequencies that divide evenly into an hour, such as every 15, 30, or 60 minutes. Clockface frequencies are easier for passengers to remember and can help facilitate better transfer connections between routes. Whenever possible, frequencies should be set at regular clock-face intervals. Clockface frequencies also offer greater ease in scheduling timed connections between routes that occur consistently in each hour.

PERFORMANCE MONITORING

While the service expansion plan provides a framework for optimization and expansion, Sun Metro should closely monitor ridership and on-time performance to identify trends and determine if adjustments to the service plan are necessary.

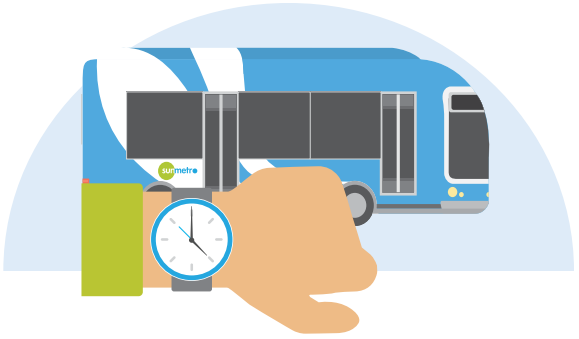
Performance metrics will maximize the effective use of limited resources by creating a rational and transparent evaluation process. This process will assist Sun Metro in determining priorities when allocating funds and programming future transit investments. Performance metrics describe the methodology by which services are evaluated. Three metrics are proposed for each route.

ROUTE PRODUCTIVITY

Route productivity measures how well service is being used on a specific route. Routes productivity is calculated by dividing the total number of boardings by the total number of vehicle revenue hours. Route productivity should be evaluated for each service level (i.e. weekday, Saturday, and Sunday). Evaluation periods should coincide with markup periods due to monthly fluctuations in ridership.

Routes averaging more than 20 boardings per revenue hour may indicate the demand for more frequent service. Routes averaging fewer than 10 boardings per revenue hour for consecutive service periods may require corrective action, such as route modifications, consolidation with other routes, replacement with microtransit. Only after these options have been considered and/or exhausted, should a route be discontinued.

ON-TIME PERFORMANCE



On-time performance (OTP) measures how closely service adheres to the published schedule. It suggests whether a customer can count on a bus being there when the schedule says it will be. Impacts to OTP may be caused by inadequate scheduled running times, traffic conditions, or construction. A high number of boardings on a specific trip or at a specific stop may also impact OTP if recovery time is insufficient to absorb added boarding/alighting time.

On-time performance is measured by comparing scheduled and actual bus departure and arrival times at fixed time points. To measure OTP precisely, a definition for 'on time' must be established. The most widely accepted measure of 'on time' is up to one minute earlier and no more than five minutes later (-1 minute to +5 minutes) than the scheduled departure time from all time points.

Sun Metro should set a goal of 85% systemwide OTP and adjust route schedules that perform below this standard. Additionally, OTP should be analyzed by time period (i.e. early morning, morning, midday, afternoon, night) as cycle times vary by time of day.

SCHEDULE EFFICIENCY

Schedule efficiency can sometimes be improved by reducing layover at the end of a route or deadhead (time spent traveling to/from the garage or another route), thereby allowing a larger percentage of total service hours to be devoted to revenue time.

Schedule efficiency is measured by calculating the ratio of revenue hours to total platform hours (deadhead, layover, and revenue hours). Schedule efficiency ratios that are higher than those of peer services may point to operating issues such as schedules that cannot be cost-effectively broken into vehicle assignments or routes with distant or inefficient terminal points.

While schedule efficiency does not consider actual ridership, it is suggested because it so often points to major inefficiencies in current scheduling practices. Schedules with a high percentage of non-service time are expensive. If that ratio can be improved, cost savings can be achieved, often with minimal impact on riders. The schedule efficiency of interlined routes should be calculated as a group rather than individually.

PERFORMANCE STANDARDS

Recommended performance standards are detailed below. Standards are based on recent ridership and on-time performance trends and best practices for similar services. Ridership productivity is evaluated based on specific route classification. Performance standards should be re-evaluated biennially.

RECOMMENDED PERFORMANCE STANDARDS

Service Level	Route Classification	Minimum Ridership Productivity	Schedule Reliability	Schedule Efficiency
Weekdays	Frequent routes (BRIO and Route 59)	25 boardings per hour	90%	80%
	Local routes	15 boardings per hour	85%	80%
	Feeder and circulator routes	10 boardings per hour	85%	80%
	Microtransit	5 boardings per hour	N/A	N/A
Weekends	Frequent routes (BRIO and Route 59)	20 boardings per hour	90%	80%
	Local routes	12 boardings per hour	85%	80%
	Feeder and circulator routes	8 boardings per trip	85%	80%
	Microtransit	4 boardings per hour	N/A	N/A

SERVICE MODIFICATIONS

Sun Metro should amend its Title VI Policy (adopted in 2014) to include a regular and transparent service modification process to continuously improve routes and schedules.

- Minor service modifications in early January, prior to the start of the spring semester
- Minor service modifications in early June, after the end of the spring semester
- Major service modifications in early August, prior to the start of the fall semester

Detailed to the right and the next page are the major phases of the service modification process.

PROPOSAL DEVELOPMENT

Service modifications provide an opportunity to adjust schedules and route alignments, if necessary, based on performance evaluation findings, rider feedback, operator feedback and land use changes. Service modifications also provide an opportunity to implement new services and if necessary, discontinue consistently unproductive route segments or scheduled trips. Route realignment or consolidation should always be explored prior to considering the elimination of an entire route.

COMMUNITY OUTREACH AND FEEDBACK

Communicating service modification proposals to existing riders and the entire community should include outreach on buses, at transit centers and on social media. Press releases are an additional effective of disseminating proposal information to the public through TV, print media and radio.

PROPOSAL REVISIONS AND MASS TRANSIT BOARD APPROVAL

After community feedback is obtained for service modification proposals, staff should conduct a final Title VI equity analysis and make appropriate revisions and seek Mass Transit Board approval to proceed with implementation.

SERVICE MODIFICATION PREPARATION

Each service modification requires schedule building, blocking, runcutting, and rostering. Significant service modifications such as new, added, or discontinued routes typically installation, construction, and/or removal of bus stop infrastructure, signage, and amenities.

RIDER INFORMATION

After schedules have been finalized, public-facing and back-end data, including rider brochures, online schedules, on-board announcements, and GIS/AVL/GTFS data should be updated.

IMPLEMENTATION

Prior to implementation, it is essential that Sun Metro conduct an additional outreach campaign with an emphasis on riders most impacted by the service modifications.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