ROUND ROCK TEXAS TRANSPORTATION MASTER PLAN UPDATE 2017

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1) Introduction

What is a Transportation Master Plan?

A Transportation Master Plan (TMP) defines goals and policies for growth, and recommends transportation investments to prepare for future mobility needs of a community. It aims to meet ultimate build-out traffic demands and to guide development and establish organized growth within the transportation network. A balanced Transportation Master Plan will also seek to preserve the environmental, scenic, aesthetic, historic, and natural resources of the area, while providing safety and mobility.

By planning for the ultimate growth of the city, the TMP establishes the ultimate roadway network and protects adequate rights-ofway to meet future transportation needs for all modes, including cars, pedestrians, cyclists and transit.

Project Background

In the late 1990s, economic development contributed to major population growth in Round Rock, with the number of residents almost doubling between 1990 and 2000. Citizens spoke up, indicating that transportation was a major concern, and in 1997 they approved a ½ cent of the sales tax be dedicated towards transportation projects. To help guide these expenditures and the growth of the city, the first Transportation Master Plan was adopted in 1999.

In 2004, the plan received an update. The primary deliverable was the Thoroughfare Plan, an Ultimate Roadway Network map of Round Rock which illustrated recommended roadway projects and provided estimates of cost by planning year. In 2012, the Thoroughfare Plan was updated again; however the plan was never adopted.

In 2016, new analysis was conducted to develop viable improvements and recommendations for the City due to the continuing growth of Round Rock's population and employment. The 2017 update of the Transportation Master Plan supports the goals of previous plans and considers all types of transportation improvements including roadway expansion, express lanes along IH-35, transit options and bicycle/pedestrian facilities.

A TRANSPORTATION MASTER PLAN DEFINES GOALS AND POLICIES FOR GROWTH, AND RECOMMENDS TRANSPORTATION INVESTMENTS TO PREPARE FOR FUTURE NEEDS OF THE COMMUNITY.

Vision Statement

In 2009 the City adopted Game On, 2060: Strategic Plan for the City of Round Rock. The Plan examines strategies for how to guide and harness Round Rock's anticipated growth to create a city that is economically vibrant and sustainable, and that offers an exceptional quality of life. Mobility and connectivity are seen as central to the City's growth strategy and are listed as one of the "Seven Experiences" the City promises its residents and visitors. In order to provide an attractive quality of life, it must be easy to move around the City - and not only by automobile. Game On 2060 calls for a diversity of transportation options, including sidewalks and trails for bikes and pedestrians connecting the City's neighborhoods, businesses, and attractions. For Round Rock to be considered truly accessible, the Plan emphasizes that the City's roadways must not be overly congested and people with physical challenges must be able to move easily around the City.

The Transportation Master Plan Update seeks to uphold the Vision developed in Game On 2060, by improving all forms of connectivity including roads, bike/ped, public transportation, rail and electronic (data/telecom) through planning and policy choices, partnerships, dedicated funding and targeted construction so that quality of life, economic opportunity and public safety are enhanced.

Goals and Objectives

Goals and objectives created for the 2004 Transportation Plan will be upheld by the 2017 TMP Update:

Goals

As stated in the 2004 TMP:

- Ensure citizens of Round Rock are afforded an adequate future transportation system.
- Ensure efficient utilization of the 1997 1/2 cent sales tax dedicated to roadway improvements.
- Identify major deficiencies in the existing transportation network.
- Maintain the quality of life enjoyed by the citizens of Round Rock.

Objectives

- Evaluate the existing transportation network.
- Identify current and future land uses and travel patterns, as well as, population and employment forecasts.
- Identify environmentally-sensitive areas.
- Update the roadway design standards.
- Incorporate citizen participation into the planning process.
- Identify the necessary transportation network improvements.
- Develop an ultimate transportation network to serve the community needs.

Additionally, goals defined in the Game On, 2060: Strategic Plan also provide mobility goals for the 2017 Transportation Master Plan:

- Identify and plan for future connectivity and mobility needs.
- Foster transportation systems that support the development of major density centers.
- Develop funding source mechanisms for mobility and connectivity construction and maintenance.

A DIVERSE, HISTORIC, AND FAMILY-ORIENTED COMMUNITY, ROUND ROCK OFFERS A DISTINCT IDENTITY AS A DESIRABLE PLACE TO LIVE, WORK, AND PLAY.



listory of the Round Rock TMP 99

2016

In the late 90s, economic development contributed to major population growth in Round Rock, and the population almost doubled between 1990 and 2000. Citizens indicated that transportation was a major concern. In 1997 citizens approved 1/2 cent of the sales tax be dedicated towards transportation projects.

To help guide these expenditures and the growth of the city, the first Transportation Master Plan was adopted in 1999.

The plan received an update in March 2004, and included demographics analyses, environmental constraints, financial information, and a transportation model. These resulted in a Roadway Table, which shows roadway projects and estimates of cost by planning year. An Ultimate Roadway Network map illustrates all of these projects and acts as a guide for future projects.

Today, Round Rock is one of the fastest growing cities in Texas. The population has increased 72% since 2000, and employment is also on the rise. The 2016 TMP Update will be a guide for future investments in transportation infrastructure.

2004 Thoroughfare Network

ng "Big Picture"



2) Public Involvement

Outreach

The TMP update provided an opportunity for the City to measure and evaluate the state of the transportation network and traffic demand in Round Rock. An important part of this process is public involvement. Community feedback helps planners to better understand where the network is working, and where it is not. The TMP Team developed a Public Involvement Strategy designed to keep the public informed and to encourage public participation.

Neighborhood and stakeholder outreach began at the onset of the project. The City and its consultant compiled a database of contacts for all of the neighborhood associations in the City, as well as schools, local businesses and business owners, council members, and elected officials. The City also created a webpage describing the purpose of the TMP, and offering a link to a sign-up form for anyone wishing to receive updates.

Contacts in the database received email blasts announcing public meetings, workshops, opportunities for participation, and status of the project. The outreach was extended to social media outlets such as NextDoor and the City's official Facebook page. Postcards announcing the two public meetings were also mailed out to database contacts.

This database was maintained throughout the life of the project and served as the primary platform for sharing important project information with the public. Almost 600 people signed up to receive updates during the TMP Update process.

A PUBLIC INVOLVEMENT STRATEGY HELPED KEEP THE PUBLIC INFORMED DURING THE PROCESS. One of the first outreach efforts was publishing an online survey to help capture feedback from the community about Round Rock's transportation network. Participants were able to go online to share their thoughts about top issues and challenges regarding the network, congested areas, safety, preferred improvements and connectivity.

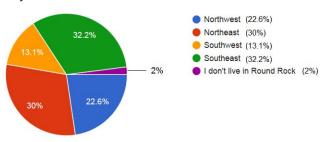
The survey was available online for five weeks in 2016 through September and October, at the public meeting held in September and the four neighborhood workshops. Attendees at the events were able to choose between tablets or a printed version to share their feedback. Over 1,000 responses were received. Responses were summarized, and questions regarding congestion and safety in the City were geocoded into the Google-based map and shared online. The data provided valuable insight for the City to consider as recommendations for the TMP Update were developed.



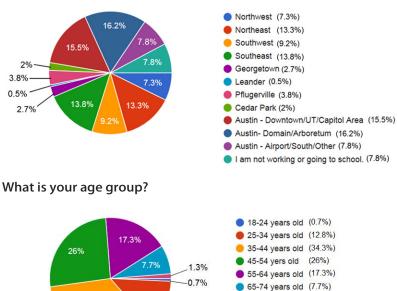
MORE THAN **1000 RESPONSES** FROM THE TMP SURVEY **PROVIDED VALUABLE INSIGHT** FOR THE CITY AS **RECOMMENDATIONS** FOR THE TMP UPDATE WERE **DEVELOPED**.

Online TMP Update Survey Responses

Where do you live?



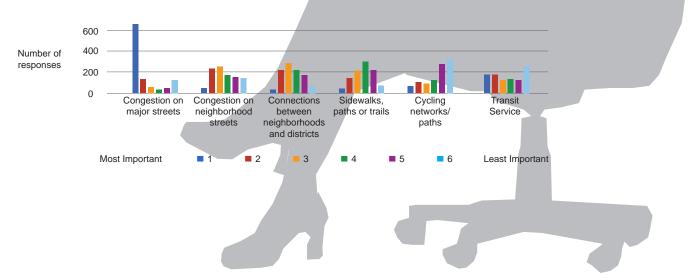
Where do you work or go to school?



12.8%

What aspect of Round Rock's transportation system should be considered highest priority for the TMP? Please rank in order of importance.

74+ (1.3%)



664 RESPONDENTS SAID CONGESTION ON MAJOR STREETS WAS THE HIGHEST PRIORITY TO BE ADDRESSED BY THE TMP UPDATE.

Online TMP Update Survey Responses

What are the top issues and challenges facing Round Rock's transportation network?

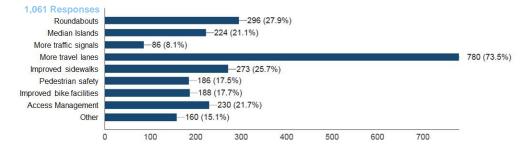


WERE HIGHEST ON THE LIST OF TRANSPORTATION IMPROVEMENTS.

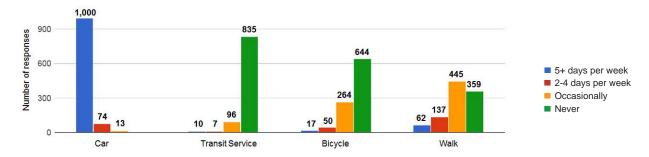


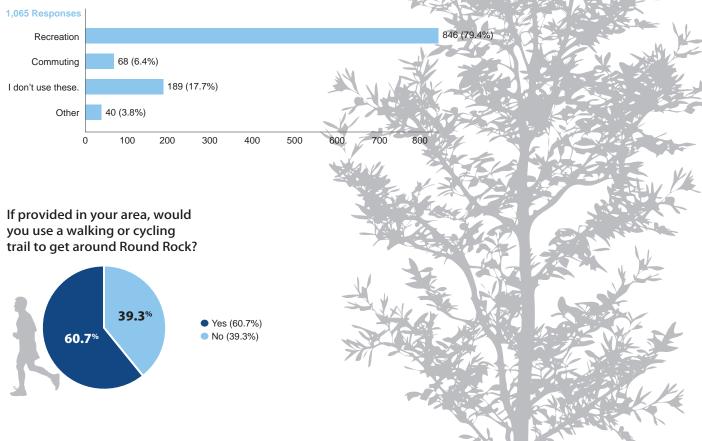


Would any of the following roadway improvements enhance Round Rock's major corridors? (Select up to three). Percentages shown are calculated from the total number responses.

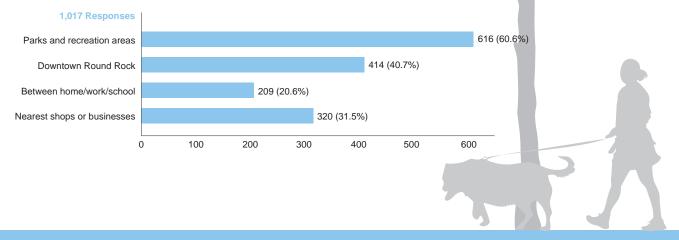


How many days each week do you use the following as a transportation option?





Which area of Round Rock would you most like to have a walking or cycling path connection?



RESPONDENTS INDICATED **CONGESTION ON** I-35 WAS A **TOP CHALLENGE** FACING THE **TRANSPORTATION NETWORK**.

Public Meetings

The first Open House was held Tuesday, September 20, 2016 at the Allen R. Baca Center near downtown Round Rock. From 5:00 pm until 8:00 pm, City officials and their consultant answered questions and discussed concerns related to land use and mobility in the City of Round Rock.

Over 20 exhibits were prepared for the meeting. Information included the history of Round Rock's Transportation Master Plan and its goals and objectives. The exhibits also depicted the City's growth and existing traffic conditions in the network. Maps from other master plans such at the Trails Plan, the Transit Plan and Williamson County's Long Range Transportation Plan were also available for review. Other exhibits showed potential cross sections for future roads, and introduced features that the City

ALMOST 600 PEOPLE SIGNED UP TO RECEIVE UPDATES.

> **OPINIONS** WANTED!

PHOTO CREDIT: CITY OF ROUND ROCK

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could implement to help make streets safer and more accessible to all users.

Several interactive activities were planned for the September meeting, designed to gather feedback from participants. One exhibit at the meeting asked participants "What are your Priorities?" Six categories were provided, and each participant was given up to five stickers to place under the categories most important to them. Participants chose from: Mobility/Capacity for Autos, Pedestrian and Sidewalks Facilities, Shared Use Facilities, Increased Safety on City streets, Protecting the Environment, and Streetscapes and Urban Design.

Young voices were not forgottentwo posters were also provided for the kids. Like the grown ups, young ones were also given a choice from four categories to choose the things important to them- Safe routes school, sidewalks in their neighborhoods, parks in their neighborhoods and places to ride their bikes. Children were also provided an opportunity to share how they got to school- bike, walk, or in a car or bus.

Large-scale aerial maps of the City were provided at the meeting. Postit notes were provided for attendees to write comments on and place directly on the. The comments were recorded, geocoded onto an online map and posted to the project website.

Comment cards were also provided at the public meeting for people to voice their concerns, share their support, and sign up for project updates. Attendees were able to fill out the Transportation Master Plan Survey at the Public Meeting as well. A printed version was provided for those who preferred to put pencil to paper, and tablets were provided for any who wished to submit their feedback electronically. Twenty-seven people attended the September Open House. Fourteen write-in surveys and three comment cards were received.

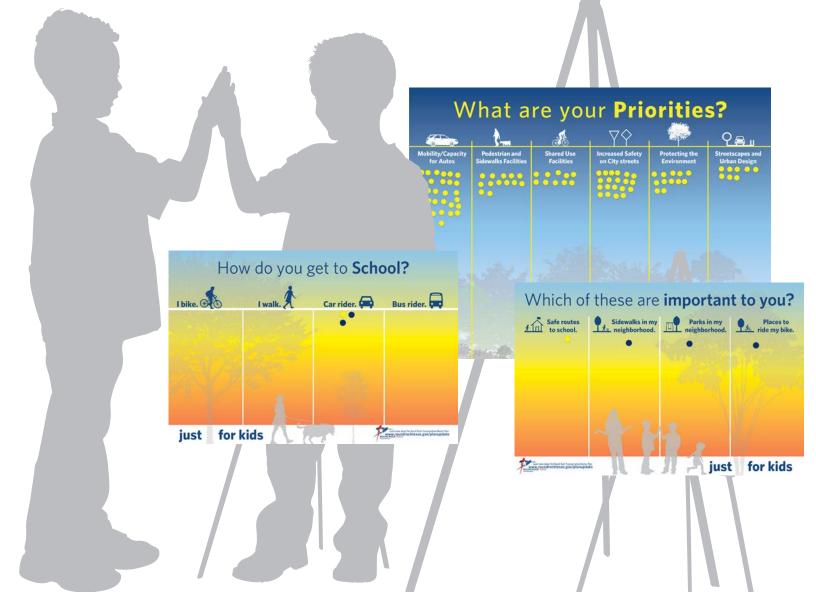


PHOTO CREDIT: CITY OF ROUND ROCK

Southeast Neighborhoods

SOUTHEAST NEIGHBORHOODS

The second Open House for the Transportation Master Plan Update was held from 5:00 to 7:00 pm Tuesday, March 7, 2017, at the Allen R. Baca Center. The come-and-go open house provided a second opportunity for attendees to review exhibits shown at the first Open House. New exhibits were also prepared. These included results of the Transportation Master Plan Survey, updated cross sections for City streets, and a preliminary layout of the updated Thoroughfare Plan. City officials and their consultants were on hand to answer questions and talk about the plan. Forty-seven people attended the event and were able to ask questions or leave comments.



Neighborhood Workshops

Four neighborhood workshops were held during the month of October 2016. The City's consultant coordinated with local schools to host the events, sent email notifications to all contacts in the project database regarding the upcoming workshops and encouraged community members to attend. Topics and agenda items at the neighborhood workshops reflected information and goals from the previous September Public Meeting. Participants were given the same opportunities to provide input, share ideas, ask questions and voice any concerns related to the project.

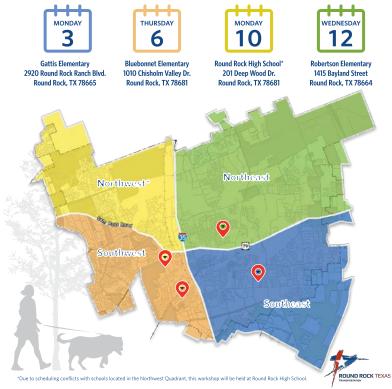
In an effort to maximize attendance and process feedback from the four workshops more efficiently, the City was divided into four quadrants. Each workshop focused on a different quadrant of the City, although anyone could attend.

Attend your Neighborhood Workshop!

The City invites you to discuss project goals and how the TMP relates to your own neighborhood. Share your ideas and provide feedback!

All workshops will be held from 6pm-8pm.

Join us in October! Workshops will be held in the school cafeterias.





A TOTAL OF **47 PARTICIPANTS WERE IN ATTENDANCE,** AND SEVERAL CITIZENS LEFT **SURVEYS AND COMMENT CARDS.**

3 Existing Conditions

Round Rock Overview

Round Rock is located in Williamson County, 15 miles north of Austin in the Central Texas hill country. Founded in 1851 on the banks of Brushy Creek, the community was built near a large round rock that marked a low-water crossing. This crossing became a primary path for wagons, horses and cattle, which eventually became known as the Chisholm Trail. The town continued to grow on cotton and cattle, and in the 1950s leaders in Round Rock began to seek stronger economic development. A new "Interregional Highway" was slated for the county, and Round Rock officials worked with the Highway Commission to establish an alignment through the town. In 1956, the footprint of IH-35 was finalized, and the new highway paved the road to Round Rock's economic growth.

Today, Round Rock is one of the fastest growing cities in the nation and a major center for economic growth in Central Texas, with more than twenty major employers. With award-winning parks, exemplary schools and a reputation for safety, Round Rock has maintained a high-quality of life and prides itself on long-term planning.

A TRANSPORTATION MASTER PLAN **DEFINES GOALS AND POLICIES FOR GROWTH, AND RECOMMENDS TRANSPORTATION INVESTMENTS** TO PREPARE FOR FUTURE NEEDS OF THE COMMUNITY.

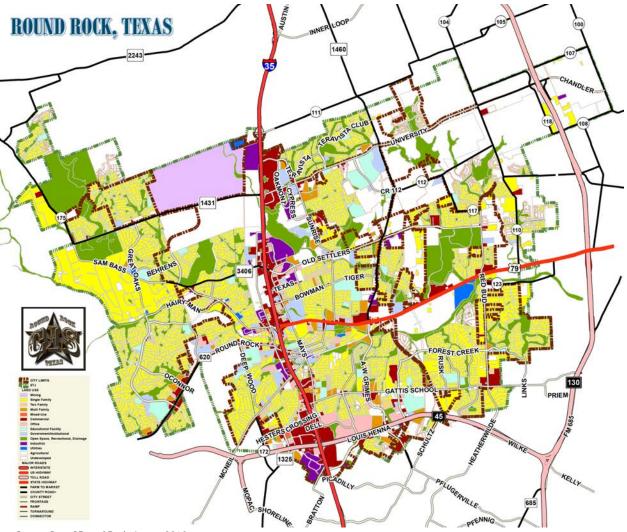


PHOTO CREDIT: FACEBOOK @roundrock

Land Use

Approximately 60% of the land area within the City and ETJ has been developed. The remaining area consists of agricultural and vacant land. Developed areas are mostly single-family homes, with an increase in multi-family developments in recent years. Other land use includes mixed-use, commercial, office, education and government facilities, open spaces and parks, agricultural mining and industrial.

Figure 3-1: Land Use



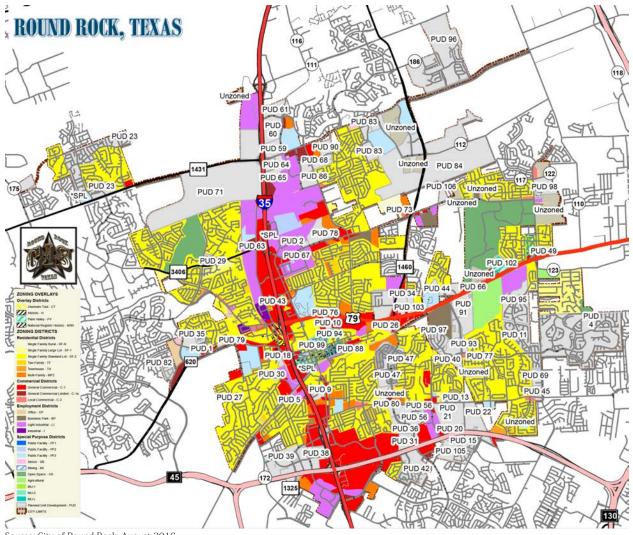
Source: City of Round Rock; August 2016

Zoning

Approximately half of the land zoned for industrial uses is vacant. A majority of this land is located along IH-35 in the northern section of the City. There has been pressure to rezone much of this area for commercial offices and mixed-use. The Round Rock General Plan 2020 encourages a wider range of housing types including high-density residential developments in certain areas.

The City adopted its first mixed-use zoning district in 2005. The district is just west of downtown and bounded by Round Rock Avenue to the north; Lake Creek to the south; IH-35 to the west; and South Mays Street to the east. The intent of this district is to combine moderate density residential and commercial uses.

Figure 3-2: Zoning



Source: City of Round Rock; August 2016

Demographics

Since the year 2000, the population within Round Rock's city limits and ETJ has grown by 72%, more than doubling from 61,000 to over 143,000 residents in 2016. The Capital Area Metropolitan Planning Organization (CAMPO) predicts the population within the city limits and ETJ will grow another 75% by 2020, resulting in a population of over 250,000. By the year 2040, that number will grow again by 134%, with the population projected at 335,994 people.

Employment opportunities have also been expanding in Round Rock. Major employers such as Dell, Sears, Teleserv, Emerson, and Texas Guaranteed Student Loan, along with many others including schools, hospitals, retail, tourism, entertainment and services, have created a strong economic base in the City. According to CAMPO, the labor force is currently over 57,000. Employment projections indicate the labor force will increase by 76% by 2020 and 305% by 2040 compared to 2010.

The charts below show the projected trend in the City's population and employment between 2010 and 2045.





3-5 >

Data and projections provided by CAMPO.

2020

2025

2030

2035

2040

2045

2055

2010

2015



Roads

Roadway Classifications Roadways are classified for specific uses within the transportation network. The City of Round Rock defines four types of classifications within its roadway system.

DEFINING HOW A ROADWAY WILL FUNCTION HELPS PLANNERS DESIGN A NETWORK THAT OPERATES MORE EFFICIENTLY, WITH MORE CONNECTIVITY AND MORE SAFETY.



Freeways.

Intended to move high volumes of automobile traffic at relatively high speeds over long distances, freeways (or highways) also have limited access to help maximize traffic flow and safety. Freeways are generally accessed via on-ramps from frontage roads or direct connectors from other high-speed facilities. Freeways' primary function is to connect local areas to other regions, rather than serve local traffic needs. Currently, IH-35 provides north-south freeway access to the Round Rock area, and SH-45 and SH-130 provide east-west and north-south access respectively to the Round Rock area.



Arterials.

These are continuous routes whose function is to serve high volume needs of local traffic and regional traffic. Speeds are relatively high on arterial streets, and access is controlled by planning the locations of intersecting streets, left turn lanes, and traffic signals. Arterial roads will function more efficiently when the number and location of median breaks and driveway cuts is managed. Arterial streets provide connectivity across the transportation network, so it is best practices to consider all modes on these streets. Due to the high automobile speeds, protective measures should be established for cyclists and pedestrians along these routes.



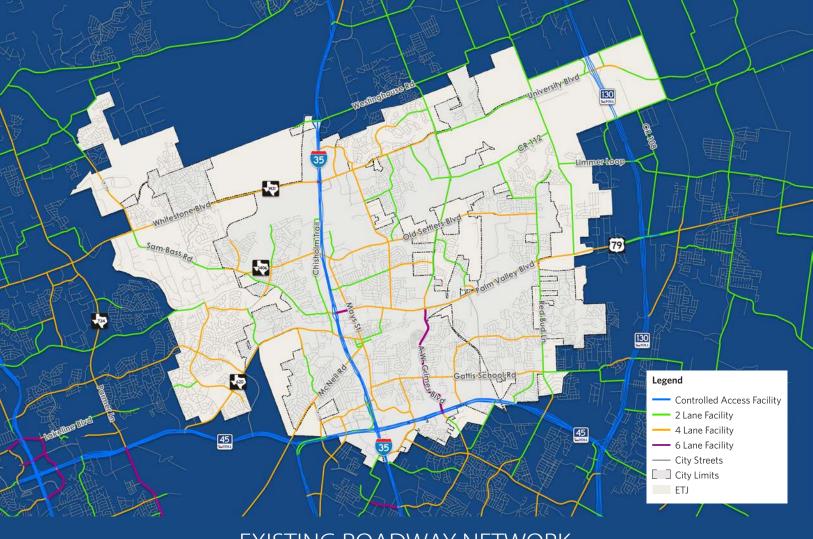
Collectors.

Designed for medium volumes of vehicles operating at lower speeds (i.e., 30 - 35 mph), collectors provide access and movement within residential. commercial. and industrial areas. Direct access to higher intensity development, such as commercial, daycare, places of worship, schools, and multi-family uses calls for lower speed limits on collectors than arterials due to more turning movements on collectors. Slower speed limits increase safety. Direct access to single-family development is generally not encouraged, with access from local streets being preferred.



Local Streets.

Local streets give access to smaller, often destination-oriented areas, such as neighborhoods, subdivisions or local business districts. Pedestrian activity can be expected to be higher on local streets, while traffic volumes are lower, so lower speed limits are appropriate. Because local streets are intended to carry traffic off of the main transportation network rather than through it, these streets generally do not travel across districts and usually are more residential in character.



EXISTING ROADWAY NETWORK

Major Roads

The primary transportation network within the City of Round Rock was largely in place by 1990. As growth in Round Rock has increased, some facilities have been upgraded and some new roads have been added. There are several major roads within the City of Round Rock. These roads are maintained by different jurisdictions, including Texas Department of Transportation (TxDOT), the City of Round Rock, and Williamson County.

Interstate Highway 35

Maintained by TxDOT, IH-35 is a major interstate highway that serves travel and freight needs from Mexico to Canada. Throughout the City of Round Rock, it is a six-lane, controlled-access facility that serves the City and adjacent communities. It is the main route of access to Austin to the south and Georgetown to the north. In year 2015, the annual average daily traffic (AADT) volume on IH-35, north of Gattis School Road was 197,300 vehicles (includes mainlane and frontage road traffic). One-way frontage roads parallel IH-35 and provide access for the eight traffic interchanges in Round Rock.

From north to south:

- Westinghouse Road
- RM 1431/University Boulevard
- FM 3406/Old Settlers Boulevard
- US 79/Palm Valley Boulevard
- RM 620/Round Rock Avenue
- McNeil Road
- Hesters Crossing Road
- Louis Henna Boulevard (SH 45 Frontage Roads)



THE **PRIMARY TRANSPORTATION NETWORK** WITHIN THE CITY OF ROUND ROCK WAS LARGELY **IN PLACE BY 1990**.

SH 130 is a four-lane controlled-access tolled facility owned and maintained by TxDOT. SH 130 was built as an alternative to IH-35 for north-south travel, and as an option to bypass the highly congested segment of IH-35 through Austin.

2015 AADT Volume (north of Gattis School Road): Tolled mainlanes: 32,600 vehicles

Non-tolled service road: 19,700 vehicles

SH 130 provides access at six interchanges listed below from north to south:

- Chandler Road
- Limmer Loop
- US 79/ Palm Valley
 Boulevard
- FM 685
- Gattis School Road
- Louis Henna Boulevard (SH 45 Frontage Roads)

SH 45 is a toll road facility owned by TxDOT and maintained by CTRMA. It provides access to Cedar Park to the west and Pflugerville to the southeast.

2015 AADT Volume (west of IH-35):

Tolled mainlanes: 68,700 vehicles

Non-tolled service road: 44,200 vehicles

The frontage roads/ ramps connect to five interchanges, listed below from west to east:

- La Frontera Boulevard
- IH-35 Frontage Road
- Greenlawn Boulevard
- A.W. Grimes Boulevard
- Heatherwilde
 Boulevard

Several major arterials carry traffic across the network.

- A.W. Grimes Boulevard: Carries six lanes of traffic south of US 79 and four travel lanes to the north.
- RM 1431/University Boulevard: (RM 1431 west of IH-35; University Boulevard east of IH-35) is a four-lane arterial.
- FM 3406/Old Settlers Boulevard: Four-lane arterial known as FM 3406 west of IH-35 and Old Settlers east of IH-35
- US 79/Palm Valley Boulevard/Sam Bass Road: US 79 is known as Palm Valley Boulevard through Round Rock, and Sam Bass Road west of IH-35. It is a four-lane arterial east of Chisholm Trail and two-lanes to the west.
- RM 620/Round Rock Avenue: Four lane arterial serves the west side of the City. Round Rock Avenue (east of IH-35) provides access to downtown Round Rock.
- Chisholm Trail:
 - Just west of IH-35, this collector/arterial has two travel lanes in each direction north of Sam Bass Road and one lane in each direction to the south.
- Mays Street: Four lane arterial east of IH-35 running through downtown Round Rock.
- Sunrise Road:

Four-lane arterial connecting US 79 to University Boulevard.

 Red Bud Lane/Heatherwilde Boulevard: One travel lane in each direction, with additional lanes providing through and turning movements at major intersections.



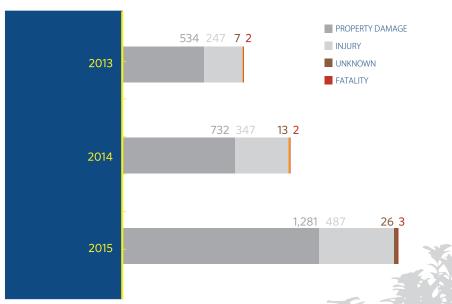


Crash Data

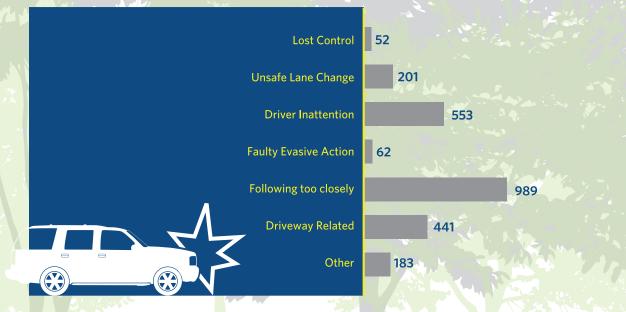
Analysis of crash data for this Transportation Master Plan Update included incidents in Round Rock reported from January 1, 2013 through December 31, 2015. Data was obtained from TxDOT Crash Records Information System (CRIS) database. This TMP focuses on operations within the transportation network of Round Rock, and therefore excludes crash data on IH-35 mainlanes.

Of the total 3,681 crashes within Round Rock City limits, severity information was available for all but 46 of the crashes (98.8%).

REPORTED CRASHES BY SEVERITY 2013-2015



CRASH CONTRIBUTING FACTORS 2013-2015



DATA FOR MAJOR CONTRIBUTING FACTORS WAS AVAILABLE FOR 2,481 OF THE 3,681 CRASHES (67.4%).

A TOTAL OF **20 BIKE CRASHES** AND **30 PEDESTRIAN CRASHES** WERE REPORTED FROM YEAR 2013 TO 2015 WITHIN THE CITY LIMITS.



Intersection and Corridor Crash Frequency

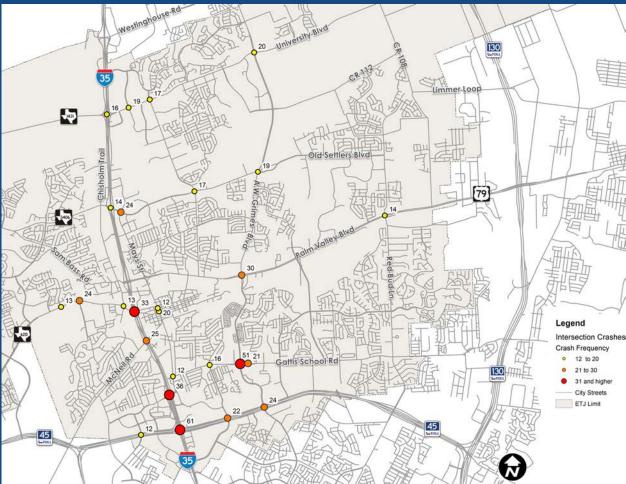
Based on the number of total crashes that occurred during the analysis time period, 25 intersections and 25 corridors were identified and ranked by crash frequency.

INTERSECTIONS: TOP 25 CRASH FREQUENCY

COLUMN DATA SHOWS RANK, INTERSECTION, AND NUMBER OF CRASHES

1IH-35 Frontage & Louis Henna Blvd.62A.W. Grimes Blvd. & Gattis School Rd.53IH-35 Frontage & Hesters Crossing Rd.34Round Rock Ave. & IH-35 Frontage Rd.35Palm Valley Blvd. & A.W. Grimes Blvd.36McNeil Rd. & IH-35 Frontage Rd.27Round Rock Ave. & Deep Wood Dr.28Old Settlers Blvd. & Mays St.2
3 IH-35 Frontage & Hesters Crossing Rd. 3 4 Round Rock Ave. & IH-35 Frontage Rd. 3 5 Palm Valley Blvd. & A.W. Grimes Blvd. 3 6 McNeil Rd. & IH-35 Frontage Rd. 2 7 Round Rock Ave. & Deep Wood Dr. 2
4 Round Rock Ave. & IH-35 Frontage Rd. 3 5 Palm Valley Blvd. & A.W. Grimes Blvd. 3 6 McNeil Rd. & IH-35 Frontage Rd. 2 7 Round Rock Ave. & Deep Wood Dr. 2
5Palm Valley Blvd. & A.W. Grimes Blvd.36McNeil Rd. & IH-35 Frontage Rd.27Round Rock Ave. & Deep Wood Dr.2
6McNeil Rd. & IH-35 Frontage Rd.27Round Rock Ave. & Deep Wood Dr.2
7 Round Rock Ave. & Deep Wood Dr. 2
8 Old Settlers Blvd. & Mays St. 2
9 A.W. Grimes Blvd. & Louis Henna Blvd. 2
10 Louis Henna Blvd. & Greenlawn Blvd. 2
11Gattis School Rd. & Southcreek Dr.2
12 Mays St. & Liberty Ave. 2

13	A.W. Grimes Blvd. & University Blvd.	20				
14	University Blvd. & Oakmont Dr.					
15	A.W. Grimes Blvd. & Old Settlers Blvd.	19				
16	University Blvd. & Sunrise Rd.	17				
17	Old Settlers Blvd. & Sunrise Rd.	17				
18	University Blvd. & IH-35 Frontage Rd.	16				
19	Gattis School Rd. & Greenlawn Blvd.	16				
20	Palm Valley Blvd. & Red Bud Ln.	14				
21	IH-35 Frontage Rd. & Old Settlers Blvd.	14				
22	Round Rock Ave. & Oaklands Dr.	13				
23	Round Rock Ave. & Chisholm Trail	13				
24	Mays St. & Gattis School Rd.	12				
25	Mays St. & Austin Ave.	12				



The intersections are identified and ranked by crash frequency. Corridors were ranked based on crash frequency, excluding crashes that occurred at intersections.

CORRIDORS: TOP 25 CRASH FREQUENCY

COLUMN DATA SHOWS RANK, INTERSECTION, AND NUMBER OF CRASHES

1	US 79/Palm Valley	310	9	Greenlawn Blvd.	46	17	Forest Creek Dr.	13
2	University Blvd.	186	10	Hesters Crossing Rd.	43	18	High Country Blvd.	11
3	Round Rock Ave.	159	11	Sunrise Rd.	37	19	N Georgetown St.	10
4	A.W. Grimes Blvd.	142	12	Louis Henna Blvd.	32	20	Parker Dr.	10
5	Gattis School Rd.	133	13	McNeil Rd.	26	21	Chisholm Trail Rd	9
6	Old Settlers Blvd.	121	14	Deep Wood Dr.	18	22	Wyoming Springs Dr.	8
7	Mays St/Dell Way	115	15	Bowman Drive	15	23	Settlement Dr.	8
8	Red Bud Ln.	56	16	Oakmont Dr.	14	24	Sundance Pkwy.	8



Multimodal

Transit

The City launched a fixed route bus service in Summer 2017. The Round Rock Transit Plan, adopted in 2015, identified new travel trends within Round Rock as a result of new destinations and employment changing the travel patterns of Round Rock residents. The Plan served as a blueprint for implementing new transit services within the City and connections to regional destinations. Public outreach conducted during the public process of developing the Transit Plan showed strong support for transit services.

The City of Round Rock contracted with Austin-based Capital Metro to provide the first fixed bus routes. Development of the new route alignments were based on:

- U.S. Census data
- Low-income areas and households with one or no car
- Popular destinations from the Demand Response Bus Service
- Data obtained from the "Drive a Senior" program

The Round Rock Transit Center, located near downtown on Bagdad Road, will become a primary connection point for the new fixed-route service. Since its completion in 2010, the Transit Center has provided connections for Capital Area Rural Transportation System (CARTS) Interuban Services. The service is offered between Round Rock, Georgetown, Taylor, Hutto, Austin and San Marcos. The 135 Dell Limited route provides access for those who commute between Austin and Tech Ridge. The 935 Tech Ridge Express provides direct access to the University of Texas and downtown Austin.

The City also provides Demand Response Bus Service to citizens of Round Rock. It is a reservation based, curb-to-curb service that provides public transportation from any origin to any destination with the city limits and ETJ.



ROUND ROCK TRANSIT PLAN Final Report

November 2015

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Outlets and Capital Metro's Howard Lane Park and Ride station in Austin. Stops along the route will include Baylor Scott & White Medical Center, a few H-E-B stores, the library, City Hall, and the Baca Center.

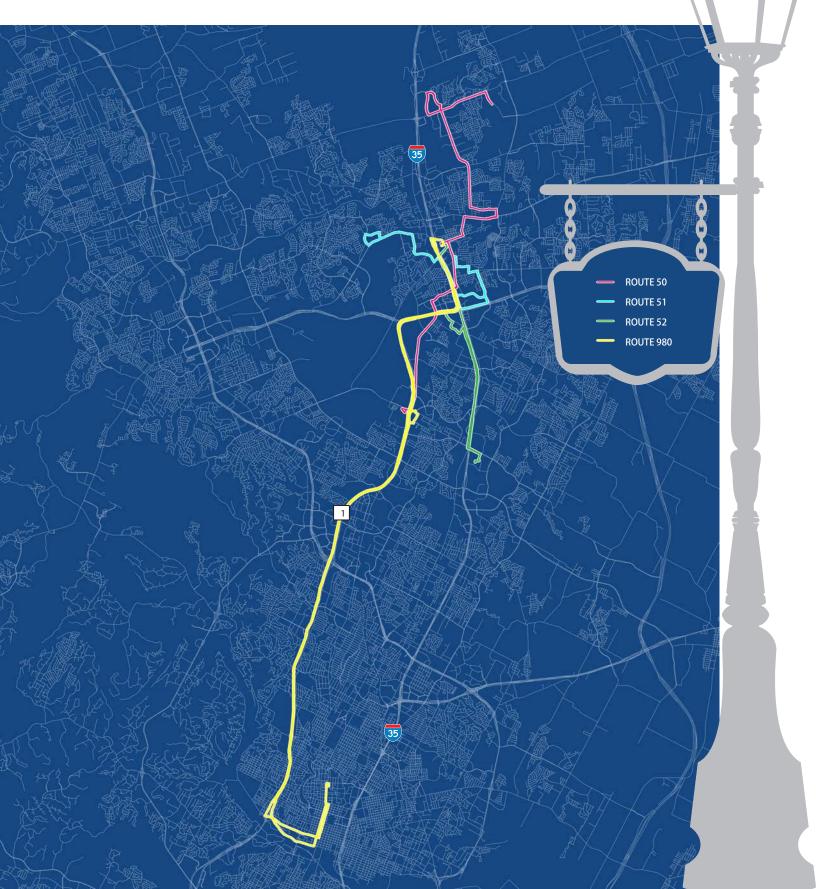
Route 51, called the Round Rock Circulator, will run east to west and includes stops near St. David's Round Rock Medical Center, the Round Rock Housing Authority, and the Walmart shopping center near Louis Henna Boulevard.

Route 52, a reverse commute route, would provide transportation from the Round Rock Transit Center to the Capital Metro Tech Ridge Park and Ride.

One express route, Route 980, will provide service between the Round Rock Transit Center, the New Life Church Park and Ride on Century Park Boulevard in Austin, and the University of Texas.

THE CITY OF ROUND ROCK CONTRACTED WITH **AUSTIN-BASED CAPITAL METRO** TO PROVIDE THE **FIRST FIXED BUS ROUTES.**

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Bikes and Pedestrians

As discussed later in the Trails section of this report, the City of Round Rock is working to increase trail connectivity throughout the City to offer more mobility options to residents. A network of off-road connected trails could provide additional access for cyclists and pedestrians traveling to schools, parks, jobs and other destinations.

The City of Round Rock provides standards for bicycle and pedestrian facilities within the transportation network in the Transportation Criteria Manual. Design standards specify bicycles share the roadway with other vehicles. Cyclists may also share the sidewalks with pedestrians.

Within the ETJ limits, four- or five-foot-wide sidewalks are required on both sides of all roadways. Curb ramps are also to be provided wherever an accessible route crosses a curb. Medians on divided highways should be designed to provide refuge for pedestrians and bicyclists during crossings.

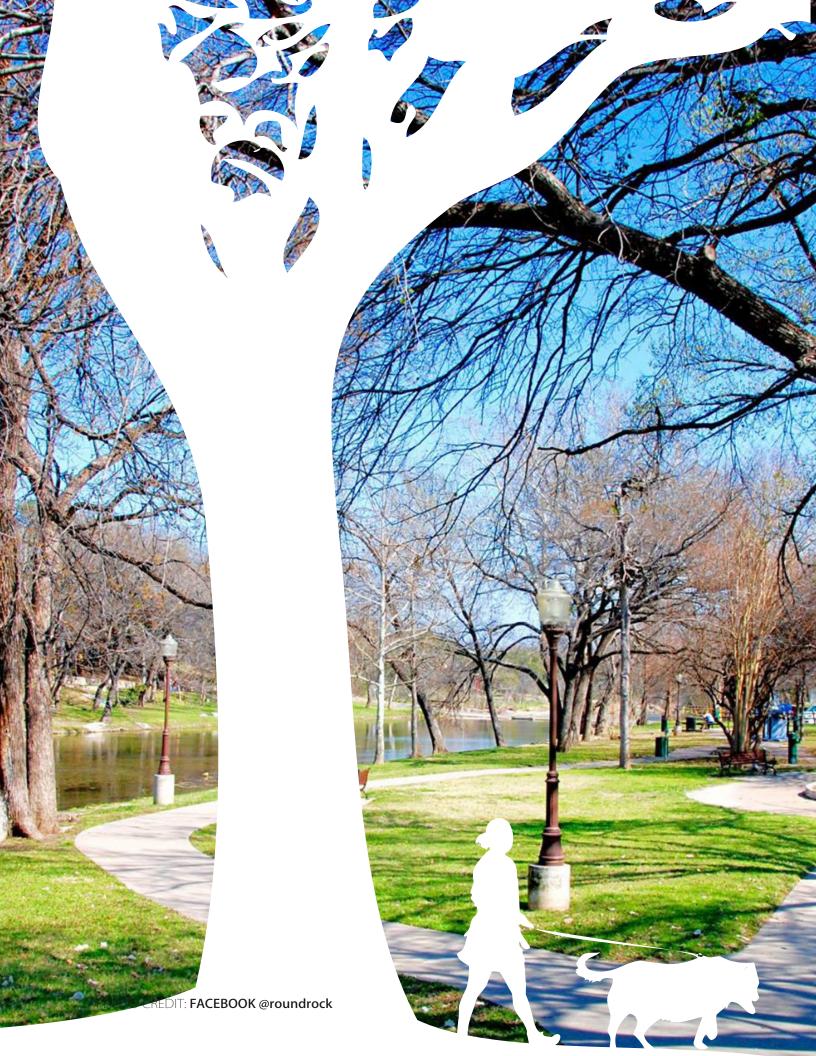
The city also requires a ten-foot shared use path on one side of all arterial class roadways on one side at a minimum and an eight to tenfoot shared use path on collector class roadways. The City of Round Rock has initiated the Sidewalk Gap Program. The program is intended to increase connectivity by maximizing opportunities for walking, while enhancing: safety, convenience, and strategic improvements, in addition to expansion of the City's sidewalk system.

Currently, the Sidewalk Gap Program consists of:

- Constructing five-foot (5') wide sidewalks along portions of South Mays Street, from West Logan Street to Gattis School Road
- Constructing four-foot (4') wide sidewalks along sections of Somerset Drive and Peachtree Valley Drive
- Constructing five-foot (5') wide sidewalks along segments of Greenlawn Boulevard from Gattis School Road to Dell Way.

A large portion of these proposed sidewalk paths will eliminate gaps in the permanent sidewalk network. Many of the gap areas are currently characterized by a dirt trail due to constant pedestrian use.

The Sidewalk Gap Program will enhance the overall sidewalk network in Round Rock by providing a safe, barrier free route with improved connection to origins and destinations.



Trails

At the time of this update, Round Rock has over 40 miles of trails throughout the City. The City of Round Rock has built three linear/linkage trails: the Brushy Creek East Trail, Kensington Trail and the Greater Lake Creek Trail. The other city-built trails are looped trails within parks and do not connect to other destinations or neighborhoods.

In November 2013, Round Rock residents showed their support for the Parks and Recreation Department by approving a bond proposition for \$56.5 million for trail and park improvement projects. Several trails improvements projects are underway as a result of the bond.

- Heritage Trail West: Improvements are planned for Bathing Beach Park, Chisholm Trail Crossing Park, and Memorial Park, as well as a pedestrian overpass at Chisholm Trail Road and a pedestrian underpass at IH-35.
- Heritage Trail East: Includes improvements to a newly acquired piece of land along Heritage Circle, design of a destination playground, and a pedestrian bridge over Brushy Creek.
- Brushy Creek Trail from Veterans Park to Rabb Park: This project fills in a major gap along the Brushy Creek Trail. It will include a 10-foot wide concrete trail, a pedestrian underpass at Georgetown Street, and signage.
- Lake Creek Trail from Round Rock West Park to Centennial Plaza: This trail segment is a vital connection between Western Round Rock and Downtown. The project will include a 10' wide concrete trail, pedestrian underpass at IH-35 and the frontage roads, and a pedestrian bridge over Lake Creek.

To help guide the growth of Round Rock's park and trails system, Game Plan 2020: Building an Active Community, was adopted in 2009. It is a compilation of the City's goals and strategies to acquire parkland to keep up with Round Rock's growth and to expand recreational offerings. More than 2,750 residents contributed to the development of the plan through public meetings, surveys and interviews. As stated in Game Plan 2020, "during the public input process, the one amenity that residents of Round Rock consistently wanted was more trails. Hike and bike trails are moving from the traditional recreational use to a mode of alternative transportation. By connecting residents to locations such as schools, public spaces, neighborhoods, places of employment, and retail destinations, the City gains a healthier more active and close-knit community. Developing more interconnected trails throughout all portions of Round Rock will increase the mobility of residents; and increasing mobility and connectivity was one of the key strategies of Game On 2060 Plan."

Linear Trails

- Brushy Creek East Trail1.25 miles
- Greater Lake Creek Trail 2.25 miles
- Behrens Ranch Greenbelt Trail 1.53 miles
- Brushy Creek MUD Trail
- Brushy Creek Regional Trail 3.90 miles
- Chandler Creek Trail 0.82 miles
- Dell Trail 2.12 miles
- Fern Bluff MUD Trail 5.54 miles
- Hidden Glen Trail 0.30 miles
- Kensington Trail 0.53 miles
- Lake Forest Trail 0.78 miles
- Sam Bass Trail 1.37 miles
- Sendera Springs Trail 0.43 miles
- Stone Oaks Trail 0.23 miles
- Vista Oaks Trail 0.41 miles
- Woods MUD Trail 1.05 miles

Looped Park Trails

- Looped Trails within Neighborhood Parks ALL Varies 3.02 miles
- Old Settlers Park Trail NE 4.78 miles
- HOA Amenity Center Trails 3.82 miles
- Southwest Williamson County Regional Park Trail NW 3.05 miles

Other Factors

Environmental Constraints

Portions of the City of Round Rock lie within the Edwards Aquifer Transition Zone and Recharge Zone. The Edwards Aquifer is a major aquifer in Central Texas that provides water for municipal, irrigation and recreational purposes. Several waterways also flow through the City, providing natural beauty and recreation, such as Meadow Lake, Bright Lake and Brushy Creek. These waterways also create floodplains that create development constraints and wetlands that must be protected. The City of Round Rock's stormwater management permit from the Texas Commission on Environmental Quality implements best management practices to keep development from negatively impacting the aquifer and waterways.

Other environmental constraints that should be considered are detailed in the 2004 Transportation Master Plan. These include approximately 90 archaeological/historical sites, many of which are located near Round Rock creeks. The city generally does not lay within any designated critical habitats for federally endangered species, however, some species may be found west of IH-35. Prior to construction of new facilities, additional studies should be made to determine exact environmental constraints and impacts.

Traffic Generators

A traffic generator is any place that contributes to traffic in the network. This can be an office, a school or even a home. Places that generate large amounts of traffic can influence traffic volumes and flow patterns that can affect the network, often during peak times. Development and growth in the City of Round Rock have contributed to several large traffic generators that impact the transportation network, and increased demand on some existing facilities that now serve a larger community.

- Texas State University
- Austin Community College
- Texas A&M Round Rock Campus
- Round Rock Premium Outlets
- IKEA
- Dell Technologies, Inc.
- Dell Diamond
- Round Rock Independent School District
- Parks and Recreation Facilities
- Downtown Round Rock

WATER RESOURCES, ENDANGERED SPECIES AND LAND FEATURES CAN IMPACT DEVELOPMENT.

LARGE DEVELOPMENTS TEND TO GENERATE MORE TRAFFIC, WHICH IN TURN CAN **IMPACT THE ENVIRONMENT.**



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4) Travel Demand

The 2040 demographic and land use forecasts as well as the long-range transportation improvements embedded in the CAMPO model are considered to project the future travel pattern in the future scenario. New roads and roadway improvements that are programmed to be built in future years are also programmed in the model, helping to provide a more accurate simulation of future traffic conditions. These include improvements from:

- 2004 Transportation Master Plan
- Unadopted 2010 Transportation Master Plan
- Williamson County's 2035 Long Range Transportation Plan (LRTP)
- Transportation projects listed in the City of Round Rock's official website
- Transportation projects listed under Williamson County Road Bond official website
- Long-range transportation improvements embedded in the CAMPO model for year 2040

Travel Demand Model

CAMPO's regional travel demand model served as the primary model used to forecast travel demand and traffic needs in the City of Round Rock. The CAMPO model simulates travel on the entire highway and transit system in the counties of Bastrop, Burnet, Caldwell, Hays, Travis, and Williamson Counties in Texas. It provides useful and detailed data relating to the transportation system in Central Texas, including traffic volumes, congested travel speeds, vehicle miles traveled, and average travel times.

The CAMPO model is a trip-based model and uses a traditional Four-Step Transportation Forecasting process:

- 1. Trip Generation: Trips are produced as a function of land use.
- 2. Trip Distribution: What is the origin and destination of the trip?
- 3. Mode Choice: How is the trip made?
- 4. Trip Assignment: What route choices are made to reach the destination?

This Four-Step process is used to evaluate average traffic volumes and any transit ridership, based on the available population and employment forecasts, projected highway travel conditions, and projected transit service. Long used by transportation planners, the Four-Step process looks at the typical sequence of how we travel and the choices made during each trip.

The CAMPO model was used to develop a detailed sub-area model for the City of Round Rock. This detailed model of Round Rock served as the primary tool for analyzing five different future transportation scenarios for the Transportation Master Plan Update.

- Base Year Scenario: The Year 2010 was established as the base year conditions. Existing conditions within the network were evaluated and inventoried to provide a baseline for project growth and future travel demand.
- Scenario 1 represents an evaluation of the of the roadway network conditions as proposed in the long-range transportation plan of CAMPO for year 2040.
- Scenario 2 provides an evaluation of year 2040 demographic and roadway network conditions on an updated roadway network after implementing proposed improvements in different transportation plans (Williamson County LRTP, Mobility35 and CORR).
- Scenario 3 focuses on incorporating major collectors in 2040 transportation network that connects major arterials.
- Scenario 4 evaluates a 'right-sized' roadway network for year 2040 based on volume to capacity ratios using Scenario 2 criteria
- Scenario 5 evaluates a 'right-sized' roadway network for year 2040 based on volume to capacity ratios using Scenario 3 criteria

Within the sub-area model, these future year scenarios look at projected population and employment growth, future land use and future developments.

Performance Measures

The travel demand modeling process focused on three measures of transportation system performance including:

Volume-to-Capacity

V/C is a conventional level-of-service (LOS) measure for roadways, comparing roadway demand (vehicle volumes) with roadway supply (carrying capacity). This measure can alert transportation providers to areas where traffic mitigation measures should be considered. Each roadway, based on roadway functionality in the model, is assigned with an estimated capacity in terms of maximum number of vehicles it can carry before experiencing operational failure. The model provides a count for the number of cars in the network, and this count is calculated against network capacity, or how many roads and travel lanes are available. In the past, exceeding a V/C ratio of 0.85 was considered a capacity deficiency. Today, a V/C of 1.0 is considered a more appropriate threshold due to a greater awareness of environmental issues, providing for multimodal choices, limited financial resources, and system operations.

Planners use the LOS results to identify where demand will increase within the network, and what the conditions will be in that particular snapshot. Factors such as speed, volume of traffic, maneuverability, safety, and driving comfort are just some of the measures-of-effect used to describe LOS. When LOS levels in the model deteriorate, planners can identify potential improvements that will help to improve LOS levels and keep roadways and intersections operating efficiently, safely, and smoothly.

Vehicle Miles of Travel (VMT)

VMT is a measure of cumulative distance traveled by all of the trips within the study area. It provides a measure of the total magnitude of travel and provides an indication of air quality and other quality-of-life measures.

Vehicle Hours of Travel (VHT)

VHT is a measure of cumulative duration of all the trips within the study area and provides an indication of system delay, speed and congestion impacts.

Model Application and Results

Of the five different future transportation scenarios analyzed for the TMP Update, two were selected for further analysis. Several performance measures pertaining to projected travel demand were summarized from the outputs of the travel demand model.

Scenario 1 (2040) Travel Conditions

Scenario 1 represents an evaluation of the of the roadway network conditions as proposed in the long-range transportation plan of CAMPO for year 2040. This is considered the no-build condition for comparison purposes. According to CAMPO forecasts, the City's population in 2040 is projected to grow by 134% and employment by 305% from year 2010. The model results indicate this robust growth would place a heavy demand on the City's transportation system. Maps depicting Scenario 1 traffic volumes and V/C results are provided in the Appendix.



THE POPULATION OF **ROUND ROCK HAS GROWN BY 72**[%] SINCE THE YEAR 2000. CAMPO PREDICTS THE POPULATION WILL **GROW TO OVER 335,000 BY THE YEAR 2040**.

Scenario 5 (2040) Travel Conditions

Enhancements along the existing roadways and new roadways are incorporated to forecast travel patterns in the year 2040. Figure 4-1 illustrates the estimated PM peak level of service and traffic volumes for the year 2040.

The major collectors in the proposed 2040 transportation network connect major arterials and model a 'right-sized' roadway network based on volume to capacity ratios. show a better V/C ratios along the major arterials including University Blvd., Old Settlers Blvd., Sam Bass Road, US 79 and A.W. Grimes Blvd. compared to the no-build scenario.

A summary of the performance measures for the different modeling scenarios are summarized in Table 4-1.

The VHT measure indicates that for both AM and PM peak periods, the 'right-sized' ultimate transportation network will reduce 15% and 22% cumulative duration of all the trips respectively compared to the nobuild scenario. For the PM peak period, the V/C of the roadways by functional class (freeways, arterials and collectors) are compared between Scenario 1 and Scenario 5 models in Table 4-2. The percent of roadways in each group has shown a significant improvement in terms of V/C ratio in Scenario 5 compared to Scenario 1.

For the arterial roadways, only 6% of roadways have V/C over 1.0 in the ultimate network compared to 27% having V/C over 1.0 in the nobuild condition.

Table 4-1: Study Area Vehicle Miles Traveled

	Study	Study Area VMT			Study Area VHT			
	area lane miles	АМ	РМ	Daily	AM	РМ	Daily	
Scenario 1	691	1,190,528	1,558,872	6,838,776	43,110	69,994	237,028	
Scenario 5	883	1,244,477	1,625,973	7,098,297	36,473	54,888	202,038	

Table 4-2: Volume-to-Capacity of Roadways by Functional Class

	Scen	ario 1	Scenario 5						
	Lane Mile	% of Links (by Lane mile)	Lane Mile	% of Links (by Lane mile)					
Freeway/Frontages/Ramps/DCs/Toll Roads									
V/C<=0.8	67.55	35%	87.22	46%					
0.8 <v c≤1.0<="" td=""><td>50.81</td><td>27%</td><td>55.52</td><td>29%</td></v>	50.81	27%	55.52	29%					
V/C>1.0	73.20	38%	48.37	25%					
		Arterials							
V/C<=0.8	180.44	38%	376.54	59%					
0.8 <v c≤1.0<="" td=""><td>162.94</td><td>35%</td><td>226.78</td><td>35%</td></v>	162.94	35%	226.78	35%					
V/C>1.0	127.68	27%	37.49	6%					
Collectors									
V/C<=0.8	10.63	39%	27.33	55%					
0.8 <v c≤1.0<="" td=""><td>6.82</td><td>25%</td><td>11.11</td><td>22%</td></v>	6.82	25%	11.11	22%					
V/C>1.0	10.05	36%	11.58 23%						



Figure 4-1: Scenario 5 Network 2040 PM Volume to Capacity

PERFORMANCE MEASURES PROVIDED ANALYSIS FOR **TWO TRANSPORTATION SCENARIOS.**

5 Design Policy and Long-Range Planning

Existing Documents and Policies

The City of Round Rock has developed several plans to help guide transportation policy and growth. Planning efforts also seek to coordinate with neighboring cities and counties, and local, regional and state agencies. Design policy and guidelines in these planning documents often follow best practices and design standards recommended by state and federal agencies, such as the United States Department of Transportation and the Institute of Transportation Engineers.

Places and Spaces: General Plan 2020

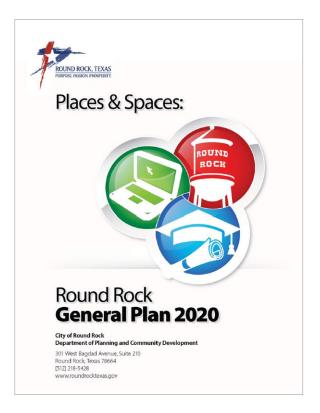
The City's official policy document guiding growth and development is called Places and Spaces: General Plan 2020. Through an extensive public outreach process, the Planning and Community Development Department prepared the City's General Plan in 2000, and updated it in 2013. Over that period, growth in the City of Round Rock has continued at a rapid pace. In order to address growth and the corresponding challenges, the General Plan covers topics ranging from transportation and utilities to community design and quality of life.

The General Plan addresses proper planning of an effective street system and is a primary concern. Since streets are an expensive and fairly permanent feature of a city, it is important that the functional relationship between the various types of streets is clear and effective.

Transportation recommendations within the Transportation chapter of the General Plan include:

• Developing a transportation system that balances pedestrian, bicycle, automobile, and transit links to destinations both work and non-work related;

- Taking care to plan for the future of the transportation network in order to avoid costly mistakes;
- Creating amendments to City ordinances and policies as required to protect future right-of-way requirements;
- Designing the City's roadways for compatibility with current land uses;
- Conducting corridor studies resulting in a comprehensive street tree program;
- Investigating a public transit loop connecting the Avery mixed-use area to the multimodal transit facility at West Main and Brown Streets; and
- Ensuring arterials are designed for future growth and have room to accommodate potential future bus turn-bays.



Identifying and planning for increased pedestrian and bicycle connectivity and mobility is one of the highest priorities of this section of the General Plan. Recreation and open space infrastructure, such as trail connections, are seen as important in attracting and retaining crucial target businesses. Trails and bike lanes also allow access to schools, jobs, businesses and other key destinations. The General Plan cites the City's Parks and Recreation Master Plan (Game Plan 2020) goal to triple the number of trail and greenbelt miles in Round Rock. Noting strong public support, the General Plan calls for a comprehensive hike and bike trail system, as well as the need to preserve and improve open space as the city accommodates growth.

In addition to the General Plan, there are ten policy documents that set forth transportation policies and recommendations, written at various times before and after adoption of the General Plan. These documents have helped to inform the update of the Transportation Plan.

Game Plan 2020: Building and Active Community; Strategic Parks and Recreation Master Plan (2010)

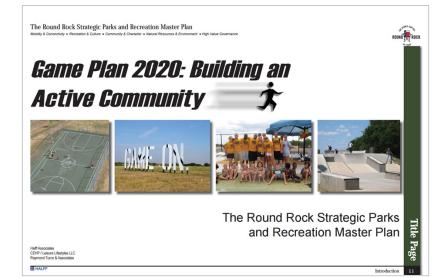
To increase mobility and connectivity, Game Plan 2020 highlights the importance of providing a system of trails, greenbelts, and open space to increase the health and social opportunities of residents, as well as providing for alternative methods of active transportation to key destinations. It also notes the added benefit of relieving traffic congestion and the potential for a well-developed system of parks, trails and open space to attract future businesses and residents, thus contributing to the sustained economic vitality of the City. The Plan noted that the desired amenity most often mentioned by citizens was additional hike and bike trails.

Game On 2060: Strategic Plan for the City of Round Rock (2009)

The Strategic Plan, written in 2009, examines strategies for how to guide and harness Round Rock's anticipated growth to create a city that is economically vibrant and sustainable, and that offers an exceptional quality of life. Mobility and connectivity are seen as central to the City's growth strategy and is listed as one of the "Seven Experiences" the City of Round Rock promises its residents and visitors. In order to provide an attractive quality of life, it must be easy to move around the City. The Strategic Plan calls for a diversity of transportation options to be made available, including sidewalks and trails for bikes and pedestrians connecting the City's neighborhoods, businesses, and attractions. For Round Rock to be considered truly accessible, the Plan emphasizes that the City's roadways must not be overly congested and people with physical challenges must be able to move easily around the City.

The Mobility Goals listed in the Strategic Plan are as follows:

- Identify and plan for future connectivity and mobility needs;
- Foster transportation systems that support the development of major density centers;
- Develop funding source mechanisms for mobility and connectivity construction and maintenance;
- Construct major elements of the transportation and mobility system as approved by Council in the Transportation Master Plan; and
- Develop a public transportation plan.



Downtown Master Plan (2010)

The Downtown Master Plan was developed through a community visioning process designed to conceptualize the future of downtown Round Rock. The document lays out a plan to create a thriving, pedestrian-friendly central district. Facilitating ease of pedestrian mobility to and from Downtown activity centers is also an important priority in the Plan. The Plan laid the foundation for a Form-Based Code, which has since been incorporated into the City's Land Development code.

Other transportation design guidelines within the Downtown Plan include:

- Scaling streets appropriately to their use
- Placing parking lots behind buildings rather than along streets
- Avoiding dead-ends and street closures
- Providing well-designed sidewalks to encourage safe pedestrian use
- Including bulb-outs to shorten crossing distances at intersections
- Planting street trees along every street in the Master Plan Area
 Another area recommended for reprogramming by the Plan is Palm
 Valley Blvd., which would receive new signalized crossings, special paving, and new buildings oriented

Round Rock Downtown Improvement Plan (2016)

to the street (with parking behind).

The recently completed Downtown Improvement Plan (DIP) establishes a phased program of public



improvement projects to implement the recommendations of the Downtown Master Plan. The DIP calls for greater redundancy in the network of circulator streets between Georgetown Street and Round Rock Avenue (including the McNeil extension and the Lincoln Street connection to Round Rock Avenue) to relieve congestion on Main Street, allowing it to be improved as a more pedestrian intensive street. In addition to street design standards, the Plan proposes the creation of a downtown parking district with public parking facilities to promote a park-once behavior.

Round Rock Transit Plan (2015)

The Transit Plan describes existing services in Round Rock, which include Demand Response shuttles, Drive-a-Senior, Capital Metro Rideshare vanpool, and regional connections operated by Capital Metro and CARTS. Using census data, areas of high population density, young adult and senior populations, low income households, car-free households, and transit propensity were determined and mapped. The Report also details employment patterns to determine where the City's employees live and work. Similarly, student housing and transportation are charted geographically. The Transit Plan noted the pedestrian environment as having several obstacles that could be deterrent to widespread transit use and connectivity. However, the Plan's assessment notes that Downtown is made much more pedestrian-friendly by its traditional grid pattern, shorter blocks, marked crosswalks, accessible signals and ramps.

Round Rock Comprehensive Transportation Master Plan (2004; Updated 2010)

As discussed earlier in this report, the Round Rock Comprehensive Transportation Master Plan's goals were to recommend improvements necessary to develop an adequate transportation system, ensure that the dedicated half-cent sales tax is used efficiently and to identify major deficiencies in the transportation network. The Transportation Master Plan Maps set forth a network of two, four and six-lane roadways, bicycle lanes, and existing and proposed trails.

Williamson County Long-Range Transportation Plan (2009; Updated 2015 and 2016)

The first Long Range Transportation Plan was adopted in 1999 with the goal of responding to anticipated population growth. The most recently adoped version of the plan, completed in 2009, utilizes CAMPO's updated 2030 Metropolitan Transportation Plan, reflecting new roadway projects, demographic information and proposed projects.

The county identified several projects for relief of highly congested areas, known as Bottleneck Projects.

Proposed Bottleneck Projects within Round Rock include:

- IH-35 at US 79
- FM 1460 at University Boulevard
- IH-35 at RM 620
- IH-35 at FM 3406
- US 79 at Redbud Ln.
- US 79 at Mays St.
- SH 45 at IH-35

In 2015 and 2016, updates to the LRTP provided additional mapping of the proposed facilities and roadway projects. The first update, in 2015, included a Conceptual Map of Proposed Controlled Access Facilities and two maps showing existing and amended zones for Proposed Projects for Central Williamson County. The following year, in 2016, a Conceptual Map of Proposed Arterial Facilities was published and the Proposed Controlled Access Facilities map was revised.

Project Connect (2010)

Project Connect, an initiative of Capital Metro Transit Authority, was an effort to engage cities and community stakeholders in a discussion of possible transit expansion north of Austin. Many participants agreed that transit could improve both traffic conditions and quality of life in the area. The City of Round Rock, as a result of the Transit Plan, has initiated bus service with Capital Metro.

Transportation Criteria Manual (2010)

Design standards for transportation facilities are described in the City's General Guidelines Design and Construction Standards (DACS). The Transportation Criteria Manual contains ten sections outlining procedures for Traffic Impact Analysis and detailed design specifications for roadways, sidewalk, bicycle and pedestrian facilities, as well as parking facilities.

ITE Context Sensitive Design Manual (2010)

The ITE Context Sensitive Design Manual promotes multimodal transportation systems that serve all users and are conducive to community environments, enhancing both livability and sustainability. Whereas conventional thoroughfare design had frequently been driven by traffic demand and level-of-service objectives, this ITE manual strives to balance goals of travel time and speed with issues of neighborhood design, livability, and safety, and with other transportation objectives related to freight deliveries, emergency response, local business access and transit operations.

DESIGN POLICIES AND GUIDELINES FOLLOW **BEST PRACTICES AND DESIGN STANDARDS.**

Balancing the Transportation Network

The City's long-range planning activities help to shape development as the city grows and evolves. Longrange planning also applies to a city's transportation network and can help to establish the building blocks for a balanced transportation network. A balanced network means communities have a range of choices for transport, including personal vehicles, walking, biking and public transportation.

The design approaches described in this section present innovative ideas and best practices.

Context Sensitive Design

Context Sensitive Design is an approach to transportation planning that seeks to preserve the character of the respective corridors and considers the adjacent communities. Recommendations in the Transportation Maser Plan Update are intended to preserve the environmental, scenic, aesthetic, historic, and natural resource values of the area, while ensuring maximum safety and efficiency.

Complete Streets Elements

Within a transportation network, different roadways are designed to serve different functions. For example, a major arterial street may serve high volumes of local traffic. Its main function is to move traffic through the network. A local street may serve a very different purpose. A local street's primary purpose may not be moving people from point A to point B. Local streets give access to smaller destination oriented areas, such as neighborhoods. Neighborhoods are the places communities gather, relax, and enjoy recreational activities, such as walking or jogging. Children may walk or bike to nearby schools. These streets should be safe, comfortable and welcoming.

Complete Streets are streets designed for everyone. The underlying themes of Complete Streets, community, connectivity, capacity, calming, choicesserve as guides to balance mobility goals with the goals for building community and protecting the environment. Complete Streets seek to enhance roadway capacity while balancing mobility needs across the network.

Green Streets

Green Streets implement an approach to stormwater management that uses native vegetation, soils and systems, such as permeable pavements, to filter and clean stormwater runoff from impervious surfaces like streets and sidewalks. Native plants reduce the need for irrigation and water consumption, while bio-swales and rain gardens intercept urban run-off, helping to reduce downstream flooding. Landscapes and streetscapes that follow Green Streets practices help to create aesthetically pleasing travel ways, enhance the pedestrian environment and improve drainage and water quality.

Multimodal Support

A balanced network supports multimodal transportation choices. Developing a transportation system that balances pedestrian, bicycle, automobile, and transit is one of the General Plan's goals for Round Rock's transportation network. A comprehensive trail system, robust sidewalk connectivity and right-sized city streets can build a foundation that supports multimodal transportation options. As connectivity for these modes improve, more opportunities will become available to add facilities supporting active transportation and public transit.



COMPLETE STREETS SEEK TO ENHANCE ROADWAY CAPACITY WHILE BALANCING MOBILITY NEEDS ACROSS THE NETWORK.

Managing Transportation Demand

Round Rock is one of the fastest growing cities in the nation. Mobility and connectivity are central to the City's growth strategy, and managing transportation demand is key to maintaining balance in the transportation network. Transportation Demand Management (TDM) utilizes a set of strategies, policies, and best practices to influence and regulate traffic. Managing demand can often be more costeffective than simply increasing capacity. Effective demand management can also have positive longterm benefits for the environment, communities and public health. Advances in technology provide city planners with a toolbox of TDM strategies that continue to improve in the age.

Intelligent Transportation Systems

Intelligent Transportation Systems (ITS) provide innovative solutions to traffic management. ITS enables real-time information about travel conditions to be readily communicated to various users of the network. This exchange of information allows users to be better informed and to make more educated, smarter choices about how and when they travel.

The Round Rock Transportation Department has been proactive in implementing ITS. In 2013, the City outlined a plan to improve the communication, operations, and data collection needed to step into the 21st century of traffic management. The City has already upgraded the wireless communication systems for traffic management and has installed

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cameras in high-congestion areas to help gather and communicate real-time traffic data.

This data is monitored at the City's Traffic Management Center (TMC). Traffic sensors throughout the network send data back to the TMC about travel times, congestion and incidents on the roadways. This information helps City staff manage and respond to problems in the network, and can be shared with the public. The City will be releasing a mobile app that can be used on smart phones, websites, and kiosks, to share traffic-relevant information.

Adaptive traffic control technology can also help to manage traffic demand. Adaptive traffic control measures traffic flow in real time and continuously optimizes signal timing based on actual demand, providing a better response to changes in traffic flow beyond the normal daily peak hours. An adaptive system will have more opportunity for success (reduce travel time, number of stops) if the adaptive network includes signalized intersections operated and maintained by adjacent jurisdictions. Old Settler's Boulevard (FM 3406) near IH-35 and Palm Valley Blvd. at the Sports Complex are potential candidates for adaptive traffic signal control.

Arterial dynamic message signs (ADMS) and trailblazer signs (TBS) can provide motorists with inroute traffic information and travel times. Information such as 'ACCIDENT IH-35 SOUTHBOUND' or direction information regarding a special event can be displayed and updated as needed to provide travelers with real-time information.

RRTX*Mobile

PHOTO CREDIT: FACEBOOK @roundrock

Some potential locations for ADMS include:

- 1. University Boulevard WB east of IH-35
- 2. FM 1431 EB west of IH-35
- 3. E Palm Valley Blvd WB east of Red Bud Lane
- 4. RR 620 EB west of Wyoming Springs Dr.
- 5. Gattis School Rd WB east of S A.W Grimes Blvd

Access Management

Access management is the practice of regulating driveways and other points of access from city streets to the developments and destinations along them. Too many access points, especially close to each other, can increase congestion and conflicts, and encourage dangerous maneuvering as drivers attempt to reach their destinations.

City planners can establish access management practices that result in safer streets and improved traffic flow. Some best practices for access management include:

- Roads with higher speed limits should have fewer access points to reduce potential crashes caused by a need for longer driver reaction times.
- Intersections and driveways should be spaced with enough distance between them so they do not contribute to traffic 'piling up' on the roadway.
- Traffic signals and stop signs should also be spaced along roadways to minimize traffic queuing at intersections. Traffic signals that are too close together can 'capture' vehicles on the roadway, increasing congestion, or result in traffic 'backing up' through intersections.
- Separate left-turn and right-turn movements from through movements when possible at the intersections.

• Raised medians with breaks for turning are safer than continuous center-turn lanes by reducing potential conflicts and dangerous maneuvering

Successful access management programs provide safe and efficient access to businesses, institutions and residences, keep traffic flowing optimally along streets, and enhance the overall safety and mobility of the transportation network.

Wayfinding

Wayfinding refers to information systems that provide guidance to people traveling through physical space. These systems can include signage, symbols, maps and color coding. Similar to the standard guide signs used throughout U.S. highways, cities often develop and implement distinct signage unique to their own historic districts, business districts, university campuses and downtowns. Distinct signage systems, when developed consistently and strategically placed, can establish a well-marked route to destinations of import and interest.

Some wayfinding signing systems already exist in the City of Round Rock. Directional signage at the Round Rock Premium Outlets and IKEA shopping centers provide guidance for internal circulation. This system could be expanded to provide more robust visual appearance, and to provide guidance for residents and tourists looking to travel to other destinations within the City, such as downtown Round Rock, parks and recreational areas, or Dell Diamond.

SUCCESSFUL ACCESS MANAGEMENT PROGRAMS KEEP **TRAFFIC FLOWING OPTIMALLY** AND **ENHANCE SAFETY AND MOBILITY** THROUGHOUT THE NETWORK.

6) Recommendations

Thoroughfare Plan

The Thoroughfare Plan for the City's transportation network has been updated for a growing population. Preserving right-of-way, providing capacity and planning for better connectivity were primary factors during this update. The Thoroughfare Map establishes recommended alignments for new roads within the City of Round Rock. It also makes recommendations for widening and improvements on existing roads where traffic demand is expected to increase and additional capacity may be required. Construction of new roads and improvements is often determined based on need and funding. Once need can be established, planners can select a roadway for preliminary engineering analysis. Final alignments and cross-sections can be determined during this phase of the planning process. The Thoroughfare Plan will serve as a roadmap to planners as they continue to build out the City's transportation network.

The General Plan sets forth goals for Round Rock's transportation network that plan for future mobility and connectivity throughout the network. Taking care to plan for the future of the transportation network by updating the City's Thoroughfare Plan is an important component in avoiding costly mistakes.

The 2017 Thoroughfare Plan classifies the City's roads and streets into four categories:

- Freeway facilities
- 6-lane facilities (three travel lanes each direction)
- 4-lane facilities (two travel lanes each direction)
- 2-lane facilities (one travel lane each direction)

The road network is further detailed as existing, enhanced, or proposed facilities. Enhanced facilities are roads where future improvements will be needed to improve mobility or enhance multimodal safety. Proposed facilities may be built to improve connectivity across the network, and could provide alternate routes to help alleviate congestion on existing facilities.



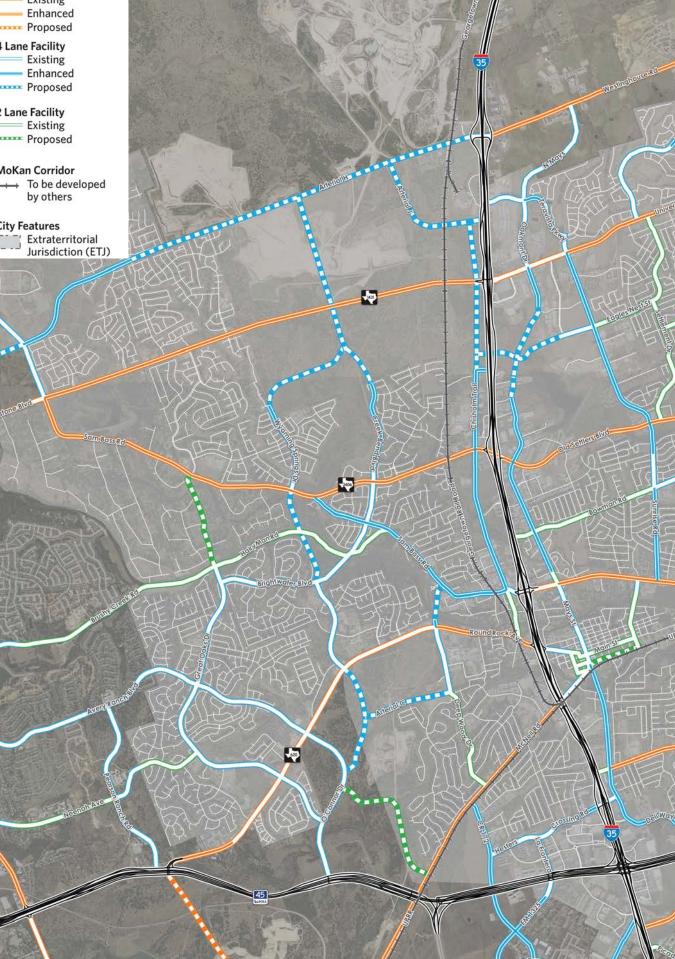


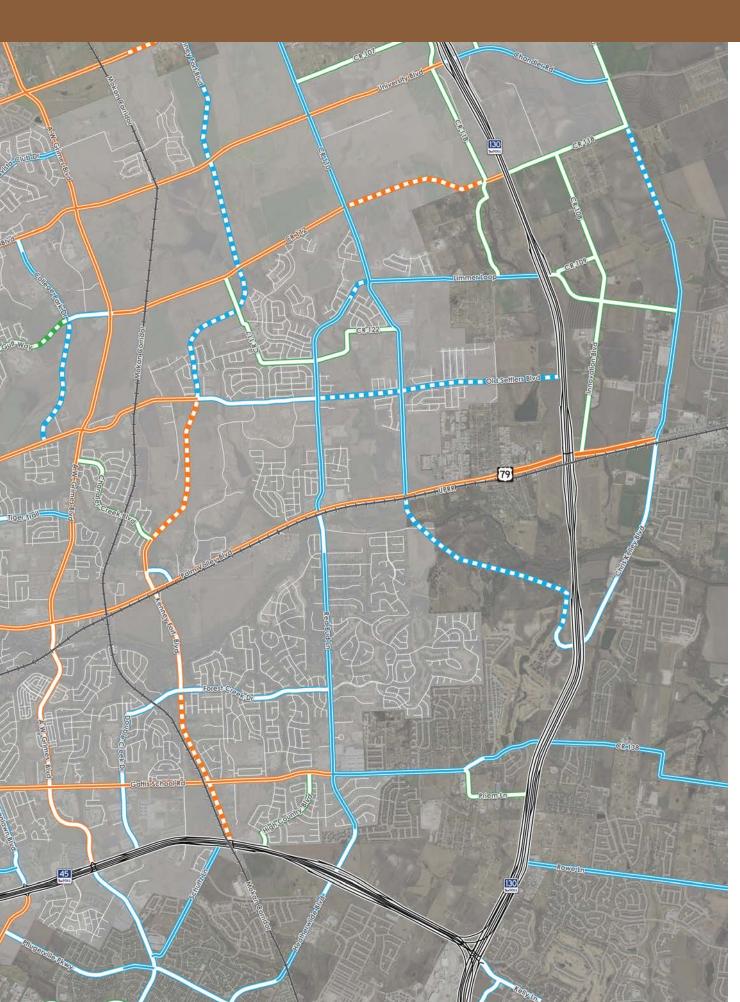
LEGEND

----- Freeway Facility



FIGURE 6-1: THOROUGHFARE PLAN





Improved Roadway Network

The proposed street types and cross sections of the Transportation Master Plan have been developed in response to the policies set forth in Round Rock's General Plan - Places and Spaces, originally written in 2000 and updated in 2013. These policies emphasize the importance of balancing automobile mobility with pedestrian, bicycle and transit needs within public rights-of-way. It calls for roadway design to promote compatibility with adjacent land uses, the need to improve walkability and traffic calming particularly in the Downtown and neighborhoods, and the value of

street trees as a way of improving community and environmental quality.

The cross sections span the complete range of roadway types from six-lane arterials to local residential streets. Common to all of these street types are: the provision of continuous pedestrian pathways separated from moving traffic and shaded by street trees planted at the curbside; shared off-street bicycle paths on collectors and arterials; and adequate lane widths to provide for efficient vehicular circulation. Pedestrian and bicycle safety and comfort are given high priority in the proposed cross sections.

The four and six-lane arterial roadways are planned in rightsof-way varying from 110 feet to 150 feet respectively. These street types all have landscaped medians, up to 28 feet in width to provide adequate room for left turn lanes and a pedestrian refuge to allow for safe crossing of these wide corridors. The medians also offer opportunities for the capture and filtering of urban run-off.

A range of two and three-lane collector streets in rights-of-way varying from 70 to 90 feet in width are suited to a variety of land use conditions. For instance, on-street parallel parking along three-lane collector roadways provide a safe buffer between pedestrian/ bicycle and vehicular traffic, and a supportive environment for commercial or residential development. Diagonal parking is also proposed along collector streets in areas of the city with pedestrian-intensive commercial districts like the Downtown. At intersections bulb-outs are proposed to "shadow" the on-street parking and to reduce the crossing distance for pedestrians.

Traffic calming and pedestrian safety are factors in the design of the two-lane local residential streets in rights-of-way varying from 52 to 61 feet in width. On-street parking promotes reduced travel speeds, allowing for shared bicycle use, and a safe buffer for pedestrians. In low intensity neighborhoods, a 30-foot wide street could be striped with parking on one side, or serve as a "queuing street" with parking allowed on both sides of the street.

CROSS-SECTIONS PROVIDE DESIGN GUIDANCE FOR INFRASTRUCTURE AND LANDSCAPING ALONG ROADWAYS.

SIX-LANE ARTERIAL WITH OFF-STREET SHARED PATHS

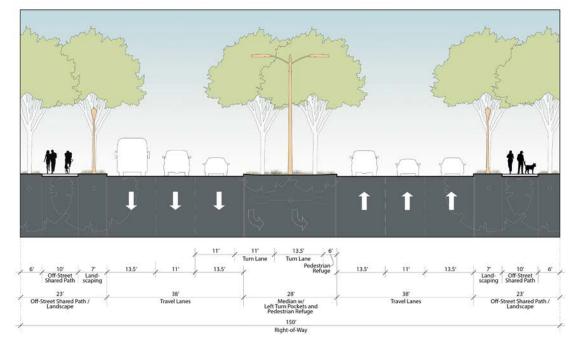
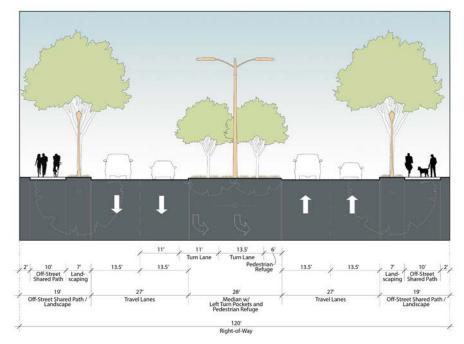


Figure 6-3: Four-Lane Arterial Cross Section

FOUR-LANE ARTERIAL WITH OFF-STREET SHARED PATHS



THREE-LANE COLLECTOR WITH SHARED PATHS AND PARKING

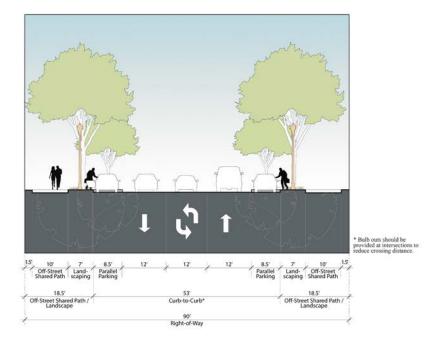
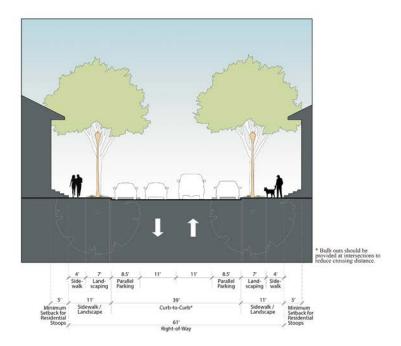


Figure 6-5: Two-Lane Local Street Cross Section

TWO-LANE LOCAL STREET WITH PARKING



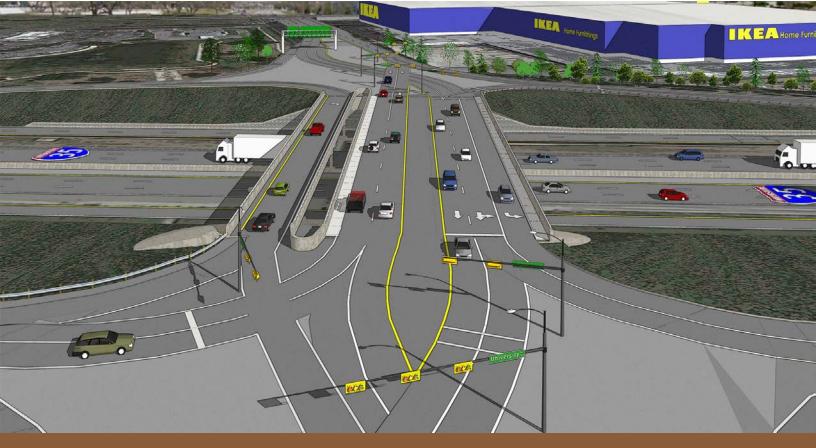


To prioritize intersection improvement recommendations, a ranking of the top 25 intersections in need of improvements was developed based on recorded crash data obtained from TxDOT's CRIS database and public comments received through the Transportation Master Plan Survey.

The following methodology was used to rank the Top 25 intersections shown in the table below. First, the total number of crashes and total number of public comments were compiled into a table for all intersections. Next, the full set of intersections was truncated to a set of 40 candidate intersections which encompassed all intersections in the top 25 for either crash frequency or public comments (discussed in previous sections). Total crashes and total public comments were then normalized across the 40 candidate intersections. Intersections were then ranked based on the sum of normalized crashes and normalized public comments. Lastly, the rankings were inspected for reasonableness and one manual adjustment was made based on crash frequency - Mays Street & US 79/Palm Valley Boulevard (crash rank #27) was removed from the

top 25 and replaced with Mays Street & Liberty Avenue (crash rank #12).

These 25 intersections are shown in the table below along with any on-going or planned improvement projects. Planned projects were identified through the City of Round Rock, Mobility35, and TxDOT Project Tracker websites. For projects with no planned improvements, potential short-term improvements are identified which are low cost and would require minimal road reconstruction, such as adding a turn-lane or reconfiguring lane assignments within the existing pavement width.



DIVERGING DIAMOND INTERCHANGE AT IH-35 AND UNIVERSITY BLVD.

Table 6-1: Intersection Improvements

Intersection	Rank	Improvements (*Indicates improvement currently under plan by TxDOT, City of Round Rock, or others)		
A.W. Grimes Blvd. and Gattis School Road	1	 Add southbound and northbound dual left-turn lanes. Add separate right-turn lanes at all approaches. 		
IH 35 Blvd. and Round Rock Avenue (RM 620)	 Southbound Frontage Road: *1) Add southbound and eastbound right-turn lanes. *2) Add auxiliary lane between northbound-to-southbound U-turn and downstream southbound entrance ramp. Northbound Frontage Road: *1) Extend northbound right-turn lane. *2) Reconfigure lane assignments (e.g., restripe northbound left-turn-only lane as left-turn/through-shared lane). 			
IH 35 Blvd. Louis Henna Blvd. (SH 45 FR)	3	*1) Improve traffic signal (Construction scheduled)2) Add/extend U-turn and right-turn acceleration lanes at all approaches.		
IH 35 Frontage and University Blvd.	4	Diverging diamond interchange was completed in 2016.		
Red Bud Lane and Gattis School Road				
IH 35 Frontage and Old Settlers Blvd.	б	 *1) Widen existing bridge and improve bike/pedestrian accommodations. *2) Construct two U-turn bridges. (In-Construction, Anticipated Construction End 2019) 		
IH 35 Frontage and Palm Valley Blvd. (US 79)		Northbound Frontage Road: *1) Add northbound left-turn/through-shared lane. *2) Add northbound through-only lane. *3) Add 4th westbound through-lane. *4) Add 3rd northbound receiving lane. Southbound Frontage Road: *1) Extend southbound-to-northbound U-turn lane. *2) Add 3rd westbound left-turn lane.		
IH 35 Frontage and Hesters Crossing Road	9	 Southbound Frontage Road: *1) Reduce curvature in advance of southbound frontage road approach. *2) Extend southbound right-turn lane. 3) Remove permitted phase for Hesters Crossing westbound dual left-turn onto southbound frontage road. 		
IH 35 Frontage and McNeil Rd.	10	 Southbound Frontage Road: *1) Add sidewalks along southbound frontage road. Northbound Frontage Road: *1) Reconfigure lane assignments on northbound frontage road (e.g., restripe left-turn/through-shared lane as through-only lane). 		



Table 6-1, continued: Intersection Improvements

Intersection	Rank	Improvements		
Mays Street and Old Settlers Blvd.	11	Operations at Old Settlers and IH 35 is a primary source of congestion at this intersection. Additional intersection improvements should be revaluated following completion of Mobility 35 improvements at Old Settlers and IH 35.		
A.W. Grimes Blvd. and Louis Henna Blvd. (SH 45 Frontage)	12	Extensions of Kenney Fort Blvd. and Double Creek Dr. are anticipated to reduce demand and improve congestion at this intersection. The need for additional intersection improvements should be revaluated after completion of the Kenney Fort Blvd. extension project.		
Mays Street and Gattis School Road	13	 *1) Add westbound right-turn lane. (Letting Anticipated Summer 2017) 2) Reconfigure lane assignments at westbound approach (Restripe to have dual left-turn lanes, one through lane, and one right-turn-only lane). 		
Red Bud Lane and Palm Valley Blvd. (US 79)	14	 Restrict left-turns from retail driveways (on Red Bud Lane, north of US 79). Reconfigure lane assignments at northbound approach (Restripe to have dual left-turn lanes, one through lane, and one through/right-turn-shared lane). 		
Deepwood Drive Round Rock Avenue (RM 620)	15	 *1) Widen RM 620 to six lanes with raised medians and right-turn lanes. *2) Add westbound bike lane. *3) Provide continuous sidewalks from Deepwood Dr. to IH 35. 4) Add pedestrian signal heads to southbound approach. 		
Chisholm Trail Road and Round Rock Avenue (RM 620)	16	 *1) Construct bridge for RM 620 through traffic over railroad and intersection. *2) Reconstruct Chisholm Trail Rd. intersection as at-grade roundabout. 		
Southcreek Drive and Gattis School Road	17	Extensions of Kenney Fort Blvd. and Double Creek Dr. are anticipated to improve congestion at this intersection by providing alternative routes. The need for additional intersection improvements should be revaluated after completion of the Kenney Fort Blvd. extension project.		
Sunrise Road and University Blvd.18Ianes at Oakmont Dr. and University Oaks Blvd. 2) Add southbound left-turn bay to improve visibility for permitted bound left-turn movement.		2) Add southbound left-turn bay to improve visibility for permitted south-		
Greenlawn Blvd. and Louis Henna Blvd. (SH 45 Frontage)	19	 Add eastbound and westbound through lanes to increase capacity. Restripe Greenlawn Blvd. south of SH 45 to allow free eastbound right-turn movements. 		
Oakmont Drive and University Blvd.	20	*1) Widen University Blvd. to six lanes with raised medians and dual left-turn lanes at Oakmont Dr. and University Oaks Blvd.		
Double Creek Drive and Gattis School Road				
Sunrise Road and Old Settlers Blvd.	22	No additional improvements beyond the Thoroughfare Plan recommended at this time.		
A.W. Grimes Blvd. and Old Settlers Blvd.	23	1) Consider removing permitted phase for northbound left-turn movements due to low visibility.		
A.W. Grimes Blvd. and University Blvd.	24	No additional improvements beyond the Thoroughfare Plan recommended at this time.		
Mays Street and Liberty Avenue	25	 *1) Add center two-way left-turn lane along Mays Street *2) Restripe crosswalks. 3) Consider installation of traffic signal. 		

Multimodal Improvements

Bicycle and Pedestrian

The City of Round Rock continues to evaluate its sidewalk system with a goal to provide connectivity where pedestrian facilities are lacking. The Sidewalk Gap Program has been initiated and will increase connectivity throughout the City of Round Rock. Five-foot sidewalks will be constructed along portions of South Mays Street and along segments of Greenlawn Boulevard. A four-foot sidewalk will be added along sections of Somerset Drive and Peachtree Valley Drive.

As roads are upgraded or added within the City, pedestrian and bike facilities will be included per guiding documents and City policies. As discussed in Chapter 5: Design Policy and Long Range Planning, the City of Round Rock maintains several planning documents and master plans to help guide transportation policy and growth.

Places and Spaces: General Plan 2020 calls for a comprehensive hike and bike trail system. The Plan acknowledges that trails and bike lanes allow access to schools, jobs, businesses and other key destinations. Transportation recommendations related to Parks and Open Space include:

- Completing at least 1.5 miles of trails in the downtown area to increase pedestrian/bicycle accessibility;
- Developing a trail between the downtown and University Center;
- Completing the Brushy Creek Trail System (between Hairy Man Road and Memorial Park);
- Developing a trail connection between the Brushy Creek Trail and Old Settler's Park;
- Improving the trail from Dell campus to Clay Madsen Recreational Center; and
- Developing nature trails in Behrens Ranch Park and Mayfield Park

Game Plan 2020: Parks and Recreation Master Plan highlights the importance of providing a system of trails, greenbelts, and open space to increase the health and social opportunities of residents, as well as providing for alternative methods of active transportation to key destinations. It notes an added benefit of relieving traffic congestion.

Game On, 2060: Strategic Plan for the City of Round Rock calls for a diversity of transportation options to be made available, including sidewalks and trails for bikes and pedestrians connecting the City's neighborhoods, businesses, and attractions.

Mobility and connectivity are considered central to Round Rock's growth strategy. This Transportation Master Plan update includes an update for the City's roadway cross sections. The cross sections recommend shared bike and pedestrian facilities along all classifications of roads in Round Rock.

Transit/Public Transportation

Capital Metro will begin operating four new routes in Round Rock. Anticipated to begin in summer 2017, the fixed-route services will provide more travel options to Round Rock residents and commuters.

The new routes will run north from ACC-Round Rock and the Round Rock Premium Outlets with options to ride into downtown Austin and UT Austin. As the new routes become established in the community, recommendations in the Round Rock Transit Master Plan suggest infrastructure improvements at key locations to provide for accessibility and pedestrian safety. The Transit Master Plan also recommends improvements in operational safety that will contribute to the overall success of the transit program.

These improvements include:

- Bus stops with amenities for riders
- Pedestrian-activated crosswalks
- Right-turn only lanes except buses
- Signal timing improvements
- Sidewalk extensions
- Addition of stop control devices at key intersections



7» Implementation

Prioritization of Improvements

Four objectives were utilized to establish a framework for criteria to evaluate and rank the improvement projects considered as part of Scenario 5, as highlighted in Chapter 4. The four objectives are:

- Enhance safety and mobility of the transportation system by improving traffic operations, roadway safety, and non-motorized traffic facilities.
- 2. Enhance system connectivity by improving neighborhood, regional, downtown, and activity center connectivity, improving the pedestrian and bicycle environment and transit connectivity.
- 3. Minimize negative environmental impacts by maintaining existing roadway and right-of-way footprint, where possible.
- 4. Minimize costs associated with construction.

Based on these objectives, it was determined that the following four strategic plan goals would apply for project-specific evaluation. These goals establish broad areas from which to develop quantifiable measures. The goals proposed for developing criteria measures include (relative weighting scores for the proposed goals in parentheses):

- 1. Safety and mobility (45%)
- 2. Connectivity (25%)
- 3. Environment (15%)
- 4. Cost (15%)

The criteria measures for these four general areas were evaluated together as part of one scoring matrix.

The outcome of this effort was a list of 55 projects, ranked 1 through 55. This list was then segmented into short-, mid-, and long-term improvements.



EARLY PROJECT DEVELOPMENT ENABLES PROJECTS TO BE **'SHOVEL READY'** WHEN FUNDING OPPORTUNITIES ARISE.

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SHORT-TERM IMPROVEMENTS PROVIDE IMMEDIATE IMPACT TO MOBILITY ENHANCEMENTS.

SHORT-TERM IMPROVEMENTS (2017-2020)

Corridor	Project Limits	Project Length (mi)	CIP Rank	Total Cost (2017 \$)
Mays Street	McNeil Road to Hesters Crossing	1.23	1	\$7,939,288
McNeil Road Extension	McNeil Road to Georgetown St.	0.52	2	\$5,404,994
US 79	Mays Street to A.W. Grimes Blvd.	1.66	3	\$9,319,564
Gattis School Road	Mays Street to Red Bud Ln.	3.76	4	\$34,803,267
Update ITS and Traffic Management Infrastructure	-	-	-	\$20.9M*

*Source: City of Round Rock Traffic Management System Improvement Study

MID-TERM IMPROVEMENTS (2020-2030)

Corridor	Project Limits	Project Length (mi)	CIP Rank	Total Cost (2017 \$)
A.W. Grimes Blvd.	US 79 to Old Settlers Blvd.	1.80	5	\$11,176,231
Round Rock Ave/RM 620	North of Shady Ln. to south of Cornerwood Dr.	0.24	6	\$2,353,681
US 79	A.W. Grimes Blvd. to SH 130	3.88	7	\$67,177,078
FM 3406/Old Settlers Blvd.	Sam Bass Rd. to Greenhill Dr.	3.08	8	34,918,059
Gattis School Road	Red Bud Ln. to Priem Ln.	0.56	9	\$3,624,468
Teravista Parkway	South of Centerbrook Place to west of Engadina Pass	0.20	10	\$1,739,001
Kenney Fort Blvd.	SH 45 to Forest Creek Dr.	1.46	11	\$21,412,128
Kenney Fort Blvd.	Joe Dimaggio Blvd. to Old Settlers Blvd.	1.73	12	\$28,276,013
Sam Bass Rd.	University Blvd. to FM 3406	2.12	13	34,235,126
Hesters Crossing Rd.	Dry Creek Dr. to west of IH 35 SBFR	0.32	14	\$2,680,564
Old Settlers Blvd.	Greenhill Dr. to Kenney Fort Blvd.	3.08	15	\$22,712,450
University Blvd.	Sunrise Rd. to A.W. Grimes Blvd.	1.98	1.98 16 \$16,486,65	
Round Rock Ave/RM 620	Deepwood Dr. to IH 35	wood Dr. to IH 35 0.92 17 \$27,028		\$27,028,968

RIGHT LANE MUST TURN RIGHT

PHOTO CREDIT CITY OF ROUND ROCK

LONG-TERM IMPROVEMENTS (2030-2040)

Corridor	Project Limits	Project Length (mi)	CIP Rank	Total Cost (2017 \$)
Kenney Fort Blvd.	Old Settlers Blvd. to Westinghouse Rd.	3.38	18	\$44,071,390
RM 1431/University Blvd.	Sam Bass Road to IH 35	4.08	19	\$69,430,497
Red Bud Lane	Forest Ridge Blvd. (south of US 79) to Cheyenne Valley Dr. (north of SH 45)	2.56	20	\$34,323,089
Sam Bass Road	FM 3406 to Chisholm Trail Rd	2.08	21	\$29,421,876
Gulf Way Extension	Gulf Way to Avery Nelson Blvd.	0.41	22	\$3,783,886
Sunrise Road	University Blvd. to County Aire Drive (south of Old Settlers Blvd.)	2.06	23	\$12,407,430
Deepwood Drive	North of RM 620 to Sam Bass Road	0.33	24	\$5,443,339
A.W. Grimes Blvd.	FM 3406 to Westinghouse Road	2.97	25	\$21,588,141
CR 112	A.W. Grimes Blvd. to CR 118	3.86	26	\$56,463,193
CR 114/Chandler Road	SH 130 to CR 100	1.45	27	\$22,681,814
Great Oaks Dr. Extension	Hairy Man Rd. to CR 175	0.89	28	\$8,172,320
Teravista Club Drive	A.W. Grimes Blvd. to Teravista Club Drive	0.78	29	\$4,658,948
Old Settlers Blvd.	Red Bud Ln. to ETJ Boundary	0.88	30	\$12,784,263
Red Bud Ln/Limmer Loop	Guadalajara St. to SH 130	3.04	31	\$27,833,140
Mays Street	Paloma Dr. to Northwest Dr.	1.69	32	\$13,824,613
CR 110	Palm Valley Blvd. to ETJ Boundary	0.52	33	\$7,946,906
McNeil Rd.	Trey to IH 35	1.19	34	\$10,424,150
Chisholm Trail Rd.	Sam Bass Rd. to IH 35 SBFR	2.14	35	\$14,749,433
Arterial H	West of CR 175/ETJ Limit to IH 35	5.15	36	\$66,515,530
Arterial L	Chisholm Trail Rd. to Eagles Nest Dr.	.86	37	\$13,988,207
CR 172	McNeil Rd. to FM 1325	0.87	38	\$13,931,264
Schultz Ln.	SH 45 to Springbrook Road	0.06	39	\$1,102,498
University Blvd.	A.W. Grimes Blvd. to SH 130	3.59	40	\$55,252,297
Wyoming Springs Dr.	Bright Water Blvd. to Old Settlers Blvd.	0.88	41	\$13,290,329
Arterial C	O'Connor Dr. to Deepwood Dr.	1.31	42	\$17,067,471
College Park Dr.	South of University Blvd. to Bluff Landing Way	1.83	43	\$23,718,495
CR 110	Limmer Loop to Limmer Loop	4.76	44	\$62,256,805
Dell Way	Hesters Crossing to Greenlawn Blvd.	0.98	45	\$5,584,013
Greenlawn Blvd.	SH 45 to IH 35	1.01	46	\$8,858,682
Mays Street/Oakmont Dr.	Paloma Dr. to University Blvd.		47	\$14,549,276
Tiger Trail	Buckeye Ln. to A.W. Grimes Blvd.	0.42	48	\$2,891,174
Wyoming Springs Dr.	RM 620 to Arterial C (Proposed Rd.)	0.53	49	\$6,666,077
Wyoming Springs Dr. Extension	Goldenoak Circle to Creek Bend Blvd.	1.04	50	\$12,903,607
Chisholm Trail Rd.	Arterial J (Proposed Rd.) to CR 173	1.33	51	\$17,851,125
Arterial J	Westinghouse Rd. to IH 35 SBFR	1.17	52	\$15,865,885
Creek Bend Blvd.	North of Old Settlers Blvd. to Westinghouse Rd.	2.63	53	\$33,172,203
Bratton Ln.	IH35 FR to Bratton Ln.	0.54	54	\$7,492,685

Funding

Funding and financing of the short-term, midterm and long-term improvements will require the combination of existing sustainable sources, identification of new sustainable sources and the ability of the City to position improvements for competitive funding opportunities that may arise from time to time throughout the planning and implementation timeframe. Certain projects may be funded entirely through existing or new sustainable sources; other projects may have some level of existing or new sustainable sources for early project development (e.g., environmental, design, corridor preservation, etc.) so that when competitive funding opportunities arise, these projects would be well-positioned to compete (in most cases, be "shovel-ready"). While there is discussion at the federal level of a greatly expanded infrastructure investment program, and Texas has successfully identified approximately \$20 billion over ten years in new funding dollars primarily due to the passage of Proposition 7, competition for federal and state funding will continue to be very strong. An additional consideration is the limitation of certain funding sources (e.g., CAMPO allocation of Proposition 7 funding, State Infrastructure Bank loans) by local sponsors for use only on state highway system projects. Revenue from the City's half-cent sales and use tax dedicated to transportation and economic development improvements can continue to be used to leverage other funding sources (e.g., SIB loan, CAMPO project application, partnership with Williamson County), in additional to bond issue repayments.

Funding sources that currently are available to the City include:

- Property tax (general obligation bonds and certificates of obligation)
- Cost-participation with local and state partners (e.g., Williamson County, Developers, TxDOT, Central Texas Regional Mobility Authority)
- Round Rock Transportation and Economic Development Corporation (4B)
- Chapter 380/Chapter 381 Economic Development Agreements

- Tax Increment Reinvestment Zones (TIRZs) and Tax Increment Finance Districts (TIFs)
- Public-Private Partnerships
- Development Impact Fees
- Transportation Reinvestment Zone (TRZs)

Additional funding sources that could be available to the City include:

- TxDOT funding programs
- State Infrastructure Bank (SIB) loans
- CAMPO funding programs
- Grant funding opportunities (e.g., TIGER, FASTLANE)
- TIFIA loan/credit program

New sustainable funding sources may require City Council approval and possibly a citizen referendum to develop and implement. These potential new sustainable funding sources would be identified after consultation with City staff and City Council.

SHS Removal

TxDOT has actively been working with local governments to remove roadways from the State Highway System. Recent legislation and changes in the Transportation Code have made it easier for TxDOT to transfer State assets (right-of-way and roadways) to local governments.

Removing a roadway from the System accrues benefits to TxDOT by reducing long-term maintenance obligations. Local governments, while accepting the maintenance of the roadway, accrue benefits by having local control over roadway operations, driveway locations, signage, landscaping, etc. Removal of a roadway from the System is a negotiation between TxDOT and the local government. Sometimes it is simply a straightforward transfer of ownership. In other cases, TxDOT may fund and construct a new roadway on new location that allows an existing roadway through a community to be removed (replaced) from the System. Also, TxDOT Districts have worked with local governments to transfer roadways and then use the accrued savings in maintenance dollars to fund other improvements to the community. State roadways that are currently functioning as City streets are a high priority for TxDOT to remove from the System.

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8 Summary and Conclusions

Recommendations and Strategies

The City of Round Rock views mobility and connectivity as central to the City's growth strategy. Round Rock's General plan establishes goals for the City's transportation network that provide for a balanced system, maintain compatibility with current land uses, protect future right-of-ways, and plan for future mobility and connectivity throughout the network. This Transportation Master Plan Update identifies and prioritizes mobility improvements that encourage safe and efficient travel within and through the network. It is intended to serve as a living document, to support and uphold the goals of the City's guiding policies, and to provide a framework for future transportation decisions for the City of Round Rock. The Transportation Master Plan should be reviewed

regularly as growth continues within and around the City. Traffic, land use, and other conditions may change over time. Reassessing the Transportation Master Plan will also help maintain consistency with the City's overall goals and priorities.

Complete the Network

As development continues in the City of Round Rock, new roadways will be needed to connect people safely and efficiently to these new destinations. Existing roadways already at capacity will need to be improved. Planning for the ultimate transportation network ensures the citizens of Round Rock are afforded an adequate future transportation system. As funding becomes available, recommendations in the Updated Thoroughfare Plan can be implemented to enhance connectivity across the City's transportation network.

Intelligent Transportation Systems

ITS provides innovative solutions to traffic management. Real-time information about travel conditions can be readily communicated, allowing users to be better informed and to make more educated choices about how and when they travel. The Round Rock Transportation Department has been proactive in implementing ITS. A plan is already in place to improve the communication, operations, and data collection needed for smarter traffic management. The City also plans to release a mobile app for smart phones, websites, and kiosks to share traffic-relevant information.

Future transportation infrastructure should incorporate automated and connected vehicle technology to be ready for future tech infusion.

THE CITY OF ROUND ROCK **HAS BEEN PROACTIVE** IN PLANNING **AN ADEQUATE TRANSPORTATION NETWORK** FOR THE CITY'S FUTURE.

Coordination with Outside Agencies

As the City of Round Rock continues to implement planned developments and build new roadways, close coordination with other agencies managing the area's roadways will provide continuity across the regional network. The City's Thouroughfare Plan should integrate smoothly with plans in place for adjacent counties, long-term improvements implemented by the Texas Department of Transportation and other planning authorities such as the Capital Area Metropolitan Planning Organization and the Central Texas Regional Mobility Authority.

Design Complete Streets

Within a transportation network, different roadways are designed to serve different functions. Major arterials typically serve high volumes of local traffic and are intended to move traffic through the network. Local streets give access to smaller destination oriented areas, such as neighborhoods. The underlying themes of Complete Streets, community, connectivity, capacity, calming, choices- serve as guides to balance mobility goals. Complete Streets seek to enhance roadway capacity while contributing to a balanced transportation network.

Innovative Intersections

Diverging Diamonds, Continuous Flow and Median U-Turns. At many roadway junctions, congestion continues to worsen. Conventional intersection designs may not always be the solution to today's traffic problems. Innovative intersections have been shown to reduce traffic congestion affordably, sustainably, and in situations where right-of-way is limited.

As growth continues, the City of Round Rock may choose to explore innovative intersection solutions and grade separations to alleviate congestion.

Implement Access Management

Successful access management programs provide safe and efficient access to businesses, institutions and residences, keep traffic flowing optimally along streets. City planners should establish policies that regulate locations of driveways and other points of access from city streets to the developments and destinations along them. Best practices in access management enhance the overall safety and mobility of the transportation network.

Plan for a future with transit

The City of Round Rock has been proactive in creating increased transit opportunities for its residents. The City has contracted with Austin-based Capital Metro and anticipates launching fixed route bus service in Summer 2017. Public transportation helps to lessen transportation impacts on the environment, provides more personal opportunities for mobility, and contributes to time savings and reduced fuel costs. Implementing new transit services and connections to regional destinations will help meet the demands of growing population, employment and travel patterns.

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CITY OF ROUND ROCK TRANSPORTATION MASTER PLAN UPDATE 2017



