Bastrop County

2016 Transportation Plan

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Plan Prepared for:

Bastrop County

Plan Prepared by:

ALLIANCE TRANSPORTATION GROUP

In Collaboration with:

dts

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Vision for the 2016 Bastrop County Transportation Plan:

Develop a transportation system that efficiently and safely moves people and goods while supporting the community's vision for growth and economic vitality.

Chapter One
Introduction

Introduction

This document is the 2016 update of the Bastrop County Transportation Plan (BCTP). The Plan has been developed through consultation and coordination with the residents of the county, its business owners, planning partners, and County officials. The Plan continues the participatory philosophy from previous planning efforts, gathering meaningful input from County stakeholders (public officials, business owners, agency representatives, etc.) and the public to reaffirm or redefine goals and objectives as appropriate, and updating previous initiatives and priorities based on changing conditions. In addition, a technical analysis component has been added to the Plan to evaluate transportation improvement options and solutions using tools such as the CAMPO travel demand model (TDM) and other analytical resources.

Purpose of the Plan

The purpose of this Plan is to develop a multi-modal Bastrop County Transportation Plan that balances preservation and wise use of existing assets with strategies for achieving the County vision of growth and economic vitality, while maintaining quality of place for existing residents and business owners. The study objectives for developing the Plan are to:

- Promote transportation safety, particularly among vulnerable populations;
- Support economic vitality;
- Enhance quality of place;
- Promote state of good repair;
- Consider multi-modal solutions; and
- Comply with CAMPO 'Platinum Planning' principles.

The Plan is vision-based with outcomes tailored to the County's goals and objectives as defined by input from County stakeholders and the public. Previous planning efforts have acknowledged the interdependence of land use, economic development, and transportation planning. This Plan is designed to support the County's future land use and economic development goals and objectives as defined in other County policies and plans. In addition, the Plan takes into consideration the value of asset management and the maintenance of transportation assets in a state of good repair to provide both cost savings and to support long term economic growth and sustainability.

The Plan is coordinated with regional planning efforts to ensure connectivity to the transportation systems outside of the county. In addition, coordination with CAMPO transportation planning efforts, especially CAMPO's 'Platinum Planning' principles, will make possible the financial support of regional, state, and federal transportation funding programs for regionally significant projects contained in the Plan.

Need for the Plan

Bastrop County is located in the rolling hills of the Post Oak Savannah and Blackland Prairie of Central Texas. The county encompasses nearly 900 square miles of land in the eastern portion of the Austin metropolitan area. However, the county has retained its unique rural character and rich natural resource heritage; this includes the Lower Colorado River (Figure 1.1) that meanders through the county from west to east, as well as the Lost Pines Forest, a geographically isolated stand of loblolly pines located at the center of the county.

Recently, the rapid population growth in Central Texas has expanded into Bastrop County. Many new residents choose to live in the rural areas of the county while commuting to work or school in the urban core of the region. This influx of new residents has placed increased pressure on the County and its ability to provide vital community services. The county is projected to add another 200,583 residents by 2040.[1]

This growth presents a number of challenges for the county transportation system and its ability to serve the mobility needs of the community. Bastrop County residents depend on the transportation system for their daily needs: residents need a reliable way to get to work; parents demand safe

Figure 1.1: Colorado River

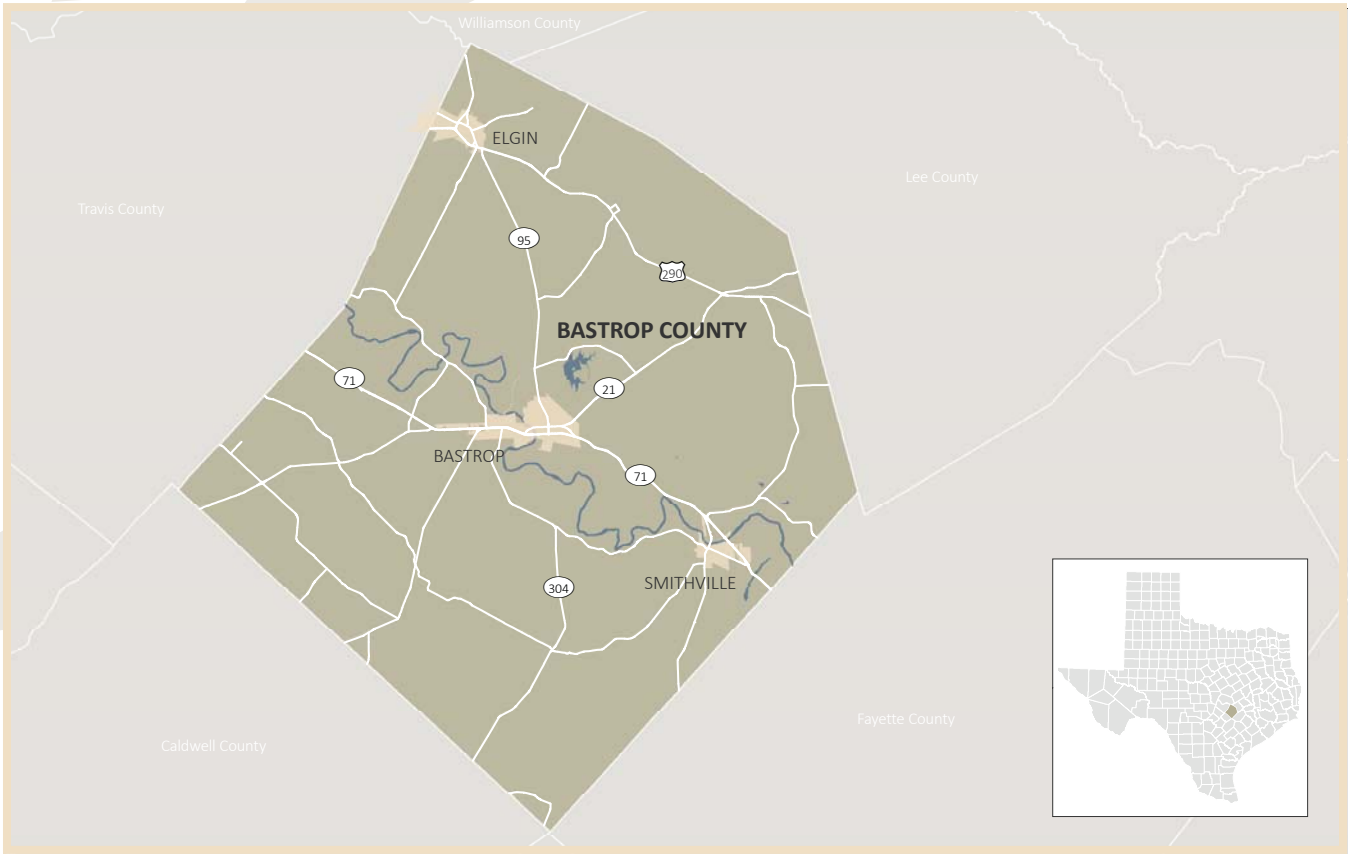
The Colorado River is a major natural resource that meanders throughout Bastrop County, providing ample recreational opportunities for residents of Bastrop County and the surrounding areas.

[1] CAMPO 2040 Regional Transportation Plan

and efficient transportation options to get their children to school; businesses expect a reliable transportation system to remain economically competitive; and emergency response services require a dependable and connected transportation system to respond to emergencies in a timely manner.

In recent years, the pressures associated with growth, along with a number devastating natural disasters including fires and floods, have driven Bastrop County's elected leaders to think more proactively in terms of how to plan for the county's future mobility and economic challenges. In the spring of 2015, the Bastrop County Commissioners' Court authorized the Bastrop County Transportation Plan. The Plan has been designed to provide a framework for achieving a multi-modal transportation system that balances system preservation and wise use of existing assets with new transportation strategies. Its goal is to ensure that Bastrop County will continue to thrive for existing residents and business owners, as well as to adequately plan for the development projected to occur as the county grows.

Figure 1.2: BCTP Study Area



Larger communities within the Bastrop County Transportation Plan study area include the cities of Bastrop, Smithville, and Elgin.

Plan Development

The Bastrop County Transportation Plan is designed to be used by the County, providing a vision for a future transportation system that serves the diverse needs of the Bastrop County community and provides a realistic and fiscally constrained path forward for developing that system. Development of the Plan was a collaborative effort involving over a year of community conversations with a diverse group of stakeholders, coordination with regional transportation planning partners, and technical analysis conducted by a consulting firm specializing in transportation planning and engineering. Key elements of the Plan include:

- A vision and goals for the county transportation system, developed collaboratively through community input and guidance from elected officials and the Bastrop County Transportation Plan Steering Committee;
- A detailed needs assessment of the existing county transportation system, which combined a comprehensive inventory of existing county transportation assets, technical analysis, and local stakeholder input, to identify the most pressing current and future needs of the county transportation system;
- Stakeholder outreach and public involvement, including six public meetings, dozens of stakeholder interviews, and online engagement opportunities, to assist the project team in identifying transportation system needs and potential solutions;
- Development of a Thoroughfare Plan which provides the County with a vision for the future county roadway network and how it integrates with local, state, and federal networks to realize a functioning transportation system;
- Development of Performance Measures, which are used to determine whether the Plan elements, policies, and proposed projects will meet the goals and objectives of the Plan;
- Identification and evaluation of potential transportation projects to support the goals articulated by the community and evaluated based on a comprehensive set of performance metrics;
- Development of a fiscally-constrained program of projects, which includes a prioritized list of projects with potential funding sources and a timeline for implementation; and
- Creation of transportation strategy and policy recommendations that can be considered by County elected officials to complement new infrastructure spending to help support the goals for the future county transportation system.

Plan Guidance

The 2016 Bastrop County Transportation Plan was developed in a manner that incorporated policy makers, key stakeholders, and the public at large to adopt a plan that reflects the values of the community. The Plan is also designed so that it can be integrated into state, regional, and local transportation plans and processes. This regional integration potential can provide the opportunity for County transportation projects to receive regional, state, and federal funding.

Bastrop County Transportation Plan Steering Committee

In order to optimize outcomes of the Plan and ensure that it reflected the values of Bastrop County community, the County identified and invited a diverse group of elected officials, area planners and engineers, and other subject matter experts to serve on the Bastrop County Transportation Plan Steering Committee. The Steering Committee met periodically to receive and assess reports on project progress, coordinate with their respective agencies, and provide technical oversight of major activities associated with the study, including the public participation process.

Figure 1.3: BCTP Steering Committee

STEERING COMMITTEE MEMBERS:

***Clara Beckett**, Bastrop County Commissioner, Pct. 2*

***Ashby Johnson**, CAMPO Executive Director*

***Melissa McCollum**, City of Bastrop Planning Director*

***Amy Miller**, City of Elgin Community Development Director*

***Jennifer Pacheco**, Deputy Bastrop County Auditor*

***William Piña**, Bastrop County Commissioner, Pct. 1*

***Julie Sommerfeld**, Bastrop County Manager of GIS and Addressing*

***Diana Schulze, P.E.**, TxDOT Area Engineer*

***Jill Strube**, City of Smithville Grants Administrator*

BASTROP COUNTY PROJECT MANAGER:

Carolyn Dill, P.E., *Director of Engineering*

Coordination with Planning Partners

Because the county system is just one part of a larger system of national, state, and local roadways, coordinating with transportation planning partners and agencies was critical to ensuring that the outcomes of the Bastrop County Transportation Plan could be integrated into other ongoing regional planning processes. These transportation planning partners included:

- Capital Area Metropolitan Planning Organization (CAMPO);
- Capital Area Rural Transportation System (CARTS);
- Capital Area Regional Transportation Planning Organization (CARTPO); and
- Texas Department of Transportation (TxDOT).

To this end, the project team maintained consistent communication with these state, regional, and local agencies throughout the planning process.

Representatives from CAMPO, which is the region's metropolitan planning organization (MPO) responsible for coordinating regional transportation planning, served on the Steering Committee to help ensure that development of the Plan was consistent with CAMPO's 'Platinum Planning' framework (see Figure 1.4). This framework seeks to integrate sub-regional planning, such as that conducted for the Bastrop County Transportation Plan, into the CAMPO Regional Transportation Plan to ensure that project and policy recommendations are aligned with regional goals and objectives. Being aligned with the CAMPO Regional Transportation Plan provides the best opportunity for County projects to receive regional, state, and federal funding in the future.

Because Bastrop County is a part of the broader Capital Area, the Capital Area Regional Transportation Planning Organization (CARTPO) was involved in the planning process. CARTPO is responsible for evaluating and recommending projects with a regional impact, coordinating on transportation issues and overseeing research and education on financing mechanisms.

Similarly, a representative from TxDOT served on the Steering Committee to provide guidance on integrating the County Plan into State planning processes. Because the congestion issues experienced by Bastrop County residents often occur on the state transportation system, regular communication with TxDOT was critical to better understand TxDOT's planning processes and upcoming construction schedules.

The project team conducted interviews with CARTS leadership to ensure that the current and future plans for the transit provider were incorporated into the planning effort. In addition, CARTS representatives participated in the visioning workshops and staffed a transit station at the open house meeting to inform participants about transit planning and transit service within the county.

Finally, the project team coordinated with the municipalities, unincorporated areas, and school districts in Bastrop County to ensure that the strategic planning efforts of those entities were taken into consideration in the County Plan. One-on-one interviews were conducted with representatives from area school districts and stakeholders familiar with the unincorporated areas of the county to better understand their transportation system needs. Representatives from the cities of Bastrop, Elgin, and Smithville served on the Steering Committee. Development of the Bastrop County Transportation Plan coincided with the City of Bastrop's Comprehensive Plan update,[2] which provided a timely opportunity to ensure consistency between recommendations made in both plans.

Figure 1.4: CAMPO Platinum Planning Program Elements

CAMPO's Platinum Planning Program is a comprehensive, detailed, multi-modal transportation planning process for CAMPO's six-county region. 'Platinum Planning' is a progressive, integrated, and inclusive process that examines transportation, land use, and other planning areas. Recommendations from plans completed through the Platinum Planning Program will be used in CAMPO's 2045 Regional Transportation Plan and certain projects may be eligible for future CAMPO-allocated Federal funding. 'Platinum Planning' Elements include:

- ***Multi-modal and Mixed-Use*** *– Create connections to housing, jobs, and services through the establishment of dynamic mixed-use environments, well-connected street grids, high-quality transit options, as well as safe and useful pedestrian/bicycle accommodations.*
- ***Housing*** *– Develop a mix of housing types and price points appropriate for the study area context that provides living options that can accommodate a variety of incomes, abilities, and familial types.*
- ***Environment*** *– Create a healthy environment that proactively protects and enhances air, water, land, and people.*
- ***Economic Development*** *– Promote the economic competitiveness of the study area to yield positive impacts on the local tax base, high-quality jobs, and community services.*
- ***Equity*** *– Create positive social, economic, and environmental outcomes for all residents and stakeholders in the study areas while minimizing adverse impacts.*

[2] Alliance Transportation Group, Inc. served as a sub-consultant on the Bastrop Comprehensive Plan

Stakeholder Interviews

To ensure that the broadest possible range of key stakeholders were represented in the planning process, the project team brought together stakeholders in round table discussion groups and conducted one-on-one interviews. These discussions provided an opportunity to take a "deep dive" into specific issues related to growth, economic development, public transportation, public safety, and other topics that impact the county transportation system. Special recognition should be given to the local emergency management personnel who provided their input on issues related to emergency response and evacuation needs. Many of these individuals were personally involved in the 2011 Bastrop County Complex Fire, the 2015 Hidden Pines Fire, and the 2015 and 2016 flood events, making their input critical to identification of areas in need of better connectivity and access in emergency situations.

Public Participation

Development of the Plan relied on active participation and input from the Bastrop County community. The project team utilized a number of strategies and communication mediums to disseminate information in order to promote an active and effective public dialogue throughout the planning process. A project website – **www.planbastropcounty.org** – was created to provide the public with up-to-date information on the project, including key steps in the planning process, goals of the process, information on how to get involved, location and dates of public meetings (and outcomes), as well as additional materials and guides that were created as part of the public outreach process. A project Facebook page – **facebook.com/PlanBastropCounty** – was also created, which the project team regularly updated to communicate with the public on progress and send invitations to public involvement opportunities. Finally, the project team issued periodic press releases to local and regional media outlets to inform the media and the public of Plan progress and to advertise the dates and locations of public meetings.

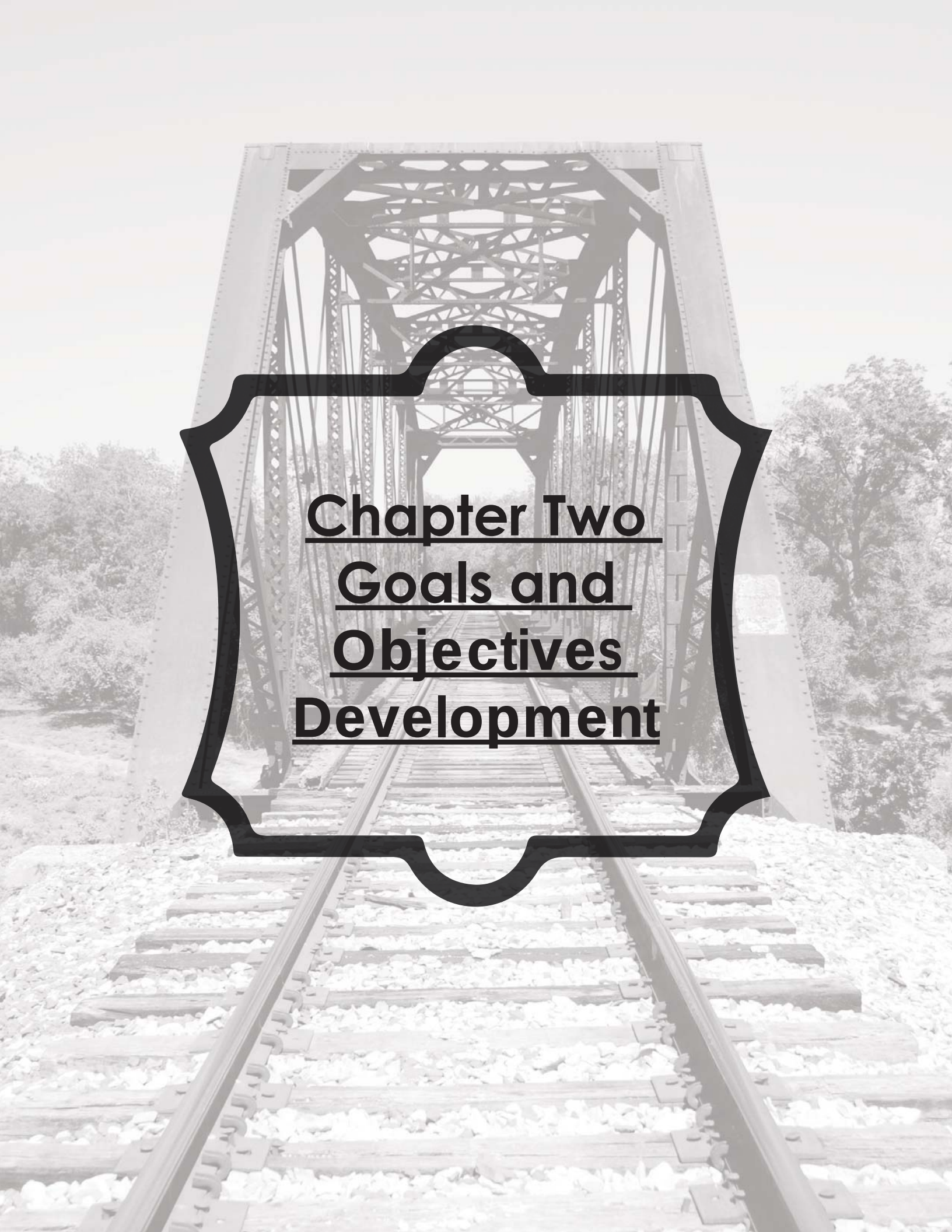
In addition to stakeholder interviews and online and print public outreach efforts throughout the Plan, a series of public meetings was held at the beginning and end of the project to elicit feedback from the community. A series of three Visioning Workshops was held in fall 2015 to develop a vision and define goals for the county transportation system and identify transportation system needs. Towards the end of the planning process, a series of three Open House meetings was held to provide an update on the Plan's progress and to present findings to the public and obtain public feedback on the preliminary project recommendations. The meetings were held in the cities of Bastrop, Elgin, and Smithville.

The following chapters describe the process used to develop the Plan and the recommended project list that came out of that process.

Figure 1.5: May 2016 Open House Meeting Flyer

"This is the time to begin planning for the future."

- comment from a stakeholder workshop



Chapter Two Goals and Objectives Development

Developing Plan Goals

Because an important element of developing an effective transportation plan is to respect the value of previous planning efforts, the 2016 Bastrop County Transportation Plan began with an analysis of previous plans. The goals and objectives of these plans were compiled and, in collaboration with County stakeholders and the public, compared to current understanding of changing conditions and emerging needs.

Existing Plans

The first step in developing the Plan was to conduct a analysis of prior plans adopted by the County, the region, and local jurisdictions to ensure that these previous efforts would be the foundation upon which the current Plan would be developed. The project team reviewed existing local, county, and regional transportation-related plans in order to ensure that the Bastrop County Transportation Plan fits into previously articulated local goals and objectives. A brief summary of the reviewed plans is included in this section.

Local Plans

The **City of Bastrop Comprehensive Plan** (2001) serves as a road map for policy decisions related to growth, economic development, and transportation in Bastrop from 2000 to 2020 and beyond. Major goals articulated in the plan include a desire for better connectivity between neighborhoods, relief of traffic congestion, preservation of local character and the environment, and the promotion of non-auto transportation modes. A key product that came out of the plan was the Thoroughfare Plan, which acts as a guide for preserving rights-of-way on appropriate alignments to allow for the orderly and efficient expansion and improvement of the city thoroughfare system. Bastrop is currently conducting an update to the comprehensive plan, with completion expected in 2016. The comprehensive plan update will also include a Transportation Master Plan for the city, utilizing a more detailed, in-depth analysis and planning approach for the city's transportation system. The Transportation Master Plan is also expected to be completed in 2016.

The **City of Elgin Comprehensive Plan** (2009) articulates a collective vision for how Elgin's elected officials, businesses, and residents want the city to grow in the future. A Thoroughfare Plan was also developed as part of the comprehensive planning process. A number of goals were articulated in the Thoroughfare Plan, including enhancing the bicycle and trails network; identifying and preserving critical corridors for the arterial system; implementing intersection improvements; and encouraging connectivity and walkability. The plan also calls for mixed land uses and transit oriented development to support passenger rail and promote economic development opportunities.

The **City of Elgin Alternative Transportation and Trails Master Plan** (2011) was a product of the City's Parks, Recreation and Open Space Master Plan. The plan proposes a system of trails, greenways, routes, and on-street linkages to increase accessibility/connectivity and enhance recreational options for Elgin residents.

In 2007 the City of Elgin and Elgin Economic Development Corporation completed the **Elgin Station Initiative and Related Growth Trends** report, which explores how the development of a passenger rail system through Elgin would influence economic development opportunities in the areas surrounding potential station locations. The report found that developing these areas with mixed-use, walkable development types would deliver an additional $13 million per year in property value over conventional development, while also promoting Elgin's character and history as a railroad town.

The **Elgin Safe Routes to School (SRTS) Plan** (2009) provides a plan for improving active transportation options for Elgin youth to get to school, specifically for Neidig Elementary, Elgin Middle School, and Elgin High School. The plan aims to increase the number of students walking and biking to school, improve the safety of these options for students and the community at large, and encourage healthy activities for neighborhoods. A 2014 **Safe Routes to School Plan** addresses the needs of **Booker T. Washington Elementary School** in Elgin.

The **City of Smithville Comprehensive Plan** (2012) provides a community-driven vision for growth in Smithville over the coming decades. The plan recognizes that while Smithville has not seen the level of growth experienced by other cities in Bastrop County, growth will eventually occur. The plan, therefore, represents an opportunity to plan for growth in a way that reflects the community's goals and objectives. The transportation section of the plan offers a number of short- and long-term recommendations to improve the city's transportation system. The short-term improvements call for roadway surface treatments, a new warning light and the creation of a "quiet zone" to mitigate noise associated with the 20-30 trains passing through Smithville each day. The long-term recommendations call for a corridor study of SH 95, implementing previous pedestrian plans and improving signage and rail road crossings.

The **Smithville Safe Routes to School (SRTS) Plan** (2010) discusses strategies that intend to improve transportation issues at the Mary A. Brown Primary and Smithville Elementary/Junior High campuses. The plan considers a variety of barriers to "active transportation" such as safety, distance, and opportunity. It addresses these concerns through the "5-E's" approach: Engineering, Education, Enforcement, Encouragement, and Evaluation, and sets goals related to increasing the number of students who use their "feet first" when considering transportation options and more generally improving pedestrian amenities.

County Plans

The **2010 Bastrop County Comprehensive Transportation Plan** served as a blueprint for the county's future transportation system. Specific goals articulated in the plan included improving and enhancing mobility by exploring multi-modal options; protecting the environment and natural beauty; addressing and improving safety; increasing and exploring transportation financing options and opportunities; and addressing planning for future growth and development. The current Bastrop County Transportation Plan planning effort represents a more detailed analysis of the Bastrop County transportation system, using updated data inputs and incorporating more sophisticated transportation analysis tools while also expanding the public outreach effort.

Opportunity Bastrop County, a strategic county-wide plan, was initiated in 2006 in an effort to understand what county residents envision for the future of their county. The community identified a number of major areas of concern, including transportation enhancements that focus on the county-wide roadway network and a county transit system.

Regional Transportation Plan

The **Capital Area Metropolitan Planning Organization (CAMPO) 2040 Regional Transportation Plan (RTP)** serves as a guiding document for regional transportation and land use planning for the six-county CAMPO region, which includes Bastrop, Burnet, Caldwell, Hays, Travis, and Williamson counties. CAMPO's main function is to coordinate regional transportation planning amongst the numerous jurisdictions, transit providers, and mobility authorities in the region, as well as the Texas Department of Transportation (TxDOT). The CAMPO 2040 RTP includes a prioritized list of transportation projects for the region over the next 25 years. A major component of the 2040 plan, carried over from the previous plan update, is the Centers concept, which is a strategy for focusing resources and planning efforts in specific areas of the region that have opportunities to reduce vehicle-miles traveled and help alleviate demand for infrastructure investment. Local jurisdictions adopt and support the 59 Centers in the CAMPO region, which include the cities of Bastrop, Elgin, and Smithville. While each Center will develop based upon the existing built environment and locally approved plans, they are expected to have some common features once they reach maturity, such as increased density compared to surrounding areas, a mix of land uses, and enhanced connectivity between neighborhoods and areas within the region.

Goals from Previous Plans

After reviewing all of the previous plans, the following list of goals was compiled for consideration in this Plan:

- Address Social Equity;
- Improve Safety;
- Increase Connectivity and Accessibility;
- Prioritize Affordability;
- Coordinate with and Support Land Use Goals;
- Encourage Economic Development;
- Reduce Congestion;
- Preserve Local Character;
- Protect Environmentally Sensitive Areas;
- Protect the Health of County Residents;
- Consider Cost Effectiveness;
- Improve Reliability;
- Address Maintenance and Operations;
- Provide Multi-modal Transportation Options;
- Provide for Non-motorized Transportation; and
- Improve Sustainability.

Development of Plan Goals

The goals were ranked by members of the steering committee and by the public at visioning workshops. Figure 2.1 shows an example of a completed goal scoring sheet. From the results of this process, a final list of plan goals was developed and approved by the steering committee for use in the development of the 2016 Bastrop County Transportation Plan.

2016 BASTROP COUNTY TRANSPORTATION PLAN GOALS

- Reduce and manage traffic congestion in the county transportation system;
- Improve the safety of the county transportation system for all road users;
- Enhance the connectivity and accessibility of the county transportation system;
- Utilize cost effective strategies to achieve the most system benefit on a per dollar basis;
- Improve the reliability of the county transportation system;
- Support the competitiveness and economic development goals of Bastrop County communities;
- Ensure that the transportation system provides all users with affordable options to move throughout the county;
- Enhance transportation system maintenance and operations;
- Promote environmental, economic, and social sustainability; and
- Preserve the local character and promote the quality of life of Bastrop County communities.

Figure 2.1: Goal Scoring Sheet

Exercise 4: Ranking and Scoring Goals

Please use the following chart to score each individual goal once again, based solely on your personal preferences. **Circle** the appropriate number for every goal based on the following scale:

5 — Extremely Important

4 — Very Important

3 — Neutral

2 — Not Very Important

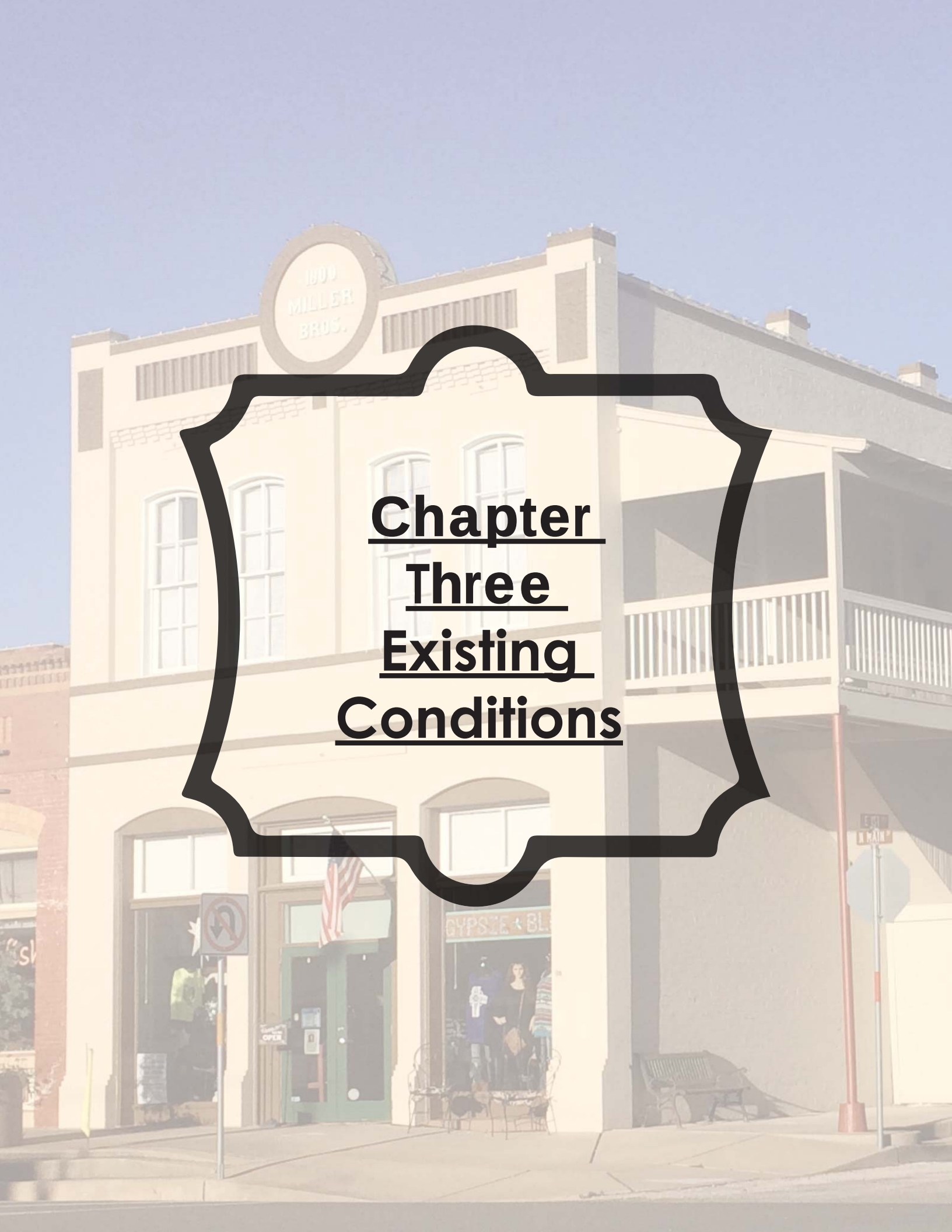
1 — Not Important at All

Goals					
Social Equity	5	(4)	3	2	1
Safety	(5)	4	3	2	1
Connectivity and Accessibility	(5)	4	3	2	1
Affordability	5	(4)	3	2	1
Coordination/Support of Land Use	5	4	(3)	2	1
Economic Development	5	(4)	3	2	1
Congestion Reduction	5	(4)	3	2	1
Preservation of Local Character	5	4	(3)	2	1
Environmental Sensitivity	5	(4)	3	2	1
Health	5	(4)	3	2	1
Cost Effectiveness	(5)	4	3	2	1
Reliability	5	(4)	3	2	1
Maintenance and Operations	5	4	(3)	2	1
Multi-Modality	5	(4)	3	2	1
Non-Motorized Transportation	5	(4)	3	2	1
Sustainability	(5)	4	3	2	1

If there are any other goals that you feel we missed, please write those in the space provided below:

"Build effective transportation that does not take away from the character of my town."

— comment from a stakeholder workshop



Chapter Three Existing Conditions

Existing Conditions

In order to determine where transportation system improvements would best meet the Plan's goals, the research team analyzed the current conditions of the county transportation system to understand where current deficiencies exist. The purpose of the existing conditions analysis is to assess transportation conditions within the county, and to prioritize critical locations for further analysis. This chapter includes an analysis of current traffic capacity and operational deficiencies; a discussion of current conditions related to non-auto modes including transit, bicycles, and pedestrians; an analysis of connectivity and emergency access issues; and an analysis of safety. In addition to technical analysis, the project team relied heavily on local stakeholder and public input to understand transportation system conditions and identify critical locations. Key themes that emerged from stakeholder conversations are included throughout this chapter.

Traffic Conditions

The following section discusses existing traffic conditions in Bastrop County, including travel patterns, capacity deficiencies, and operational deficiencies. Travel patterns and capacity deficiencies were identified through travel demand modeling to obtain total daily traffic flows and approximations of AM and PM peak period conditions, while preliminary operational deficiencies were identified through an analysis of publicly-available, real-time traffic data. In addition to the technical analysis performed by the project team, comments from local stakeholders and the public informed the identification of critical locations in the area.

Travel Patterns

Estimates from the 2010 Census show that over 57% of all workers age 16 and over who reside in Bastrop County work in areas outside of the county, with over 50% working in Travis County. Similarly, an estimated 1,465 Travis County residents commute to Bastrop County for work.[1] These numbers underscore the importance of SH 71, US 290 and FM 969 for the local economy, as these roadways act as crucial corridors for Bastrop County residents and businesses. Table 3.1 shows the top counties where Bastrop County residents work.

Estimates of daily traffic volumes on state highways and major arterials were derived by applying the approved 2040 CAMPO Regional Travel Demand Model (TDM), which uses 2010 as the base year. Daily traffic flows, which are shown in Map 3.1, help the project team better understand macro-level study area travel patterns.

These results show that SH 71, US 290 and SH 21 are the most heavily-used roadways in the county. These results are to be expected, as SH 71 and US 290 serve as major linkages between the Austin and Houston metropolitan areas, while SH 21 links San Marcos, Bryan-College Station, and points in between. Other heavily traveled roadways in the county include:

[1] U.S. Census Bureau, American Community Survey 2006-2010 Five-year estimates. Special Tabulation: Census Transportation Planning

- SH 95 between Bastrop and Elgin;
- FM 969, which links Bastrop to Austin;
- FM 535 and FM 812 in the western portion of the county; and
- SH 304 and SH 20 just south of Bastrop.

Model Results

In addition to daily traffic volumes, the travel demand model produces a number of other outputs that can be used to analyze the performance of the county transportation system. Below is a selection of these results comparing Bastrop County with the other counties in the CAMPO region.

Model results show that Bastrop County had the fourth highest total vehicle miles traveled (1,813,009 miles) and fourth highest amount of vehicle miles traveled per person (25.2 miles) of the six CAMPO counties, as is shown in Table 3.2.

Bastrop County had the second lowest total daily delay - measured in hours of delay per day - of the six CAMPO counties. Table 3.3 shows total daily hours of delay along with delay for four time periods.

Table 3.1: Workplace of Bastrop County Residents Age 16 and Over, 2010

Workplace	Estimated Workers
Bastrop County	*13,230*
Travis County	15,870
Williamson County	955
Lee County	395
Hays County	350
Caldwell County	310
Fayette County	265
Guadalupe County	45
Comal County	20
Gonzales County	10

Source: U.S. Census Bureau, American Community Survey 2006-2010 Five-year estimates. Special Tabulation: Census Transportation Planning

The Bastrop County roadway network had the highest average network speed of all CAMPO counties, as is shown in Figure 3.1.

Table 3.2: Vehicle Miles Traveled, CAMPO Region 2010

	Bastrop	Burnet	Caldwell	Hays	Travis	Williamson
VMT	1,813,009	1,766,679	1,132,970	5,270,207	24,160,450	9,111,045
VMT per Person	25.2	42.4	32.7	35.1	24.1	21.8
VMT per Household	70.2	107.0	92.2	95.5	59.7	59.7

Source: 2040 CAMPO Travel Demand Model

Map 3.1: 2010 Daily Traffic Flows

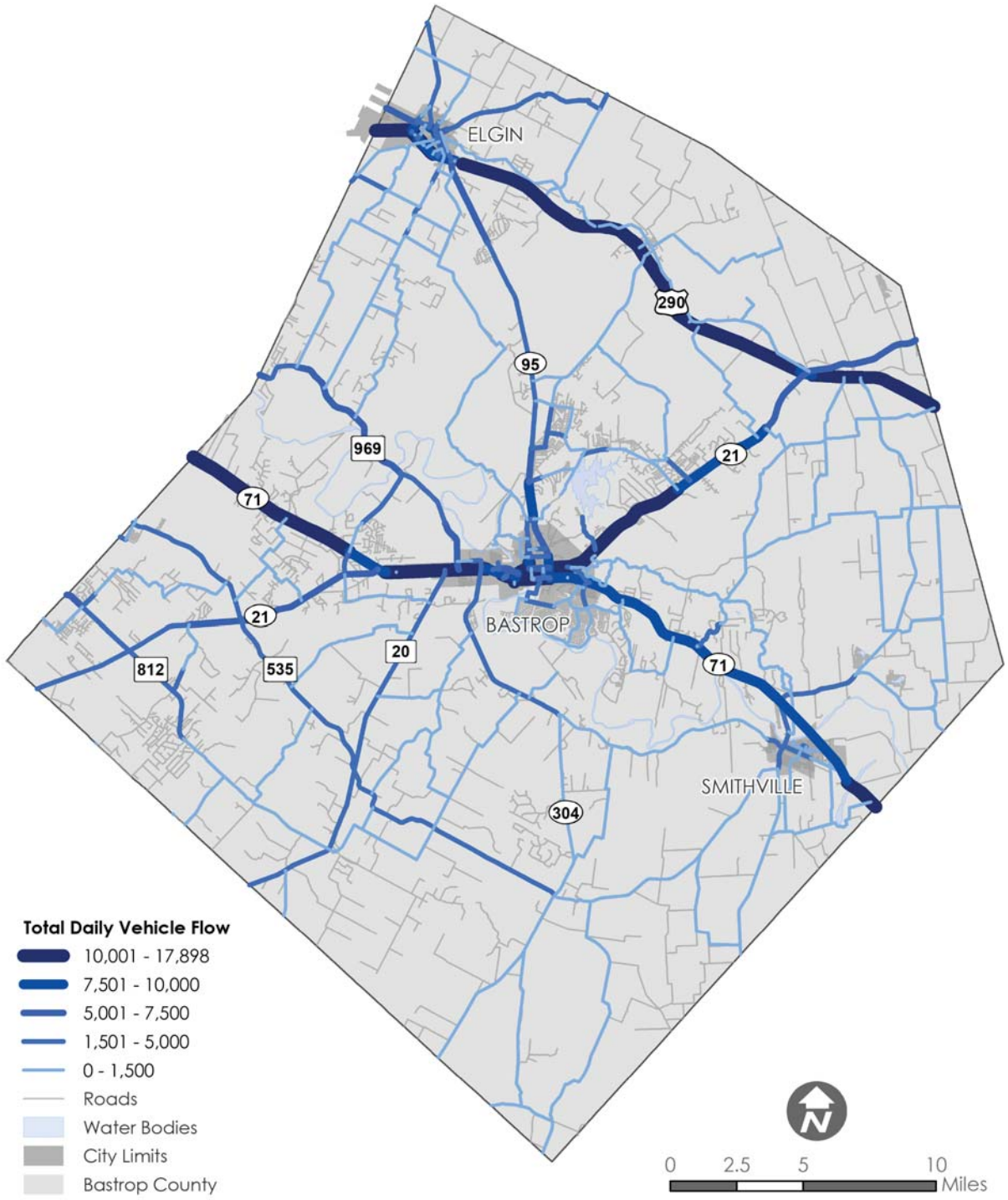
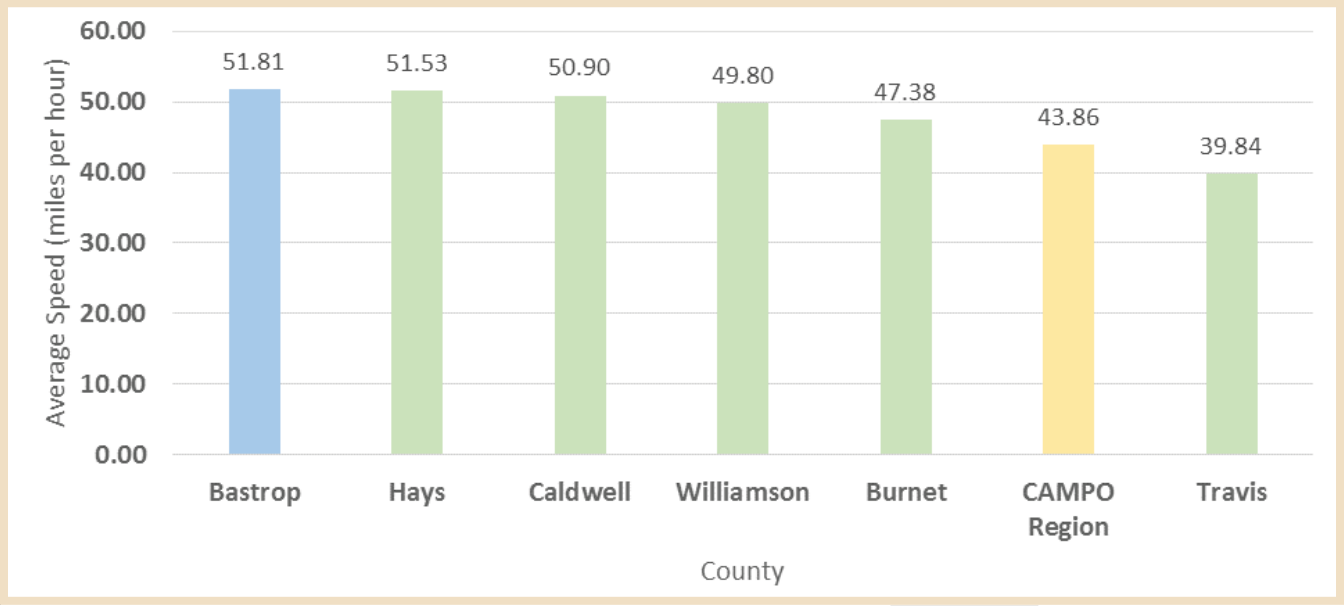


Table 3.3: Total Delay, CAMPO Region 2010

	Bastrop	Burnet	Caldwell	Hays	Travis	Williamson
AM Delay	371	278	161	1,710	20,840	2,943
Mid-Day Delay	447	541	180	4,551	37,078	3,977
PM Delay	583	609	288	3,860	44,087	5,006
Night Time Delay	105	134	41	842	7,536	1,299
Daily Delay	1,506	1,562	670	10,963	109,541	13,225

Source: 2040 CAMPO Travel Demand Model

Figure 3.1: Average Network Speed for CAMPO Region, 2010



Source: 2040 CAMPO 2040 Travel Demand Model

Capacity Deficiencies

The CAMPO TDM was utilized to identify roadway capacity deficiencies in Bastrop County by calculating roadway Level of Service (LOS), which is a qualitative measure that characterizes conditions within a traffic stream and how those conditions are perceived by users of the facility. Level of Service is measured on an A to F scale, and is typically calculated as the ratio of traffic volume to roadway capacity. Level of Service A describes free flow conditions with low volumes and high speeds, while LOS F describes severe congestion with stop-and-go traffic. Typically, planning agencies strive to achieve between an LOS C and D when planning for future roadway capacity, striking a balance between throughput and acceptable travel times.

Model results show that in the 2010 base year the roadway network in Bastrop County had the lowest overall volume-to-capacity ratio of all CAMPO counties, suggesting that the magnitude of countywide roadway capacity deficiencies was less than the rest of the region. Maps 3.2 and 3.3 on the following pages show the 2010 roadway level of service for state highways and principal arterials in Bastrop County during the AM and PM peak periods, respectively.

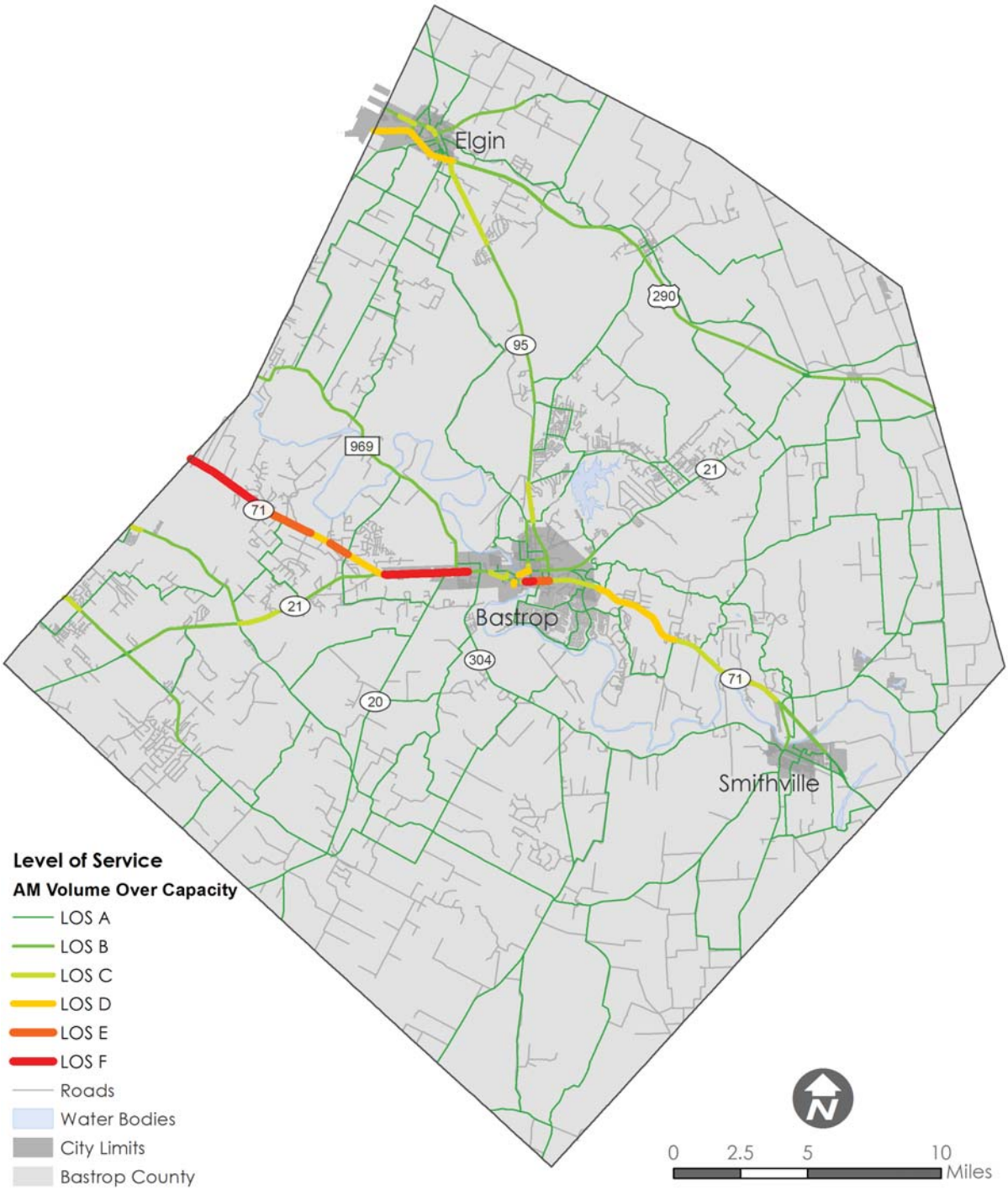
The model results reveal that the most substantial congestion occurs along SH 71 west of FM 304 in both the AM and PM peak periods, which is to be expected considering the significant number of Bastrop County residents who commute to and from Austin during these periods. A few other segments of SH 71 also show capacity deficiencies, especially near the crossing over the Colorado River in Bastrop. It should be noted that the modeling process has identified capacity deficiencies in Bastrop County that are often associated with bottlenecks like river or railroad crossings. Conversations with local stakeholders and the general public, as well as the project team's anecdotal experiences driving in the county, confirm these results.

In addition to the congestion associated with river crossings, the model results show capacity deficiencies (LOS D) on SH 71 east of Tahitian Village in both the AM and PM peak periods, as well as on SH 95 north of Bastrop in the PM peak. Both of these locations have been mentioned by stakeholders and members of the public as congestion hot spots.

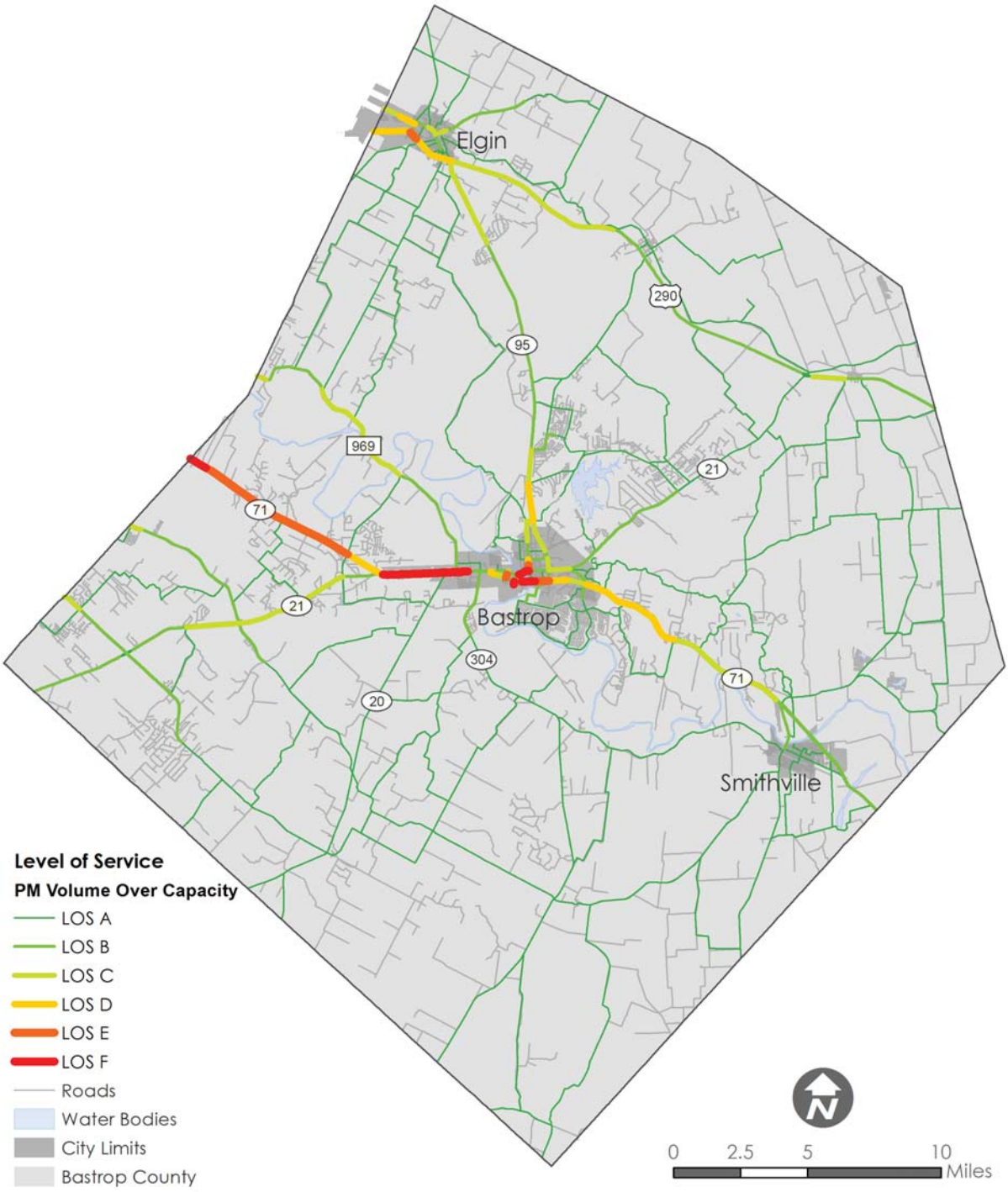
In Elgin, capacity deficiencies are observed on US 290 west of SH 95 into Travis County in both peak periods, which is likely associated with the significant number of Bastrop County residents who commute to and from Austin during these periods. This congestion is especially pronounced in the PM peak period, with certain segments showing an LOS E in the core of Elgin. Elgin stakeholders and the public highlighted these segments as areas that frequently experience congestion.

It should be noted that while the travel demand model provides an approximation of potential capacity deficiencies on the roadway network, it is less adept at identifying congestion associated with operational conditions such as traffic signals or turning movements. In addition, the model does not capture non-recurring congestion such as that associated with crashes or special events. The next section discusses operational conditions that are likely not captured in the roadway capacity deficiency analysis.

Map 3.2: 2010 AM Level of Service



Map 3.3: 2010 PM Level of Service



Operational Deficiencies

Because the travel demand model is limited in its ability to capture traffic congestion associated with operational deficiencies, the project team has utilized additional tools in order to identify operational deficiencies in the Bastrop County transportation system. In the first phase of this process the project team identified a preliminary list of critical locations with potential operational deficiencies by analyzing real-time traffic data for Bastrop County and through conversations with local stakeholders and the public. Moving forward, further traffic analysis will be employed to better understand the dynamics of these conditions and to identify potential strategies to mitigate the identified congestion areas. The team's preliminary operational analysis and list of candidate locations for further analysis is described in this section.

Preliminary Operational Analysis

The project team undertook a preliminary analysis of operational conditions in the study area by analyzing real-time traffic conditions through the Google Traffic application in Google Maps.[2] The application's traffic algorithm calculates average travel speeds along certain roadways using GPS location data collected anonymously from users of Android smartphones who opt in to sharing their location data. By comparing observed travel times to historical data, the algorithm identifies road segments where vehicles travel slower than expected and applies a color to those segments indicating traffic conditions. Green, for example, indicates free-flow conditions, while red signifies heavy congestion. It should be noted that while this data provides a high-level representation of operational conditions for the county transportation network, field observations are required to determine more detailed operational characteristics and identify deficiencies. A discussion of a few locations with potential operational deficiencies identified through this analysis is presented below.

Operational Analysis Results

Locations that showed congestion in the traffic data or mentioned by stakeholders and the public are discussed for Bastrop, Elgin, Smithville, and unincorporated areas of the county.

Bastrop

The intersection of SH 95/21 and SH 71, along with SH 95/21 and Chestnut Street, were the most frequently mentioned locations by Bastrop stakeholders and the public as areas with operational issues. Analysis of the traffic data confirmed delay in many locations in this area, which is particularly pronounced in the AM and PM peak periods (see Figure 3.2). Drivers turning left from SH 71 onto SH 95/21 frequently experience intersection delay, often for multiple signal cycles, as do drivers turning left onto SH 71 from SH 95/21. Another likely cause of delay in this area is ingress/access issues associated with the Buc-ee's on the east side of SH95/21, as well as traffic entering/exiting Emile Elementary on the west side of the road. It should be noted that an overpass at SH 71 is expected to begin construction in the spring of 2016, which should benefit through traffic when completed.

Congestion on Chestnut Street through downtown Bastrop has been a frequent concern raised by stakeholders and the public, and confirmed through the traffic data. In field reviews, the project team noticed that delays are often

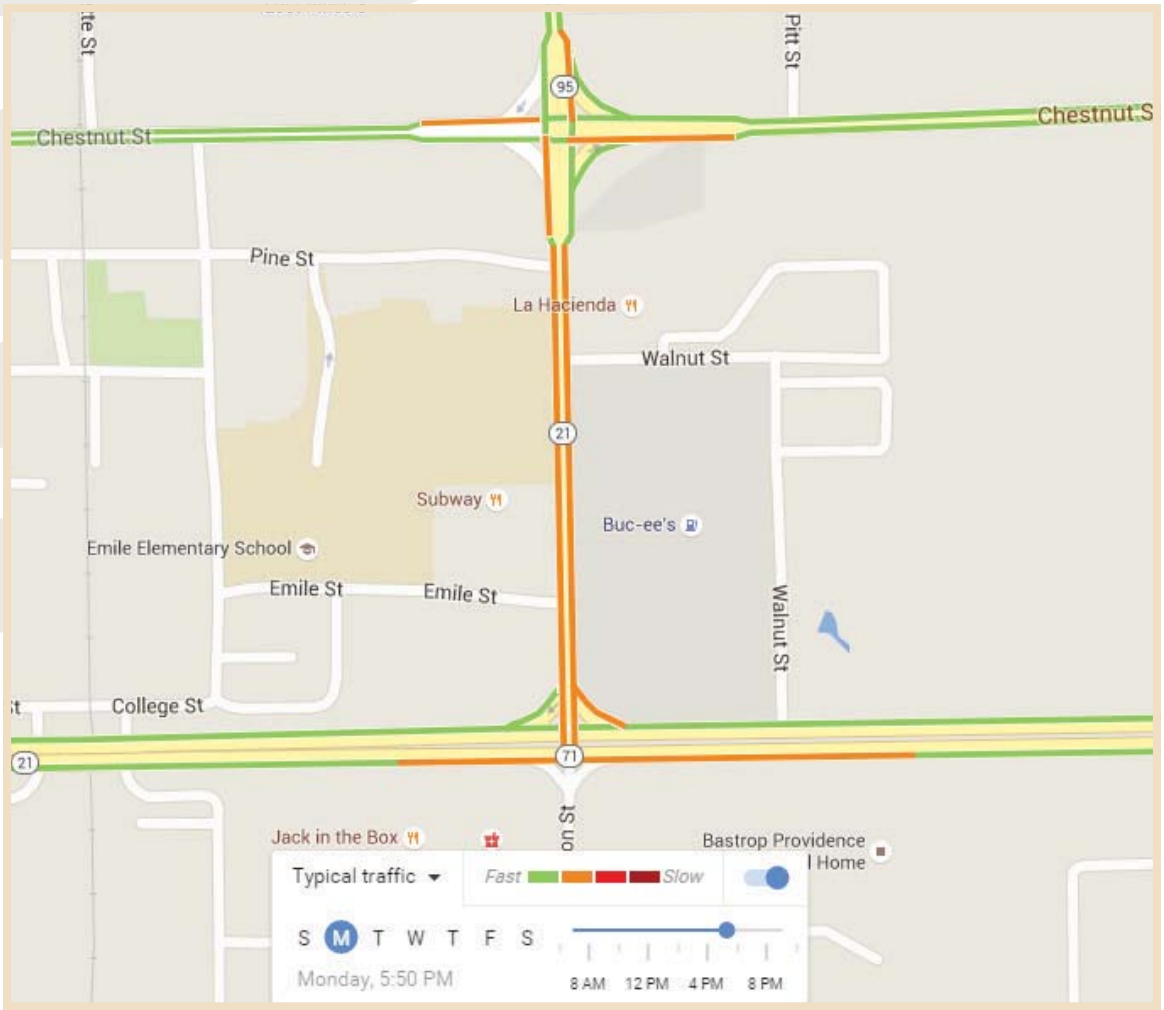
[2] https://www.google.com/maps

caused by drivers trying to make left turns off of Chestnut, which causes long backups for other drivers. Delays may also be caused by signal timing issues. Figure 3.3 shows congested segments on Chestnut Street.

Delay along Old Austin Highway was frequently observed during peak periods. The traffic data also showed reduced speeds along Old Austin Highway in the mid-afternoon, which is to be expected due to the end of the school day at nearby Bastrop Intermediate School and Bastrop Middle School. Delays are also seen at the Loop 150 Interchange during these periods.

Prior to the construction of the Loop 150/Tahitian Drive overpass, congestion at Tahitian Drive and SH 71 was especially pronounced during peak periods, but also occurred at other various times of the day. Stakeholders and the public frequently mentioned this intersection as having operational problems, including signal timing issues. Since completion, the new overpass has reduced congestion for through traffic on SH 71.

Figure 3.2: SH 95 & Vicinity (Typical Traffic, Mondays at 5:50 PM)



Source: Google

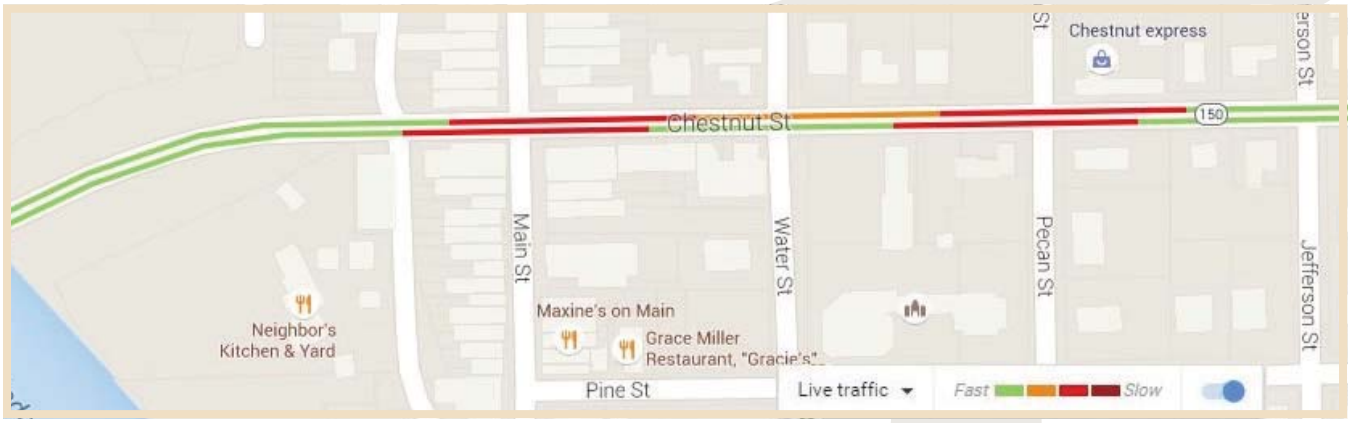
Elgin

Elgin stakeholders and members of the public most frequently mentioned intersections along US 290 as areas with operational issues. Numerous stakeholders brought up issues with traffic signal timing, especially at US 290 and SH 95 N, that result in long queues. Figure 3.4 shows typical traffic for the intersection of US 290 and SH 95 N during the Friday PM peak. It should be noted that US 290 is planned to be upgraded to a four-lane divided highway and that many of the operational issues associated with these intersections will likely be improved when completed. Possible future activity nodes along SH 95 near Elgin may also draw increased traffic, affecting operational conditions and necessitating roadway facility upgrades or maintenance.

Another area Elgin stakeholders frequently highlighted as having operational deficiencies is Avenue C (FM 1100) between SH 95 and County Line Road, especially in the mornings and afternoons when school lets out at the adjacent schools, Elgin High School, Elgin Middle School, and Neidig Elementary. Traffic in this area can make it difficult for buses to get to and from these schools. Figure 3.5 shows typical traffic on Wednesday at 7:40 AM for this corridor. Numerous stakeholders mentioned the intersection of Avenue C and SH 95 as having particularly long queues during the morning and afternoon. The abundance of access points to residential areas in the vicinity, including the Shenandoah subdivision, exacerbates the traffic near the Avenue C and SH 95 intersection. Crosswalks and pedestrian signals are currently planned along Avenue C.

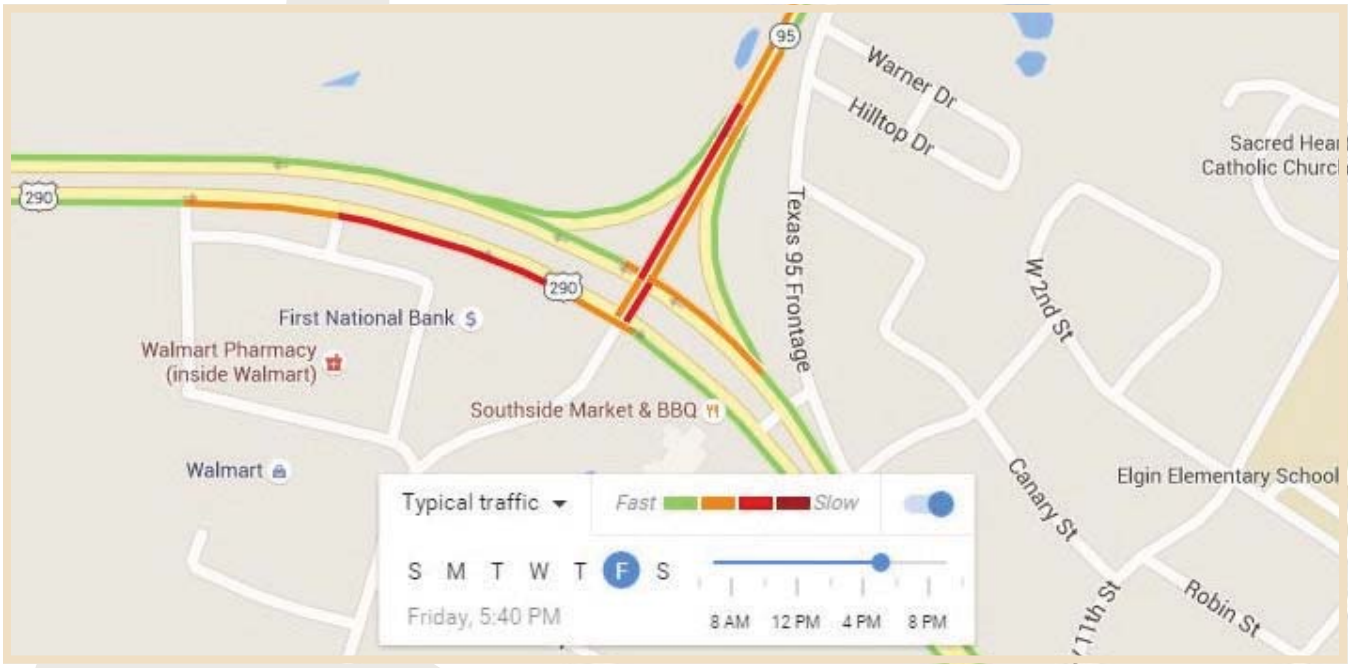
Elgin stakeholders frequently mentioned County Line Road at US 290 as another intersection with congestion issues. The traffic data confirms that congestion occurs here at various times of day.

Figure 3.3: Chestnut St. (Live Traffic, Tuesday 10/27/2015 3:15 PM)



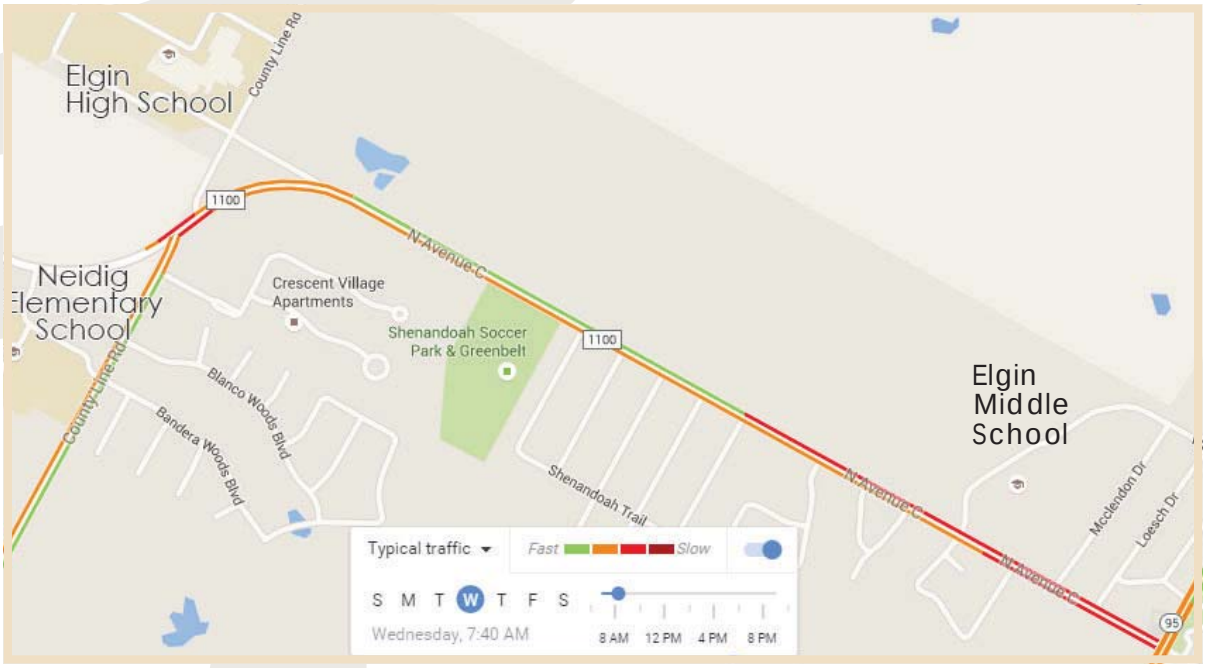
Source: Google

Figure 3.4: US 290 & SH 95 N. (Typical Traffic, Friday 5:40 PM)



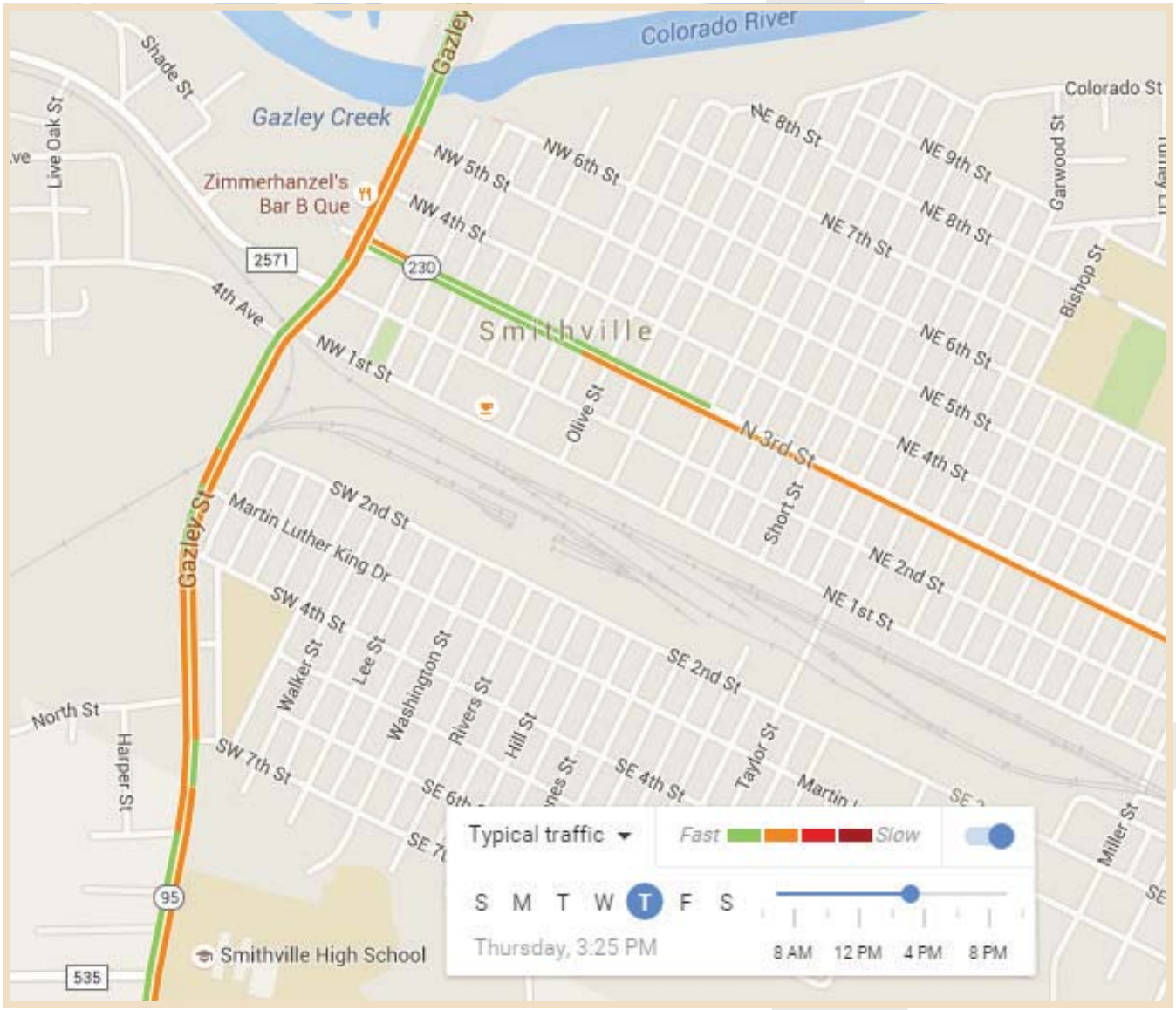
Source: Google

Figure 3.5: North Ave. C (Typical Traffic, Wednesday 7:40 AM)



Source: Google

Figure 3.6: Gazley St. & North 3rd St. (Typical Traffic, Thursday 3:25 PM)



Source: Google

Smithville

While Smithville residents generally agree that congestion is not a major issue within the city currently, numerous stakeholders did indicate that there are certain areas and times of the day when spot congestion can occur. This is mainly caused by the 20-30 trains that come through Smithville every day, blocking the few crossings that divide the town into three distinct areas. Stakeholders also pointed out that traffic in Smithville increases on the weekends.

There is also mild congestion in the mornings and afternoons associated with the schools. There can be fairly substantial queues during these times at the railroad crossings when trains come through town. Figure 3.6 shows mild congestion on a typical Thursday afternoon on Gazley Street north of Smithville High School and North 3rd Street.

A few stakeholders expressed concern that local traffic will increase during the closure of SH 71 main lanes associated with the construction of the SH 95 overpass in Bastrop. They predict that drivers will cut through Smithville to FM 2571, then to SH 304 and into Bastrop; FM 2571 is a small, winding road and may present a safety concern if traffic on it increases.

Unincorporated Areas

The most common congestion issue that stakeholders in the unincorporated areas of the county mentioned was the delay associated with intersections. Intersection delay is especially problematic along SH 71 and US 290. Figures 3.7 and 3.8 provide a few examples of intersection delay observed in the traffic data.

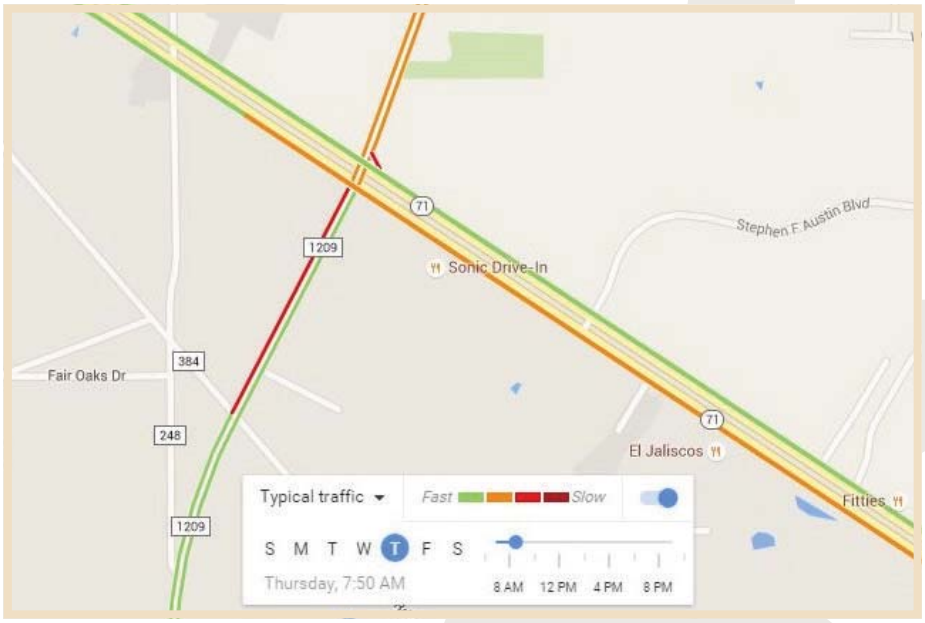
Stakeholders throughout the county made comments about the considerable amount of weekend traffic associated with tourists, special events and pass-through traffic. Friday evenings and Sunday afternoons were specifically mentioned as time periods where congestion can be an issue, and were observed in the traffic data.

The locations identified through this analysis represent a preliminary list of critical locations that should be considered for further analysis throughout the planning process. The project team will continue to collect public input and speak with local stakeholders to further identify additional locations.

Connectivity and Emergency Access

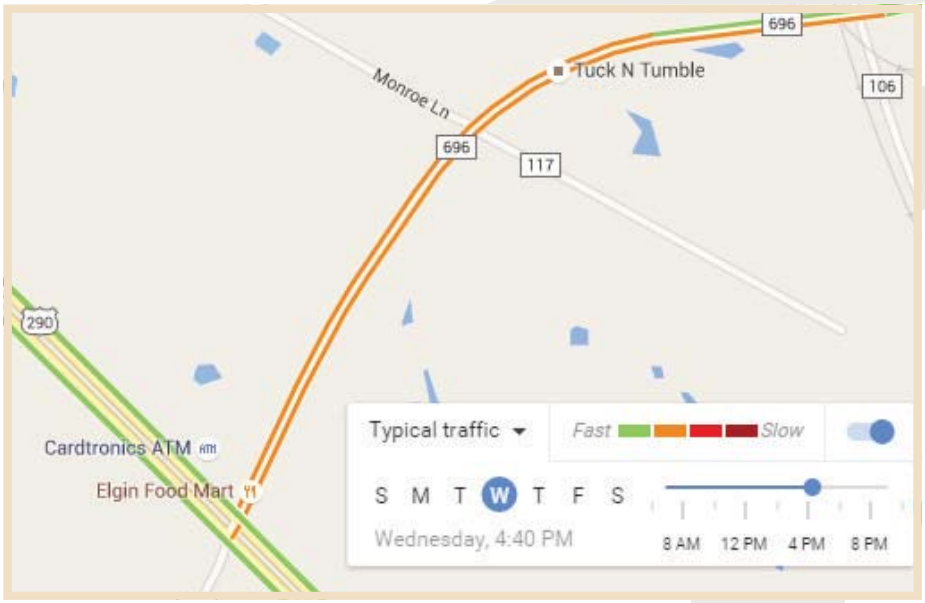
Connectivity between and accessibility to destinations are critical factors that determine the transportation system's ability to serve the needs of area residents and businesses. This section discusses current conditions of the Bastrop County transportation system related to connectivity and emergency access. Connectivity refers to the directness of links and the density of connections in the transportation system, while emergency access refers to the ability of emergency responders to reach all areas of the county in a reasonable amount of time.

Figure 3.7: SH 71 & FM 1209 (Typical Traffic, Thursday 7:50 AM)



Source: Google

Figure 3.8: US 290 & FM 696 (Typical Traffic, Wednesday 4:40 PM)



Source: Google

Connectivity

Local stakeholders and members of the public frequently raised concern about the lack of connectivity in the Bastrop County transportation system.

In Bastrop, residents indicated that the street network needs additional east/west corridors to provide relief from the frequent bottlenecks that occur on Loop 150 and SH 71 at the Colorado River. These two corridors currently represent the only two crossing points for vehicles over the river, although an additional bridge is planned near the XS Ranch development just north of Bastrop. Residents of Tahitian Village have expressed a desire for a bridge to connect their neighborhood to the west side of the Colorado River, along with a need for greater connectivity within the neighborhood. Several stakeholders also expressed frustration over being forced to use the SH 71 frontage roads to access commercial establishments located along the SH 71 corridor, which include many key destinations for residents, such as the Wal-Mart and Home Depot.

Residents in Cedar Creek expressed interest in additional routes into Austin in the mornings and evenings, as SH 71 is congested most days.

Elgin stakeholders expressed a strong desire for increased sidewalk connectivity between key destinations, especially parks and neighborhoods. Stakeholders also expressed interest in providing better connectivity between downtown Elgin and the newer developments on the west side of town, perhaps with sidewalks or bikeways. To promote connectivity, the Elgin Comprehensive Plan recommends that new developments in the city be built with a traditional street grid pattern without the use of cul-de-sacs.

In Smithville the main concern with regards to connectivity is the physical and mental barrier created by the railroads in town. Several stakeholders expressed an interest in creating more pedestrian crossings to provide better access between the south and north sides of the tracks. Several stakeholders expressed a desire for better connections to the Colorado River, both for recreational purposes and as a potential driver of tourism. There is a long-term desire to expand the trail system in and around Smithville, with particular interest in connecting Riverbend Park to the downtown district along the Colorado River. Community members have also discussed utilizing Gazley Creek and the surrounding floodplain as a trail connection from Loop 230 to the river.

During the operational analysis and alternatives testing portions of this study, the project team assessed the connectivity of the Bastrop County transportation system in more detail and identified ways in which the concerns expressed by stakeholders might be addressed.

Emergency Access

In stakeholder meetings with emergency response representatives, the lack of Colorado River crossings was mentioned as a chief impediment to ensuring rapid emergency response times and providing effective evacuation routes for

Bastrop County residents. In Bastrop, congestion or other incidents that cause delay at the city's two Colorado River crossings are an especially significant cause for concern for area emergency response personnel.

Emergency response representatives also discussed the need for increased access points into neighborhoods throughout the county, but mentioned that neighborhoods sometimes oppose increased access due to a desire to maintain the rural character of their community. There was additional concern that the private roads leading into many neighborhoods are often poorly maintained or have poor wayfinding, which can cause difficulty for emergency response personnel.

Multiple stakeholders in the county brought up the fact that while emergency facilities are located throughout the county, none of them have in-patient services. Therefore, if a patient requires admittance to a hospital they must be transferred to an Austin facility. Congestion on SH 290 and SH 71 is thus a potential obstacle to the timely transfer of individuals to Austin area facilities. Stakeholders were generally optimistic, however, that the US 290 and SH 71 toll roads into Austin should help with access to emergency facilities. Currently, patients with serious injuries, including crash victims, are often airlifted to medical facilities outside of the county.

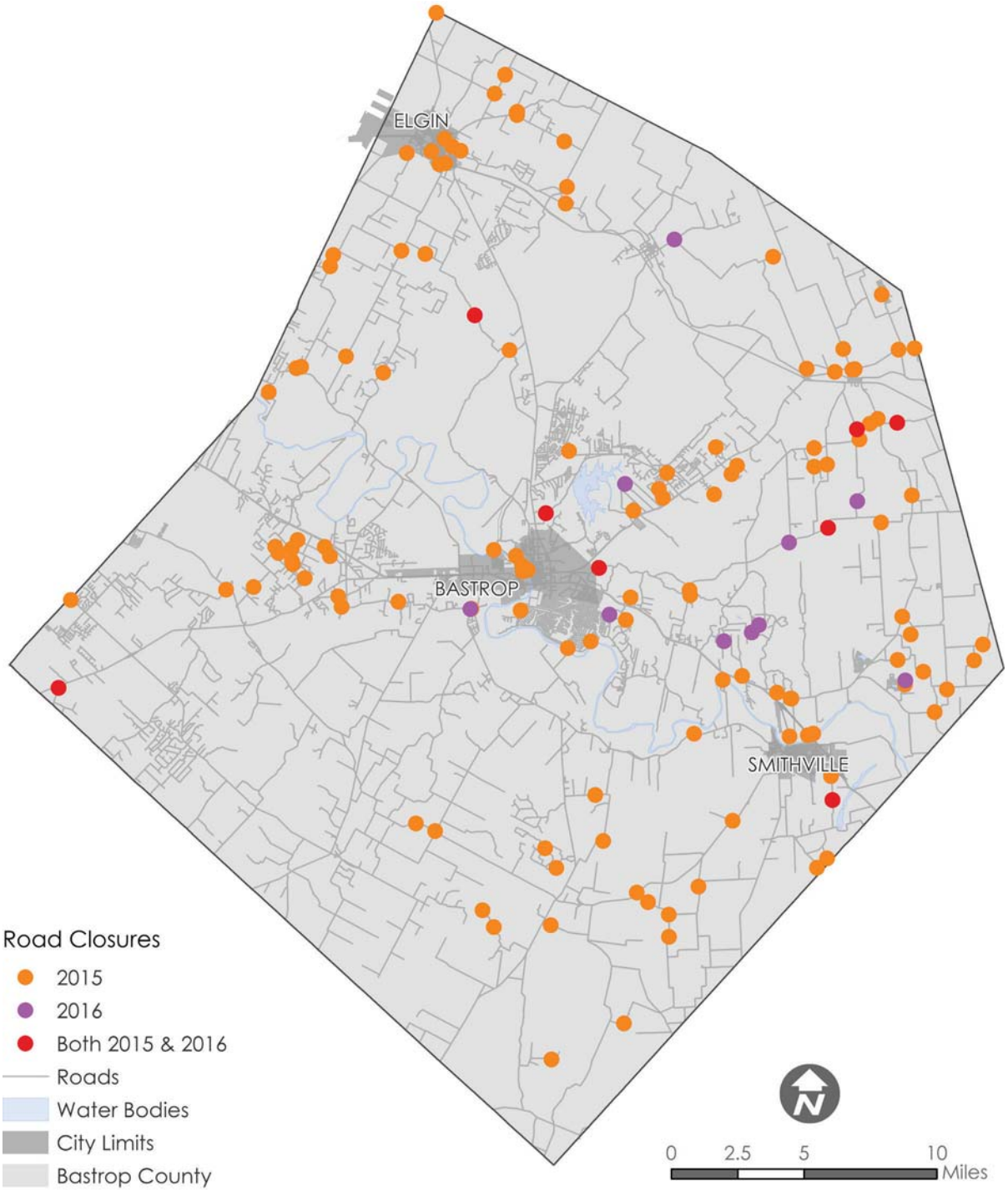
In Smithville, stakeholders thought that the lack of connectivity across the railroad tracks can cause problems for emergency access. If a train were to derail or become stopped for some reason the town would be divided in half. This is a cause for concern in the event of an emergency or evacuation situation. In Bastrop, emergency response representatives expressed a desire to improve SH 71 as it is a designated Hurricane Evacuation Route from the Gulf Coast region.

In addition to the Colorado River bridges discussed previously, low water crossings represent a potential impediment for emergency access in certain areas of the county during heavy rain events. Using data from the ATX floods website, the Bastrop County Office of Emergency Management recently conducted an inventory of roadway closures associated with the major flooding events of Memorial Day Weekend, 2015 and Memorial Day Weekend, 2016. A map showing road closures associated with these flooding events is presented in Map 3.4. This map shows how certain areas of the county may be susceptible to emergency access issues during heavy rain events.

Non-Automobile Options

While the majority of Bastrop County residents either drive alone or carpool to work (see Figure 3.9), local stakeholders and the public have expressed a growing desire for additional transportation options in the area. This section describes existing conditions and stakeholder comments related to non-automobile options in the county.

Map 3.4: Flood Related Road Closures, May 2015 & 2016



Bicycle and Pedestrian Conditions

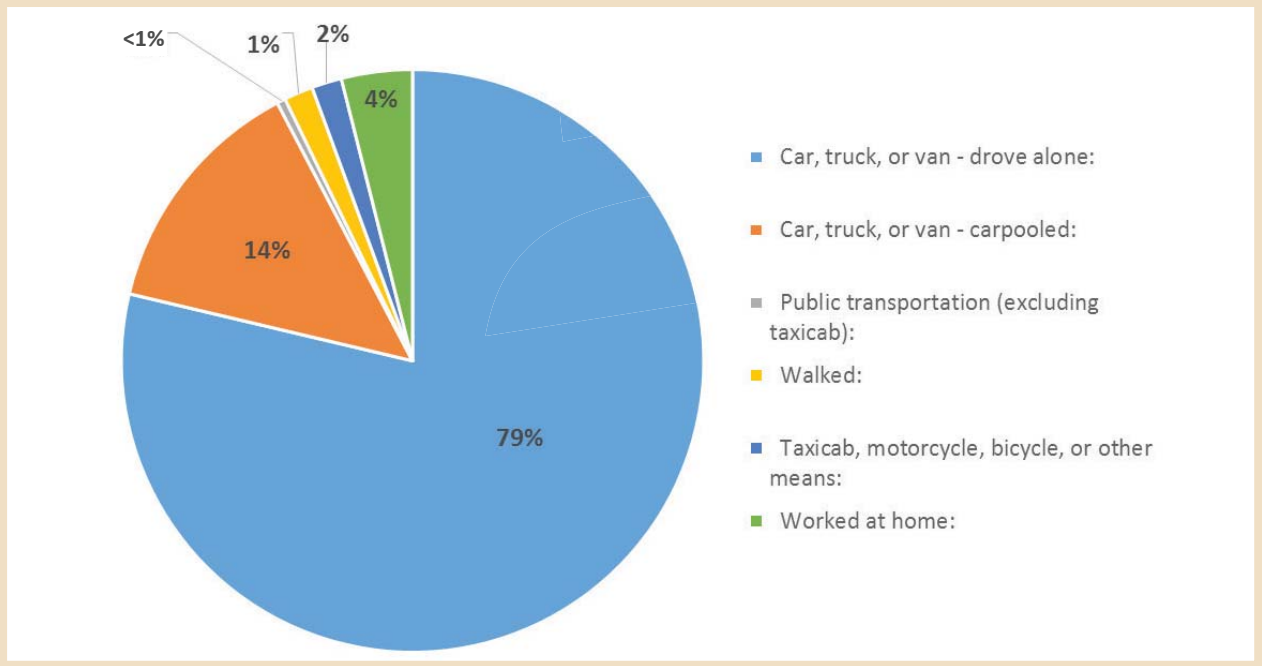
Bicycling Conditions

While there are currently low levels of bicycle commuting in Bastrop County, the county does have a growing recreational cycling community, particularly on weekends. Park Road 1C between Bastrop State Park and Buescher State Park is an especially popular route for cyclists and is part of the annual MS-150 bicycle race from Houston to Austin. The Pedal through the Pines race is also a popular bicycling event in the community. In addition to road cycling, Rocky Hill Ranch in Smithville is a premier mountain biking course, attracting users from throughout the region.

Generally speaking, stakeholders and the public expressed a desire to enhance bicycling conditions in the county. Residents of Tahitian Village in Bastrop indicated that there is a need for better bicycling connections between their neighborhood and the downtown area. A number of residents in Bastrop, however, voiced their concern that bicycling facilities such as wide shoulders or bike lanes would cause congestion for vehicles. Despite these concerns, many of these same residents were amenable to the idea of expanding the off-street trails system to connect parks and other key destinations in the city.

Elgin residents indicated a desire to connect key destinations in the city with better bicycle infrastructure. Multiple stakeholders wanted

Figure 3.9: Means of Transportation to Work for Bastrop County Residents



Source: U.S. Census Bureau, 2009-2013 5-Year American Community Survey

better connections with the HEB on US 290. The community also expressed interest in a bikeway connecting Elgin with Manor to connect with the Austin to Manor Trail and Southern Walnut Creek Trail into central Austin.

In Smithville, stakeholders expressed interest in improving active transportation options near schools and along key corridors. Some residents felt that recreational cyclists had adequate facilities in state parks, and that there was no demand for additional off-road bike facilities, however, others disagreed. One stakeholder noted seeing several recreational cyclists utilize SH95 south of Smithville due to the wide shoulders.

Pedestrian Conditions

In Bastrop, stakeholders expressed a desire for better sidewalk connectivity in neighborhoods and between key destinations, such as between the retail strip along SH 71 and the downtown area. Residents also expressed interest in a signature trails system along the Colorado River to promote tourism, economic development, and recreational opportunity the city. A recent TxDOT grant has been awarded to Bastrop to enhance pedestrian connectivity between the city and Bastrop State Park.

Elgin stakeholders indicated that many residential areas in the city have missing or incomplete sidewalk networks. Numerous stakeholders identified Highway 290 as a major safety concern both for pedestrians and bicyclists, noting that the road needs better lighting, has few crosswalks, and that there have been a number of pedestrian fatalities/injuries as a result of these conditions. In fall 2015, CAMPO allocated funding for the planning, design, and construction of sidewalks throughout the city as part of the Elgin Connections project.

Smithville residents expressed interest in better pedestrian connections across the railroad tracks into the downtown area, as well as trails along the Colorado River. CAMPO Surface Transportation Program-Metropolitan Mobility (STPMM) funds have been allocated for the study and construction of pedestrian paths and a middle turn lane along SH 95/Gazley Street between Smithville High School and Loop 230 to address safety, but currently the area is still difficult to navigate for people who travel by foot, bike, and motorized scooter. Numerous stakeholders were encouraged by the inclusion of a new shared-use path that will be included as part of the SH 95/ Gazley Street expansion, and would like to see similar projects on other streets in the city.

Public Transportation

Existing Public Transportation

Public transportation in Bastrop County is provided by Capital Area Rural Transportation System (CARTS), which provides a variety of fixed route and on-call transit services to 169 communities throughout Central Texas. Map 3.5 shows an overview of existing CARTS services available in Bastrop County.

The CARTS **Interurban Coach** provides regional intercity bus service throughout the CARTS service area. Communities in Bastrop County are served by the 1518 Purple Route, 1519 Blue Route, and 1520 Pink Route.

- The 1518 Purple Route offers weekday service between Bastrop and Austin, providing connections to a number of Capital Metropolitan Transportation Authority (Cap Metro) routes in Austin, other CARTS connections, and the ACC Riverside Campus. The trip from Bastrop to CARTS Headquarters in downtown Austin is scheduled to take 45 minutes during off peak hours and one hour and 15 minutes during peak times.

- The 1519 Blue Route provides fixed route service from downtown La Grange to the Smithville and Bastrop CARTS stations. The service runs on Mondays, Wednesdays, and Fridays. In Bastrop, customers are able transfer to the Bastrop Interurban Route (1518 Purple Route) with service into Austin.
- The 1519 Blue Route provides fixed route service from downtown La Grange to the Smithville and Bastrop CARTS stations. The service runs Monday, Wednesday, and Friday. In Bastrop customers are able transfer to the Bastrop Interurban Route (1518 Purple Route) with service into Austin.

- The 1520 Pink Route offers service on Tuesdays and Thursdays between downtown La Grange to Austin with stops in Giddings, Paige, Elgin, Elgin ACC, and the Austin Greyhound station. Service between Elgin and the Austin CARTS headquarters is scheduled to take 55 minutes.

CARTS offers a **Grasshopper** service for Interurban Coach users to provide a connecting ride between Austin CARTS Headquarters and medical appointments or other nearby business in Austin. Grasshopper service must be booked in advance and passengers must meet certain eligibility requirements (registered CARTS customer of age 65 or older, persons pre-approved under the reduced fare program, CARTS ADA Eligibility Guidelines, or Veterans traveling to a VA Center).

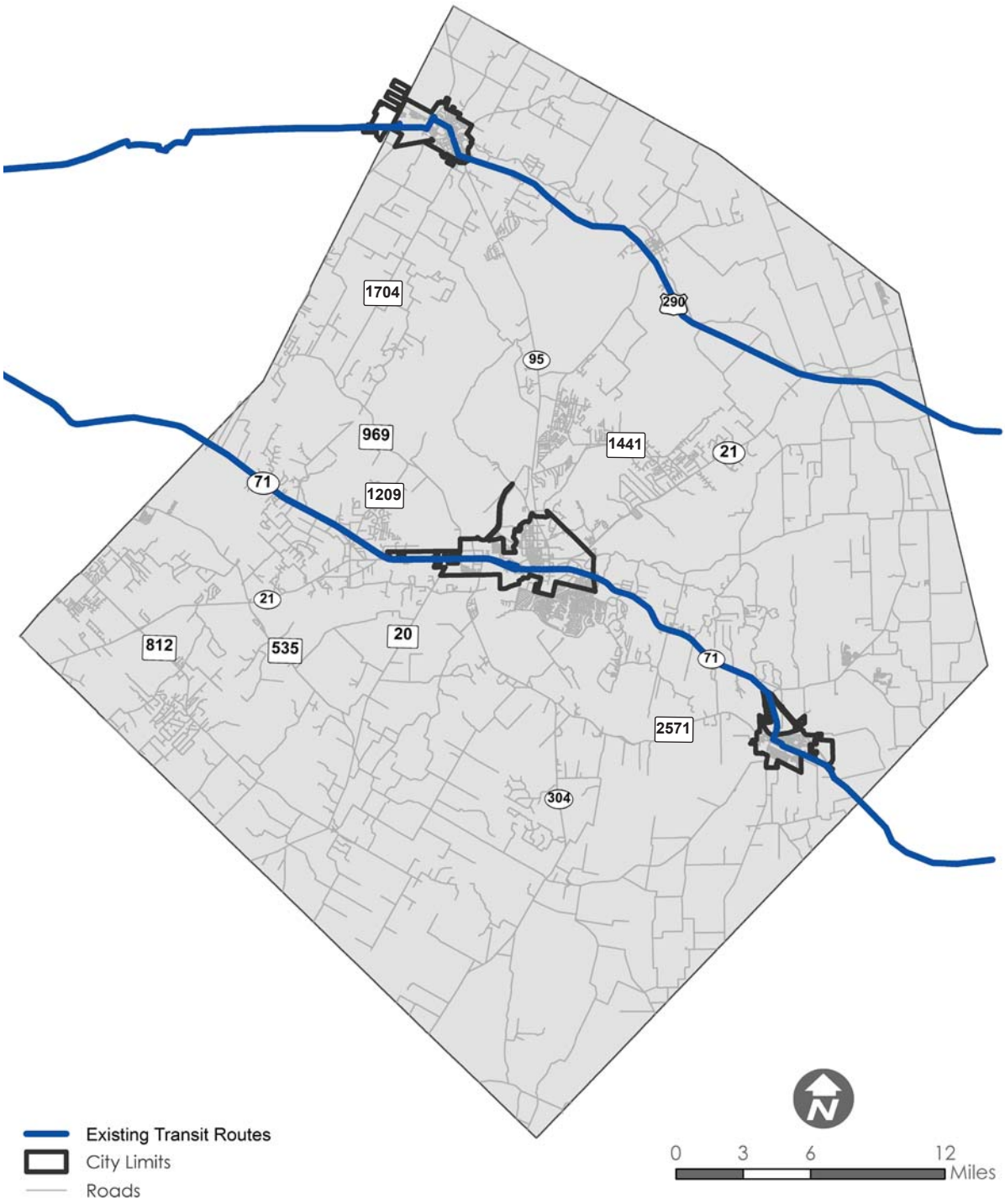
The **Country Bus** is a curb-to-curb service serving rural areas of the CARTS service area, and is intended for disabled individuals or others requiring additional assistance. The Country Bus provides service within individual communities and connects neighboring communities within Bastrop County, while also providing service into Austin on a more limited schedule. Reservations can be made by phone for rides Monday through Friday between 7:00 a.m. and 4:00 p.m.

Weekday **Commuter** service is provided from Smithville and Bastrop into downtown Austin and the Capitol Complex area. In the morning the service departs the Smithville Park and Ride at 5:45 a.m. and in the evening it departs Austin at 4:40 p.m. Users of this service must purchase a monthly subscription that costs $120.00.

The **Metro Connector** (Manor/Elgin Express 990) offers bus service from downtown Elgin into Austin, with stops at the Elgin Park and Ride and Manor Park and Ride. The service is targeted towards individuals commuting into Austin, with service offered Monday through Friday in the mornings and evenings.

A **Municipal Bus** service offers daily, fixed route service connecting neighborhoods, schools, businesses, and other key destinations within Bastrop. The Bastrop service has three routes

Map 3.5: CARTS Service Area



– North, West, and South – offering service between 7:30 a.m. until 5:30 p.m., with a midday service break between 11:30 a.m. and 12:30 p.m. Each bus is equipped with bicycle racks and ADA accessible ramps. The flat fare is $1.00 with a reduced fare of $0.50 for eligible riders.

Lastly, CARTS offers door-to-door **medical transportation** for appointments and other non-emergency medical services for the Texas Department of Health and Human Services (HHSC). This service is free for eligible users but must be arranged by the HHSC call centers.

Commuter/Passenger Rail

Several commuter/passenger rail projects have been discussed over the past decade that could affect Bastrop County.

One of these projects is a proposed 28-mile Cap Metro commuter rail line known as the "Green Line" that would connect Austin to Elgin via Manor along existing track owned by Cap Metro. The Elgin Economic Development Corporation optioned 80 acres in the northwest portion of the city for a future rail station and transit-oriented development. A 2007 study by the Elgin EDC estimated nearly $1.5 billion in additional tax base over the 50 year buildout of the area surrounding this station. One hurdle to realizing the Green Line is the fact that Elgin is not currently within the Cap Metro service area. The CAMPO 2040 Regional Transportation Plan includes $586.9 million in funding for the Green Line to be let for construction in 2025.

Stakeholder Comments on Public Transportation

Stakeholders and the public are generally supportive of expanded public transportation options to provide connections both within the county and to areas outside of the county. Below is a summary of stakeholder and public comments regarding public transportation in the county.

Demand for Public Transportation

- Within Bastrop a number of stakeholders believe that low income and elderly residents would benefit most from expanded public transportation coverage, especially if it provided connections to critical locations such as the HEB, Wal-Mart, and doctors' offices on SH 71. There was also interest in a bus service linking Bastrop to Elgin and the ACC campus. One stakeholder thought that CARTS should explore the possibility of pick up location at SH71 and SH21.

- Several Smithville residents said that there is demand for more frequent bus service from Smithville into Bastrop and Austin. Smithville has substantial minority and low-income populations that would benefit from better public transportation.

Views of Existing Services

- Stakeholders expressed frustration with the lack of frequency and coverage of CARTS services, along with a lack of destinations/ activities at the termination of CARTS service in Austin.

- One stakeholder felt that CARTS services are mostly utilized by senior citizens or those needing frequent medical help. The

same stakeholder speculated that users of the service see it as efficient and helpful; however, it is not widely utilized or well known.

- Many stakeholders thought that CARTS needed better marketing so that people could more easily understand how to use existing services. They believed that better marketing and awareness of the system will likely result in a larger ridership.

Rail

- Stakeholders from all areas of the county expressed a desire for commuter rail service to and from Austin to provide better access than what is currently offered by CARTS, as well as for the potential economic development opportunities it would provide.

- Several Smithville residents indicated that train horns can cause a noise nuisance. After evaluating the potential for "Quiet Zones" at Smithville's five railroad crossings, it was discovered that additional safety improvements are necessary at each crossing to effectively reduce the risk associated with silencing train horns. The improvements required are based on local conditions such as highway traffic volumes, train traffic volumes, accident history, physical characteristics of the crossing, and existing safety measures. Unfortunately, the expense to qualify each crossing as a "Quiet Zone" is prohibitive at this time.

- One stakeholder in Bastrop thought that the rail line between Taylor and Bastrop is underutilized.

Other Services

- Several stakeholders expressed interest in ridesharing services to provide mobility options within the county and to/from Austin.

- One resident expressed interest in an electric street car system to promote Smithville's railroad heritage and economic development.

Safety

Safety concerns related to the transportation system were frequently mentioned in conversations with area stakeholders and members of the public. Analysis conducted as part of the CAMPO 2040 RTP revealed that Bastrop County has a higher fatality rate per vehicle mile traveled (VMT) than the rest of the counties in the CAMPO region, as is shown in Figure 3.10.

To better understand existing safety conditions of the Bastrop County transportation system, the project team focused on two main areas: 1) an analysis of crash locations in the county to look for crash patterns and contributing factors and 2) stakeholder and public input to provide additional information on particular safety-related concerns that may otherwise not be revealed by the crash analysis. This section presents a summary of a more detailed analysis of the crash data and other safety issues conducted as part of the Crash Analysis Technical Memorandum delivered to Bastrop County in September 2014.

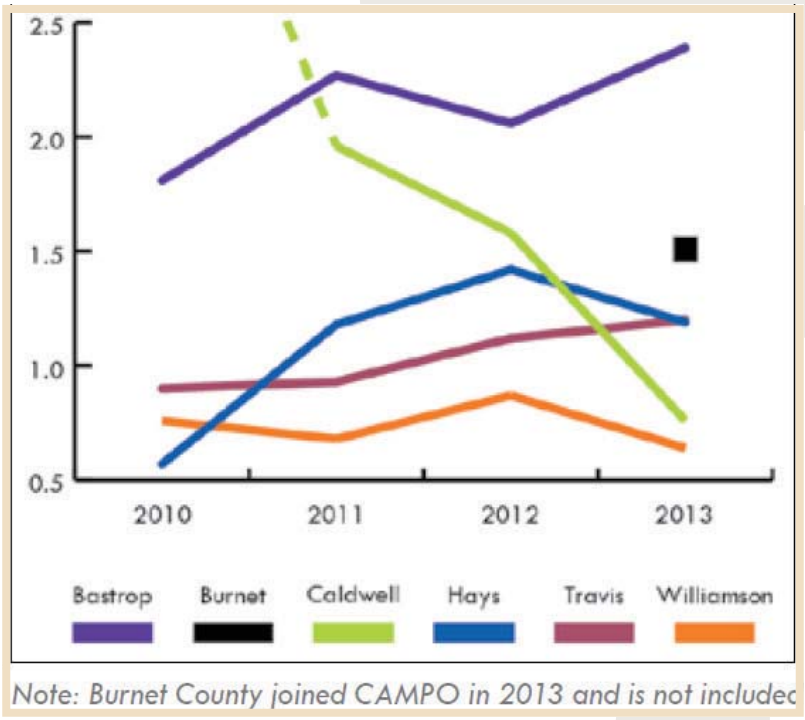
Crash Analysis Summary

The project team analyzed crash data for Bastrop County from the Texas Department of Transportation's (TxDOT) automated, statewide Crash Records Information System (CRIS) from between 2010 and 2014. Below is a summary of the main findings from this analysis.

Crash Statistics

- Between 2010 and 2014 there were at total of 5,978 crashes in Bastrop County, resulting in 2,869 injuries, 443 incapacitating injuries, and 83 fatalities. Of those fatalities, eight were either a bicyclist or pedestrian.
- The percentage of crashes involving incapacitating injuries (17.6%) and fatalities (18.1%) occurring on County roads (as opposed to local roads or state highways) is similar to the percentage of total crashes occurring on County roads (19.7%).
- While only 26.3% of all crashes occurred at intersections, 32.3% of all injury crashes occurred at intersections.

Figure 3.10: Fatality Rates by County (per 100 million VMT)



Note: Burnet County joined CAMPO in 2013 and is not includec

Source: CAMPO 2040 Regional Transportation Plan

Contributing Factors

- Approximately 88% of crashes in Bastrop County occurred during clear or cloudy conditions, while 12% occurred during weather events. Rain was the most common weather condition during crashes.
- Alcohol and/or drug use were contributing factors in a disproportionate number of fatalities in Bastrop County. While crashes involving alcohol or drug use accounted for only 4% of all crashes, they accounted for over 22% of fatalities in the county.
- Driving while asleep or fatigued was a contributing factor in 2% of crashes and nearly 5% of fatalities in Bastrop County during the 2010-2014 period.
- The PM Peak period (4PM to 7PM) had the highest number of crashes, injuries, and fatalities per hour of any time period.
- The majority (54.3%) of crashes in the county involved two units (cars, trucks, other vehicles, and pedestrians); single vehicle incidents accounted for 34% of all crashes.

Comparison to Peer Counties

In order to compare Bastrop County crash rates to those of other counties in the CAMPO region, 2014 TxDOT crash data was normalized by US Census county population estimates for each county for that same year. The results of this analysis are shown in Table 3.4. Of the six counties in the CAMPO region Bastrop County had the second highest per person crash rate in 2014, behind Caldwell County. Bastrop County ranked third in incapacitating injury and fatality rates behind Burnet and Caldwell Counties.

Table 3.4: Crashes, Injuries, and Fatalities for CAMPO Counties, 2014 (crashes per 10,000 people)

County	Census Population	All Crashes	Incapacitating Injuries	Fatalities
Bastrop	78,069	168.06	12.81	1.79
Burnet	44,943	150.41	12.91	4.45
Caldwell	39,810	176.34	14.32	3.77
Hays	185,025	138.25	7.24	0.92
Travis	1,151,145	133.9	5.63	0.81
Williamson	489,250	112.99	5.25	1.00

Source: 2040 CAMPO 2040 Regional Transportation Plan

Crash Location Mapping

In order to identify high incident locations within the county, maps were created from the latitude and longitude coordinates or other location identifiers of each crash for which they were available. The maps on the following pages show crash hotspots (see Map 3.6) and crashes involving serious injuries and fatalities (see Map 3.7).

Stakeholder Comments on Safety

The project team conducted a series of four stakeholder interviews focused specifically on the topic of safety. Participants in these focus groups included elected officials, County engineers and planners, and County EMS and law enforcement personnel, among others. A summary of comments from these stakeholder meetings for Bastrop, Elgin, Smithville, and countywide safety issues is provided below.

Bastrop Safety Stakeholder Meeting

The stakeholders pointed out several locations where the topography or curves along SH 71 present a dangerous situation leading to several known accidents. Some of the concerns along SH 71 are being addressed by a current TxDOT project to construct overpasses at two key signalized intersections in Bastrop – at SH 95 and at Tahitian Village Drive – which should reduce crash rates at those intersections (the SH 95 and SH 71 intersection had the second highest number of crashes according to the crash analysis data).

Tahitian Village also presents some unique transportation safety concerns. The group called attention to the extremely steep grades limiting visibility and leading to a higher than average number of crashes. Additionally, the lack of ingress/egress points to the development may pose a challenge to evacuating the community in case of a flood or fire.

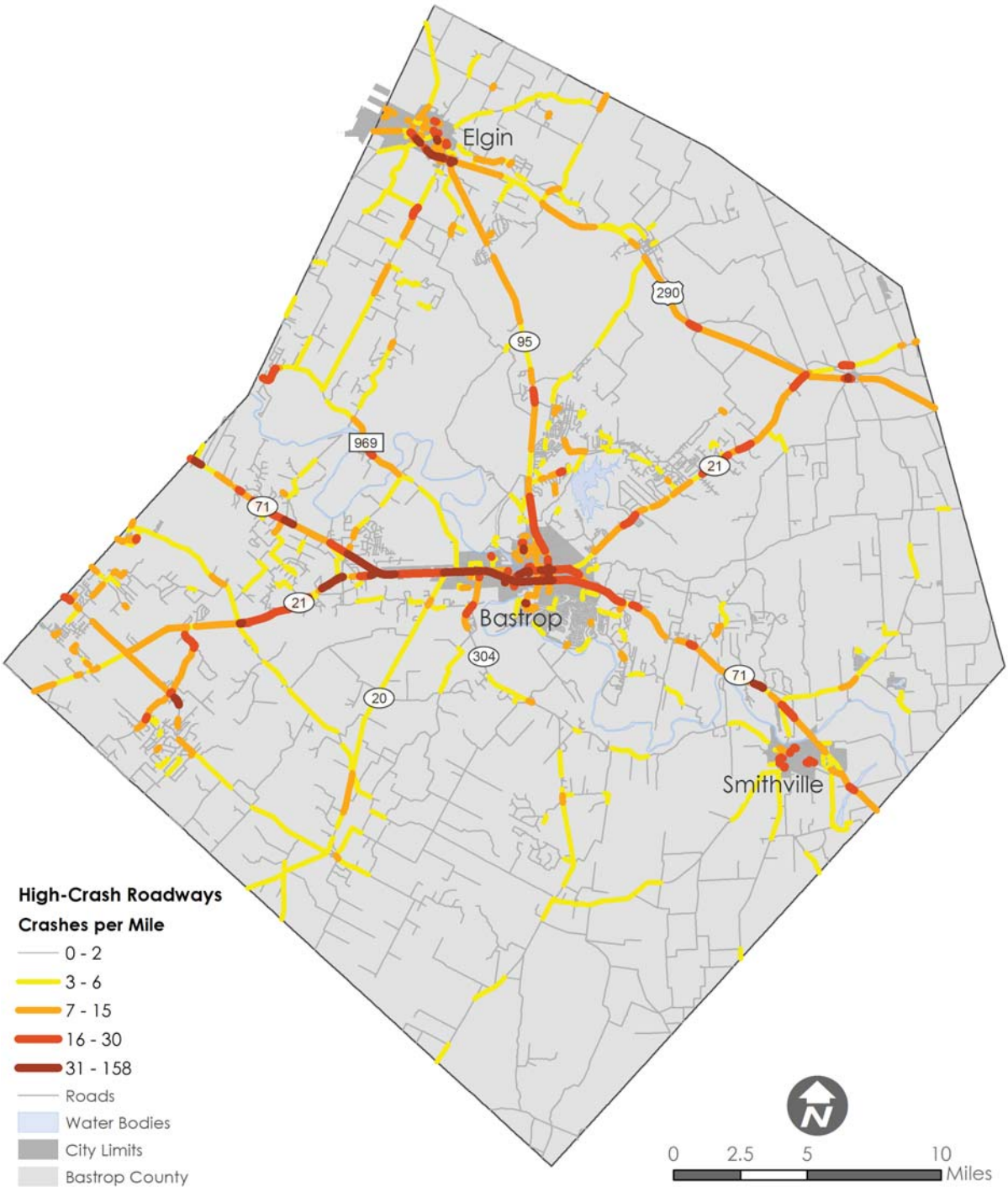
Finally, the group mentioned the prevalence of "close calls" with school buses on busy roads, particularly SH 71. One participant even recalled witnessing a motorist passing a school bus that was stopped to unload children on the side of the bus that children were exiting.

Elgin Safety Stakeholder Meeting

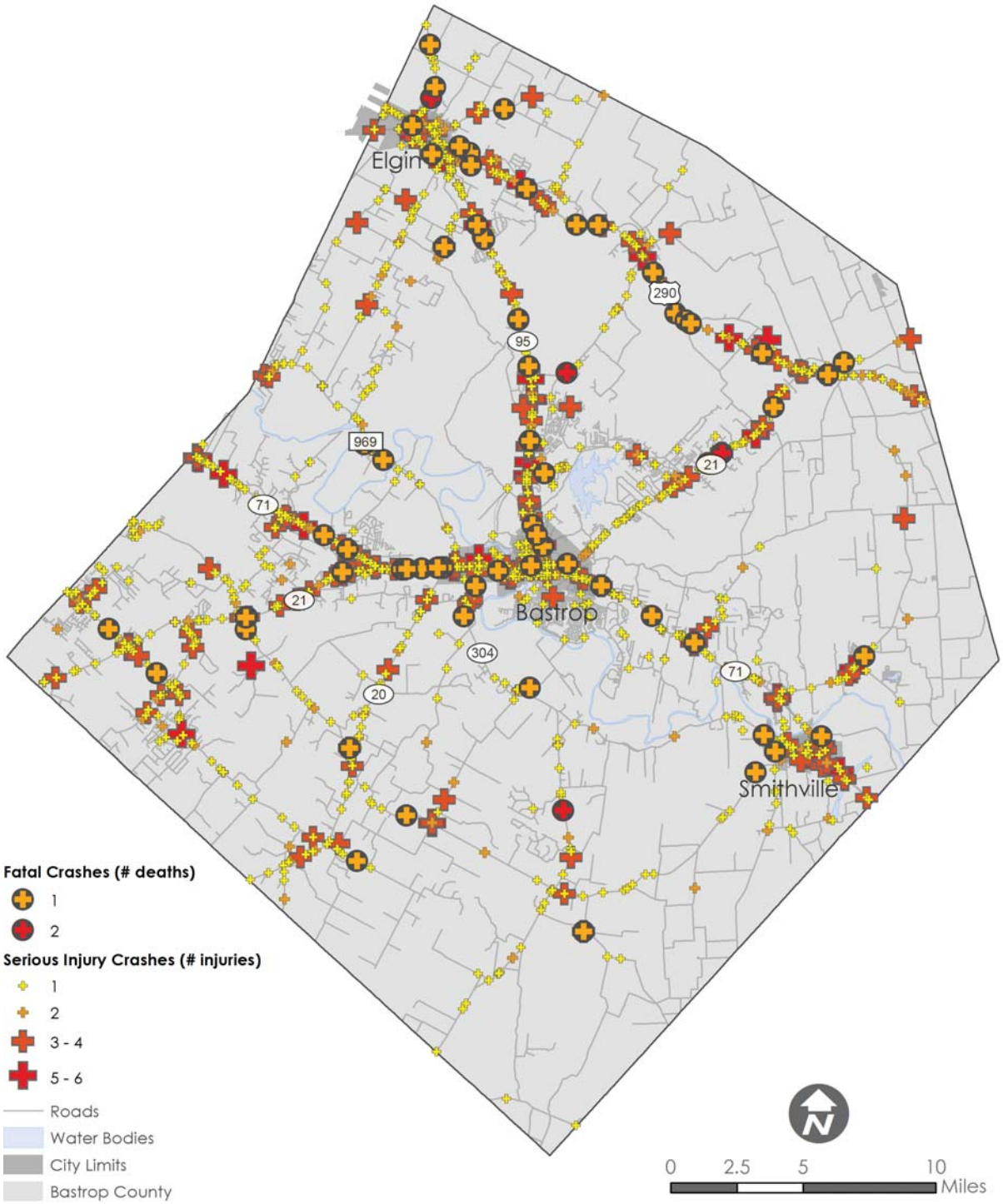
Elgin stakeholders described some of the successes with the Safe Routes to Schools program, including the construction of sidewalks on FM 1100/Avenue C. The stakeholders indicated that there are often issues getting school buses into and out of the Elgin Middle School due to traffic congestion.

The Elgin group identified US Highway 290 as a major safety concern both for motorists and pedestrians. The group also mentioned that the road needs better lighting, has few crosswalks, and that there have been a number of pedestrian fatalities/injuries as a result of these conditions.

Map 3.6: Crashes per Mile by Road Segment, Bastrop County 2010-2014



Map 3.7: Serious Injury and Fatality Crashes, Bastrop County 2010-2014



Smithville Safety Stakeholder Meeting

The Safe Routes to Schools program in Smithville has led to the construction of sidewalks on 4th Street from Eagleston to 95, Washington Street from SE 4th Street to the high school, and Loop 230 from Bluebonnet Circle to McSweeny Street. The program has also spurred a number of school safety initiatives including Walk to School Wednesdays and Reading to Ride. Despite the successes of the SRTS program, there are still a number of areas with safety concerns. The group specifically mentioned wanting to keep schoolchildren off of SE MLK Blvd., as it is a heavily traveled road without any stop signs. Participants noted that they were not aware of any particular school bus system safety concerns.

The exit lanes from SH 71 at Riverbend Park were identified as an area to further examine. Stakeholders also cited the lack of signage warning drivers about exits on both East and Westbound lanes, the short length of exits, and the 75 mph highway speed as primary concerns that combine to increase the chance of accidents.

CAMPO Surface Transportation Program - Metropolitan Mobility (STPMM) funds have been allocated for the study and construction of pedestrian paths and a middle turn lane along SH 95 between Smithville High School and Loop 230 to address safety. According to one stakeholder, pending implementation of these improvements, the area remains difficult to safely navigate, especially for people who travel by foot, bike, and motorized scooter.

Countywide Safety Stakeholder Meeting

The countywide stakeholder group mostly confirmed several of the concerns raised by stakeholders at each individual city. The lack of Colorado River crossings was mentioned as a chief impediment to ensuring rapid emergency response times and effective evacuation routes. Furthermore, the group expressed a desire to improve US 290 and SH 71 as these are designated Hurricane Evacuation Routes from the Gulf Coast.

The countywide stakeholders – which included representatives from the largest school bus operator in the county – echoed the concerns raised by Bastrop stakeholders about school bus safety. The main concerns were a lack of pedestrian access to bus stops along major roads, and problems with motorists passing stopped buses. The group also identified a lack of non-motorized transportation options as a challenge for the county.

Environmental Constraints

There are several environmental characteristics of Bastrop County that require special consideration when planning for the future transportation system.

- The Lost Pines Forest, located near Bastrop, is a 13-mile stretch of loblolly pines (Pinus taeda). This stand of pines is unique because it is located more than 100 miles from the Piney Wood region covering

parts of Texas, Arkansas, Louisiana, and Oklahoma. A portion of the Lost Pines Forest is located within Bastrop State Park and Buescher State Park. The Lost Pines are a crucial part of the county's identity and tourism. Over 34,000 acres of the forest were destroyed by the Bastrop County Complex fire in 2011.

- The majority of land area in the county falls within the Post Oak Savannah vegetation area of Texas. Other areas fall within the Blackland Prairie vegetation area, which is considered one of the most endangered ecosystems within North America.

- Portions of the county fall within the habitat area for the Houston toad (Bufo houstonensis), an endangered species that is estimated to have less than 2,500 mature individuals in the wild. Areas of Bastrop State Park, which has historically been the primary breeding area for the Houston toad, are closed during the February/ March mating season. Much of this habitat was lost in the Bastrop County Complex fire in 2011. Habitat loss, urbanization, pesticides, and drought are a few of the threats for the Houston toad. The Lost Pines Habitat Conservation Plan (2008) acts as a management and recovery plan for the Houston toad, covering approximately 124,000 acres in the northeast quadrant of the county and roughly corresponding to the location of the Lost Pines Forest.

- Most of the county falls within the Colorado River Basin, while other areas of the county are located within the Brazos and Guadalupe basins. Colorado River flows are regulated by the Lower Colorado River Authority through Buchanan and Mansfield dams in the Highland Lakes area. Bastrop County has 32 lakes, with Lake Bastrop being the largest.

- Air quality represents a critical public health issue, especially for vulnerable populations such as children or those with preexisting respiratory conditions. The Austin-Round Rock MSA is currently in attainment of EPA standards for ground-level ozone, although the agency is in the process of tightening those standards, which could potentially affect the region's attainment status. Bastrop County is a member of the Central Texas Clean Air Coalition (CAC) and participates in the Ozone Advance Program Action Plan through its membership in the Capital Area Council of Governments (CAPCOG). This plan has the goal of staying in attainment of EPA air quality standards, reducing ozone levels, and putting the region in a position to quickly bring the area into attainment if it does fall into non-attainment status.

Each of these environmental constraints was considered throughout the planning process to ensure that the development of the Bastrop County Transportation Plan thoroughly accounts for the numerous sensitive environmental issues in the county and mitigates any impacts to these areas that may result from proposed transportation improvements.

Environmental Justice and Social Equity

In order for the 2016 Bastrop County Transportation Plan to provide a balanced transportation system that enables mobility for all of the county's residents, it is important to evaluate how the transportation system serves those individuals who may not have routine access to a reliable automobile or may have some other mobility constraint that limits their use of a private automobile. In current transportation planning practice, identifying mobility and accessibility deficiencies across the entire socioeconomic spectrum of transportation system users is described as an environmental justice (EJ) analysis.

Environmental Justice Areas

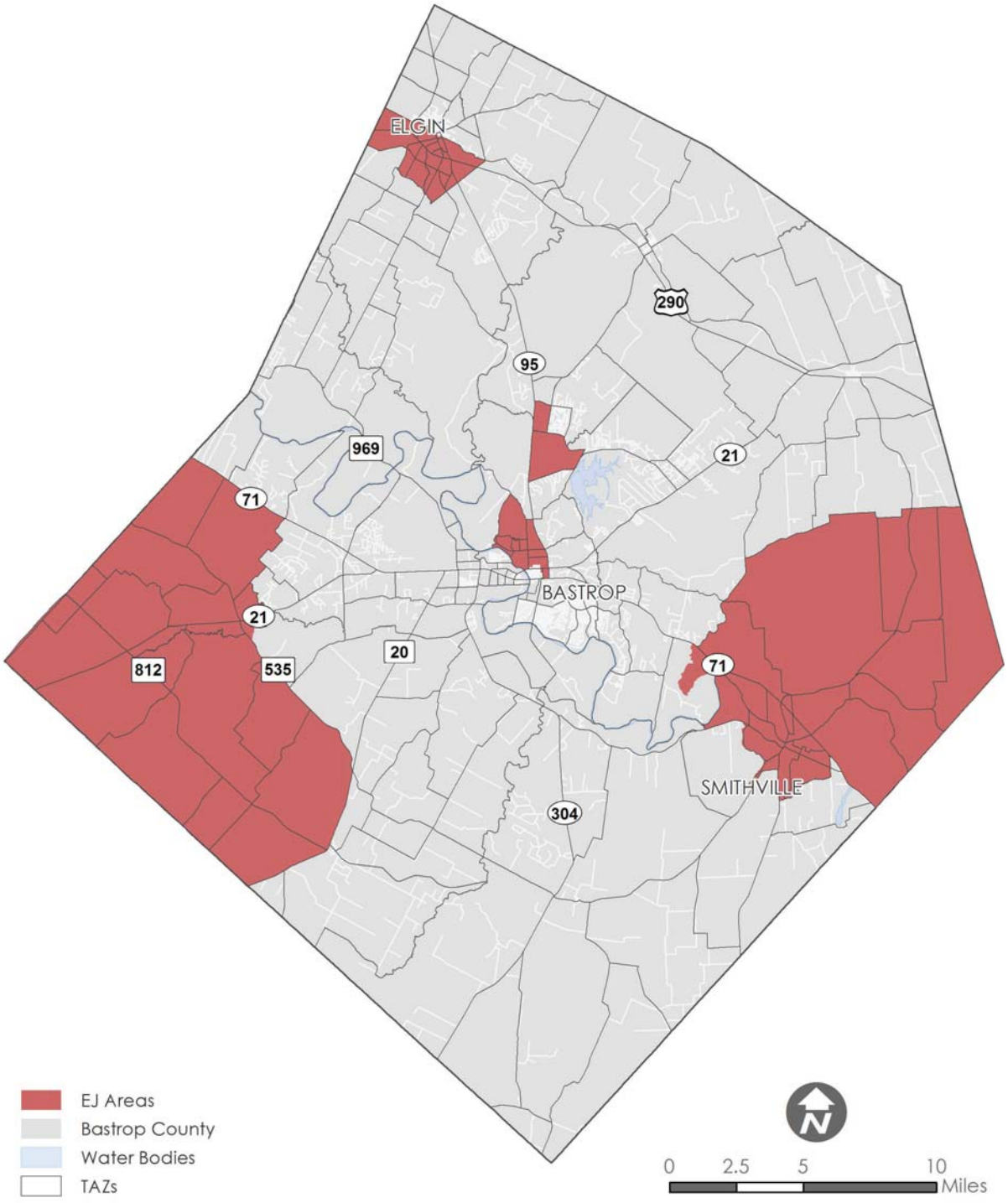
For the purposes of the 2016 Bastrop County Transportation Plan, the EJ areas within the county were defined using the most recent (2010-2014) American Community Survey (ACS) household income and race data taken at the block group level. With guidance from the CAMPO 2040 Regional Transportation Plan, Alliance first developed the following criteria for considering whether or not a block group would be classified as an EJ area:

- 50% or more of the households within the block group earn less than 80% of the median household income for the entire county ($42,705 but rounded down to $40,000);[3]
- 25% or more of the households within the block group earn less than the poverty threshold—defined by the US Census Bureau—for a three-person family ($18,850 but rounded up to $20,000); and
- Less than 50% of the population within the block group identifies as White non-Hispanic.

In order for a block group to be classified as an EJ area, at least one of the above criterion had to apply to that block group. Once all of the EJ areas were identified and mapped at the block group level, Traffic Analysis Zones (TAZ) were overlaid in order to determine which of them fell within an EJ area (Map 3.8). Most of the TAZs share boundaries with identified block groups; however, it should be noted that several of the TAZs are only partially designated as being within an EJ area.

[3] Income criteria were rounded, because household income is reported in predetermined groups. Rounding the criteria to the nearest low end of an income group made it possible to easily aggregate the number of households within income groups below a specific threshold.

Map 3.8: Environmental Justice Areas, Bastrop County



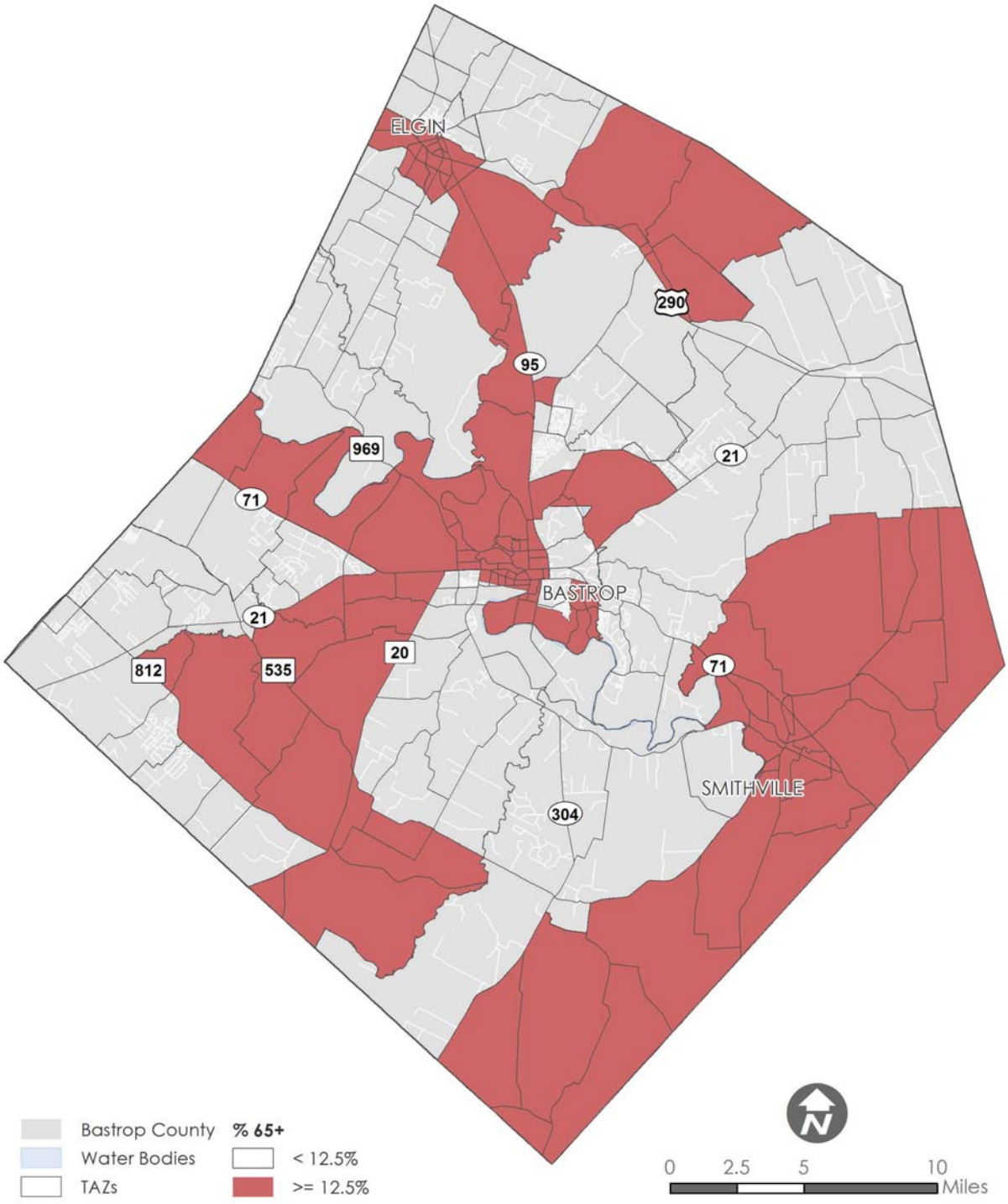
Considerations for Other Sensitive Populations

Aging Population

Aging or elderly adults (i.e. those 65 years or older) often display different travel behavior from the rest of the population. For instance, health issues or the inability to safely operate a personal vehicle may require these individuals to rely on ridesharing services or paratransit to get around. Therefore, it is important to identify areas that may require further thought on the potential impacts of specific transportation projects, due to higher concentrations of aging or elderly adults. Map 3.9 highlights areas (in red) where the percentage of the population that is 65 years or older exceeds the percentage for the entire county. Similar to defining the EJ areas, the aging population areas were defined by block group using age data from 2010-2014 ACS data.

The mobility needs and geographic location of these various groups were considered throughout the planning process to ensure that the development of the Bastrop County Transportation Plan provides socially equitable transportation solutions and that the proposed program of projects does not result in disproportionate impacts to these defined populations.

Map 3.9: Aging Population, Bastrop County



Chapter Four
Needs Assessment

Needs Assessment

Development of the 2016 BCTP included a significant technical analysis component, including an inventory of the existing transportation system, the development of population and growth projections for the county and an analysis of future roadway and non-roadway performance using the CAMPO Travel Demand Model (TDM) to evaluate how growth will impact the future performance of the transportation system if no improvements are made over the planning horizon. The findings from this needs assessment combined with information gathered from the public, key stakeholders, and the results of the technical analyses, resulted in the identification and evaluation of strategies for meeting the needs of the county.

Asset Inventory and Condition Assessment

As part of the needs assessment for the 2016 Bastrop County Transportation Plan, an asset inventory and conditions assessment was conducted for all County maintained facilities. The asset inventory and condition assessment included a digital inventory of key County assets. The asset inventory and condition assessment included approximately 930 centerline miles of County Roads, including roadway surface types, improved surface widths, and roadway surface condition assessment. Also included is location, type, size, and condition of roadway culverts as well as traffic control device and sign location, type, and condition. The results of the asset inventory and condition analysis was integrated into the County's robust state of the practice geographic information system for continued reference and ongoing use by the County.

All roadway data was captured using mobile asset collection (MAC) vehicles while driving posted highway speeds on dry pavement and during daylight hours.

For signs identified in the inventory, sign conditions were rated on a good/fair/poor condition rating scale as follows:

- **Good**: sign has minor to no visual defects with good reflectivity, not faded, straight/upright, legible, no graffiti = sign that may need replacement after 5 or more years
- **Fair**: sign has visual defects but still exhibits good reflectivity, some fading in image, may be at a slight angle (not excessive), may have small graffiti, legible = sign that may need replacement within 1 to 5 years

Figure 4.1: Mobile Asset Collection Vehicle (MAC)

- **Poor**: sign has many visual defects with poor reflectivity faded, bent or pushed over (sign panel or post), heavy graffiti, obstructed, not visible or legible = sign needs immediate replacement

Table 4.1 shows results of the sign condition inventory assessment.

In addition to the sign inventory, a roadway inventory was conducted noting the pavement surface type, surface width and surface condition using Strategic Highway Research Program (SHRP2) criteria for roadway condition. Table 4.2 shows the % roadway miles of the County maintained system in each of the categories.

Along with the sign and roadway inventory and condition assessment an inventory of drainage culverts bisecting County Roads was conducted including culvert identification, measurement and condition assessment. Each culvert location was photographed and the location geocoded for inclusion in the County GIS database.

Table 4.1: Sign Condition Results

Condition	Number of Signs	% of Signs
Good	1,452	18%
Fair	6,038	74%
Poor	634	8%

Table 4.2: Roadway Condition Results

Condition	Roadway Miles	% of County Roadways
Good	228	25%
Fair	538	58%
Poor	162	17%

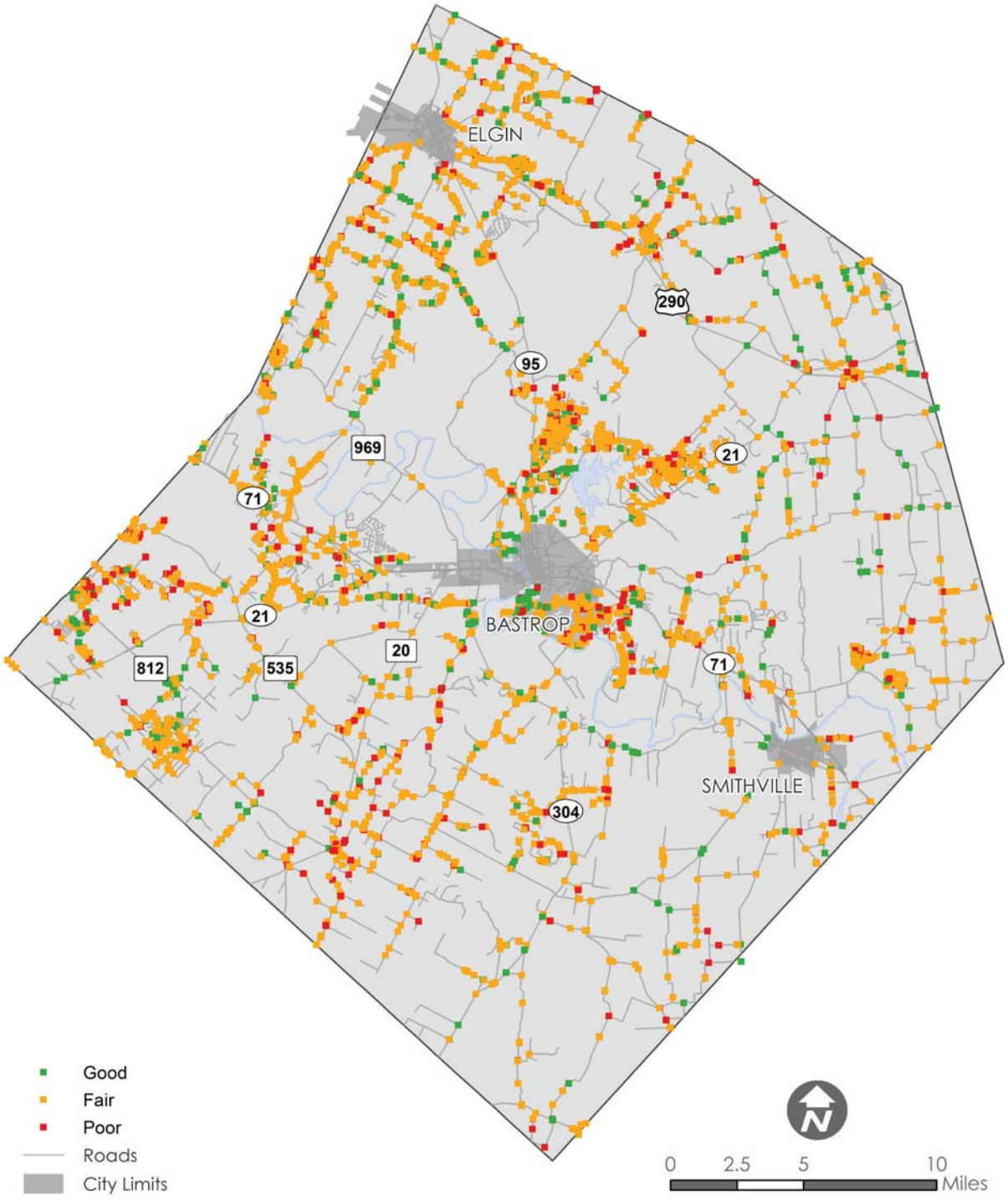
Figure 4.2: Sign Conditions

The sign above represents typical "Fair" sign conditions. The sign is slightly tilted and faded, but is still clearly legible.

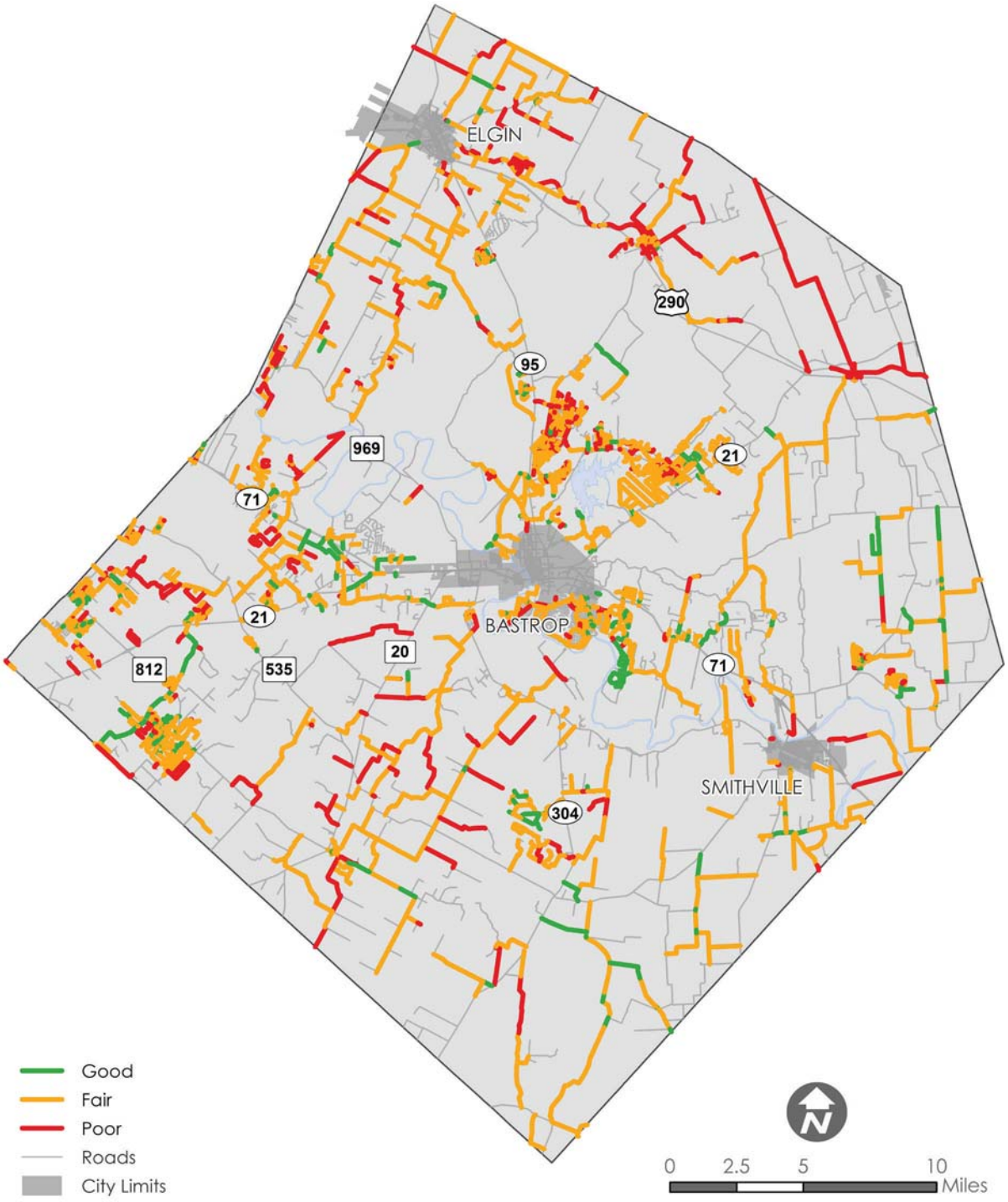
Figure 4.3: Roadway Conditions

The roadway above represents typical "good" roadway conditions. The road is paved and clearly marked.

Map 4.1: Bastrop County Sign Conditions, 2015/2016



Map 4.2: Bastrop County Roadway Conditions, 2015/2016



Mobility Assessment and Deficiencies Analysis

In order to fully assess the mobility needs of the county it is necessary to look beyond the current conditions and analyze how residential and economic growth is anticipated to affect future transportation system performance. To this end the 2040 CAMPO travel demand model, refined to show additional detail within Bastrop County, was used to perform future year traffic forecasts to identify locations anticipated to experience unsatisfactory or failing levels of service due to capacity deficiencies in the transportation system as the county experiences both residential and economic growth.

Anticipated Growth

Travel patterns are to a large degree determined by the distribution of population and employment centers in the region. In order to fully assess the mobility needs of the county it is necessary to look beyond the current conditions and analyze the distribution of residential and economic activities in the county. The analysis of future growth patterns for the 2016 BCTP started with the CAMPO population and employment projections adopted during development of the CAMPO 2040 Regional Transportation Plan supplemented by detailed analysis of site plans and conversations with developers active in the county. From this information the project team developed a refined population and employment distribution for Bastrop County. The control totals did not change, but the distribution of population was shifted to account for new information unavailable to CAMPO at the time they developed the initial projections.

Travel Demand Model Description

A travel demand model (TDM) is a computerized representation of a community's or region's transportation system. Using roadway network data and demographic data broken down into traffic analysis zones (TAZs) as inputs, a TDM simulates the movement of roadway users across the network under various conditions. Ultimately, the results of a TDM help to forecast network performance and likely future traffic conditions throughout a transportation network.

In order to forecast future traffic conditions and identify potential future roadway deficiencies in Bastrop County, Alliance employed the current version of the CAMPO Regional TDM. This model is a traditional four-step model with roadway networks, transit route systems and demographic forecasts for a forecast year of 2040.

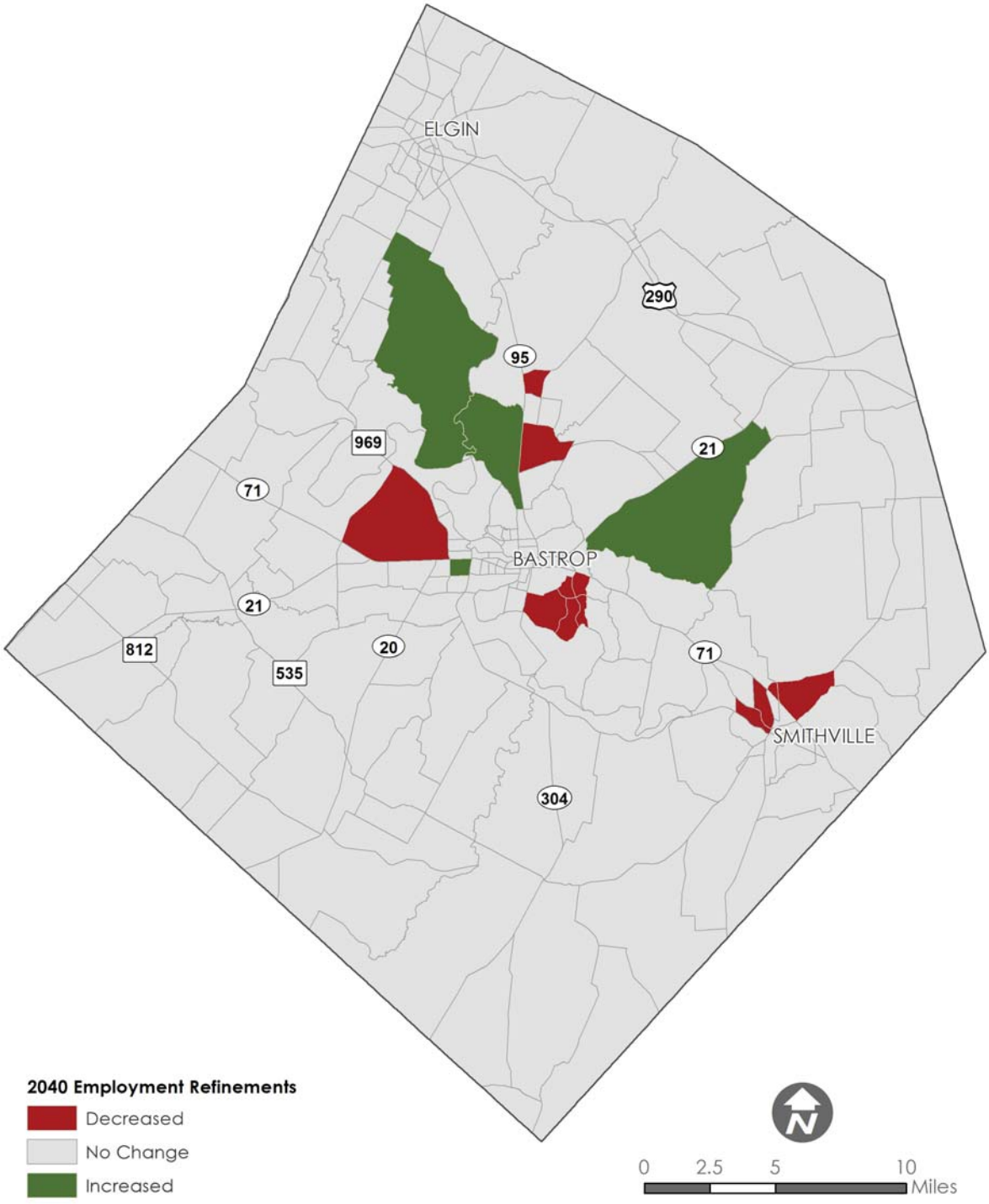
TDM Demographic Refinements

In order to more accurately forecast travel demand within the county using the 2040 CAMPO TDM, the study team refined the distribution of 2040 population and employment data for TAZs within Bastrop County to provide more detailed resolution for analysis of the county transportation system. The study team first identified TAZs within the county that could reasonably be expected to experience limited growth and TAZs where major developments were expected to be completed by 2040. The study team relied on feedback from stakeholders, local development studies, project location maps, and a variety of other resources.

The next step was to compare the forecasted 2040 population and employment numbers to the original 2010 numbers and determine whether the forecasted growth for specific TAZs reflected the patterns identified in the first step. That is, if the study team identified a TAZ as one that would likely not experience much growth, as suggested by stakeholders or another source, that TAZ should not display a high total or percent increase in either population or employment. TAZs with data that did not reflect the growth patterns identified in the first step of the process were considered candidates for refinement (i.e. increasing or decreasing the 2040 population or employment). The study team initially adjusted population and employment in TAZs linked to new developments (e.g. XS Ranch and Pecan Park); the additional population and employment was based on traffic impact analyses and household/square footage information provided by developers.

Based on Steering Committee and Stakeholder feedback, the study team then adjusted downward the population and employment for several "limited growth" TAZs displaying what appeared to be inappropriately high growth rates in the model data. Map 4.4 shows which TAZs had their population adjustments redistributed and what type of adjustments were made (increased or decreased). Map 4.3 shows the same but for employment distribution. Figure 4.4 shows the original 2040 population and employment totals distribution by TAZ provided by the CAMPO model and compares them to the adjusted totals distribution. The 2040 CAMPO county control totals adopted by CAMPO for use in the 2040 Regional Transportation Plan were maintained throughout this evaluation and redistribution process.

Map 4.3: 2040 Employment Refinements by TAZ



Map 4.4: 2040 Population Refinements by TAZ

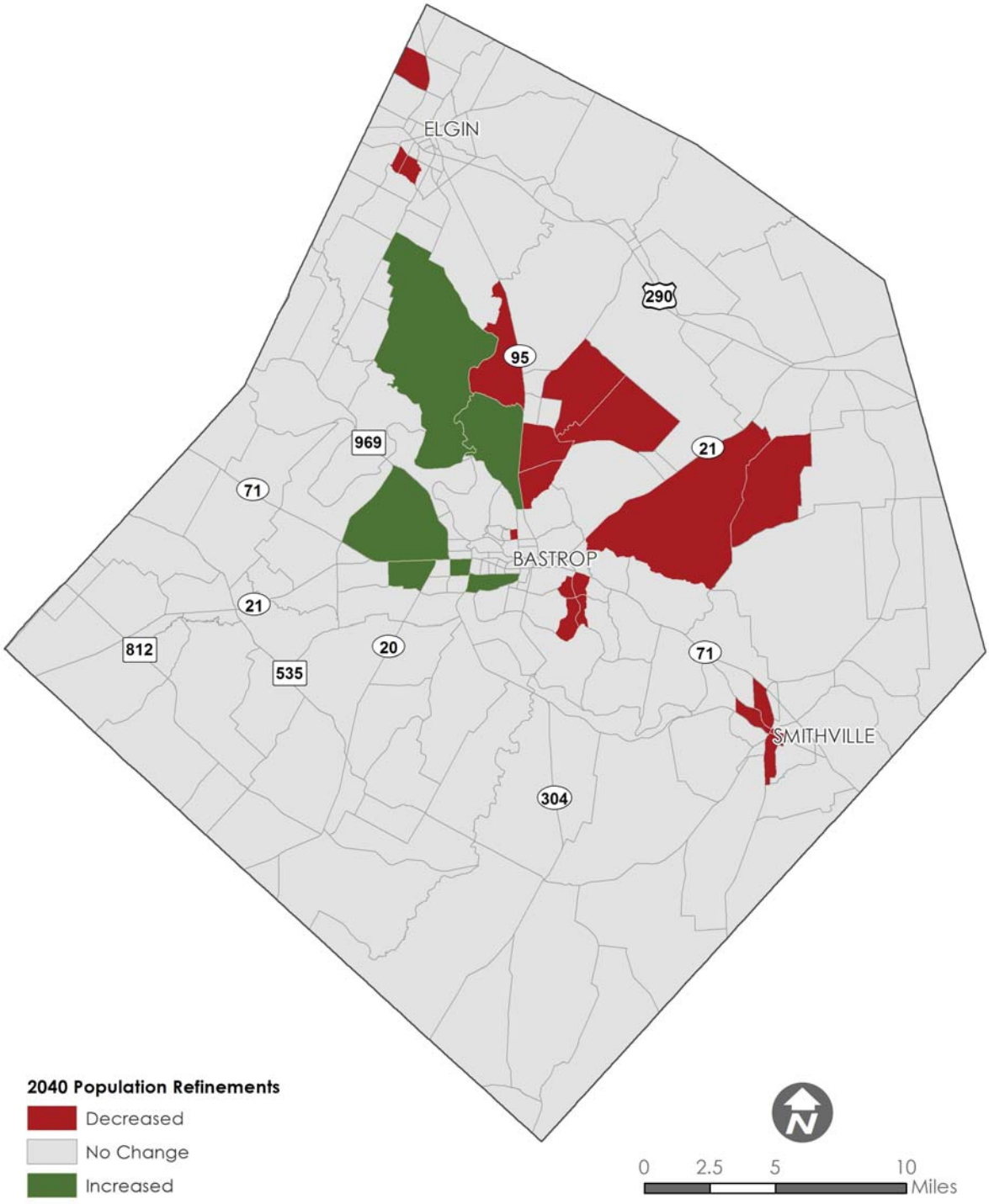
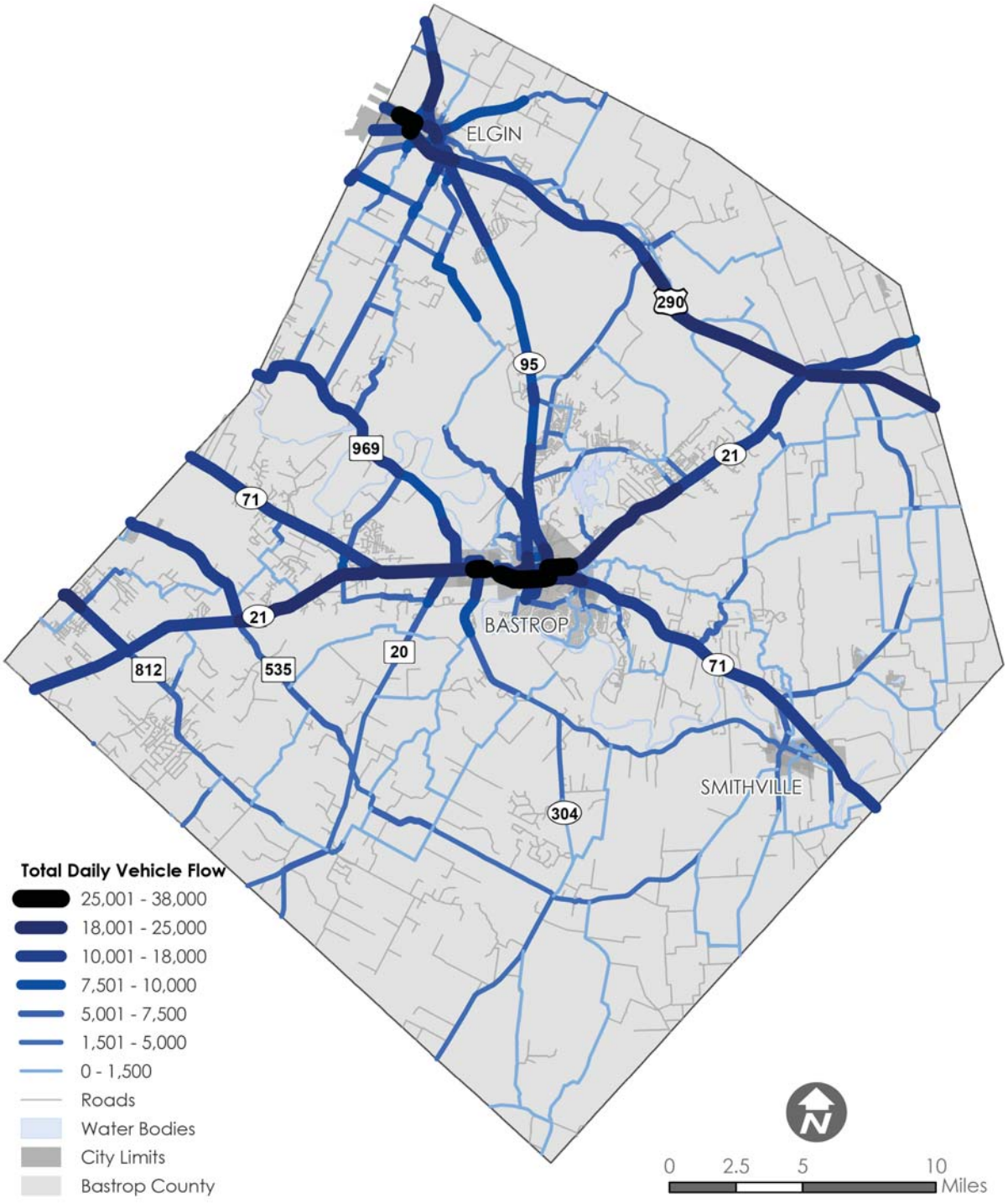


Figure 4.4: 2040 Population and Employment Total Comparison (Original vs. Refined)

Map 4.5: 2040 Daily Traffic Flow



Traffic Conditions

Travel Patterns

Using the refined 2040 demographic data, the 2040 CAMPO Regional TDM was used to forecast future daily traffic volumes. The resulting traffic volumes, shown in Map 4.5, reflect the general, macro-level travel patterns within the study area.

The results reveal that SH 71, US 290, and SH 21 are expected to experience the most daily traffic in 2040. These results resemble those from the 2010 base year model run except that the expected traffic volumes are much higher. The 2040 model results also forecast heavy traffic along FM 969 and FM 535 west of SH 21. These results are consistent with expectations, since SH 71 and US 290 serve as major linkages between Austin and Houston and SH 21 links San Marcos with Bryan-College Station. Other roadways in the county that are expected to be heavily traveled are:

- SH 95, especially north of Elgin, which connects Bastrop and Elgin with Temple;
- FM 969, which links Bastrop to Austin;
- FM 535 west of SH 21, which links to Austin; and
- Smaller segments of FM 3000, FM 812, and Old Sayers Road.

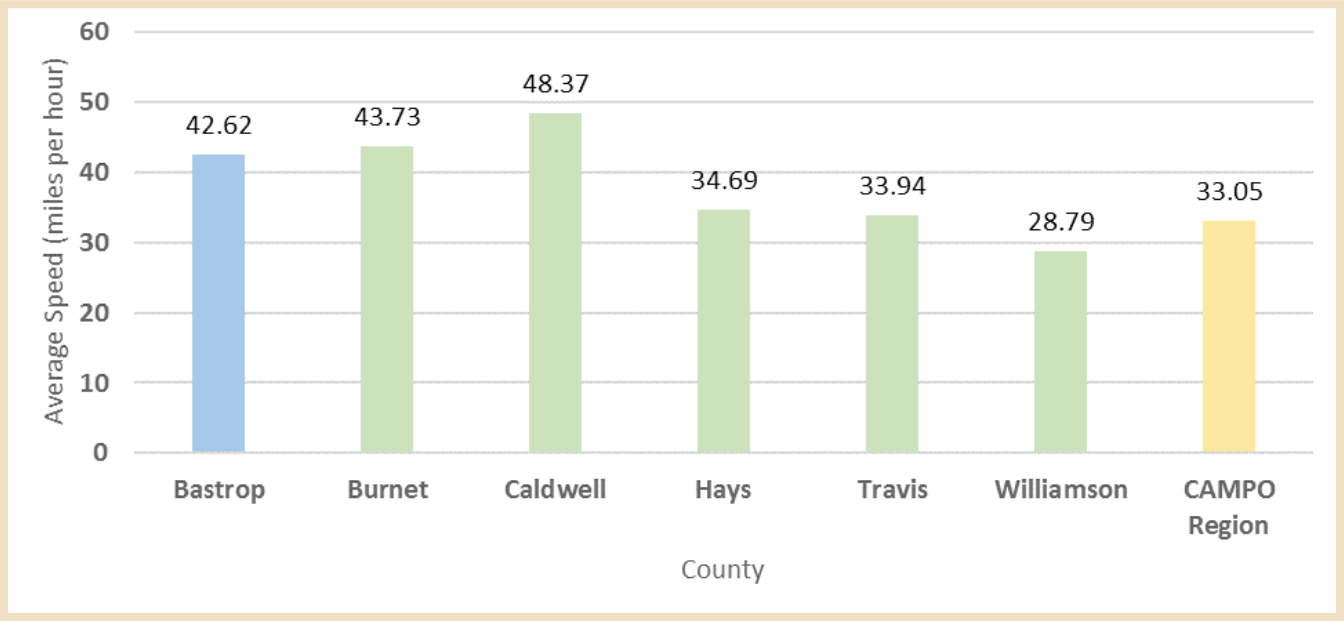
Performance Measures

In addition to daily traffic volumes, the TDM produces a number of other outputs that can be used to analyze the performance of the county transportation system. The following tables and figure compare the performance measure results of Bastrop County to the rest of the counties which were included in the 2040 CAMPO model.

2040 Capacity Deficiencies

Alliance also employed the CAMPO TDM to help identify potential roadway capacity deficiencies in Bastrop County for 2040. The project team achieved this by determining the Level of Service (LOS)—a qualitative measure that characterizes conditions within a traffic stream and how those conditions are perceived by users of the facility—of the model roadway network. LOS is typically calculated using the ratio of traffic volume to roadway capacity, and a ratio greater that 1.0 generally signifies congestion for a particular roadway segment. LOS is commonly presented for the AM and PM peak period using a scale from A to F, where LOS A describes free flow conditions with low volumes and high speeds, and LOS F describes heavy congestion with stop-and-go traffic. Planning agencies typically strive to achieve LOS levels of C or D when planning for future roadway capacity. Map 4.6 and 4.7 show the 2040 forecasted AM and PM peak levels of LOS for the county if no transportation improvements are made over time.

Figure 4.5: Average Network Speed (MPH) by County; CAMPO Model Region (2040)



Within Bastrop County, the model displays the most substantial congestion, in both the AM and PM peak periods, along FM 812, FM 535, SH 71, and FM 969 north/northwest of SH 21 in the western part of the county. Again, this is expected considering many Bastrop County residents commute to and from Austin during the peak periods. The model also forecasts heavy congestion along some smaller segments within Bastrop and Elgin city limits, as well as SH 95 between the two cities. US 290 also displays fairly heavy congestion east of Elgin. One particular issue is capacity deficiencies at Colorado River crossings. The model reflects heavy congestion (LOS E) specifically along segments that act as crossings, which is common throughout Bastrop County for any type of crossing (e.g. river or railroad) as confirmed by local stakeholders and field observations.

Table 4.3: Vehicle Miles Traveled, CAMPO Region 2040

	Bastrop	Burnet	Caldwell	Hays	Travis	Williamson
VMT	4,002,770	2,417,899	2,891,984	13,975,525	43,083,983	28,463,639
VMT per Person	18.81	33.30	38.78	22.49	25.20	20.30
VMT per Household	56.32	82.58	106.53	60.96	63.00	51.17

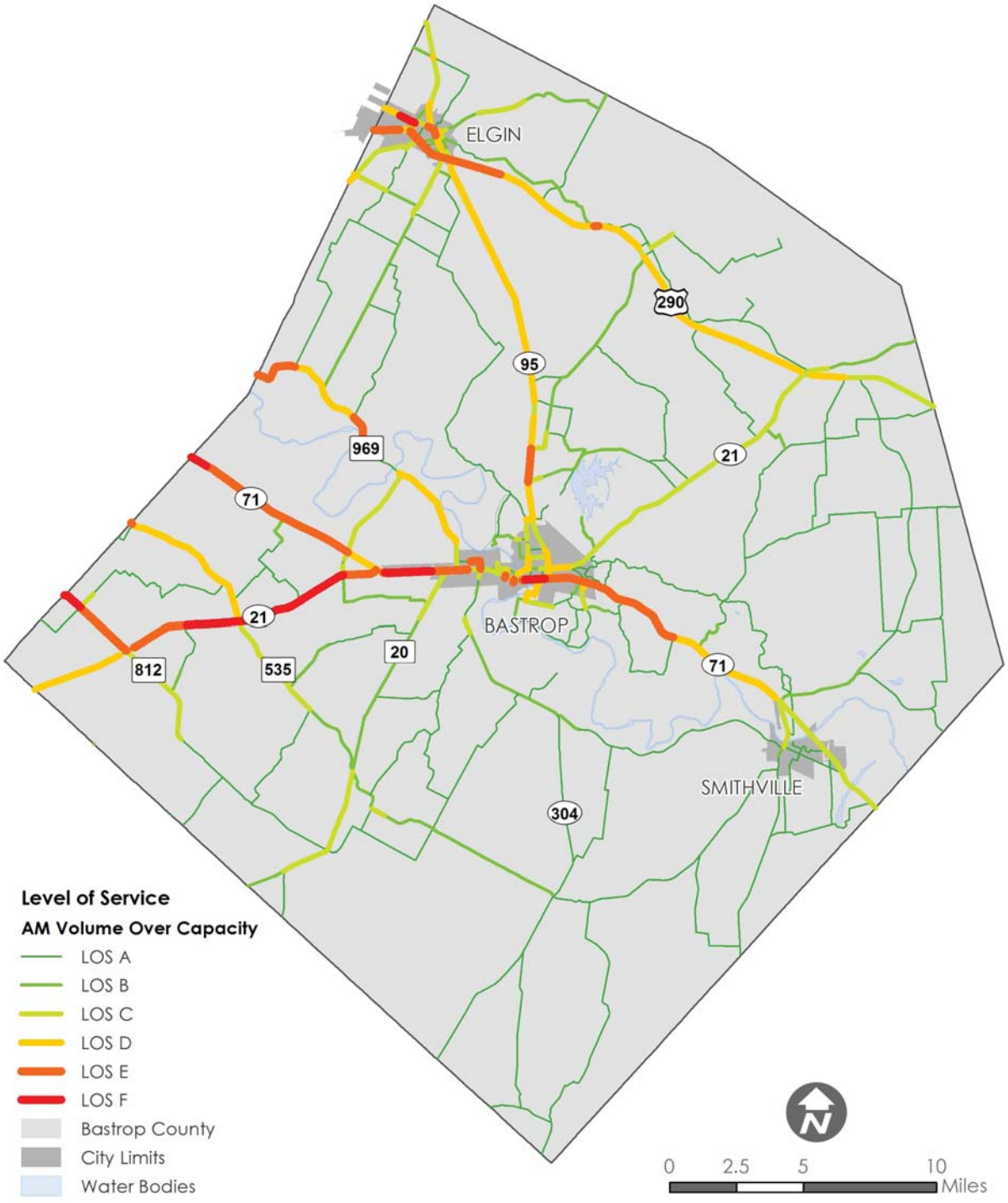
Source: 2040 CAMPO Travel Demand Model

Table 4.4: Total Delay, CAMPO Region 2040

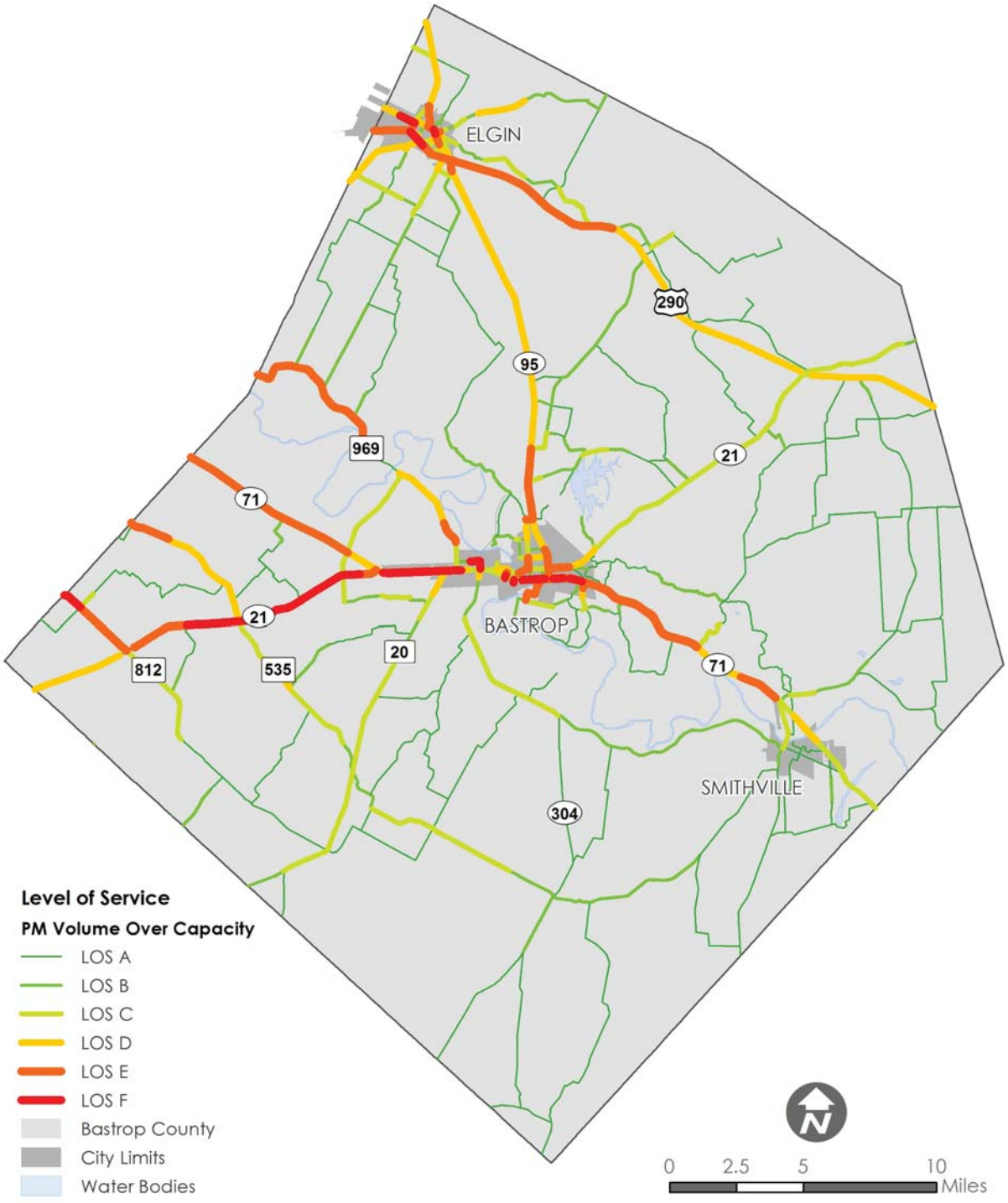
	Bastrop	Burnet	Caldwell	Hays	Travis	Williamson
AM Delay	5,353	1,340	1,857	32,488	89,488	96,404
Mid-Day Delay	5,374	2,815	2,358	38,387	116,118	105,545
PM Delay	7,565	2,418	3,240	49,047	155,031	165,037
Night Time Delay	1,599	673	494	17,867	32,175	41,505
Daily Delay	19,891	7,246	7,949	137,789	392,868	408,491

Source: 2040 CAMPO Travel Demand Model

Map 4.6: 2040 AM Peak Level Of Service



Map 4.7: 2040 PM Peak Level Of Service



Active Transportation

To better assess active transportation needs, a thorough analysis of bicycle and pedestrian conditions was performed along Bastrop County roadways.

Bicycling Suitability Analysis

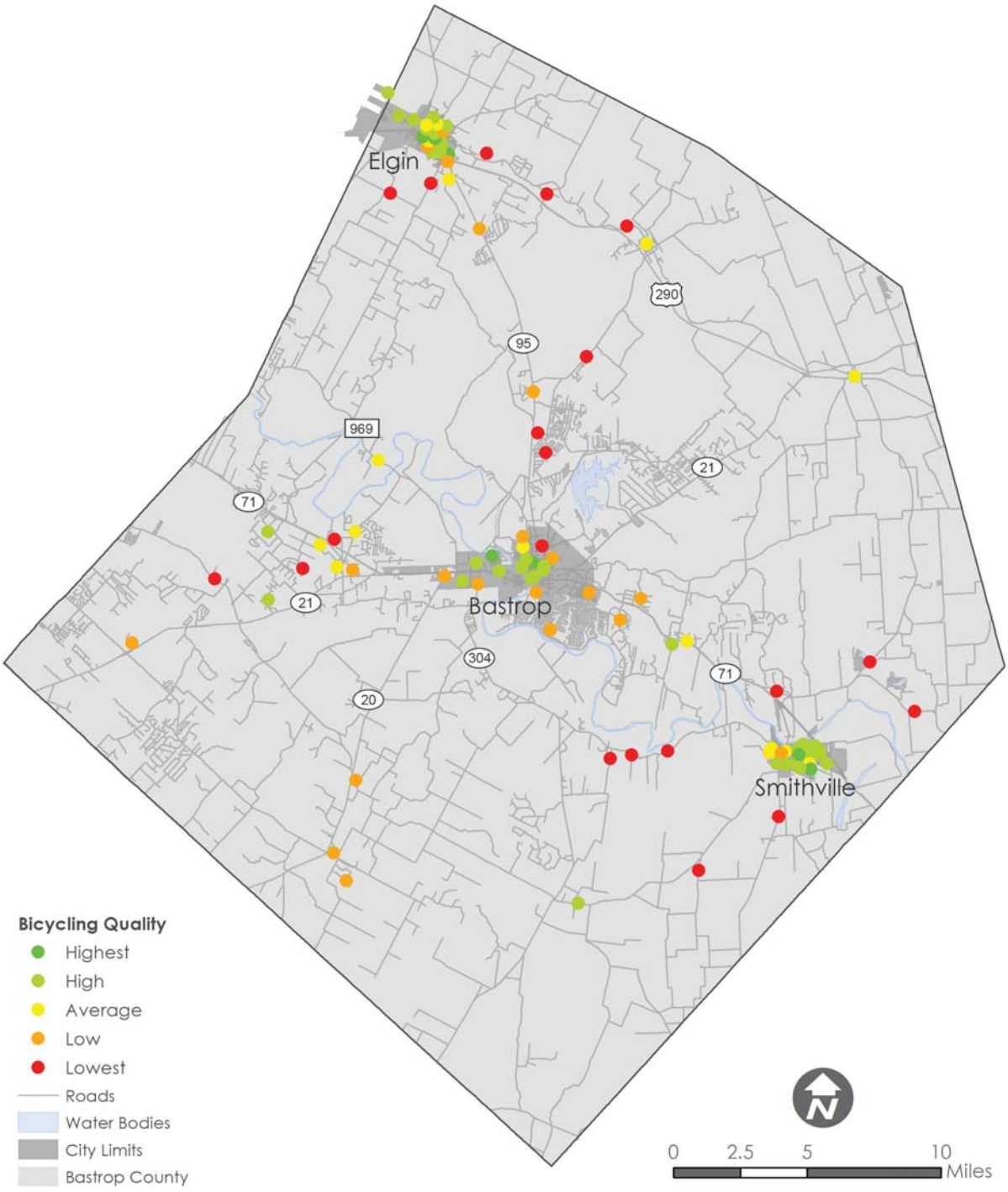
A systematic evaluation of bicycling conditions in the area was undertaken to better understand the physical condition of the bicycling environment in Bastrop County. For this task the project team utilized evaluation criteria adopted from the Bicycle Environmental Quality Index (BEQI), a planning tool developed by the San Francisco Department of Public Health that allows planners to assign a bicycling suitability score to locations on the street network based on environmental variables that either enhance or detract from favorable bicycling conditions. The BEQI utilizes a combination of qualitative and quantitative indicators related to street and intersection design, safety, traffic, and adjacent land use to assign an overall BEQI score to the chosen locations. These locations are then categorized by the quality of bicycling conditions as highest, high, average, low, or lowest quality. It should be noted that the BEQI methodology does not take into account connectivity between destinations when rating the quality of the bicycling network. This rating system was applied to 100 locations throughout Bastrop County in order to acquire a high-level characterization of bicycling conditions in the area. Map 4.8 shows the results of the bicycling assessment.

Bicycling Suitability Analysis Results

Results from the bicycling assessment indicate that overall the Bastrop County transportation street network offers average to below average bicycling conditions, with 56 of the 100 locations returning an "Average Quality" or lower rating. An "Average Quality" rating, according to the BEQI methodology, signifies that there are "bicycle conditions present but room for improvement" at a given location, while a "Low Quality" rating conveys "minimal bicycling conditions" and "Lowest Quality" rating indicates that "bicycling conditions [are] absent". It should be noted, however, that 36 out of the 100 locations returned a "High Quality" rating; these locations were typically located in the urbanized areas of the county.

Conditions that detract from the Bastrop bicycling environment that were frequently observed include a lack of bike lanes or other dedicated facilities, narrow two-lane roadways with little room to safely pass, and high posted speeds. Conversely, conditions that were observed that promote the bicycling environment include public lighting in many parts of the network, a lack of significant elevation changes (with the exception of parts of Tahitian Village), smooth pavement, and tree cover in many urbanized and residential areas. Locations that received a "High Quality" or "Highest Quality" rating were generally located in the more urbanized locations of the county and within newer residential subdivisions, though low quality conditions were also observed in many residential areas. Rural roadways often had poor pavement conditions, high speeds, no shoulders, and little tree cover, and therefore typically received lower quality ratings. As was

Map 4.8: Bicycling Suitability Results



discussed previously, the BEQI methodology does not take into account connectivity between destinations, which was a main concern expressed by stakeholders. Figures 4.6 and 4.7 provide examples of conditions characteristic of the Bastrop County bicycling environment observed by the project team.

Pedestrian Suitability Analysis

Pedestrian conditions were assessed using evaluation criteria adopted from the Pedestrian Environmental Quality Index (PEQI), which was also developed by the San Francisco Department of Public Health. Similar to the BEQI, the PEQI utilizes a combination of qualitative and quantitative indicators to assign an overall score representing the quality of the pedestrian environment for individual locations. Factors that are included in the rating system include the quality/completeness of sidewalks, presence or absence of traffic calming features or crosswalks, and presence of other pedestrian amenities such as public seating and lighting, among others. It should be noted that the PEQI methodology does not take into account connectivity between destinations when rating the quality of the pedestrian network.

The PEQI rating system was applied to 100 locations throughout Bastrop County in order to acquire a high-level characterization of pedestrian conditions. Map 4.9 shows the geographic distribution of PEQI scores for the chosen locations.

Figure 4.6: Rural Road with No Shoulders

Figure 4.7: Low Traffic Residential Street

Figure 4.8: Missing Sidewalks

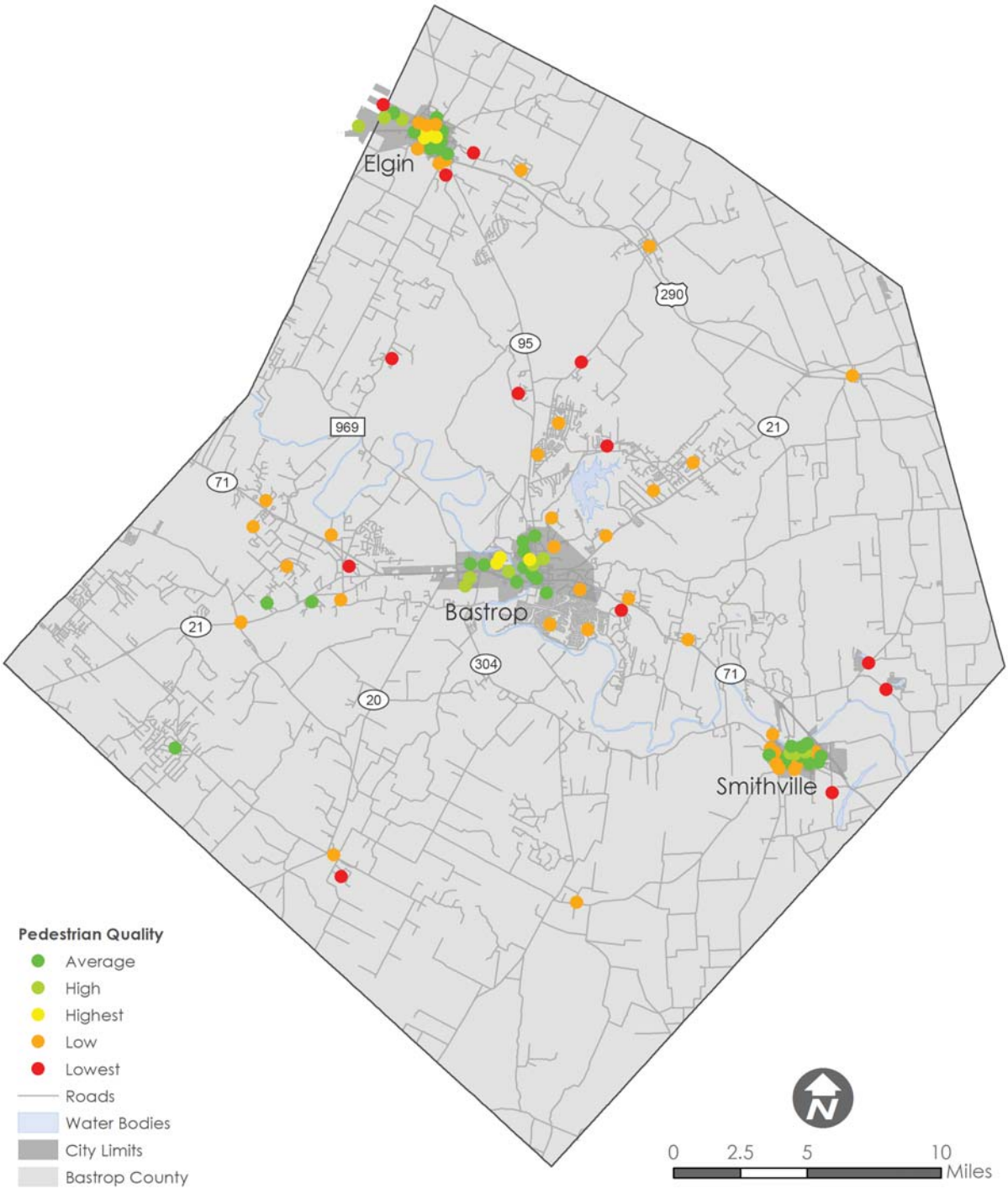
Figure 4.9: High Posted Speed Limits

Pedestrian Suitability Analysis Results

Results from the pedestrian assessment suggest that the Bastrop County transportation system generally provides average to below average conditions for pedestrians. In fact, 37 of the 100 observed locations returned a rating of "Low Quality", defined by the PEQI methodology as, "low quality, minimal pedestrian conditions". Only 18 locations returned a rating of either "High Quality" or "Highest Quality". Missing or incomplete sidewalks, a lack of crosswalks and signage, and high posted speed limits are conditions observed by the project team that detract from the pedestrian environment. Conditions that were observed that enhance the quality of the pedestrian environment include adequate lighting in residential areas and abundant tree coverage. Most of the observed streets in the downtown areas include sidewalks on at least one side of the street, along with curbs. Pedestrian conditions characterized as "High Quality" or "Highest Quality" tended to appear more frequently in the urbanized areas of the county, especially in residential areas, which were more likely to include safety features such as sidewalks and curbs. As was discussed previously, the PEQI methodology does not take into account connectivity between destinations when rating the quality of the pedestrian network, which is a major concern for area stakeholders.

Figures 4.8 and 4.9 show examples of conditions characteristic of the Bastrop County pedestrian environment as observed by the project team.

Map 4.9: Pedestrian Suitability Results



Transit Needs

As illustrated in Chapter 3, CARTS (Capital Area Rural Transit System) provides transit service in Bastrop County, including several fixed routes both within the county and commuter services to Travis County. In addition to fixed route services, CARTS operates a curb-to-curb service for disabled individuals or others requiring assistance within the rural parts of the county. For a detailed description of CARTS services within Bastrop County, please review Chapter 3, Public Transportation. To assess transit needs not addressed by current transit services, the project team performed an analysis of existing routes and potential transit users.

Existing Transit Coverage

Map 4.10 shows existing fixed route transit coverage within the county. Current fixed route service is focused on commuting options to and from Travis County along U.S. 290 and SH-71. A curb-to-curb service provides inter-community connections not available through fixed routes. The existing fixed route system lacks north-south connectivity within the county.

Future Service Needs

To assess potential transit service needs, the project team identified key demographics that indicate a higher likelihood of transit use.[1]

Map 4.11 identifies potential transit-dependent population at the block group level in Bastrop County. Transit-dependent population is estimated using a three step process. First, household drivers are estimated by identifying population age 18 and over and subtracting group quarters from that total.[2] Then, available total vehicles are subtracted from household drivers to identify transit-dependent household population. The final step sums transit dependent household population, population between the ages of 10-17 (assumes children may have somewhere to go, but lack the necessary means), and non-institutionalized population living in group quarters. This summation results in a conservative estimate of transit-dependent population. It is important to note that the transit-dependent population estimate does not factor in seniors who may stop driving at later stages of life (Map 4.12) and the low-income population (Map 4.13) that may not be able to afford a vehicle. The estimate also does not factor in disabled population.

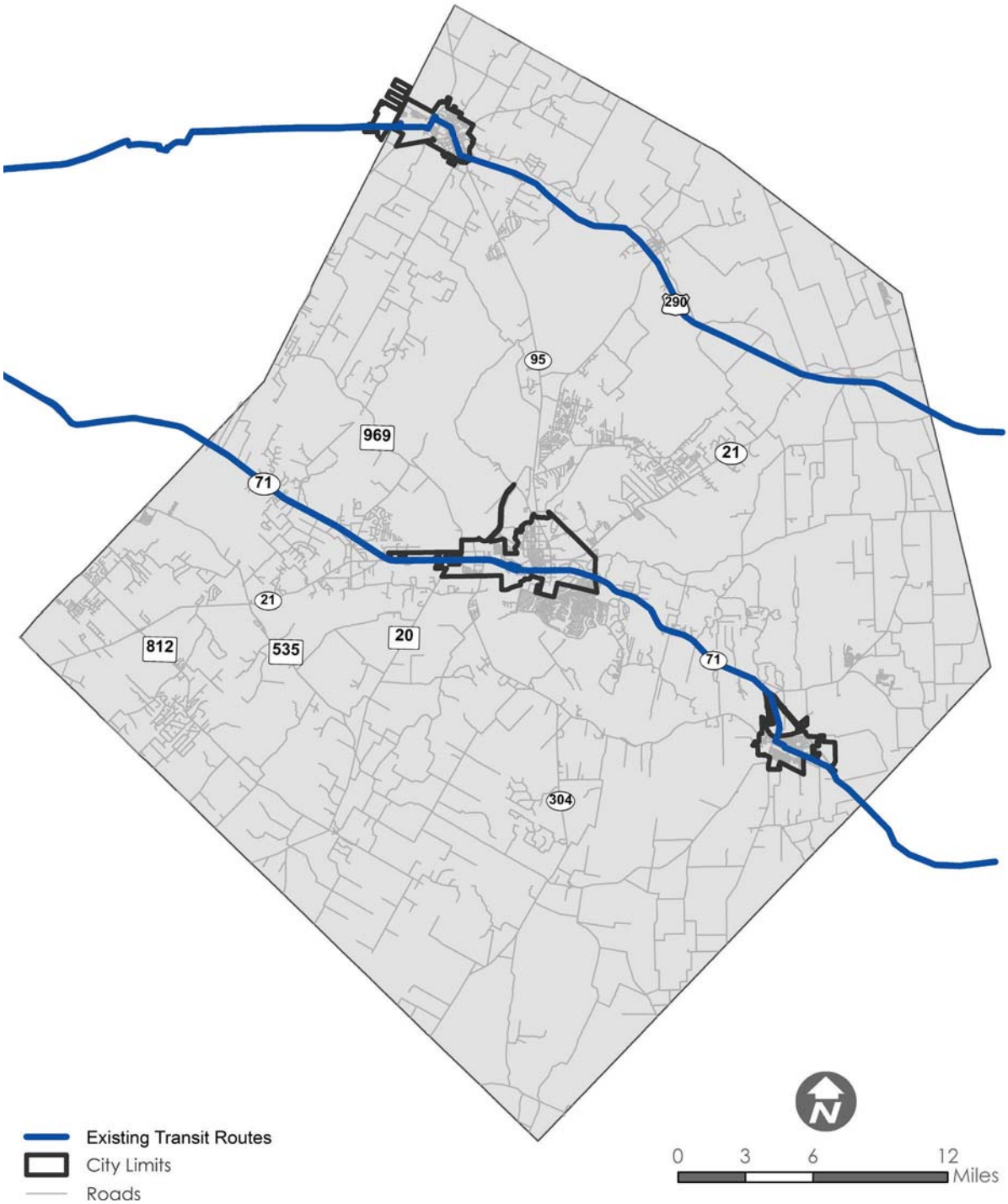
Maps 4.12 - 4.14 illustrate other segments of the population, such as low-income and elderly that may be transit dependent now or at some point in the future. Maps 4.11 - 4.14 have existing fixed route services overlaid to illustrate the current gap between transit dependence and existing fixed route service.

[1] All data used in the transit needs analysis is from the American Community Survey, 2014 (ACS 2014). Group quarters population split between institutionalized and non-institutionalized was estimated using 2010 Census Data.

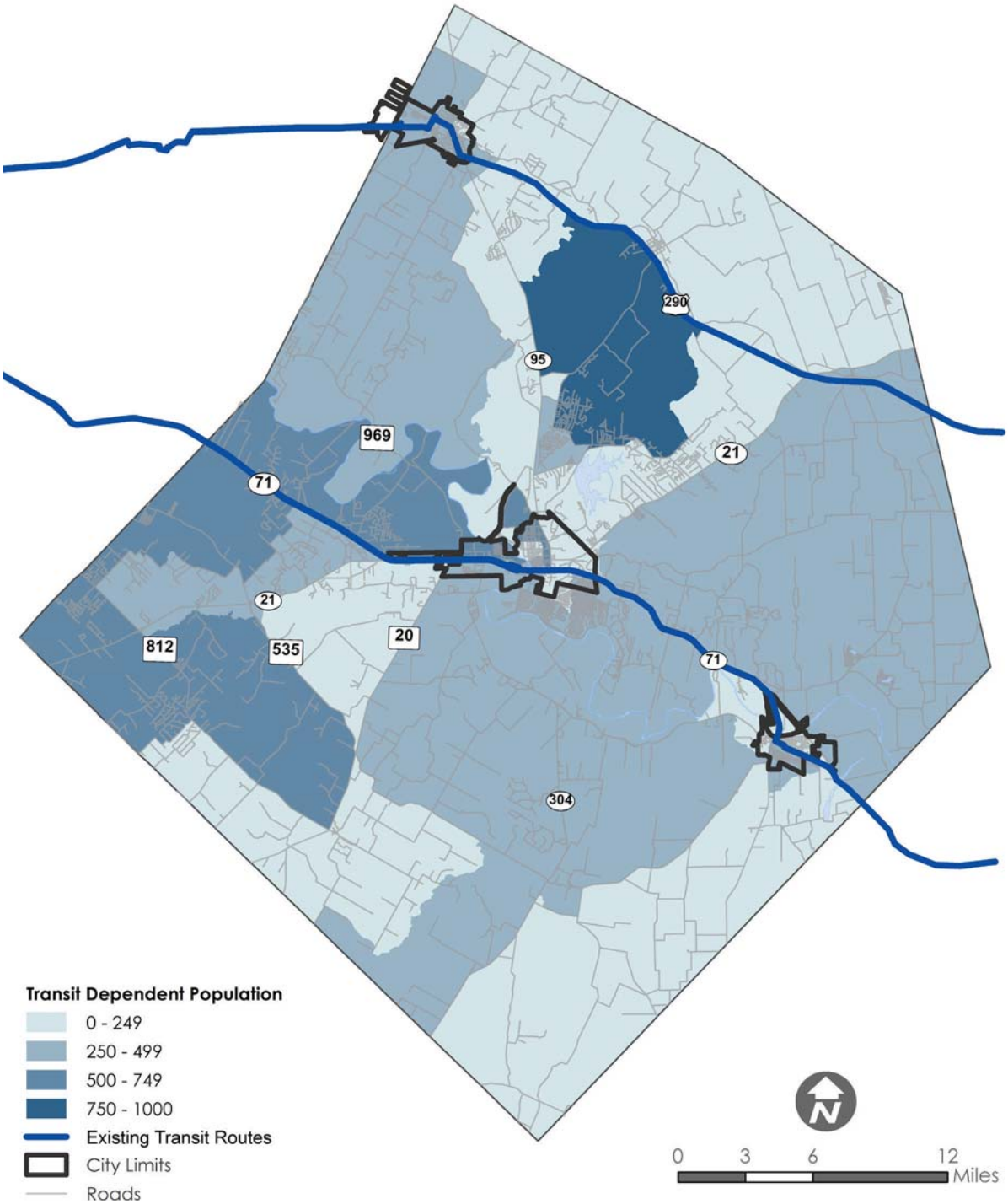
[2] Group quarters population includes those who live or stay in a group living arrangement. These populations are less likely to own or drive automobiles and are, therefore, not considered household drivers. Non-Institutionalized group quarter population are used in the estimate of transit dependent population as they likely have places to go.

Although curb-to-curb service does provide assistance to certain subsets of the population and links communities within Bastrop County together, its effectiveness has limitations. As the population continues to grows, the county will require additional fixed route transit options and expanded coverage to address service gaps. The outcome of this analysis closely aligns with and supports public sentiment expressed through the public involvement process that a more comprehensive transit system will be needed in the future.

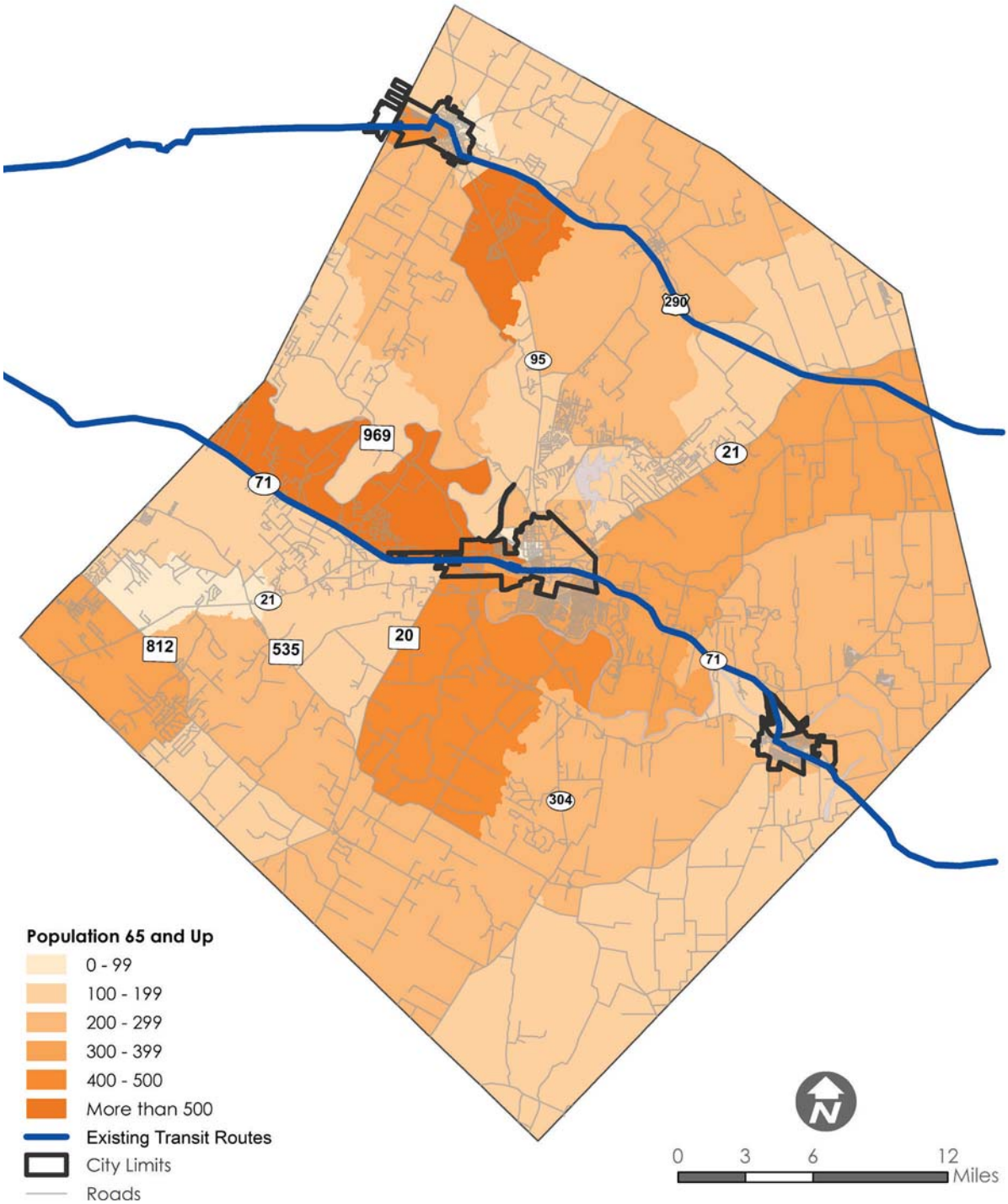
Map 4.10: Existing Transit Service



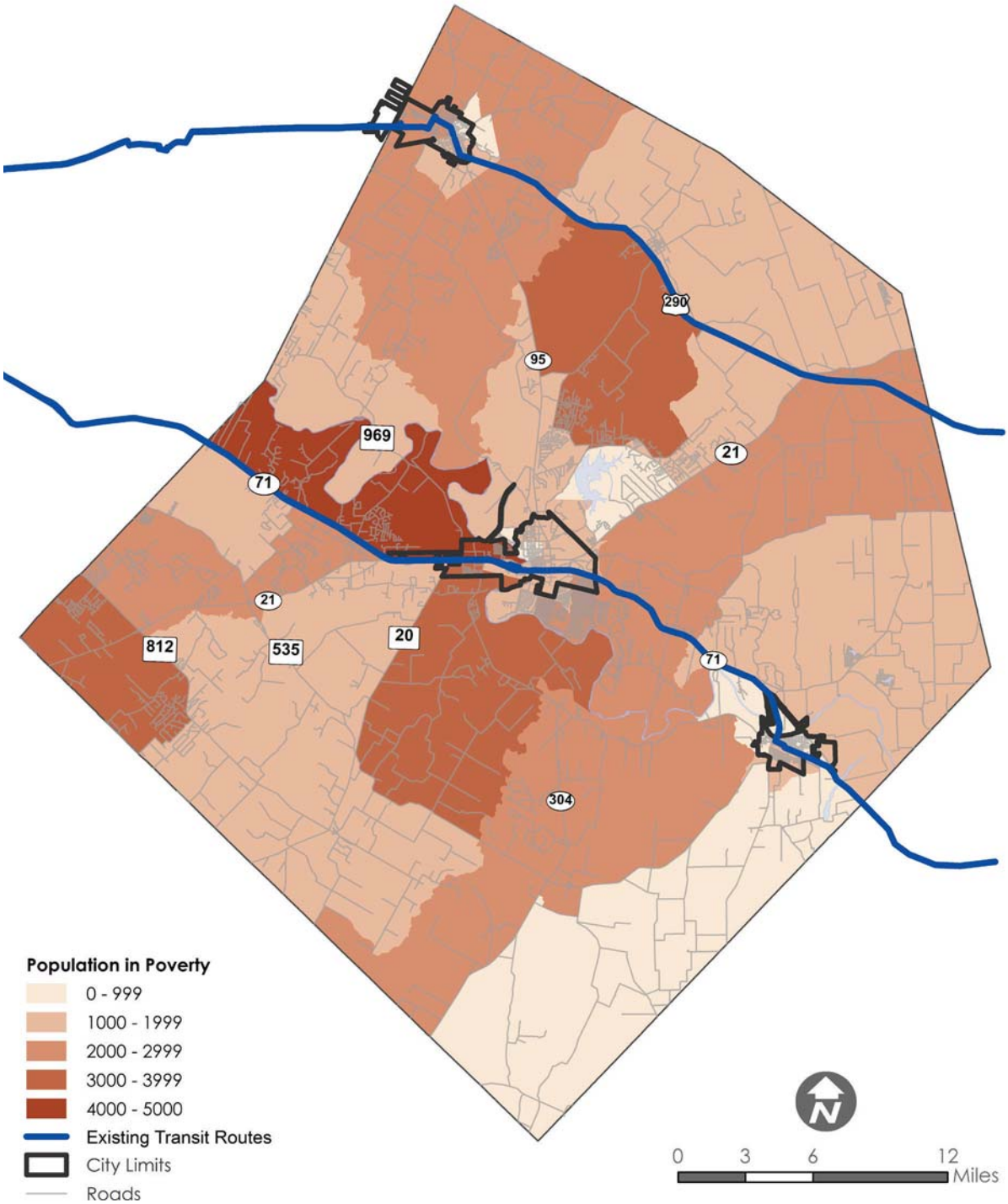
Map 4.11: Potential Transit-Dependent Population



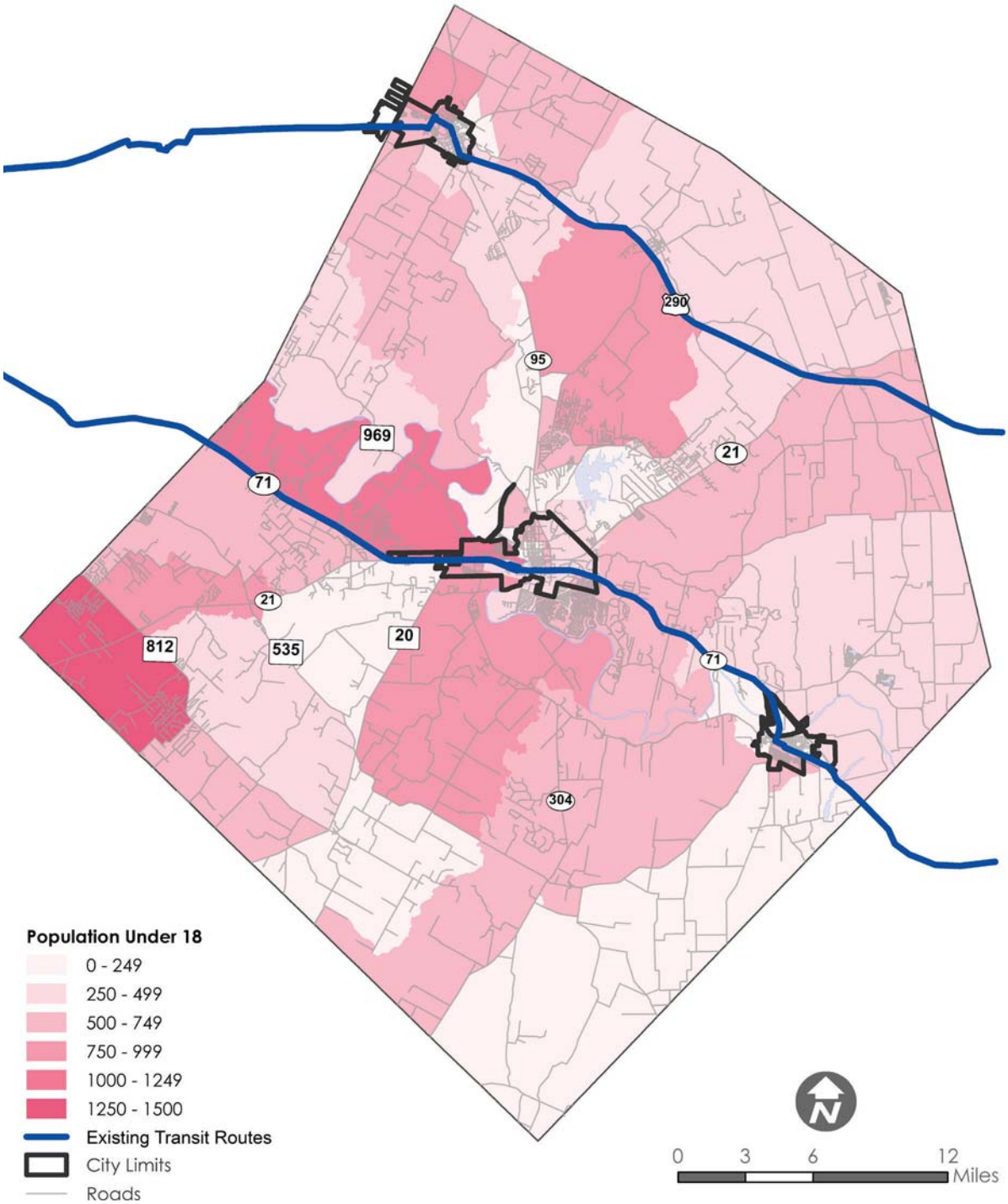
Map 4.12: Population 65 and Up



Map 4.13: Population in Poverty



Map 4.14: Population Under 18



"Bridges, roads, bikeways, and pedestrian walkways... must accommodate the needs of the community."

— comment from a stakeholder workshop

Chapter Five
Public Participation

Public Participation

Public participation is a major component of the Bastrop County Transportation Plan. Public participation not only produces specific knowledge of the area and its transportation issues, but it results in a plan that is community-driven and better suited to accomplish the community's vision and goals.

Public stakeholders had several opportunities to get involved at different stages throughout the planning process. The first opportunities were at three (3) public visioning workshops, where participants provided information to the project team about the growth and transportation needs, and also developed and prioritized goals for the Plan. The second opportunity for public feedback was an online survey where participants ranked the level of importance of goals developed from the visioning workshops. Participants also had the opportunity to provide input on congestion, safety, public transportation, and active transportation within the county. Additionally, public stakeholders were invited to three (3) open house events where attendees had the opportunity to learn about the status of the planning process and make suggestions about specific proposed transportation projects. The public was also given the opportunity to provide feedback on the planning process through an online survey on the project website, linked to the County website. Table 5.1 lists the dates, times, and locations of the events.

The following sections provide general information about participants, describe the process behind each public participation effort, and present the feedback received during each of these efforts, including evaluation of the effectiveness of each event.

Table 5.1: Public Participation Event Times and Locations

Outreach Type	Dates	Locations
Visioning Workshops	9/29/2015 9/30/2015 10/7/2015	Elgin Public Library Smithville Rec Center Bastrop Public Library
Open Houses	5/19/2016 5/25/2016 5/26/2016	Smithville Rec Center Bastrop Public Library Memorial Park Pavilion (Elgin)
Online Survey	4/11/2016 - 6/2/2016	Online

Stakeholder Information

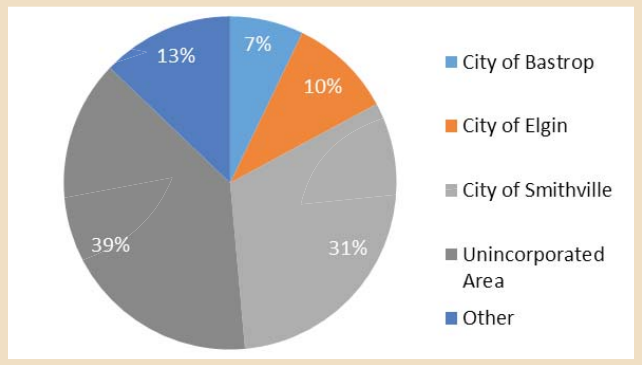
Having participants' background information helps provide better context when analyzing the feedback from the public participation efforts. It also helps to potentially identify populations or communities that were not able to provide feedback or were not reached by public outreach efforts. In regards to participation, there were nearly 100 participants that provided personal information between the three different public participation efforts (public visioning workshops, online survey, and open houses). Please note that this number does not account for individuals who participated in multiple events and does not count individuals who were present at an event but did not provide personal information in the provided response materials. Also, not all of the 100 participants provided complete information. The following analysis of participants only considers the responses of those who answered the corresponding question.

Although there was nearly an even split between male and female participants, 47% and 53% respectively, the majority of participants were older individuals without school-aged children. 88% of the participants were 45 years of age or older. Only 17% of participants reported having school-aged children. Looking at where participants live and work helps create a general idea of what interactions respondents have with the transportation system in terms of location. In general, responses for specific locations corresponded with the location of the event. Figure 5.1 and Figure 5.2 show where participants live and work.

In terms of travel (both to work by respondents and to school by children) of the respondents, a large majority (91%) of participants reported that they typically utilized a private automobile. Only 14% of children traveling to school took the school bus, while 2% of those traveling to work walked and another 2% took a CARTS fixed route bus.

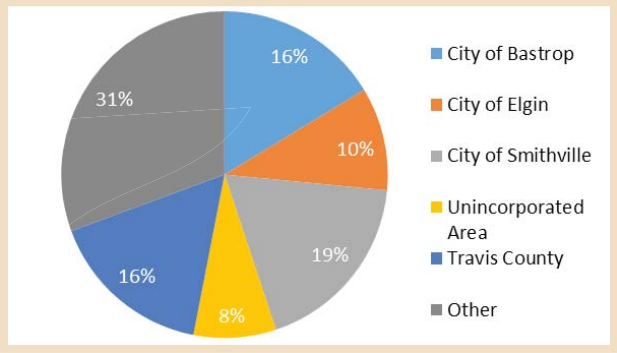
Additional information responding to the work commute question revealed that approximately 25% of the participants were retired. Overall, there was a lack of participation from the younger

Figure 5.1: Percentage of Participants by Home Location



cohorts of the county population and minimal input provided about children traveling to and from school. Future focused outreach efforts to schools and bus drivers is recommended.

Figure 5.2: Percentage of Participants by Work Location



Public Visioning Workshops

The public visioning workshops were interactive, small group sessions where participants worked with a facilitator to complete four (4) exercises and provide feedback about the Transportation Plan. Exercise #1 was an introduction exercise where stakeholder groups present at the workshops were identified to understand what groups were represented and where to focus additional outreach efforts. Table 5.2 lists present stakeholders.

In Exercise #2, participants provided insight about upcoming developments, properties to be annexed, and other growth-related information that would be used to develop demographic forecasts for traffic modeling efforts. Participants used interactive maps to connect their comments to specific locations within the county.

Exercise #3 included discussion about the transportation needs within the county. Participants again used maps to record their comments about safety concerns, transit services, and emergency access.

Lastly, in Exercise #4 participants ranked a set of goals developed from the review of previous plans by importance. The facilitator explained that the results of this exercise would be used to develop this Plan's goals. In Exercise #4, participants first selected, as a group, their top three (3) most important goals by each placing dots on a board with the list of goals (i.e. the Dot Exercise) and then prioritized the entire set of proposed goals in an individual worksheet. Participants were encouraged to provide additional feedback in discussions, through individual response sheets, and electronically (e.g. email, Bastrop County Transportation Plan website, and the Plan's Facebook page).

Exercise #1: Stakeholder Groups Represented

The results from the workshop, along with electronic feedback, are presented below. Information gathered from Exercise #1 are presented graphically in Figures 5.1 and 5.2 and in Table 5.2.

Table 5.2: Groups of Stakeholders at Public Meetings

	Bastrop	Elgin	Smithville	Total
Count of Private Auto/SUV/Pickup User	18	17	16	51
County of Bicycle User	6	6	7	19
Count of Pedestrian Facility (sidewalks, hike & bike trails, etc.) User	7	10	10	27
Count of Public Transit User of CARTS	1	3	1	5
Count of Public Transit User of Paratransit Services provided by CARTS	0	1	0	1
Count of Transit for the Elderly or Disabled User	2	2	2	6
Count of Airport User	11	8	8	27
Count of Intercity Bus or Rail User	2	0	1	3
Count of Responsible for Transportation of Children	4	4	4	12
Count of Business Owner	3	3	5	11
Count of Member of Community Group (such as Neighborhood Association, Civic Club, etc.)	7	6	11	24
Count of Member of Environmental Protection Organization	2	0	2	4
Count of Member of Historic or Cultural Preservation Organization	2	2	7	11
Count of Representative of an Agency that provides Traffic Control	1	0	1	2
Count of Representative of an Agency that supports Ride-Sharing	2	1	1	4

	Bastrop	Elgin	Smithville	Total
Count of Representative of an Agency that regulates Public Parking	1	0	1	2
Count of Representative of an Agency that is responsible for Transportation Safety	2	1	1	4
Count of Representative of a Law Enforcement Agency	0	0	0	0
Count of Representative of an Agency that is responsible for Land Use Management	1	0	3	4
Count of Representative of an Agency that is responsible for Natural Resources	1	0	2	3
Count of Representative of an Agency that is responsible for Environmental Protection	1	0	3	4
Count of Representative of an Agency that is responsible for Energy Conservation	1	0	2	3
Count of Representative of an Agency that is responsible for Historic Preservation	1	2	4	7
Count of Transit Operator	0	0	0	0
Count of Airport Operator	0	0	0	0
Count of Private Transportation Provider (e.g. Taxis, Buses, etc.)	1	1	0	2
Count of City or County Elected Official	1	2	1	4
Count of Tribal Official	0	0	0	0
Count of Planning Organization Member (please name the organization)	0	1	0	1
Count of Freight Handler or Freight Company Owner	1	0	0	1
Count of Member of a Population that is Traditionally Under-served by the Transportation System	0	1	0	1
Count of Resident of Bastrop County	18	14	15	47
Count of Resident of an adjacent county to Bastrop County	1	5	1	7

Exercise #2: Growth and Development Tools

Participants immediately identified areas along major corridors as ones likely to experience growth. Both Elgin and Smithville were said to have recently purchased industrial land for development and promotion of new business. Participants also noted large parcels of land near Bastrop that were being developed into single family residential communities (e.g. The Colony and XS Ranch). Participants suggested that, as internet access and sewage/water lines were developed along major highway corridors, more businesses would likely move into the county.

Regarding challenges to growth in the county, participants at all three (3) workshops identified physical barriers within each municipality that affected development depending on location in relation to the barrier. Railroads and US 290 were barriers identified in Elgin; railroads were identified in Smithville; and the Colorado River, SH 71, and the Houston Toad Habitat were identified in Bastrop. It was widely expressed that the current transportation system was not improving fast enough to keep up with growth in the county. Participants also noted that economic development was not keeping up with residential growth—creating more commuters and congestion along roadways heading out of the county. Many were concerned Bastrop County would become a suburb of Austin and lose its sense of place and small town character.

Exercise #3: Identifying Transportation Needs

Feedback from this exercise was consolidated into several common themes:

- Congestion – Participants emphasized that congestion was a major issue, particularly along SH 71, US 290, SH 21, and SH 95. Flyovers, fewer lights, and toll roads to Austin were all suggested.
- Safety – Dangerous, dark, winding, undivided, narrow, and high-speed were all common adjectives to describe many of the roads throughout the county. As a result, more lanes, more lighting, reduced speeds, and wider roads were requested.
- Accessibility – Better access to Austin was commonly mentioned at each workshop.
- Active transportation – Participants in Smithville and Elgin strongly supported bicycling and pedestrian facilities. Those in Bastrop had mixed opinions about shared-use facilities.
- Resiliency – Low water areas were brought up as a major concern at all workshops. Limited emergency access, caused by congestion and limited crossings, was also mentioned. School bus safety and enforcement of school bus passing laws were also brought up as important issues to address.

- Public transportation – There was support for public transportation at all workshops. Elgin and Smithville participants expressed interest in local public transportation, such as a downtown loop, that connects local shops and activities that promote tourism. Bastrop participants mainly discussed the need for commuter options to Austin.

- Local character – For some, preservation of local character, community, and downtown areas was an important consideration when discussing different needs.

Exercise #4: Ranking Transportation Goals

Figure 5.3 presents the results of Exercise #4, in which participants were asked to rank a preliminary list of goals compiled from previous planning efforts. The exercise revealed that participants felt that congestion reduction, safety, and connectivity/accessibility were the most important goals to be considered in the Transportation Plan.

The results of the individual goal rankings (where 1 was the lowest and 5 was the highest score) are shown in Figure 5.4. Similar trends were revealed in this exercise, as the top three goals from the Dot Exercise (i.e. congestion reduction, safety, and connectivity/accessibility) also had the highest average ranking. Cost-effectiveness, which was the fourth most prioritized goal in the Dot Exercise, was given an average ranking in this exercise.

Online Community Survey

The online community survey was designed to give stakeholders who were not able to make any of the visioning workshops the opportunity to provide feedback on which of the preliminary goals to prioritize in the Transportation Plan and provide general comments about specific transportation issues. Participants scored each goal one (1) through three (3) based on level of importance, with three (3) being very important and one (1) being not important. The survey was anonymous and was hosted on the Plan's Facebook page—open to the public.

Survey Results

Participants in the online survey reported different goal priorities compared to the priorities taken from the visioning workshops. Figure 5.5 shows the online survey results for the goal ranking. While safety was still a top three (3) prioritized goal, preserving local character/promoting quality of life and cost-effectiveness were the two (2) highest scored goals. Connectivity and accessibility, which was one of the top three (3) goals prioritized in the visioning workshop, was one of the lowest ranked goals in the survey.

Online Survey participants identified SH 71, SH 95, Loop 150, SH 304, and Ed Burleson Lane as roadways regularly experiencing roadway congestion. SH 71 was mentioned the most by a large margin. Specific intersections mentioned

Figure 5.3: Results of Preliminary Goals Prioritization, from Group Exercise

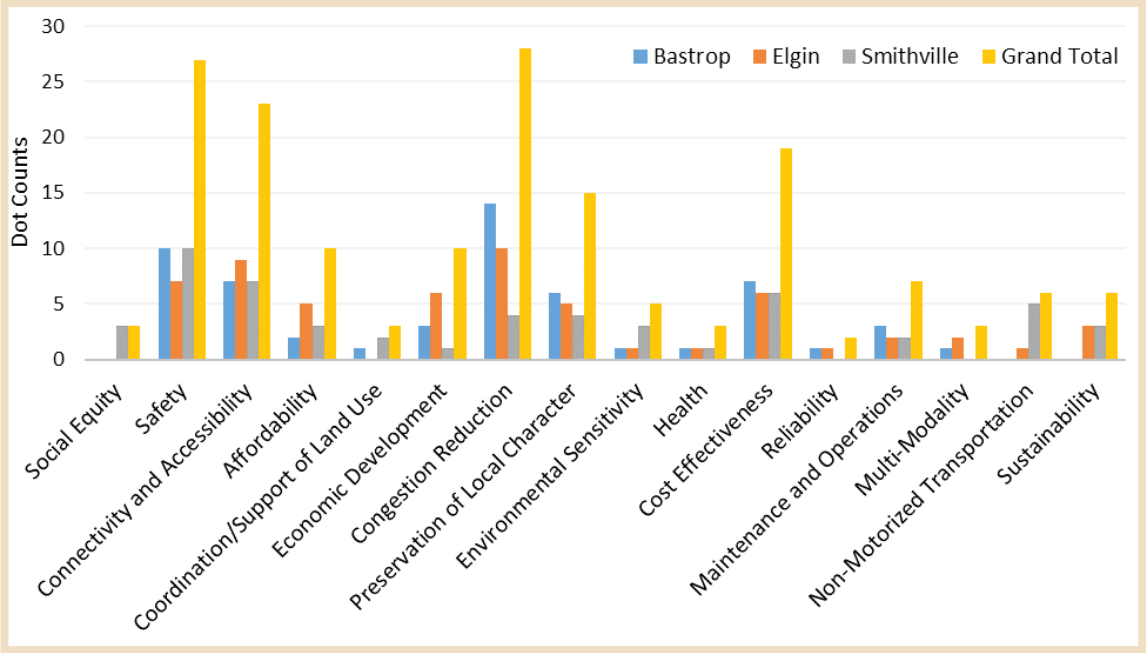


Figure 5.4: Ranking of Preliminary Goals from Individual Worksheets

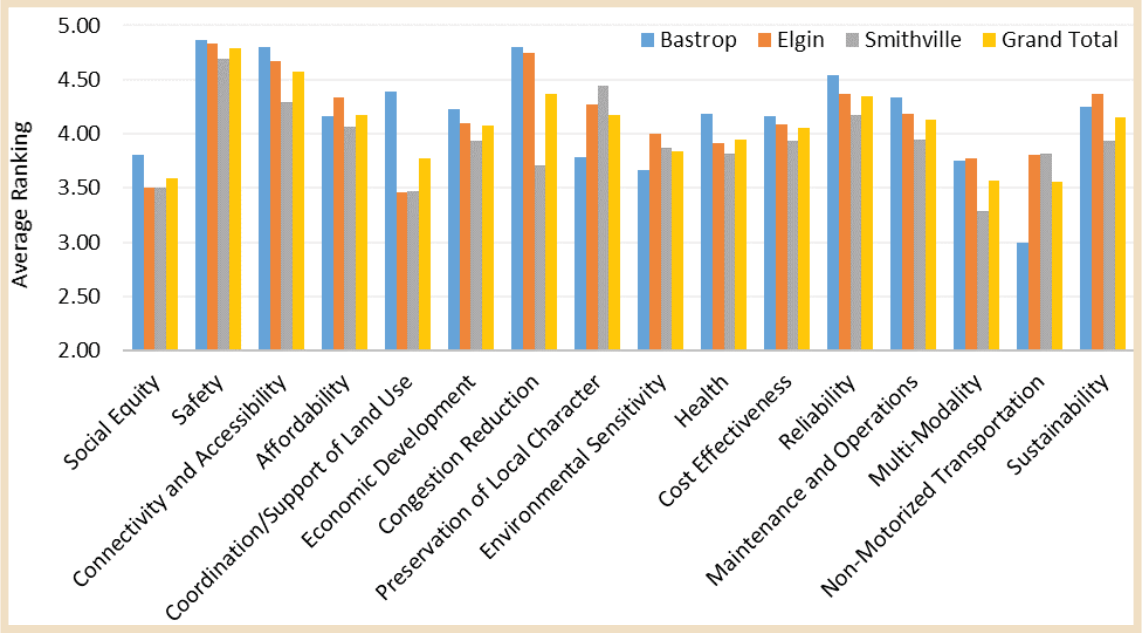
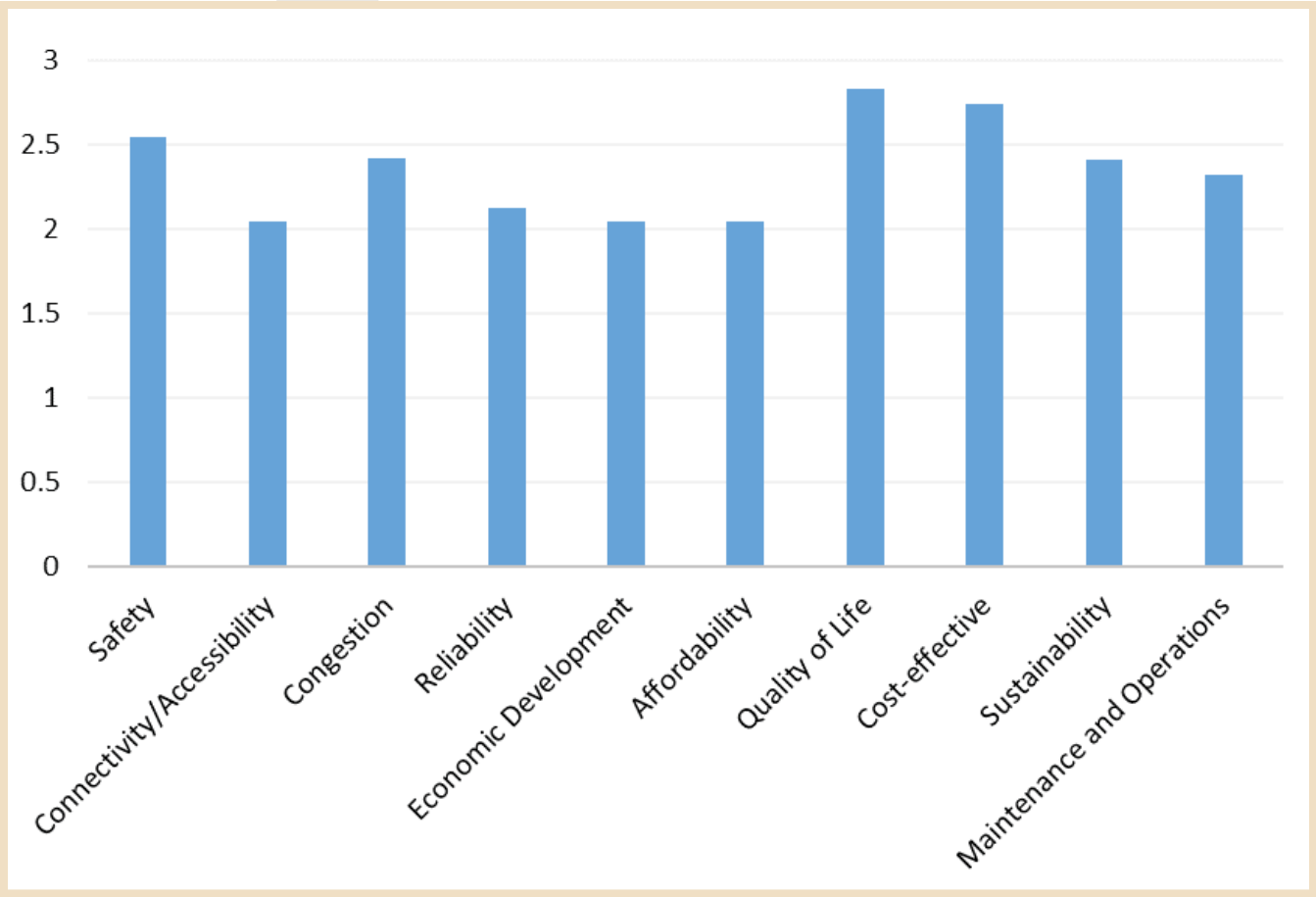


Figure 5.5: Preliminary Goal Rankings from Online Survey



were SH71 at SH 95 and Ed Burleson Lane or SH 304 at SH 71. Several respondents mentioned heavy congestion leaving Lowe's southbound on Ed Burleson, as well as potential light timing issues at the underpasses in the same area.

Participants also weighed in on unsafe roadways, especially SH 21, US 290, SH 304, and SH 95. SH 304 was mentioned most frequently with particular emphasis at the intersection of the La Reata Ranch entrance (i.e., La Reata Trail). In regards to public transportation, there was little feedback. The few responses suggested express commuter service to Austin and a connection from Rosanky to Austin. Others commented that current public transportation was adequate. On the other hand, more participants did express desire for better bicycle and pedestrian facilities. Participants also noted potential safety concerns for cyclists. Specific suggestions included facilities around Lake Bastrop and connection of Fisherman's Park to Lost Pines Nature Trail via a hike and bike trail.

In response to a general open-ended question about the Bastrop County transportation system, one response indicated a need for an alternative route option from Ed Burleson Lane to SH 95. Another respondent specified a need for more exits out of La Reata Ranch in case of disaster, and identified flooding on the Pony Express Road bridge as a potential barrier to mobility into and out of the neighborhood. On the other hand, a large majority of survey participants strongly opposed the proposed project connecting Corral Road to Pine Canyon Drive (i.e., Project 009). Most of the responses included displeasure with the idea of connecting the Pine Canyon neighborhood to the La Reata Ranch neighborhood due to potential security and traffic concerns.

Open House Results

The open house events were held throughout the county after the preliminary list of projects had been developed to allow the public an opportunity to provide feedback on the preliminary list of projects. Participants were first provided materials and information (e.g. crash statistics and roadway level of service maps) about the different analyses performed by the project team during the planning process. Participants were then shown a series of exhibits with detailed descriptions and preliminary alignments for proposed transportation projects. Facilitators took notes on project feedback, and encouraged participants to place note cards with their feedback on the corresponding project exhibits. Lastly, participants were given a worksheet with the list and description of all the projects and were asked to select their top five (5) favorite projects. The worksheet also collected personal information, event evaluation ratings, and additional feedback. The open houses were open to the public, and all feedback was kept anonymous.

The top five (5) most prioritized projects from the open house worksheets are shown in Table 5.3. The worksheet used by participants to score their top five projects can be seen in Figure 5.6. Twelve (12) of the projects were not selected as a priority project by any of the open house participants. Participants suggested to include expanding FM 535 to four (4) lanes and addressing road deterioration on Kaanapali Lane east of Tahitian Drive to McAllister Road as additional projects to include in the Plan.

Looking at note card feedback from the project exhibits, Project 016 was the most discussed project, and the comments all voiced support. Other projects that received multiple comments of support were Project 026, Project 023, and Project 001. Table 5.4 provides a short description of additional County road projects written in on the open house worksheets that were suggested by the public to include in the Transportation Plan. Only Project 009 received negative feedback, which indicated the project may cause security issues for the connecting neighborhoods.

From the notes recorded by facilitators at the different open houses, concern about road deterioration, soil erosion, and potholes was widely expressed. Specific examples include Kaanapali Lane, Colovista Drive, and the eastbound right turn from N. Avenue C onto SH 95. Many also pointed out issues along SH 71, including congestion, speed limits that are too

Figure 5.6: Project Prioritization Exercise

Project Prioritization Exercise

Instructions: Below, circle the top five projects that you feel would most benefit the current and future Bastrop County Transportation system. If there are additional projects that you feel should be included in the plan you can write them in at the bottom and back of the page. Please turn in this sheet and the attached evaluation form before you leave.

Project ID	Project Description
Project 001	Realign/straighten Lower Elgin Rd between FM 1704 and FM 969 to address visibility and safety concerns (project length: 6.5 miles)
Project 002	Realign/straighten Thousand Oaks Dr. to address visibility/ safety concerns (project length: 1.0 miles)
Project 003	Realign/straighten McAllister Rd between SH 71 and Crafts Prairie Rd to address visibility/safety concerns (project length: 2.9 miles)
Project 004	Realign/straighten Old Potato Rd between US 290 and SH 21 to address visibility/safety concerns (project length: 4.2 miles)
Project 005	Realign/straighten Upper Elgin River Rd between Central Ave and FM 969 to address visibility/safety concerns (project length: 9.8 miles)
Project 006	Extend FM 1704 south of FM 969 and connect to Colorado Dr via a new bridge across the Colorado River; upgrade Colorado Dr to an Arterial from the new bridge to SH 71 (project length: 5.7 miles)
Project 007	Construct a new bridge across the Colorado River from Ponderosa Rd to FM 2571, providing a new connection between Bastrop and Smithville (project length: 3.1 miles)
Project 008	Upgrade Stockade Ranch Rd to a Collector from SH 21 to Paint Creek Rd (project length: 5.8 miles)
Project 009	New road connecting Pine Canyon Dr and Corral Rd to provide better access between the neighborhoods (project length: 0.3 miles)
Project 010	New road connecting Old Piney Trail/Kinsey Rd and Squirrel Run (project length: 0.2 miles)
Project 011	Extend Bateman Rd to Red Rock Ranch Rd to provide better connectivity to neighborhoods located along Red Rock Ranch Rd and Sand Hills Rd (project length: 0.8 miles)
Project 012	Construct new road from Mesquite Drive to Morris Lane to enhance connectivity and access to neighborhoods along Mesquite Drive (project length: 0.5 miles)
Project 013	Realign FM 1209 at FM 969 intersection near planned XS Ranch bridge (project length: 0.8 miles)
Project 014	Realign/straighten Green Valley Dr between Rainforest Dr and Old FM 1441 to address visibility/safety concerns (project length: 1.0 miles)
Project 015	New road connecting Woodlands Dr south to the SH 71 frontage road (project length: 0.5 miles)

Project ID	Project Description
Project 016	Connect SH 304/Shiloh Road to Lovers Lane and Tahitian Village via a new bridge across the Colorado River; connect with Margies Way (project length: 2.3 miles)
Project 017	Upgrade Shiloh Road to a Collector from SH 20 to SH 304 (project length: 1.7 miles)
Project 018	Realign Cottletown Rd to address visibility issues and high crash rate between SH 71 and Park Rd 1C (project length: 2.3 miles)
Project 019	Extend McBride Lane to connect neighborhoods along Cardinal Ln/Dr with Old Potato Rd (project length: 0.5 miles)
Project 020	Realign Old Lexington Rd and upgrade to Minor Arterial to address safety/visibility concerns; extend Old Lexington Rd to FM 696 on the east end of the project (project length: 3.1 miles)
Project 021	Upgrade Old Sayers Rd to a Collector road in response to growth in XS Ranch (project length: 3.7 miles)
Project 022	Connect Old McDade with Mooney Rd (project length: 0.1 miles)
Project 023	Connect Mt. Pleasant Rd to Copeland Hill to provide access to neighborhoods in west Smithville (project length: 0.5 miles)
Project 024	Realign Pope Bend North south of Hodge Ln to address safety/visibility concerns (project length: 0.6 miles)
Project 025	Realign Pope Bend South between Cedar Creek High School and Simpson Ave to address safety/visibility concerns; connect Lois Ln to new alignment (project length: 0.2 miles)
Project 026	Add a 10 ft wide shared hike/bike trail on Two Mile Ln/ American Legion Road from entrance to Bueschler State Park to Loop 230/SH 95 (project length: 1.7 miles)
Project 027	Construct a hike and bike trail (shared-use path) along Old Highway 20 from Marlin Street in McDade to Gonzales Street in Paige (project length: 10.3 miles)
Project 028	Construct a new Arterial road connecting SH 71 to Pearce Lane/FM 535 (project length: 3.0 miles)
Project 029	Realign/straighten Old Potato Rd between SH 21 and Antioch Rd to address visibility/safety concerns (project length: 1.1 miles)
Project 030	Construct new bridge across Colorado River to connect XS Ranch to FM 1209/FM 969 intersection (project length: 2.2 miles)

OTHER PROJECTS: _____

_____

_____

Table 5.3: Top 5 Projects from Open House Rating Sheets

Project	Project Description	Count
007	Construct a new bridge across the Colorado River from Ponderosa Rd. to FM 2571, providing a new connection between Bastrop and Smithville (project length: 3.1 miles)	14
018	Realign Cottletown Rd. to address visibility issues and high crash rate between SH 71 and Park Rd. 1C (project length: 2.3 miles)	12
003	Realign/straighten McAllister Rd. between SH 71 and Crafts Prairie Rd. to address visibility/safety concerns (project length: 2.9 miles)	11
026	Add a 10 ft wide shared hike/bike trail on Two Mile Ln./American Legion Road from entrance to Buescher State Park to Loop 230/SH 95 (project length: 1.7 miles)	11
016	Connect SH 304/Shiloh Road to Lovers Lane and Tahitian Village via a new bridge across the Colorado River; connects with Margies Way (project length: 2.3 miles)	9

high, and general safety. Other issues brought up were congestion along FM 535 not accounted for in the LOS forecast maps, a high crash rate along Farris Lane, congestion/blind spots on Littig Road, and drainage issues on Cedar Hills Drive. Issues specific to school buses were reported, including difficulties picking up and dropping off students near the intersection US 290 and Alamo Street, poor road conditions along FM 1704, and general drainage problems. Furthermore, some expressed concern about how the roadway projects would be funded and that the county was far behind on roadway maintenance and upgrading. Open house attendees expressed support and offered project suggestions to facilitators as well. Projects 023, 001, 005, and 021 were all mentioned as projects that were desired. One attendee suggested that property owners would be open to providing right-of-way for Project 023. Furthermore, several people supported rail transit between Elgin and Austin.

Table 5.5 lists other transportation projects as suggested to facilitators by those who attended the open house events.

Table 5.4: Additional Projects Suggested by the Public at Open House Events on Worksheets

Project Description
Widen Lovers Lane as part of Project 016
Fix Kaanapali Lane just west of Tall Forest Dr.
Extend Makaha Dr. to SH 71
Upgrade Red Town Rd. (Roemer Rd. to County Line)
Connect Waterson Rd. to SH 304
Make FM 1704 divided lanes
Speed bumps on Carolina St. in Elgin
Upgrade Lower Red Rock Rd.

Table 5.5: Projects Suggested to Facilitators at Open House Events

Project Description
More crosswalks along Main St. in Elgin
Sidewalks along N. Avenue C from Middle School to SH 95
Widen E. 2nd St.
Upgrade Main St. (Bastrop) to collector
Wider shoulders along all roadways
FM 1704 resurfacing
Turning lane into newly built Dollar Store near Pine Valley
Sidewalks along FM 3000/E. 2nd St.

Evaluation

Attendees at both the visioning workshops and the open houses were encouraged to fill out an evaluation sheet. Evaluations included scoring criteria related to meeting effectiveness and were based on a scale of strongly disagree (1) to strongly agree (5). Table 5.6 lists the criteria by which attendees were able to evaluate the events and the average score for each.

In general, feedback about the different outreach events was positive. The settings of the meetings appeared to be appropriate, and participants were pleased with their interaction with the project team. The process could potentially be improved by providing more digestible materials, providing better advertisement about what would happen at each event, or collecting information about what potential participants expected from the events. One recommendation was to provide materials that focused on a particular area in the county depending on event location. For example, the project team would provide specific figures and highlight particular projects that would have the most relevance to Elgin and the surrounding area if the event was held in Elgin. The evaluations also showed that social media, newspaper, and word of mouth were the most effective strategies for advertising the events.

Table 5.6: Evaluation of Public Meetings

Evaluation of Public Meetings	Score
Meeting room was easy for me to get to	4.95
Meeting room was comfortable	4.92
Available parking was adequate	4.88
Time of the meeting was convenient for me	4.82
Day of the week of the meeting was convenient for me	4.81
Information was presented in a clear and understandable manner	4.68
I felt my contributions were respected	4.77
Facilitator at my table did a good job	4.86
Meeting met my expectations	4.59
Materials used in the meeting were clear and understandable	4.62
Information presented at the meeting was useful to me	4.69
Purpose of the meeting was made clear to me	4.76

Chapter Six
Travel and the Economy

Travel and the Economy

An important aspect of Transportation Plan development is optimizing the transportation system to support the travel purposes and address the market demands of consumers. A market based approach enriches the Transportation Plan development process with a more comprehensive understanding of how the various transportation markets interact with broader community land use, economic and societal influences, and objectives. This approach also helps us to better understand the transportation system within Bastrop County in the context of its place in the regional economy.

A holistic look at market forces acting on the transportation system allows transportation investments to be identified and prioritized using performance measures and criteria based on a broad spectrum of community values and objectives. The steps in this approach also help align the 2016 BCTP with CAMPO's Platinum Planning Principles and other best practice principles of integrating transportation, land use, and economic development planning efforts. It also helps us better achieve the vision of the County to provide a complete multi-modal transportation system that moves people and goods safely and comfortable on modes the people prefer to use and for travel purposes they choose.

Population Growth

Between 2013 and 2014 Bastrop County was the 16th fastest growing county by percentage in Texas, adding 1,970 residents during that period.[1]

The county's population is projected to grow to 200,583 residents by 2040, representing an average growth rate of nearly 5.7% per year over the 2010 population of 74,164.[2] The tremendous amount of growth currently taking place in the region has significant implications for the Bastrop County transportation system and its ability to serve the mobility needs of area residents and businesses. This section discusses the growth trends and demographic factors that are likely to affect Bastrop County's transportation system as it relates to the health of the local economy.

Table 6.1 shows CAMPO's population projections for Bastrop County and the other counties in the region between 2010 and 2040.

In addition to the rapid population growth occurring in Bastrop County, demographic factors such as household size, income, and age distribution also determine the amount and type of trips generated on the transportation system. The bullet points below highlight a few of the main findings related to Bastrop County demographics that are relevant to travel behavior.

- Larger households typically produce a higher number of trips than smaller households. Census estimates show Bastrop County's average household size to be 2.86 people for owner-occupied units and 2.83 people for renter-occupied units, which is slightly higher than the Austin-Round Rock Metropolitan Statistical Area (MSA) average household size of 2.80 and 2.42 people for owner-

[1] Estimates of Resident Population Change and Rankings: July 1, 2013 to July 1, 2014, U.S. Census Bureau, Population Division, March 2015

[2] CAMPO 2040 Regional Plan

occupied units and renter-occupied units, respectively.

- As a general rule, higher income households generate more trips than lower income households. The median household income of Bastrop County residents in 2013 was $51,750, compared with $60,830 for the MSA.

- Low income households typically have different transportation needs, such as a greater reliance on public transportation or active transportation options such as biking or walking. An estimated 12.0% of Bastrop County families reported an annual income below the poverty level, compared with 9.9% of families in the MSA.

- Bastrop County's relatively high median age of 38.3 years (compared with 33.0 for the MSA) has near-term implications for the transportation needs of current residents. Conversations with stakeholders, for example, revealed demand for expanding public transportation options for the county's elderly population. Census estimates also show the "old-age dependency ratio", or the number of people ages 65 and older to every 100 people of traditional working ages, is higher in Bastrop County (19.1 per 100) than in the MSA (12.7).

Table 6.1: CAMPO Population Projections (2010 - 2040)

County	2010	2020	2030	2040	Average Annual Growth Rate (2010-2040)
Bastrop	74,164	101,908	143,212	200,583	5.68%
Burnet	42,739	53,114	64,268	73,673	2.41%
Caldwell	38,019	49,478	63,441	77,903	3.50%
Hays	156,966	257,643	406,051	628,309	10.01%
Travis	1,024,531	1,273,260	1,508,642	1,732,860	2.30%
Williamson	422,605	640,699	956,459	1,406,994	7.76%
CAMPO Region Total	1,759,024	2,376,102	3,142,073	4,120,322	2.62%

Source: CAMPO 2040 Regional Transportation Plan

Housing Supply

The supply and distribution of housing also has a large effect on travel patterns in the county. According to the latest Census estimates there were an estimated 29,218 housing units in Bastrop County in 2013, with a vacancy rate of 13%.[3]

Recently, a Comprehensive Housing Supply and Demand Analysis was completed by a private consultant for the Bastrop Economic Development Corporation to help the County better understand housing supply and demand dynamics in the area. The report predicts that due to the county's available land, established character, and commercial and recreations opportunities, the Bastrop County market is likely to absorb a substantial amount of growth coming from Austin and Travis County over the coming decade. The report predicts that land located along major transportation corridors, including SH 71, is most likely to see development in the near term.[4]

Interviews conducted by the project team with developers active in the area showed that the development community is generally in agreement that Bastrop County is primed for substantial residential growth over the coming decades. A few developers indicated that first-time home buyers looking for value, good schools, and less traffic than the Austin metro are a likely target market. The main limiting factors to residential growth are the high capital costs associated with new development in rural areas, along with the lack of utilities (water, wastewater, etc.) in many parts of the county.

Bastrop County Employers

The size, type, and location of employment centers heavily influence traffic patterns, especially during the morning and evening peak periods. There were an estimated 11,874 jobs located within Bastrop County in 2011.[5] A list of the top twenty employers in Bastrop County is provided in Table 6.2. Significant truck traffic can be generated due to shipping needs of particular types of employment.

Many stakeholders have indicated that growth in the county is mostly residential and that there is a lack of quality jobs available for residents to find meaningful careers in the county. They indicated that most available jobs are in the retail and service industries and that most high-paying jobs are located in Austin. The county's available land and amenities, however, make it likely that new employers – and potentially large firms - will move into Bastrop County in the coming decades. Indeed, conversations with stakeholders in the Bastrop County economic development community indicate that attracting new firms should be a top priority for the county. As new jobs centers emerge in the area, travel patterns will no doubt begin to change.

[3] U.S. Census Bureau, 2009-2013 5-Year American Community Survey
[4] Comprehensive Housing Supply and Demand Analysis, Bastrop, Texas, Prepared by RCLCO Real Estate Advisors, September 2015
[5] U.S. Census Bureau, LODES (Origin - Destination Employment Statistics), 2011

Table 6.2: Major Employers in Bastrop County Market Area, 2016

Employer Name	# of Employees
Bastrop ISD	1,100
Hyatt Regency Lost Pines Resort	675
Bastrop County	460
MD Anderson Cancer Center	430
H-E-B Food Store	400
Wal-mart	320
Bastrop Federal Correctional Institution	284
Buc-ee's	173
Bluebonnet Electric Cooperative	154
Southside Market & Barbecue	150
Agilent/Stratagene	140
Lowe's Home Improvement	133
Griffin Industries/Darling International	125
Home Depot	122
City of Bastrop	122
First National Bank	116
Academy Sports & Outdoors	110
Covert Chevrolet	110
Lost Pines Nursing & Rehab Center	90
Camp Swift National Guard	80
Silver Pines Nursing & Rehab Center	80

Source: City of Bastrop

The Transportation Marketplace

In formulating the concept of how to best meet consumers needs, the Study Team reviewed the above economic factors and asked the stakeholders and public workshop participants to consider how and why they use the county transportation system and how they will need or would like to use the transportation system in the future. The four highest-profile topics in those discussions were:

- Journey to work;
- Community travel;
- Tourism, entertainment, and recreation; and
- Emergency preparedness and system resiliency.

Exploring these current trends and emerging market forces as identified by the participants in the public participation process, the stakeholders contacted in the consultation process and the technical specialist and agency professionals contacted in the technical review process, allowed the Study Team to identify challenges and opportunities with regard to the four travel purposes used to frame the discussion.

Journey to Work

Estimates from the 2010 Census show that over 57% of all workers age 16 and over who reside in Bastrop County work in areas outside of the county, with over 50% working in Travis County. Similarly, there were an estimated 1,465 Travis County residents who commute to Bastrop County for work.[6] These numbers underscore the importance of providing commute solutions and travel options for the journey to work.

Table 6.3: Workplace of Bastrop County Residents Age 16 and Over, 2010

Workplace	Estimated Workers
Travis County	15,870
Bastrop County	13,230
Williamson County	955
Lee County	395
Hays County	350
Caldwell County	310
Fayette County	265
Guadalupe County	45
Comal County	20
Gonzales County	10

Source: U.S. Census Bureau, American Community Survey 2006-2010 Five-year estimates. Special Tabulation: Census Transportation Planning

Community Travel

With our society now well entrenched in the two-working parent household and our economy shaped by large scale retail outlets located along or near major transportation corridors, non-work travel is increasingly performed as part of an elongated trip-chain occurring during or on the shoulders of peak-period travel. With our increasingly homogeneous land use patterns that tend to separate trip destinations and spread them across the entire community market shed, trips like picking up and dropping off passengers (children to and from school, doctor, day care, sports practice, recreation), grocery shopping on the way home from work, taking the family out to dinner, or shopping at a regional mall or big box retail center, have increased the vehicle miles traveled for community travel as well as pushed this travel into the peak period in order to gain efficiencies by bundling trips of various purposes. It is more efficient to sit in traffic during peak or near peak period in order to combine multiple trips into a single tour, than it is to perform some trips in the peak and others in the off-peak, if such off-peak travel is even an option for households in which all of the driving age adults are working in jobs outside of the home.

[6] U.S. Census Bureau, American Community Survey 2006-2010 Five-year estimates. Special Tabulation: Census Transportation Planning

Tourism, Recreation, and Entertainment

Bastrop County is located in the rolling hills of the Post Oak Savannah and Blackland Prairie of Central Texas. The county encompasses nearly 900 square miles of land in the eastern portion of the Austin metropolitan area. Because the county has retained its unique rural character and rich natural resource heritage, it is a popular destination for visitors. The Hyatt Lost Pines Resort, Bastrop State Park, Buescher State Park, and the Colorado River are among the attractions that help draw visitors to the county, who come by automobile and by bicycle. In addition, once they arrive, visitors spend considerable time enjoying the natural environment, area culture, and visitor amenities as pedestrians. For this reason, it is important to provide these visitors and county residents, who also enjoy and participate in these activities, with complete solutions to their transportation needs.

The 2016 Bastrop County Transportation Plan considers Complete Streets principles in defining a vision for the future roadway network. The Complete Streets philosophy requires planners and engineers to consider all transportation modes and users when designing roadways, which can lead to increased mobility and accessibility for system users and act as a driver of economic development by stimulating increased local spending and tourism. Conversations with area stakeholders and the public reveal general support for Complete Streets principles, and there is an especially strong desire for increased sidewalk connectivity between key destinations and improved streetscape features to enhance the small town character of many areas.

Emergency Preparedness and System Resiliency

Over the past few years, numerous significant weather events and natural disasters have occurred within Bastrop County. Recent events include the Complex fire in 2011, the Hidden Pines fire in 2015, and flooding in the summers of 2015 and 2016. Map 6.1 shows the extent of road closures during the May 2015 and 2016 flooding events. In addition to events occurring within the county, SH 71 serves as a major hurricane evacuation route. While SH 71 is a designated hurricane evacuation route, Hwy 290 saw a significant increase in traffic during Hurricanes Katrina and Rita. During public events, stakeholders noted the lack of connectivity as a major safety concern throughout the county. In particular, a lack of bridges across the Colorado River was a major concern.

Emergency situations can put a significant strain on the transportation system. Specific events within the county can impact Bastrop County residents trying to evacuate or access their homes and jobs. Improved connectivity and increased access points from subdivisions to major routes should be prioritized to improve both emergency response times and access to/from areas throughout the county. Stakeholders and the public consistently supported increased connectivity of the transportation system to improve emergency response times and travel options in case of an emergency situation.

Map 6.1: Flood Related Road Closures, May 2015 & 2016

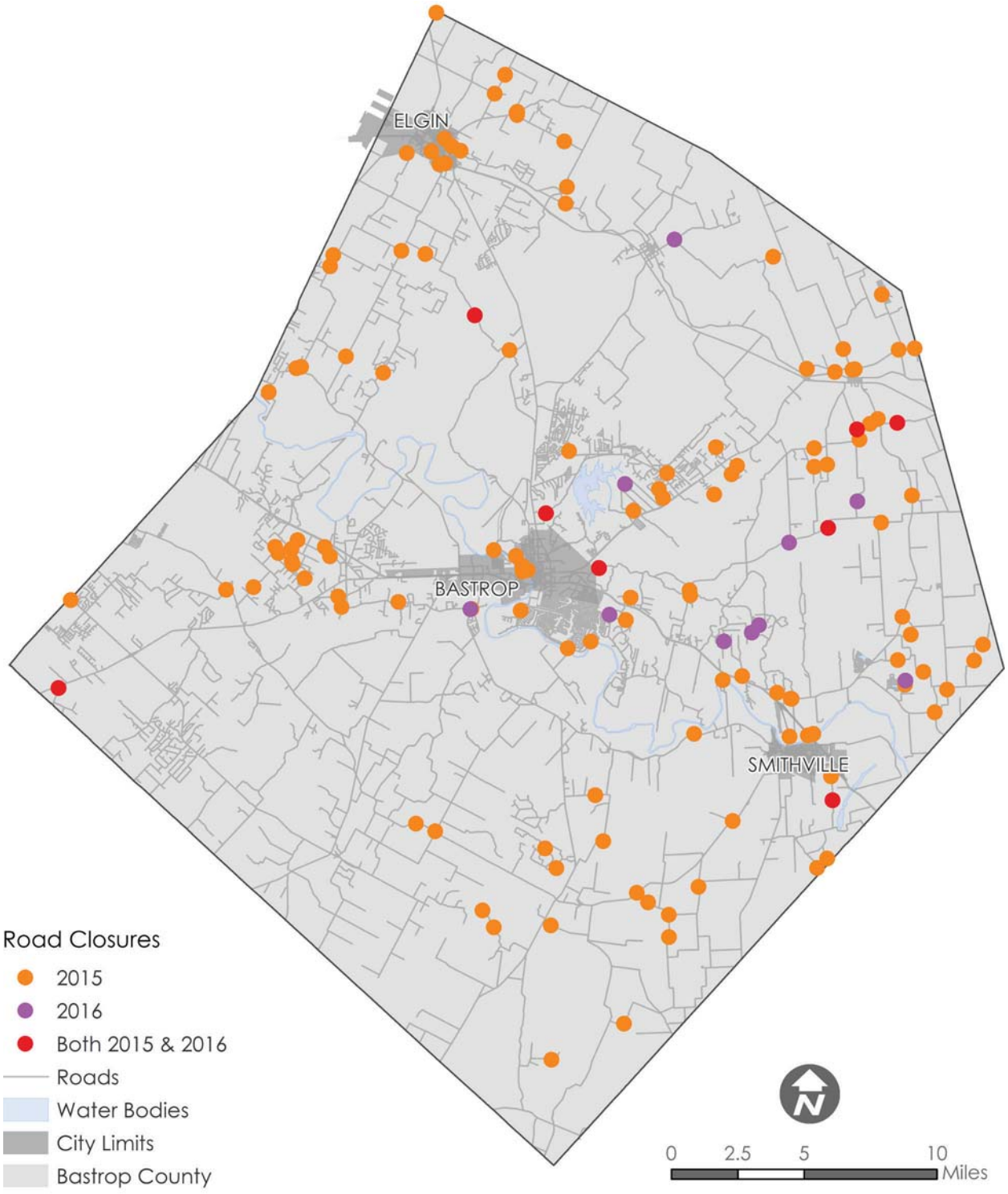


Figure 6.1: Old Sayers Road Damage, May 2016

Conclusion

The understanding gained in the review of the Bastrop County transportation marketplace provided a meaningful context for the 2016 Bastrop County Transportation Plan to respond to market dynamics and meet fundamental economic and community goals through the use of cost effective strategies. To support a sustainable Bastrop County economy, the transportation projects, policy initiatives, and strategies articulated in the following chapters of the 2016 BCTP focus on:

- Safety, especially for long distance trips;
- Multi-modal commuter solutions in collaboration with regional partners;
- Maintaining the County transportation system in a state of good repair;
- Maintaining quality of place by incorporating, to the extent possible, Complete Streets strategies; and
- Increasing transportation system connectivity and resiliency in emergency preparedness, response, and recovery.

Chapter Seven Project Evaluation and Selection

Evaluation and Selection

Key findings from the Needs Assessment included a desire for increased safety, concerns over congestion on the State-maintained system, a need for greater connectivity between neighborhoods and other key destinations, and a desire for more transportation options. To address these needs, a systematic approach for identifying and prioritizing county transportation projects was undertaken as part of the planning process. This approach involved analyzing anticipated future growth in the county and identifying potential traffic capacity deficiencies based on that growth. Using that information and the results of the Needs Assessment, the project team consulted with key stakeholders and elected officials to identify potential county transportation projects for further analysis and development.

Finally, public feedback on these projects was presented to the Steering Committee, who then prioritized the projects using objective and subjective evaluation criteria that support the Bastrop County Transportation Plan goals. Transportation projects were scored and ranked based on their impact on future mobility and congestion, as assessed using the CAMPO TDM, as well as their perceived impacts on the other 2016 BCTP goals. These goals included:

2016 BASTROP COUNTY TRANSPORTATION PLAN GOALS

- Reduce and manage traffic congestion in the county transportation system;
- Improve the safety of the county transportation system for all road users;
- Enhance the connectivity and accessibility of the county transportation system;
- Utilize cost effective strategies to achieve the most system benefit on a per dollar basis;
- Improve the reliability of the county transportation system;
- Support the competitiveness and economic development goals of Bastrop County communities;
- Ensure that the transportation system provides all users with affordable options to move throughout the county;
- Enhance transportation system maintenance and operations;
- Promote environmental, economic, and social sustainability; and
- Preserve the local character and promote the quality of life of Bastrop County communities.

Evaluation Criteria and Performance Measures

To evaluate how each project impacted the defined Plan goals, evaluation criteria and performance measures were selected and weighted based on feedback from the public, County planning partners, and the 2016 BCTP steering committee. A performance-based approach to transportation planning uses data on the performance of the transportation system to identify, evaluate, and prioritize strategies to achieve desired outcomes and track progress over time. The primary rationale behind this approach to transportation planning is that transportation investment decisions should be closely tied to achieving specific outcomes. The 2016 Bastrop County Transportation Plan applies, in a modified form customized to County circumstances, these best practice performance management principles to evaluate the anticipated outcomes of the Plan in achieving the stated County vision. To carry out this process a set of quantitative and qualitative performance measures was developed to evaluate how well each project addresses and supports each 2016 BCTP goal.

Using a set of preliminary performance measures for each goal, the steering committee was asked to select the respective evaluation criteria to be used in the project prioritization process. As a part of this selection, the committee was also asked to review and revise or confirm the weights that would be applied to each goal in performing the comparative evaluation and prioritization of the projects. The instrument used by the steering committee to select measures and apply weighting factors is shown in figure 7.1.

The final set of measures and weights as well as how they were applied in the evaluation process is shown in the project prioritization section below. The cumulative scores for each performance measure were weighted according to each measure's level of importance, as determined by input from the public and the steering committee, and a final score was assigned to each project using the project scoring matrix shown in Figure 7.2.

The final ranking of projects was reviewed for reasonableness by the steering committee to ensure consistency with Plan goals. This performance management based approach to project prioritization provides a transparent, replicable, and defensible process for evaluating and prioritizing projects for inclusion in the Plan.

Figure 7.1: Evaluation Criteria Weighting Exercise

DRAFT EVALUATION CRITERIA
Weighting Exercise

On the left side of the sheet place an 'X' next to any evaluation criteria you feel **do not** accurately measure the above goal, or **write in other criteria** you feel should be included.

On the right side of the sheet indicate whether the preliminary weighting of each goal should be given a higher weight, a lower weight, or if it is about right.

RANK	GOALS	WEIGHT
1	**Improve the safety of the county transportation system for all road users**	**2.0**
	Quantitative: ___ Number of crashes/ incapacitating injuries/fatalities in the vicinity of the proposed project. **Qualitative:** ___ Does the proposed project provide safer travel conditions for school children and other vulnerable users? ___ Does the project reduce conflict points (intersections, driveways, etc.)? ___ Does the project enhance safety for non-auto users? ___ Will the proposed project help achieve a substantial reduction in traffic fatalities and serious injuries on public roads? **Other:**	**Safety** should receive a: ___ higher weight ___ lower weight ___ about right
2	**Enhance the connectivity and accessibility of the county transportation system**	**2.0**
	Qualitative: ___ Will the project improve accessibility for emergency response services? ___ Does the project increase connectivity between key destinations? ___ Does the project increase access to goods, services and activities for residents and visitors? ___ Does the project enhance connectivity between travel modes? **Other:**	**Connectivity/ accessibility** should receive a: ___ higher weight ___ lower weight ___ about right
3	**Reduce and manage traffic congestion in the county transportation system.**	**2.0**
	Quantitative: ___ Vehicle Hours Travelled - a measure of total time spent in travel. ___ Vehicle Miles Travelled - a measure of the amount/extent of travel ___ Delay - the difference between free flow travel time and actual travel time ___ Average System Speed - measures system delay and overall system performance ___ Percent of System Congested - performance at the system level **Qualitative:** ___ Is the project expected to relieve congestion on a key corridor in the county? ___ Will the project provide alternate routes for users wishing to avoid congestion? **Other:**	**Congestion reduction** should receive a: ___ higher weight ___ lower weight ___ about right
4	**Improve the reliability of the county transportation system**	**1.5**
	Qualitative: ___ To what degree will the proposed project improve travel time reliability on a key corridor? ___ Will the proposed project reduce non-recurring congestion by reducing the likelihood of collisions or improving incident clearance times? ___ Will the proposed project improve the reliability of the transit system? **Other:**	**Reliability** should receive a: ___ higher weight ___ lower weight ___ about right

RANK	GOALS	WEIGHT
5	**Support the competitiveness and economic development goals of Bastrop County communities.**	1.5
	Qualitative: ___ Does the project improve access to job centers or tourist destinations? ___ Will the project encourage new industries/business to locate in the county? ___ To what degree does the project improve the freight network? **Other:**	**Economic Development** should receive a: ___ higher weight ___ lower weight ___ about right
6	**Ensure that the transportation system provides all users with affordable options to move throughout the county.**	1.0
	Qualitative: ___ To what degree does the proposed project provide affordable transportation options for low income users? ___ To what degree does the proposed project enhance access to jobs and economic opportunities? ___ To what degree does the proposed project improve alternative transportation options to those without a personal vehicle? **Other:**	**Affordability** should receive a: ___ higher weight ___ lower weight ___ about right
7	**Preserve the local character and promote the quality of life of Bastrop County communities**	1.0
	Qualitative: ___ Does the proposed project enhance or detract from local character or sense of place? ___ Does the proposed project enhance connectivity within neighbor hoods or to key destinations? ___ Does the proposed project protect cultural or historical resources? ___ To what degree will the proposed project increase noise pollution in the community? **Other:**	**Preservation of Local Character** should receive a: ___ higher weight ___ lower weight ___ about right
8	**Utilize cost effective strategies to achieve the most system benefit on a per dollar basis.**	1.0
	Quantitative: ___ The project cost per increment of improvement in other performance measures (e.g. reduction in travel time, delay, etc.) **Qualitative:** ___ What is the likelihood for cost-sharing opportunities to pay for the proposed project? ___ What is the ease of implementation of the proposed project? ___ Does the proposed require right of way acquisition? **Other:**	**Cost Effectiveness** should receive a: ___ higher weight ___ lower weight ___ about right
9	**Promote environmental, economic and social sustainability**	1.0
	Quantitative: ___ Emissions, fuel consumption or air quality (linked to VMT). ___ Loss of agricultural land or open space attributed to the project. ___ Loss of critical habitats attributed to the project (Lost Pines, Houston Toad, etc.) ___ Amount of the project located within flood-prone areas. **Qualitative:** ___ Will the project enhance access to job opportunities for Bastrop County residents, especially for low-income or minority populations? ___ Are there any expected adverse human health and environmental effects that will disproportionately affect low-income or minority populations? **Other:**	**Sustainability** should receive a: ___ higher weight ___ lower weight ___ about right
10	**Enhance transportation system maintenance and operations**	1.0
	Qualitative: ___ Will the proposed project improve the efficiency of the transportation system through improved system management? ___ To what degree does the proposed project reduce costs by preserving the existing transportation system? **Other:**	**Maintenance and Operations** should receive a: ___ higher weight ___ lower weight ___ about right

Figure 7.2: Project Scoring Worksheet

Bastrop County Transportation Plan
Project Scoring

Project 001: Lower Elgin Rd.

Level of Impact on Goal	Zero Impact	Very Little Impact	Some Impact	Positive Impact	Substantial Positive Impact
Reduce and manage traffic congestion					
Improve safety for all road users					
Enhance connectivity and accessibility					
Utilize cost effective strategies					
Improve the reliability of the system					
Support economic development goals					
Provide all users with affordable travel options					
Enhance transportation system maintenance and operations					
Promote environmental, economic and social sustainability					
Preserve the local character and promote quality of place					

Project 002: Thousand Oaks Dr.

Level of Impact on Goal	Zero Impact	Very Little Impact	Some Impact	Positive Impact	Substantial Positive Impact
Reduce and manage traffic congestion					
Improve safety for all road users					
Enhance connectivity and accessibility					
Utilize cost effective strategies					
Improve the reliability of the system					
Support economic development goals					
Provide all users with affordable travel options					
Enhance transportation system maintenance and operations					
Promote environmental, economic and social sustainability					
Preserve the local character and promote quality of place					

List of Candidate Projects

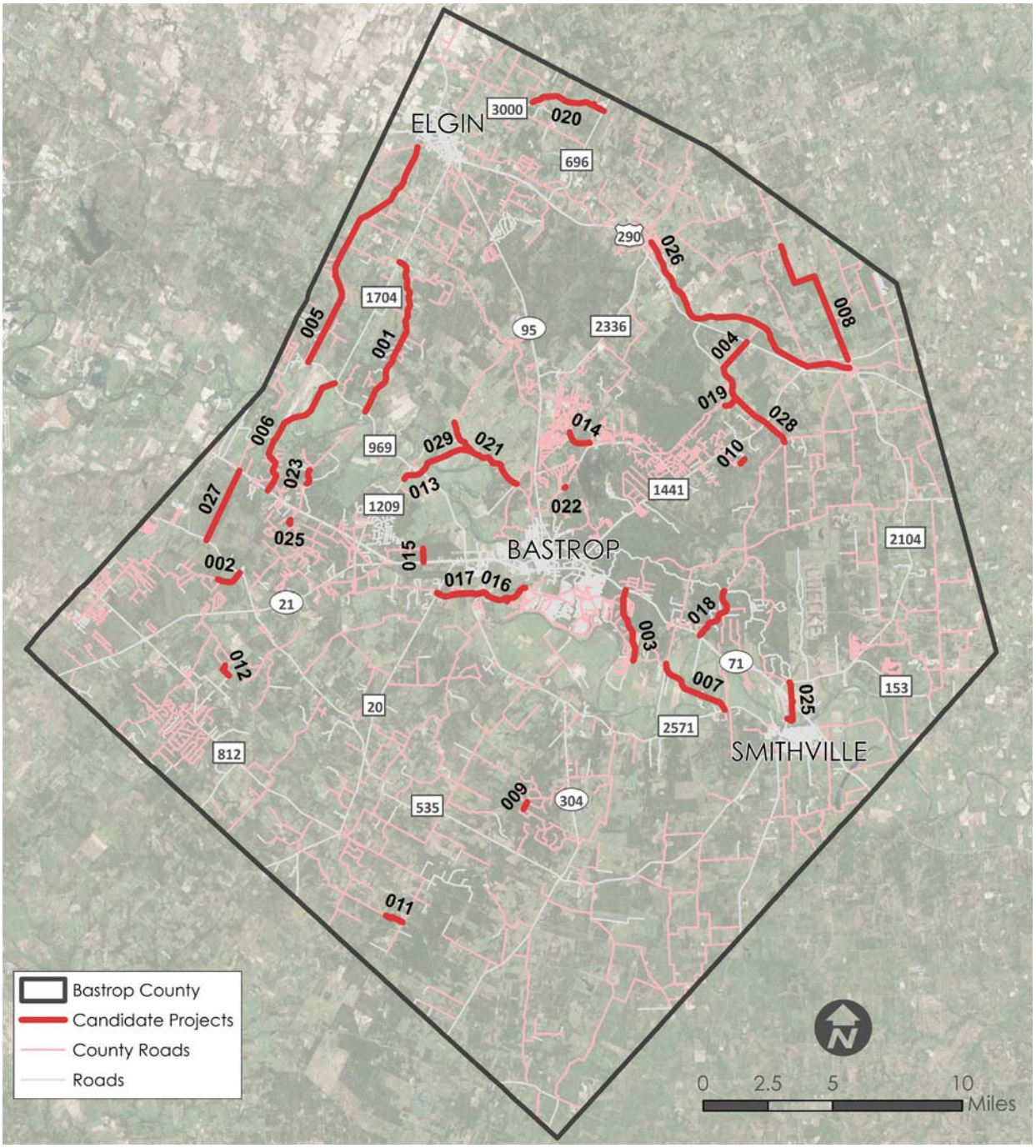
The 2016 BCTP proposes a program of projects consisting of new roadway segments and improvements to existing roadways combined with other non-roadway projects and initiatives. The program of projects for the 2016 BCTP was developed by first compiling an initial program of candidate transportation improvements with potential to address Plan goals. The projects originated from a variety of sources, including the 2010 BCTP; the results of the technical analysis performed during Plan development to evaluate current and anticipated future transportation system performance; the Capital Area Metropolitan Planning Organization's (CAMPO) 2040 Regional Transportation Plan (RTP) and Transportation Improvement Program (TIP); feedback from the public and other key stakeholders including elected officials; and meetings with the 2016 BCTP steering committee, which was established to oversee the development of the Plan. Table 7.1 provides a list of projects that were selected as candidate projects. Each was individually scored using the performance measure criteria. Map 7.1 shows a geographic overview for the locations of all the program's candidate projects within the county.

Table 7.1: Candidate Projects and Descriptions

Project	Project Name	Project Description
001	Lower Elgin Road	Realign/straighten Lower Elgin Rd. between FM 1704 and FM 969 to address visibility and safety concerns (project length: 6.5 miles)
002	Thousand Oaks Drive	Realign/straighten Thousand Oaks Dr. to address visibility/safety concerns (project length: 1.0 miles)
003	McAllister Road	Realign/straighten McAllister Rd. between SH 71 and Crafts Prairie Rd. to address visibility/safety concerns (project length: 2.9 miles)
004	Old Potato Road	Realign/straighten Old Potato Rd. between US 290 and SH 21 to address visibility/safety concerns (project length: 4.2 miles). Project already underway.
005	Upper Elgin River Road	Realign/straighten Upper Elgin River Rd. between Central Ave and FM 969 to address visibility/safety concerns (project length: 9.8 miles)
006	FM 1704 Bridge	Extend FM 1704 south of FM 969 and connect to Colorado Dr. via a new bridge across the Colorado River; upgrade Colorado Dr. to an Arterial from the new bridge to SH 71 (project length: 5.7 miles)
007	New Bridge	Construct a new bridge across the Colorado River from Ponderosa Rd. to FM 2571, providing a new connection between Bastrop and Smithville (project length: 3.1 miles)
008	Stockade Ranch Road	Upgrade Stockade Ranch Rd. to a Collector from SH 21 to Paint Creek Rd. (project length: 5.8 miles)
009	Pine Canyon / La Reata Connection	New road connecting Pine Canyon Dr. and Corral Rd. to provide better access between the neighborhoods (project length: 0.3 miles)
010	Old Piney Trail / Squirrel Run Connection	New road connecting Old Piney Trail/Kinsey Rd. and Squirrel Run (project length: 0.2 miles)
011	Bateman Road Extension	Extend Bateman Rd. to Red Rock Ranch Rd. to provide better connectivity to neighborhoods located along Red Rock Ranch Rd. and Sand Hills Rd. (project length: 0.8 miles)
012	New Road	Construct new road from Mesquite Drive to Morris Lane to enhance connectivity and access to neighborhoods along Mesquite Drive (project length: 0.5 miles)
013	FM 1209	Realign FM 1209 at FM 969 intersection near planned XS Ranch bridge (project length: 0.8 miles)
014	Green Valley Drive	Realign/straighten Green Valley Dr. between Rainforest Dr. and Old FM 1441 to address visibility/safety concerns (project length: 1.0 miles)
015	New Road	New road connecting Woodlands Dr. south to the SH 71 frontage road (project length: 0.5 miles)

Project	Project Name	Project Description
016	New Bridge	Connect SH 304/Shiloh Road to Lovers Lane and Tahitian Village via a new bridge across the Colorado River; connect with Margies Way (project length: 2.3 miles)
017	Shiloh Road	Upgrade Shiloh Road to a Collector from SH 20 to SH 304 (project length: 1.7 miles)
018	Cottletown Drive	Realign Cottletown Rd. to address visibility issues and high crash rate between SH 71 and Park Rd. 1C (project length: 2.3 miles)
019	McBride Lane	Extend McBride Lane to connect neighborhoods along Cardinal Ln./Dr. with Old Potato Rd. (project length: 0.5 miles)
020	Old Lexington Road	Realign Old Lexington Rd. and upgrade to Minor Arterial to address safety/visibility concerns; extend Old Lexington Rd. to FM 696 on the east end of the project (project length: 3.1 miles)
021	Old Sayers Road	Upgrade Old Sayers Rd. to a Collector road in response to growth in XS Ranch (project length: 3.7 miles)
022	New Connection	Connect Old McDade with Mooney Rd. (project length: 0.1 miles)
023	Pope Bend North	Realign Pope Bend North south of Hodge Ln. to address safety/visibility concerns (project length: 0.6 miles)
024	Pope Bend South	Realign Pope Bend South between Cedar Creek High School and Simpson Ave to address safety/visibility concerns; connect Lois Ln. to new alignment (project length: 0.2 miles)
025	Two Mile Lane / American Legion Rd. Hike/Bike Trail	Add a 10 ft wide shared hike/bike trail on Two Mile Ln./American Legion Road from entrance to Buescher State Park to Loop 230/SH 95 (project length: 1.7 miles)
026	Old Highway 20 Hike and Bike Trail	Construct a hike and bike trail (shared-use path) along Old Highway 20 from Marlin Street in McDade to Gonzales Street in Paige (project length: 10.3 miles)
027	New Road	Construct a new Arterial road connecting SH 71 to Pearce Lane/FM 535 (project length: 3.0 miles)
028	South Old Potato Road	Implement continuous monitoring and operational improvements on South Old Potato Rd. between SH 21 and Antioch Rd. to address visibility/safety concerns (project length: 1.1 miles)
029	XS Ranch Bridge and Road	Construct new bridge across Colorado River to connect XS Ranch to FM 1209/FM 969 intersection (project length: 2.2 miles)

Map 7.1: Candidate Projects



List of Previously Planned Projects

Table 7.2 shows a list of previously programmed projects that were aggregated from various state, regional, and local planning and program documents, with some projects appearing in more than one document. The projects were sourced from the following:

- Texas' 2017-2020 Statewide Transportation Improvement Program (STIP)
- Texas' 2016 and 2017 Unified Transportation Programs (UTP)
- CAMPO's 2017-2020 Transportation Improvement Program (TIP)
- CAMPO's 2040 Regional Transportation Plan (RTP)
- City of Bastrop's (CoB) 2013-2018 Capital Improvement Program (CIP)

All projects in the list are located within Bastrop County, and coincide with the County's 2040 Thoroughfare Network. The inclusion of these projects in the Bastrop County Transportation Plan is important because it allows Bastrop County residents to be aware of projects that are already planned or have already received funding. It also solidifies the priority of these projects in writing, providing a measure of accountability for implementation and enforcement. Should the County's funding situation change, this list will serve to remind the appropriate entities and the public that these projects are on the County's radar.

Table 7.2: Previously Programmed Projects

#	Roadway	Project Location	Project Description	Fiscal Year	Cost	Source
1	FM 2571	From SH 304 to SH 95	Full depth, level-up and seal coat	2017	YOE $1,275,800	2017-2020 Texas STIP
2	SH 21	From Caldwell County line to SH 71	Provide super 2 passing lanes	2018	YOE $4,000,000	2017-2020 Texas STIP
3	SH 21	From 0.668 Mi. W of SH 95 to 0.268 Mi. W of SH 95	Construct bridges, main lanes, and frontage roads	2018	YOE $9,615,000	2017-2020 Texas STIP
4	US 290	From 1 Mi. E of FM 696 to 8.864 Mi. E of FM 696	Widen to 4 lane divided	2018	YOE $32,800,000	2017-2020 Texas STIP
5	SL 230	From SH 95 to Olive St., From Bluebonnet Cir. to Webb St.	ADA sidewalks	2018	YOE $491,456	2017-2020 Texas STIP
6	SH 95	From Smithville High School to Loop 230 at Fawcett St.	Construct recommendations from the SH 95 study	2019	YOE $3,430,562	2017-2020 Texas STIP
7	SH 21	From 1.187 Mi W of SH 95 to 0.668 Mi W of SH 95	Construct frontage roads and bridge	2019	YOE $25,200,000	2017-2020 Texas STIP
8	FM 20	At Shiloh Rd.	Install intersection flashing beacon and safety lighting at intersection	2017	TOTAL $71,839	2017 Texas UTP
9	SH 71	At Tucker Hill Ln.	Lengthen left turn lane	2017	TOTAL $203,638	2017 Texas UTP
10	SH 71	At FM 1209	Lengthen left turn lane	2017	TOTAL $203,638	2017 Texas UTP
11	SH 21	At Childers	Landscape and irrigation	2017	TOTAL $481,802	2017 Texas UTP
12	SH 71	At Tahitian	Landscape and irrigation	2017	TOTAL $481,802	2017 Texas UTP
13	SH 95	At Pershing Blvd.	Install traffic signal	2017	TOTAL $186,963	2017 Texas UTP
14	SH 21	At SL 150 East	Realign intersection	2017	TOTAL $345,135	2017 Texas UTP

#	Roadway	Project Location	Project Description	Fiscal Year	Cost	Source
15	FM 969	From 0.033 Mi W of Lazy River Ln. to 0.233 Mi E of Lazy River Ln.	Install advance warning signals (curve), high friction surface treatment (curve)	2017	TOTAL $119,921	2017 Texas UTP
16	FM 969	From 0.087 Mi W of Terri Trl. to 0.114 Mi E of Terri Trl.	Install advance warning signals (curve), high friction surface treatment (curve)	2017	TOTAL $119,921	2017 Texas UTP
17	SH 71	From W of FM 20 to W of SH 304	Construct overpass and frontage roads	2017	TOTAL $35,020,241	2017 Texas UTP
18	SH 95	At FM 2336	Install intersection flashing beacon	2018	TOTAL $88,152	2017 Texas UTP
19	SH 71	At Tucker Hill Ln.	Construct overpass	2019	TOTAL $23,621,285	2017 Texas UTP
20	SH 21	At Gills Branch	Rehabilitate bridge and approaches	2019	TOTAL $722,651	2017 Texas UTP
21	Old McDade Rd.	On Old McDade Rd. at Big Sandy Creek	Rehabilitate bridge and approaches	2019	TOTAL $792,620	2017 Texas UTP
22	FM 969	From Travis County line to SH 21/SH 71	Profile pavement markings	2019	TOTAL $235,111	2017 Texas UTP
23	FM 2336	From US 290 to SH 95	Improve guardrail to design standards, safety treat fixed objects, provide additional paved surface width	2019	TOTAL $5,623,137	2017 Texas UTP
24	FM 1441	From SH 95 to SH 21	Profile pavement markings	2019	TOTAL $104,016	2017 Texas UTP
25	FM 3000	From SL 109 to 3.6 Mi N of SL 109	Improve guardrail, safety treat fixed objects	2019	TOTAL $598,082	2017 Texas UTP
26	SH 21	At Gills Branch and MKT RR	Rehabilitate bridge and approaches	2020	TOTAL $2,535,602	2017 Texas UTP
27	SH 71	From 5.356 Mi W of FM 1209 to 4.425 Mi W of FM 1209	Upgrade bridge and approach railing	2016	TOTAL $316,436	2016 Texas UTP

#	Roadway	Project Location	Project Description	Fiscal Year	Cost	Source
28	SH 21	From 2.229 Mi W of FM 20 to 2.112 Mi W of FM 20	Upgrade bridge and approach railing	2016	TOTAL $1,083,278	2016 Texas UTP
29	SH 71	From 0.358 Mi W of SH 95 to 0.268 Mi W of SH 95	Add entrance ramp bridge	2016	TOTAL $1,083,278	2016 Texas UTP
30	US 290	From SH 95 N to SL 109	Safety lighting	2017	TOTAL $422,378	2016 Texas UTP
31	SH 21	At FM 812	Install intersection flashing beacon	2017	TOTAL $76,251	2016 Texas UTP
32	CR	From SH 95 to 0.2 Mi S of Arbuckle Rd.	Install warning/guide signs and delineators	2017	TOTAL $107,146	2016 Texas UTP
33	CR	From SH 71 to 5.35 Mi N of SH 71	Install warning/guide signs and delineators	2017	TOTAL $74,565	2016 Texas UTP
34	US 290	From 0.65 Mi E of SH 95 S to SH 95 S	Mill, seal, and TOM	2019	CONSTRUCTION $2,099,253	2017-2020 CAMPO TIP
35	US 290	From 1.280 Mi E of FM 696 To 8.846 Mi E of FM 696	Repair and seal coat	2019	CONSTRUCTION $1,398,093	2017-2020 CAMPO TIP
36	SH 71	From 0.4 Mi E of Loop 150 to 1.514 Mi E of Loop 230	Level-up and TOM	2018	CONSTRUCTION $7,234,211	2017-2020 CAMPO TIP
37	SH 21	From Cardinal Dr. to 0.1 Mi W of US 290	Convert 4 lane undivided to Super 2	2017	CONSTRUCTION $324,144	2017-2020 CAMPO TIP
38	SH 304	From 2.677 Mi S of SH 71 to FM 535	Provide additional paved surface	2019	CONSTRUCTION $11,473,613	2017-2020 CAMPO TIP
39	SH 95	From SH 95 to SH 21	Provide pavement markings	2019	CONSTRUCTION $93,974	2017-2020 CAMPO TIP
40	FM 1100	From Travis County line to SH 95	Construct MAD-4	2040	YOE $24.2 Million	2040 CAMPO RTP
41	SH 71	At Riverbend Park in Smithville	Install larger turn lane	2040	YOE $0.9 Million	2040 CAMPO RTP
42	SH 95	From north of Piney Creek bridge to Phelan Rd.	Add continuous turn lane	2040	YOE $9.4 Million	2040 CAMPO RTP

#	Roadway	Project Location	Project Description	Fiscal Year	Cost	Source
43	US 290	From 1 Mi E of FM 696 to Lee County line	Hurricane evacuation route: Reconstruct existing 4 lane undivided rural principal arterial to a 4 lane divided rural principal arterial	2018	YOE $57.1 Million	2040 CAMPO RTP
44	SH 304	From Trigg Rd. to Caldwell County line	Add continuous turn lane	2040	YOE $119.5 Million	2040 CAMPO RTP
45	US 290 W	From FM 2014 to Lee County Line	Upgrade from MAU-4 to MAD-4/FWY-4	-	YOE $12.6 Million	2040 CAMPO RTP
46	SH 21 E	From Lincoln Lake Rd. to Cardinal Ln.	Add continuous turn lane	-	YOE $10.8 Million	2040 CAMPO RTP
47	SH 95/ Loop 230	From Colorado River bridge to entrance of Buescher State Park	Add a 10-foot wide shared hike/bike trail (engineering and construction needed)	-	Funding not identified	2040 CAMPO RTP
48	FM 1704	From US 290 to FM 969	Construct MAD-4	-	Funding not identified	2040 CAMPO RTP
49	FM 2571	From SH 95 to city limits	Add a 5-food wide bike trail on both sides of the road (engineering and construction needed)	-	Funding not identified	2040 CAMPO RTP
50	MLK Blvd.	From SH 95 to Miller St.	Add a 4-foot wide sidewalk (engineering and construction needed)	-	Funding not identified	2040 CAMPO RTP
51	MLK St.	From Chestnut St. to College St.	Potential future roadway projects	2016	-	2013-2018 CoB CIP
52	Water St.	From Pine St. to College St.	Potential future roadway projects	2016	-	2013-2018 CoB CIP

Chapter Eight
2016 Thoroughfare Plan

Thoroughfare Plan

An important element of the 2016 Bastrop County Transportation Plan is a Thoroughfare Plan that establishes a long-range vision for the Bastrop County roadway network. The plan is designed to meet the future travel needs of the county by classifying the roadways within the County's jurisdiction by access to adjacent land use, mobility, and context within the surrounding area. This Thoroughfare Plan addresses both existing and proposed roadways. This plan also provides conceptual standards by thoroughfare type for use in the implementation of future roadways or the reconstruction of existing roadways. The plan provides a guide for use by County officials, developers, business owners, and residents to better understand the vision of the County for its roadway system.

Transportation systems are designed to serve a diverse range of travel needs, from long-distance travel between cities to local trips between home and the grocery store. Assigning a functional class to each roadway in the system helps ensure that the transportation system can serve the diverse travel needs of users in a logical and efficient manner. Functional classifications provide a basis for selecting appropriate speed and geometric design criteria for a given roadway. However, this does not mean that the functional classification for a given roadway prescribes specific design criteria. Instead, the actual configuration of roadways is subject to review and adjustment through detailed engineering studies to ensure facility design is coordinated with adjacent development, and takes into account other community goals and objectives.

A context sensitive approach that takes into account the compatibility of thoroughfare types with surrounding land uses, in addition to the efficient movement of traffic, was used for designating functional classifications for the Bastrop County Thoroughfare Plan. The proposed functional classifications were determined by weighing mobility versus access needs, the surrounding land uses, and the facility characteristics of existing roadways.

Area Covered by Thoroughfare Plan

The Thoroughfare Plan provides guidance only for those roadways that are under the legal control of Bastrop County. Attributes, proposed improvements and functional classifications for state maintained roadways of regional significance and streets within municipalities were defined based on their definitions in the CAMPO 2040 Regional Transportation Plan or the respective municipal plans, which were incorporated into the 2016 BCTP thoroughfare network by reference.

Thoroughfare Network

Development of the Thoroughfare Plan builds on the activities described in previous sections of the 2016 Bastrop County Transportation Plan, including the analysis of existing conditions, future development patterns, projected travel needs and system performance, and community goals. This Thoroughfare Plan proposes a network of existing, upgraded, and proposed roadways intended to meet the long-term needs of Bastrop County as it grows and changes over time, while preserving the rural character and quality of life of the county. The primary components of the thoroughfare planning are:

- Thoroughfare network;
- Functional classification system; and
- Typical cross-sections by functional class.

The Thoroughfare Plan is designed to be a guide for future investments in the roadway network, including projects funded by the public sector through the County's Capital Improvements Program (CIP), as well as the private sector through the land development process. The Thoroughfare Plan is intended to be used as a framework for future growth, not a blueprint for development. It is important to note that new and upgraded roads shown in Map 8.2 represent potential future designations that describe how those roadways will operate when the Plan is complete. Official roadway functional classifications will be determined at the time of design/construction by TxDOT and CAMPO. As conditions change over time, the Thoroughfare Plan should be revisited and revised.

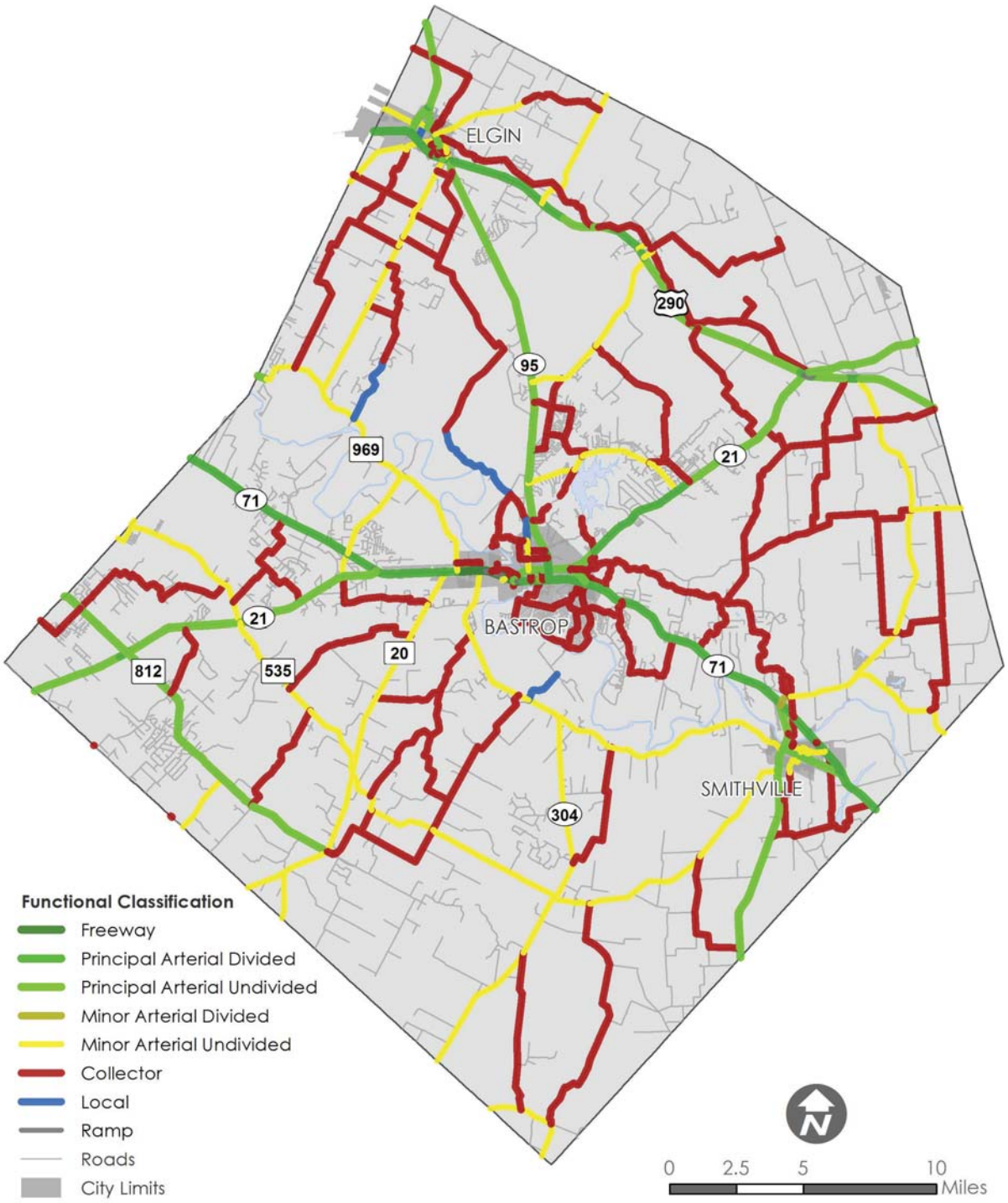
The existing thoroughfare network, shown in Map 8.1, was developed using the CAMPO network supplemented with the county centerline file for County roadways that were not included in the CAMPO network. Additionally, projects from the updated CAMPO RTP and adopted municipal plans were incorporated into the proposed thoroughfare network shown in Map 8.2.

Constraints Analysis

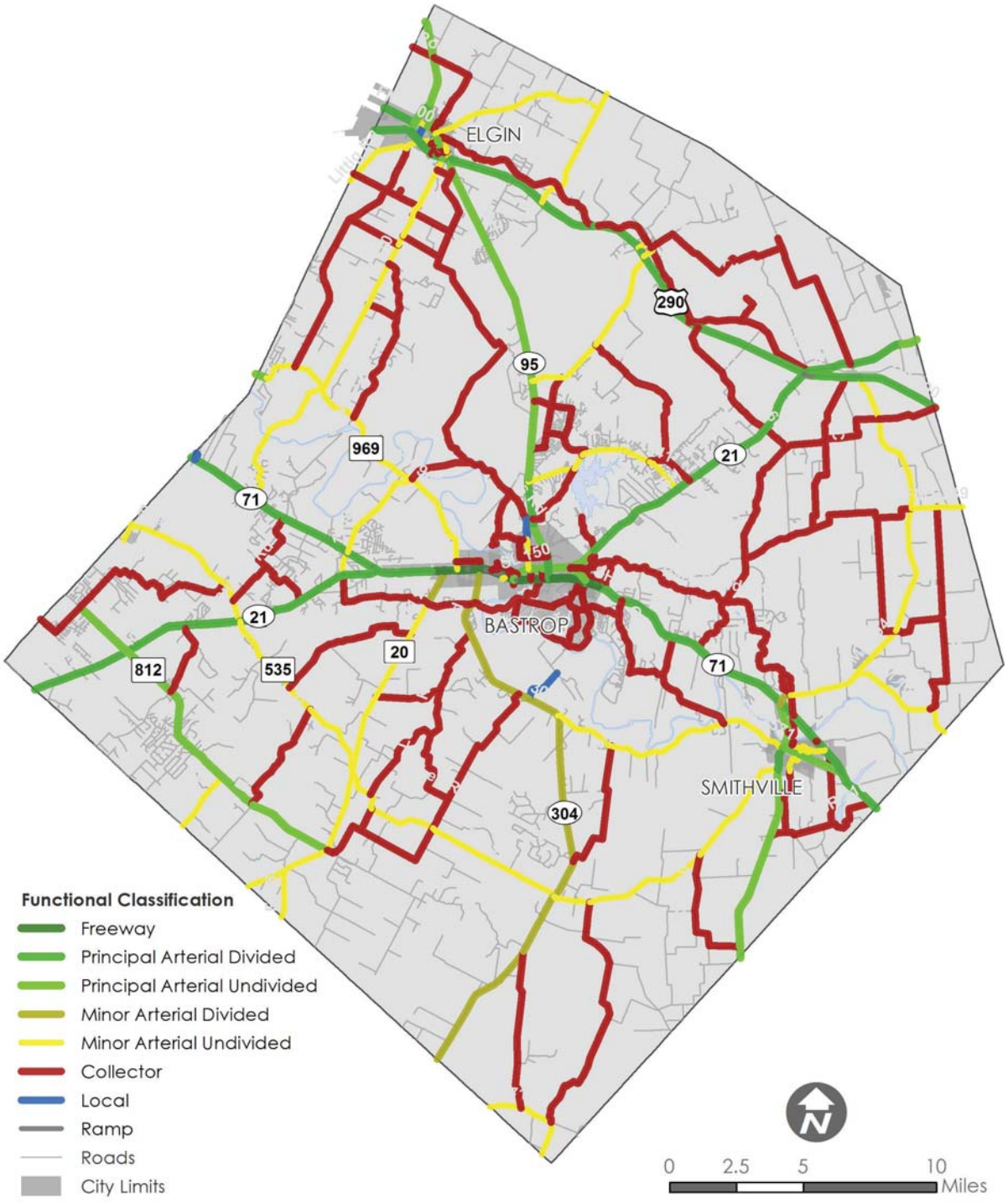
A high level constraints analysis was performed to identify any obvious potential environmental constraints to proposed new roadways and ensure that in developed areas, roadways are sensitive to the context of adjacent neighborhoods and in undeveloped areas, roadways are consistent with and support future land use plans.

Water features, topography, sensitive habitats (e.g. Houston toad), and built features were examined in relationship to the proposed thoroughfare network, and adjustments were made accordingly. However, the analysis was performed at a high level, and more detailed studies may be necessary to refine the alignments as growth patterns become more certain. Project implementation, development of subdivision plats, or site plans that include the thoroughfares in this plan should be done in collaboration with and under the review of the County Engineer.

Map 8.1: Existing Thoroughfare Network



Map 8.2: Proposed Thoroughfare Network



Functional Classification System

The foundation of the Thoroughfare Plan is the Functional Classification System used to distinguish the County's roadways by their designed use or function. Roadways typically serve two primary travel needs, namely mobility and access. When developing a roadway system it is important to understand and define the role that a roadway is intended to play because mobility and access are often competing factors in both roadway design and the interaction of the transportation system and adjacent land uses.

The functional classification of a roadway defines the role the roadway plays within the overall transportation system.

The role of arterial roadways is typically to move large volumes of traffic efficiently over long distances to connect communities or major activity centers. The primary role of collector roadways is to provide a transition connecting and distributing traffic from the arterial system to local streets serving activity centers and neighborhoods. The primary role of local streets is to act as an internal circulation system within neighborhoods and commercial areas that provides direct access to land uses. Figure 8.1 shows the relationship between access and mobility.

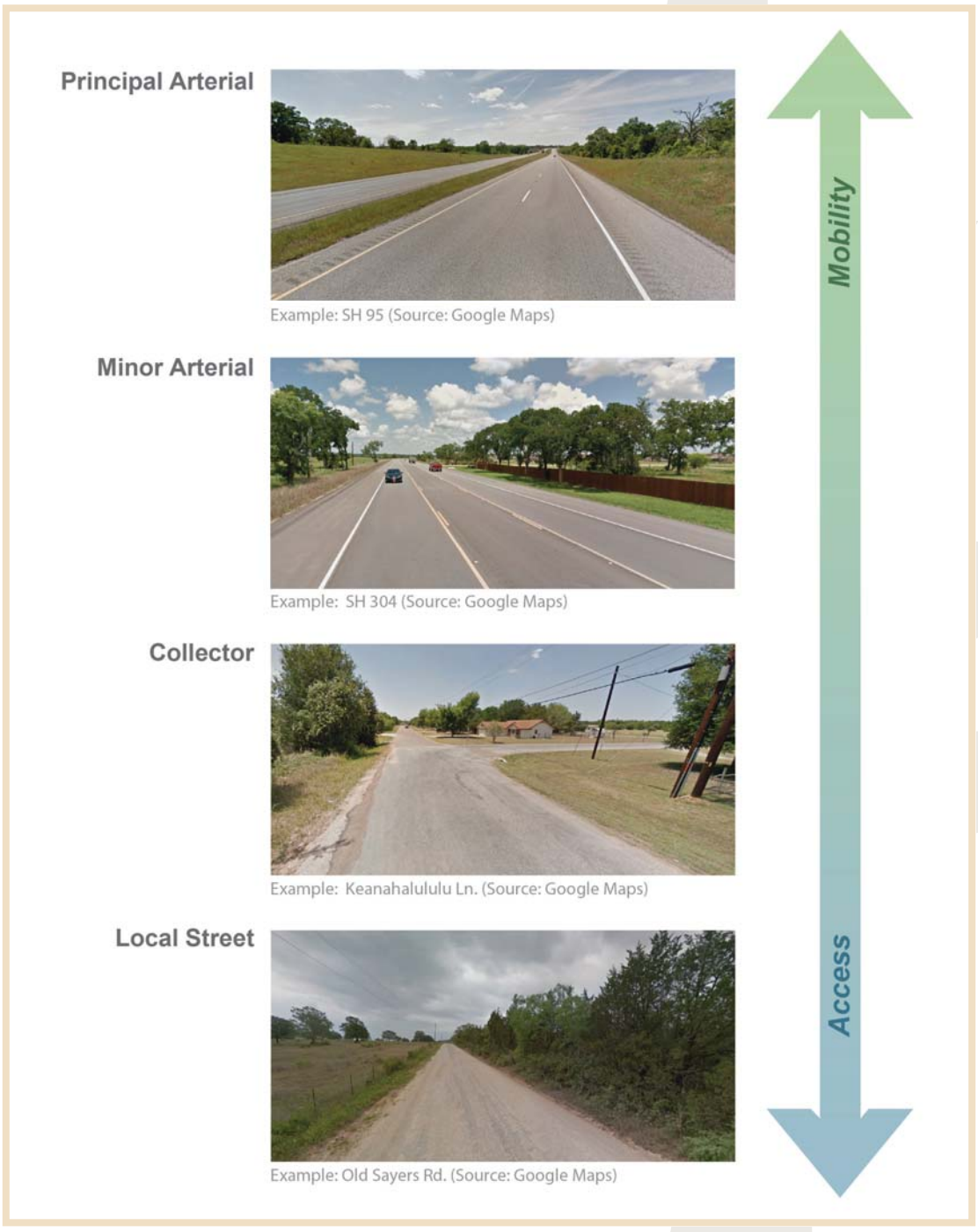
The foundational guidance for developing the thoroughfare network for the 2016 Bastrop County Transportation Plan was derived from the federal Highway Functional Classification: Concepts, Criteria and Procedures, 2013 Edition, which describes the procedures and processes for assigning functional classifications to roadways for both urban and rural areas.

In addition to being a framework for identifying the particular role of a roadway in the transportation system. Functional classification also defines roadway design characteristics, including its speed, capacity, and relationship to existing and future land use development. Also, in addition to being a local tool, federal agencies use functional classification in determining eligibility for funding under the federal transportation funding programs. As federal funding becomes more dependent on meeting performance measures, functional classification of the transportation system roadways will be an increasingly important consideration in setting expectations and measuring outcomes for system preservation, mobility, and safety.

Bastrop County Functional Classifications

This Thoroughfare Plan uses the following classifications as defined below. Note that in the context of the mobility versus access continuum, higher functional classes (e.g. principal arterials) serve mobility while lower classes (local streets) prioritize access.

Figure 8.1: Relationship Between Access and Mobility



Principal Arterials

Principal arterials provide a high degree of mobility by serving travel between major destinations or activity centers, as well as long-distance traffic that goes through or bypasses an area. They are designed to minimize travel time by providing high posted speed limits, offering physical separation from other roadways (e.g. few at-grade intersections), and providing a limited number of access/egress points (e.g. on- and off-ramps).

Minor Arterials

Minor arterials are intended to connect traffic into and between the principal arterial system. They can serve trips of moderate length by connecting smaller geographic areas. While minor arterials provide slightly less mobility benefit than principal arterials, overall they are characterized by relatively high travel speeds and low interference from cross traffic. Figures 8.2 and 8.4 show two types of minor arterials.

Collectors

Collectors provide a balance between mobility and access, primarily serving to "collect" traffic from local streets and provide connections to arterials. In urban areas, collectors provide traffic circulation in residential areas or commercial districts, while in rural areas they primarily serve travel within the county (i.e. trips shorter than those served by arterials). Due to the large number of collector roadways and the diversity of adjacent land uses, appropriate context subcategories were defined for collector roadways. These categories include residential, commercial, and mixed-use collectors. Figures 8.3 and 8.5 show rural and urban/suburban collectors.

Local Streets

Local streets offer lower mobility than other functional classes but provide the highest degree of access to adjacent land. They discourage through traffic with low posted speed limits and the use of traffic calming features. Local streets make up the bulk of the transportation system in terms of mileage.

Typical Roadway Cross Sections

For each of the functional classes defined in the Thoroughfare Plan, a typical cross section was developed for use in the planning and conceptual engineering of new roadways or in the potential upgrade of existing roadways as they are reconstructed or expanded. The following typical cross sections are intended as conceptual frameworks to facilitate the planning process. Specific engineering requirements and design guidelines for implementation of roadways are contained in the County subdivision regulations and other capital improvement program guidelines. The engineering and design of specific facilities must be carried out in collaboration with and under the review of the County Engineer.

Figure 8.2: Rural - Minor Arterial

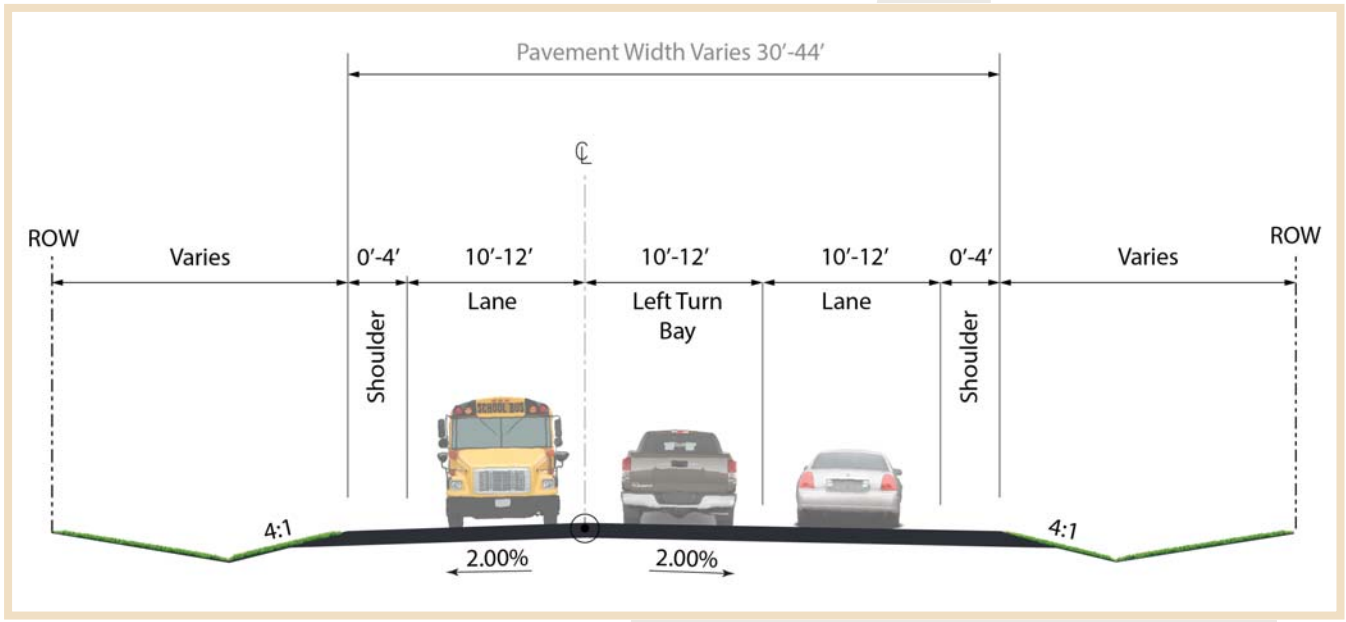


Figure 8.3: Rural - Collector

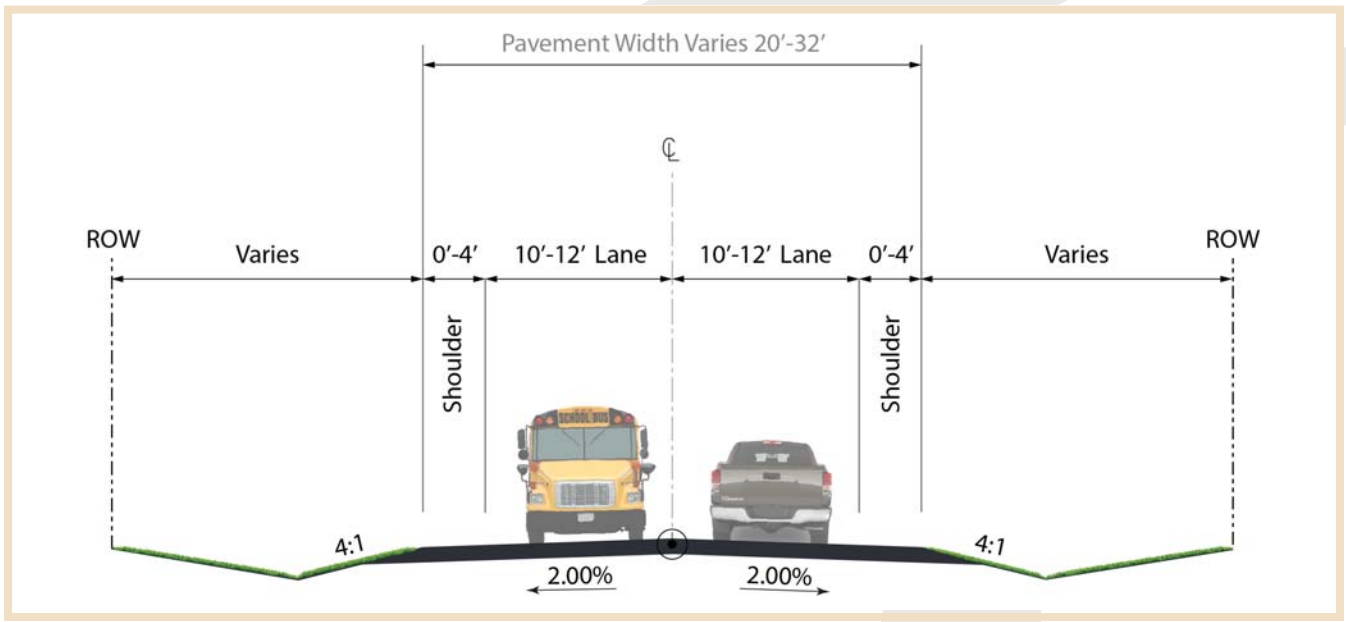


Figure 8.4: Urban/Suburban - Minor Arterial

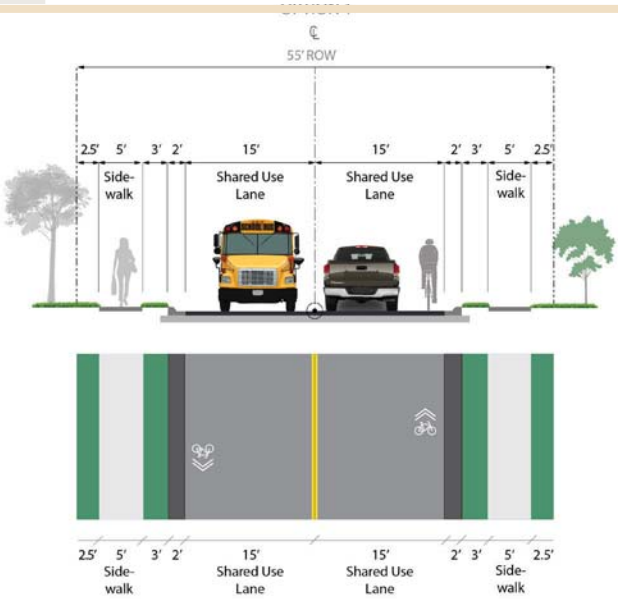
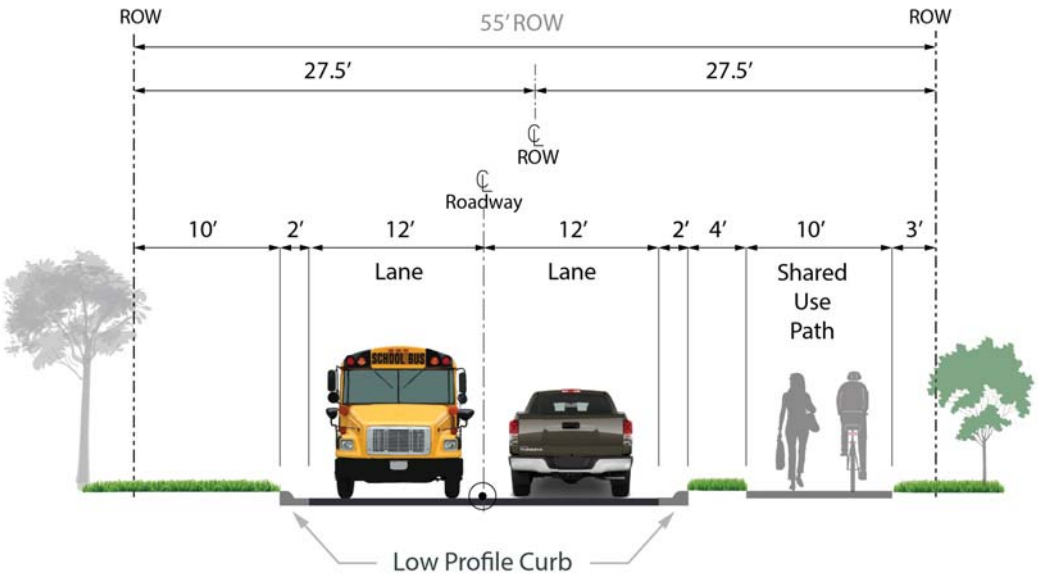


Figure 8.5: Urban/Suburban - Collector



"We need projects that help us safely travel between our distinct communities and the region as a whole."

— Paul Pape, County Judge

Chapter Nine Prioritized Program of Projects

Program of Projects

This chapter provides a prioritized list of transportation projects, which expands upon the list of candidate projects shown in Chapter 7. As described in Chapter 7, a series of evaluation criteria and performance measures were used to "score" projects from the candidate project list. The scoring process was undertaken by the BCTP Steering Committee using an on-line format. Additional adjustments to the scoring were made using input from the general public at the three BCTP May 2016 Open Houses in Elgin, Smithville, and Bastrop. The outcome of the project scoring process is a succinct list of prioritized transportation projects.

The final project ranking was reviewed by the steering committee for reasonableness and to identify any outlying projects that seemed to be inaccurately ranked. Table 9.1 shows the final rank and score for each of the 29 projects and is followed by the ranked project list.

Project Valuation

Roadway Estimates

Cost estimates for roadway projects were derived based on a cost estimate tool provided by TxDOT. The tool calculated project costs based on a set of inputs that classified the type of construction, the functional class and configuration of the roadway, the character of the setting, the presence of frontage roads, the number of lanes, and the length of the project. Assumptions made in the process of estimating roadway costs include:

- The proposed alignment will remain the same (costs will differ based on final design and alignment);
- Limitations in the tool's input options; and
- The County will build the roads to TxDOT's standards.

Bridge Estimates

The estimates for bridges were included in the final cost sums for the roadway projects in which each bridge occurs. Bridge cost estimates were derived based on low-bid averages from TxDOT observations of bridge construction. High and low estimates were calculated using two price units, both in dollars per square foot, from one bridge type, GPITX, that displayed the lowest price per square foot and occurred the most for bridges of the applicable length category (more than 1000 linear feet). The length for each proposed bridge was approximated based on locations of regulatory and 100 year floodplains, and a width of 40 feet was used to calculate the square footage of each bridge. The cost estimate for each bridge was then calculated by multiplying the square footage by the price unit for GPITX bridge types. GPITX stands for girder prestressed I-beam in "Texas Shape," which is the type of beam used in a GPITX support structure. Some of the assumptions made in estimating bridge costs include:

- Bridge width of 40 feet;
- Accuracy of the price unit ($/sq. foot);
- The type of bridge (GPITX); and
- The bridge length and alignment based on regulatory and 100 year floodplain boundaries.

Table 9.1: Final Project Ranking and Scores

Rank	Project Number	Project Name	Score
1	029	XS Ranch Bridge and Road	53.07
2	016	New Bridge	49.44
3	027	New Road	47.75
4	005	Upper Elgin River Rd.	47.32
5	007	New Bridge	46.95
6	021	Old Sayers Rd.	46.95
7	017	Shiloh Rd.	46.71
8	013	FM 1209	46.36
9	006	FM 1704 Bridge	45.90
10	026	Old Highway 20 Trail	45.82
11	015	New Road	45.80
12	025	Two Mile Ln./Am. Legion Rd.	45.50
13	020	Old Lexington Rd. (FM 3000)	44.63
14	003	McAllister Rd.	44.33
15	022	New Connection	43.60

Note: The highest potential score that a project could receive was 76. The lowest potential score that a project could receive was 15.2.

Rank	Project Number	Project Name	Score
16	009	Pine Canyon/ La Reata	43.37
17	018	Cottletown Dr.	43.33
18	014	Green Valley Dr.	42.62
19	023	Pope Bend North	42.25
20	024	Pope Bend South	42.20
21	019	McBride Ln.	41.67
22	011	Bateman Road Extension	41.13
23	001	Lower Elgin Rd.	41.09
24	010	Old Piney Trail/Squirrel Run	40.65
25	012	New Road	40.57
26	028	South Old Potato Rd.	40.18
27	002	Thousand Oaks Dr.	39.30
28	008	Stockade Ranch Rd.	37.49
29	004	Old Potato Rd.	35.55

Note: The highest potential score that a project could receive was 76. The lowest potential score that a project could receive was 15.2.

The purpose of the estimated bridge costs is to provide the County with a general idea of how expensive bridge construction might be. Because the estimates are rough, engineers will need to perform full, detailed feasibility analyses at each proposed bridge site to determine if location and alignments are appropriate, and to present a more precise estimate of construction costs. If an alternate bridge type is selected, it will significantly alter estimated bridge costs.

Hike and Bike Trail Estimates

The costs of the two hike and bike trail projects were estimated based on a set of example projects and observed average costs from various hike and bike trail sources. Three price units, all in dollars per square foot, were derived based on a range of low, middle, and high cost estimates to provide a realistic understanding of the possible range of costs of hike and bike trails based on the proposed length for each project, both for paved and unpaved scenarios. These price units were sourced from average cost metrics provided by the Pedestrian and Bicycle Information Center. A width of 10 feet was used, along with project length, to calculate the square footage of each project. The square footage was then multiplied by each price to calculate a low, middle, and high construction cost estimate for each project, both for paved and unpaved scenarios. The following list of assumptions was used in the estimation process:

- The examples used to derive cost estimates provide accurate price units ($/sq. foot);
- Trail width of 10 feet based on recommended minimum width of shared-use paths; and
- Whether trails are paved or unpaved

Project Profiles in Order of Ranking

The following pages provide, in order of their priority ranking, a set of project profiles that contain:

- An overview of each project;
- Related data that includes crash information and daily traffic flow, if applicable;
- How each project was identified;
- Feedback from the public, stakeholders, commissioners, and city staff; and
- The estimated cost for each project.

Project 029: XS Ranch Bridge/XS Ranch Rd.

Rank / Score
1 / 53.07

DESCRIPTION
Construct new bridge across Colorado River to connect XS Ranch to FM 1209/FM 969 intersection (project length: 2.2 miles).

2010-2015 CRASHES
n/a

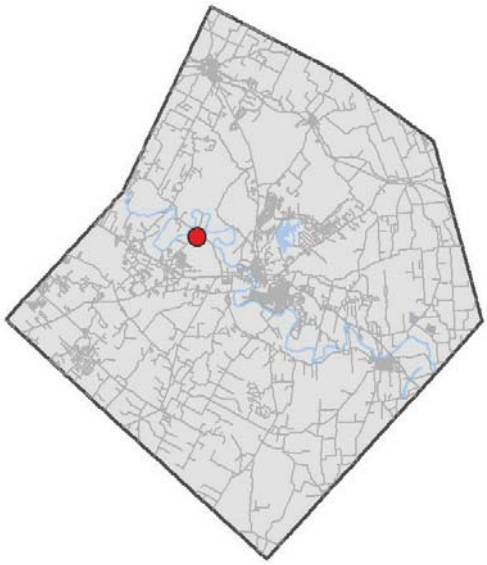
DAILY TRAFFIC FLOW
n/a

PROJECT IDENTIFICATION AND FEEDBACK
This project was developed through discussions with area stakeholders and developers to address connectivity concerns once the new XS Ranch development is complete. There is general support for this project. This project will increase east/west connectivity across the Colorado River, helping to lessen bottleneck strains and provide an additional route in case of emergencies.

ESTIMATED PROJECT COST
New Construction: $7,886,000

Project Extent and Proposed Alignment

Project Location



*These estimates represent program-level costs for budgeting purposes only. Actual project costs are dependent on market conditions, and will not be known until the time of design and construction.

Project 016: New Bridge

Rank 2 / Score 49.44

DESCRIPTION
Connect SH 304/Shiloh Rd. to Lovers Lane and Tahitian Village via a new bridge across the Colorado River; connect with Margies Way (project length: 2.3 miles).

2010-2015 CRASHES
n/a

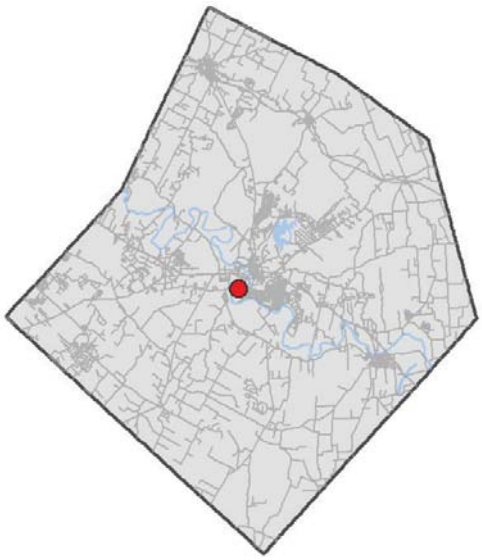
DAILY TRAFFIC FLOW
n/a

PROJECT IDENTIFICATION AND FEEDBACK
This project was identified through review of existing thoroughfare plans and discussions with stakeholders. There is general support for this project due to its impact on system connectivity. This project will increase east/west connectivity across the Colorado River, helping to lessen bottleneck strains and provide an additional route in case of emergencies. It will also increase/improve access to Tahitian Village.

ESTIMATED PROJECT COST
New Construction: $7,514,000

Project Extent and Proposed Alignment

Project Location



*These estimates represent program-level costs for budgeting purposes only. Actual project costs are dependent on market conditions, and will not be known until the time of design and construction.

Project 027: New Road

Rank 3 / Score 47.75

DESCRIPTION
Construct a new Arterial road connecting SH 71 to Pearce Lane/FM535 (project length: 3.0 miles).

2010-2015 CRASHES
n/a

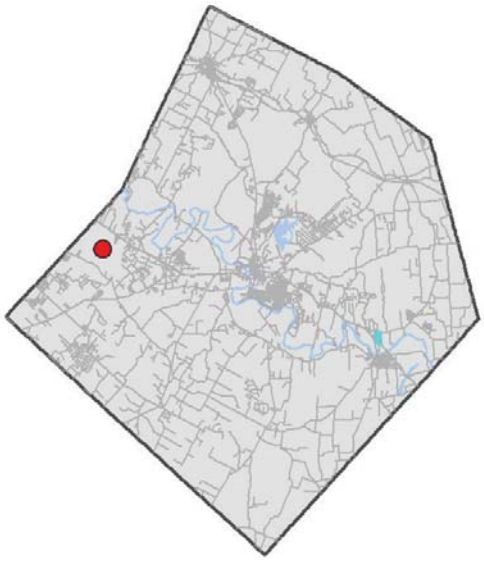
DAILY TRAFFIC FLOW
n/a

PROJECT IDENTIFICATION AND FEEDBACK
This project was identified through review of existing transportation plans. Multiple public participants indicated that this particular project is important to improving connectivity to SH 71.

ESTIMATED PROJECT COST
New Construction: $9,111,000

Project Extent and Proposed Alignment

Project Location



*These estimates represent program-level costs for budgeting purposes only. Actual project costs are dependent on market conditions, and will not be known until the time of design and construction.

Project 005: Upper Elgin River Rd.

Rank 4 / Score 47.32

DESCRIPTION
Realign/straighten Upper Elgin River Rd. between Central Ave and FM 969 to address visibility/ safety concerns (project length: 9.8 miles).

2010-2015 CRASHES
37 (3.48 per mile)

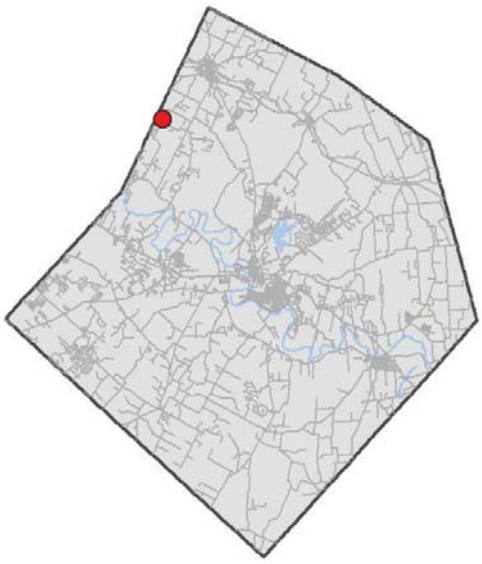
DAILY TRAFFIC FLOW
2010: 4,053 vehicles
Projected 2040: 15,902 vehicles

PROJECT IDENTIFICATION AND FEEDBACK
This project was identified through an analysis of safety concerns pointed out by stakeholders. There is general support for this project because, like other similar projects, this realignment addresses stakeholder and public feedback requesting increased safety on the road network.

ESTIMATED PROJECT COST
Modification/Reconstruction: $2,790,000

Project Extent and Proposed Alignment

Project Location



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Project 007: New Bridge - Ponderosa to FM 2571

Rank 5 / Score 46.95

DESCRIPTION
Construct new bridge across Colorado River from Ponderosa Rd. to FM 2571, providing a new connection between Bastrop and Smithville (project length: 3.1 miles).

2010-2015 CRASHES
0

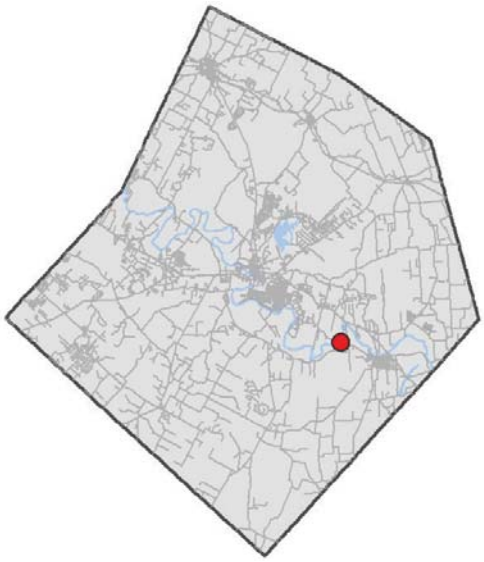
DAILY TRAFFIC FLOW
n/a

PROJECT IDENTIFICATION AND FEEDBACK
This project was identified through discussions with stakeholders and an analysis of locations with low connectivity. This project increases east/west connectivity while also providing another Colorado River crossing - two goals which emerged from stakeholder/public feedback.

ESTIMATED PROJECT COST
New Construction: $ 11,015,000

Project Extent and Proposed Alignment

Project Location



*These estimates represent program-level costs for budgeting purposes only. Actual project costs are dependent on market conditions, and will not be known until the time of design and construction.

Project 021: Old Sayers Rd.

Rank 6 / Score 46.95

DESCRIPTION
Upgrade Old Sayers Rd. to a Collector in response to growth in XS Ranch (project length: 3.7 miles).

2010-2015 CRASHES
6 (1.62 per mile)

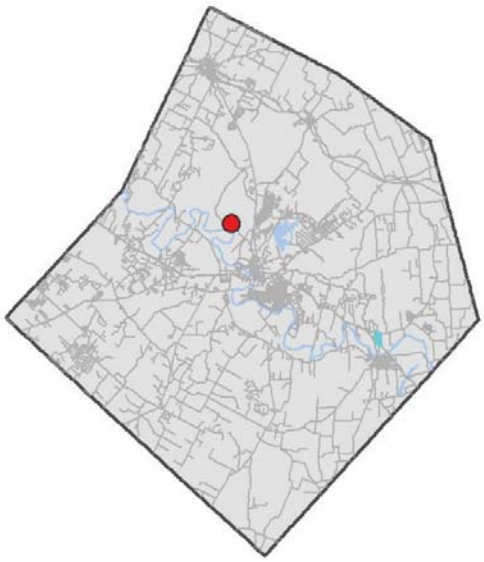
DAILY TRAFFIC FLOW
2010: 387 vehicles
Projected 2040: 6,846 vehicles

PROJECT IDENTIFICATION AND FEEDBACK
This project was identified through an analysis of future traffic conditions, resulting from population growth due to new development. There is general support for this project, with members of the public saying it "needs to happen." This project meets stakeholder/public desires to accommodate growth and manage congestion.

ESTIMATED PROJECT COST
Modification/Reconstruction: $2,947,000

Project Extent and Proposed Alignment

Project Location



*These estimates represent program-level costs for budgeting purposes only. Actual project costs are dependent on market conditions, and will not be known until the time of design and construction.

Project 017: Shiloh Rd.

Rank 7 / Score 46.71

DESCRIPTION
Upgrade Shiloh Rd. to a Collector from SH 20 to SH 304 (project length: 1.7 miles).

2010-2015 CRASHES
3 (1.72 per mile)

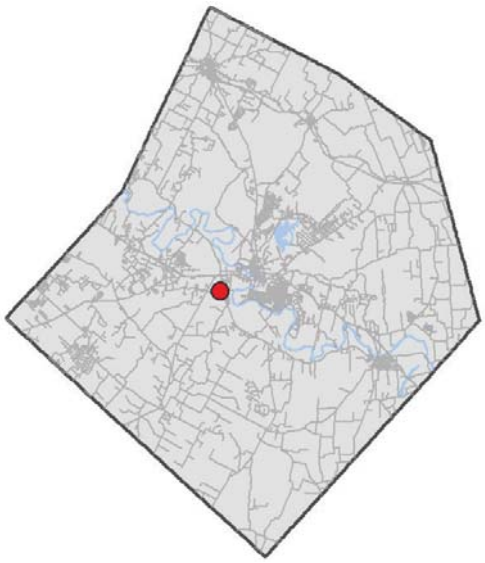
DAILY TRAFFIC FLOW
n/a

PROJECT IDENTIFICATION AND FEEDBACK
This project was identified through an analysis of future traffic conditions and population growth. Similar to other projects, this project meets stakeholder/public desires to accommodate growth and manage congestion.

ESTIMATED PROJECT COST
Modification/Reconstruction: $1,382,000

Project Extent and Proposed Alignment

Project Location



*These estimates represent program-level costs for budgeting purposes only. Actual project costs are dependent on market conditions, and will not be known until the time of design and construction.

Project 013: FM 1209

Rank 8 / Score 46.36

DESCRIPTION
Realign FM 1209 at FM 969 intersection near planned XS Ranch bridge (project length: 0.8 miles).

2010-2015 CRASHES
n/a

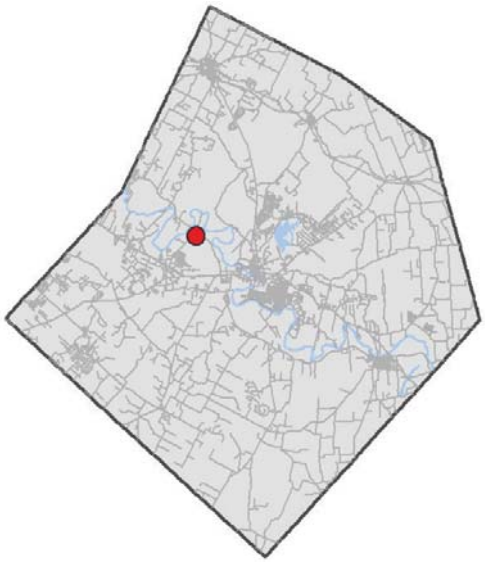
DAILY TRAFFIC FLOW
n/a

PROJECT IDENTIFICATION AND FEEDBACK
This project was identified through an analysis of safety concerns identified by stakeholders. This project accomplishes safety goals expressed by stakeholders and the public by realigning FM 1209 to form a safer "T" intersection.

ESTIMATED PROJECT COST
Modification/Reconstruction: $527,000

Project Extent and Proposed Alignment

Project Location



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Project 006: FM 1704 Bridge

Rank 9 / Score 45.90

DESCRIPTION
Extend FM 1704 south of FM 969 and connect to Colorado Dr. via a new bridge across the Colorado River; upgrade Colorado Dr. to an Arterial from bridge to SH 71 (project length: 5.7 miles).

2010-2015 CRASHES
0

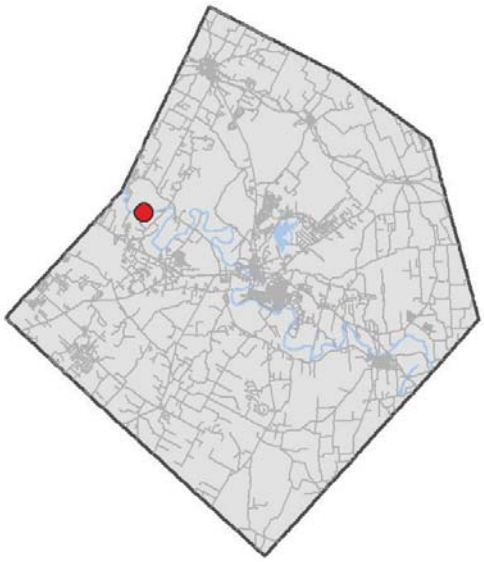
DAILY TRAFFIC FLOW
n/a

PROJECT IDENTIFICATION AND FEEDBACK
This project was a result of discussions with stakeholders and an analysis of locations with low connectivity. This project promotes connectivity and increases the number of Colorado River crossings, similar to other projects resulting from stakeholder and public feedback. Bridge crossings were a main discussion point during public meetings.

ESTIMATED PROJECT COST
New Construction: $18,580,000
Modification/Reconstruction: $1,853,000
Total: $20,433,000

Project Extent and Proposed Alignment

Project Location



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Project 026: Old Highway 20 Hike and Bike Trail

Rank 10 / Score 45.82

DESCRIPTION
Construct a hike and bike trail (shared-use path) along Old Highway 20 from Marlin St. in McDade to Gonzales St. in Paige (project length: 10.3 miles).

2010-2015 CRASHES
n/a

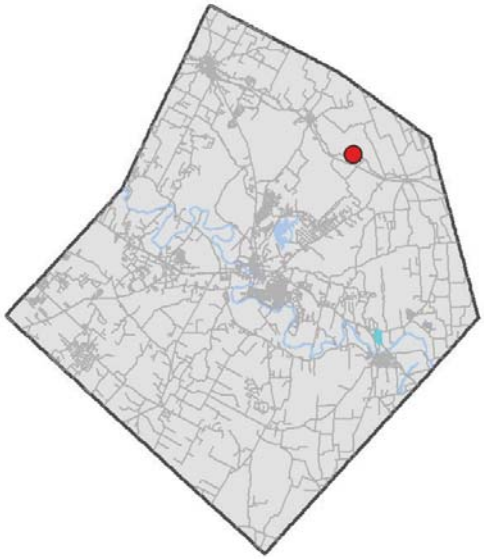
DAILY TRAFFIC FLOW
n/a

PROJECT IDENTIFICATION AND FEEDBACK
This project was identified through review of the 2010 County Transportation Plan. This new hike and bike trail will increase alternative transportation options while growing the network of pedestrian and bicyclist facilities - goals which were expressed by stakeholders and the public.

ESTIMATED PROJECT COST
Paved: $4,949,000 - $7,715,000
Unpaved: $1,244,000 - $4,249,000

Project Extent and Proposed Alignment

Project Location



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Project 015: New Road - Woodlands Dr. to SH 71

Rank 11 / Score 45.80

DESCRIPTION
New road connecting Woodlands Dr. south to the SH 71 frontage road (project length: 0.5 miles).

2010-2015 CRASHES
n/a

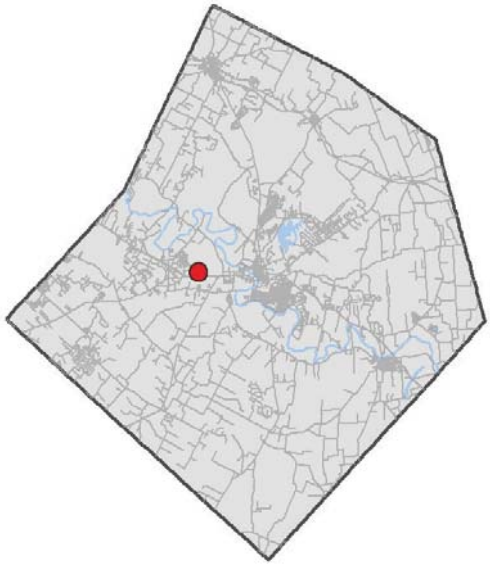
DAILY TRAFFIC FLOW
n/a

PROJECT IDENTIFICATION AND FEEDBACK
This project was identified through discussions with stakeholders. This project improves connectivity and accessibility in accordance with stakeholder/ public feedback.

ESTIMATED PROJECT COST
New Construction: $878,000

Project Extent and Proposed Alignment

Project Location



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Project 025: Two Mile Ln./American Legion Rd. Hike/Bike Trail

Rank 12 / Score 45.50

DESCRIPTION
Add 10 ft. wide shared hike/bike trail on Two Mile Ln./American Legion Rd. from entrance to Buescher State Park to Loop 230/SH 95 (project length: 1.7 miles).

2010-2015 CRASHES
n/a

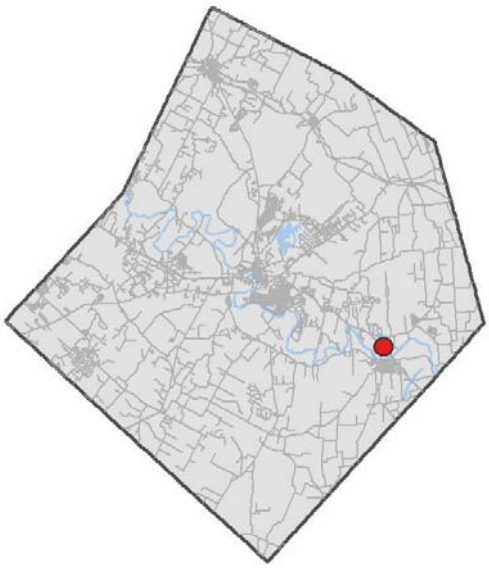
DAILY TRAFFIC FLOW
n/a

PROJECT IDENTIFICATION AND FEEDBACK
This project was identified through a review of the CAMPO 2040 RTP. There is general support for this trail because it accomplishes stakeholder/public feedback regarding increasing active transportation options and connecting the active transportation facilities to parks.

ESTIMATED PROJECT COST
Paved: $840,000 - $1,310,000
Unpaved: $211,000 - $721,000

Project Extent and Proposed Alignment

Project Location



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Project 020: Old Lexington Rd. (FM 3000)

Rank 13 / Score 44.63

DESCRIPTION
Realign Old Lexington Rd. and upgrade to Minor Arterial to address safety/visibility concerns; extend Old Lexington Rd. to FM 696 to the east (project length: 3.1 miles).

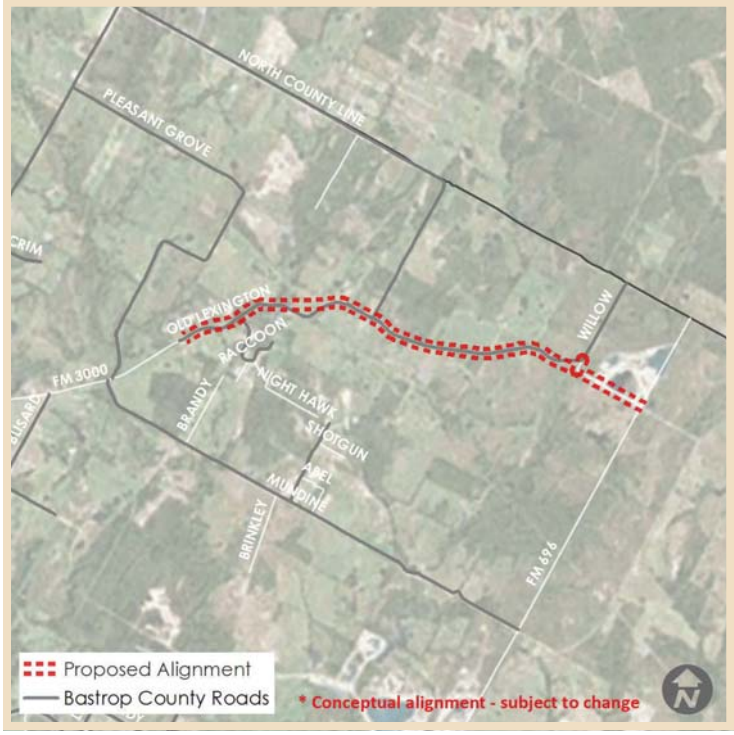
2010-2015 CRASHES
10 (3.85 per mile)

DAILY TRAFFIC FLOW
2010: 2,185 vehicles
Projected 2040: 3,918 vehicles

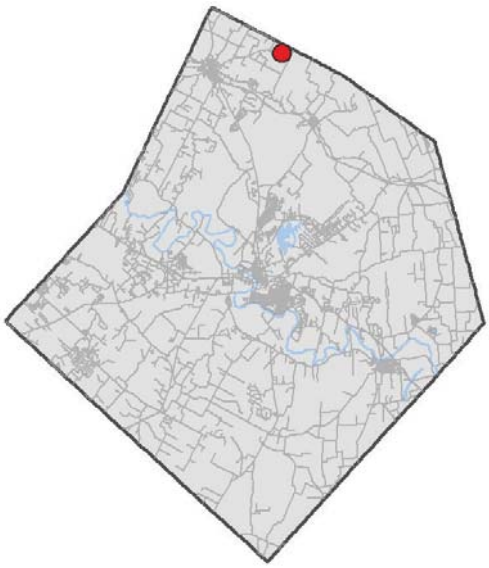
PROJECT IDENTIFICATION AND FEEDBACK
This project was identified through discussions with stakeholders. There is general support for this project, and one commenter said "it's a great idea to connect FM 3000 to FM 696." This project addresses safety concerns and increases connectivity, similar to other projects with stakeholder/public support.

ESTIMATED PROJECT COST
New Construction: $2,708,000
Modification/Reconstruction: $698,000
Total: $3,406,000

Project Extent and Proposed Alignment



Project Location



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Project 003: McAllister Rd.

Rank 14 / Score 44.33

DESCRIPTION
Realign/straighten McAllister Rd. between SH 71 and Crafts Prairie Rd. to address visibility/safety concerns (project length: 2.9 miles).

2010-2015 CRASHES
6 (2.00 per mile)

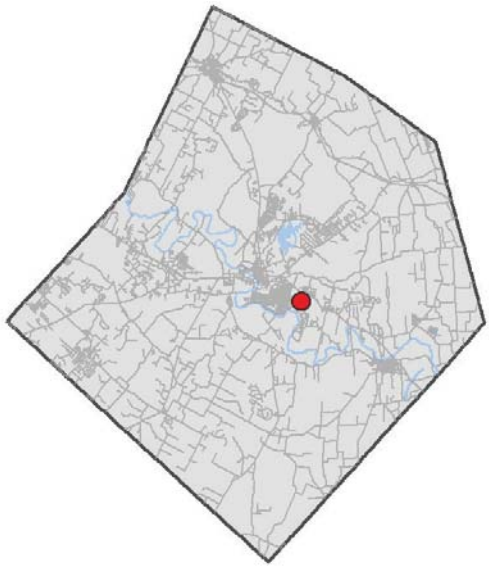
DAILY TRAFFIC FLOW
2010: 3,336 vehicles
Projected 2040: 6,672 vehicles

PROJECT IDENTIFICATION AND FEEDBACK
This project was identified through an analysis of existing roadway conditions and discussions with stakeholders. Severe road degradation west of Tall Forest on Kaanapali Lane prevents travelers from getting to McAllister. Makaha needs to be extended to SH 71 to provide another exit from Tahitian Village. This project improves safety of the road network - a goal obtained from stakeholder/public feedback.

ESTIMATED PROJECT COST
Modification/Reconstruction: $1,664,000

Project Extent and Proposed Alignment

Project Location



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Project 022: New Connection

Rank 15 / Score 43.60

DESCRIPTION
Connect Old McDade with Mooney Rd. (project length: 0.1 miles).

2010-2015 CRASHES
n/a

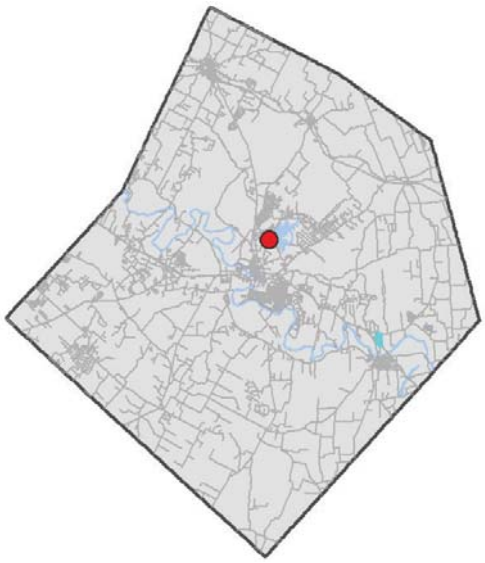
DAILY TRAFFIC FLOW
n/a

PROJECT IDENTIFICATION AND FEEDBACK
This project was identified through an analysis of locations with a lack of connectivity. This project increases connectivity, similar to other projects suggested by stakeholders and the public.

ESTIMATED PROJECT COST
New Construction: $88,000

Project Extent and Proposed Alignment

Project Location



*These estimates represent program-level costs for budgeting purposes only. Actual project costs are dependent on market conditions, and will not be known until the time of design and construction.

Project 009: Pine Canyon/La Reata Connection

Rank 16 / Score 43.37

DESCRIPTION
New road connecting Pine Canyon Dr. and Corral Rd. to provide better access between the neighborhoods (project length: 0.3 miles).

2010-2015 CRASHES
n/a

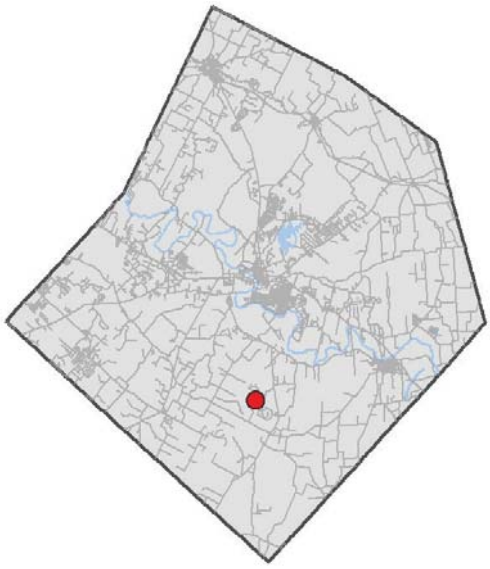
DAILY TRAFFIC FLOW
n/a

PROJECT IDENTIFICATION AND FEEDBACK
This project was identified through discussions with stakeholders. This project received mixed feedback from residents in the public meetings. Although some participants saw the resiliency benefits of providing multiple access points, some neighborhood residents were concerned about neighborhood traffic and circulation impacts. It may be appropriate for the County to continue the public dialogue to explore other options for meeting resiliency goals in this location.

ESTIMATED PROJECT COST
New Construction: $524,000

Project Extent and Proposed Alignment

Project Location



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Project 018: Cottletown Dr.

Rank 17 / Score 43.33

DESCRIPTION
Realign Cottletown Dr. to address visibility issues and high crash rate between SH 71 and Park Rd. 1C (project length: 2.3 miles).

2010-2015 CRASHES
11 (4.39 per mile)

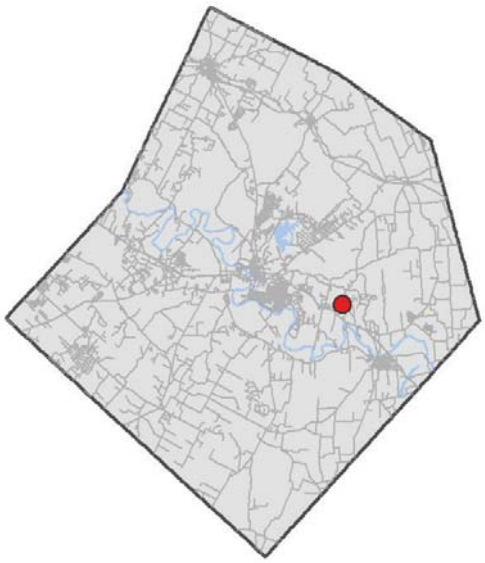
DAILY TRAFFIC FLOW
2010: 2,177vehicles
Projected 2040: 7,153 vehicles

PROJECT IDENTIFICATION AND FEEDBACK
This project was identified through discussions with stakeholders and an analysis of safety concerns along County roadways. This project addresses stakeholder and public feedback regarding improved safety of the road network.

ESTIMATED PROJECT COST
Modification/Reconstruction: $728,000

Project Extent and Proposed Alignment

Project Location



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Project 014: Green Valley Dr.

Rank 18 / Score 42.62

DESCRIPTION
Realign/straighten Green Valley Dr. between Rainforest Dr. and Old FM 1441 to address visibility/safety concerns (project length: 1.0 miles).

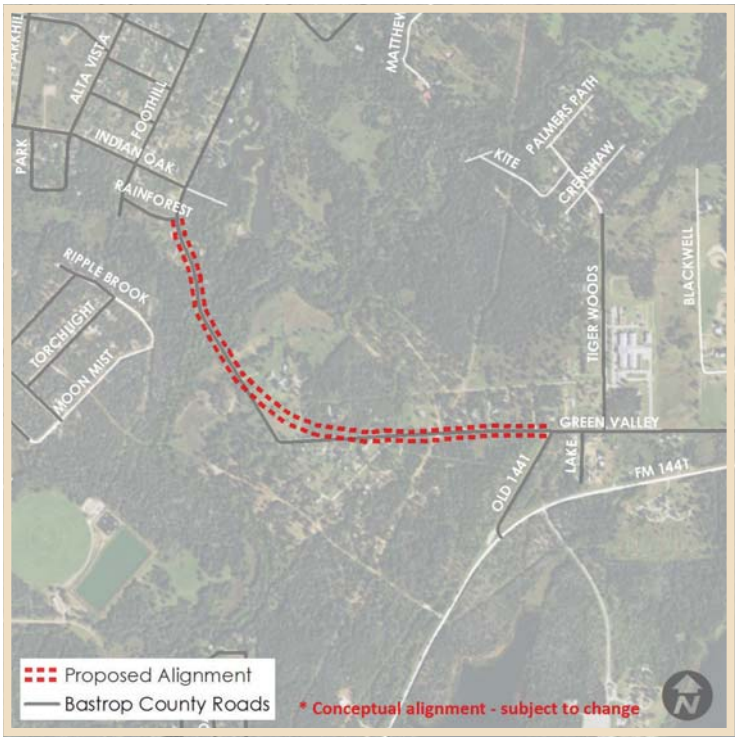
2010-2015 CRASHES
10 (9.38 per mile)

DAILY TRAFFIC FLOW
2010: 1,252 vehicles
Projected 2040: 1,376 vehicles

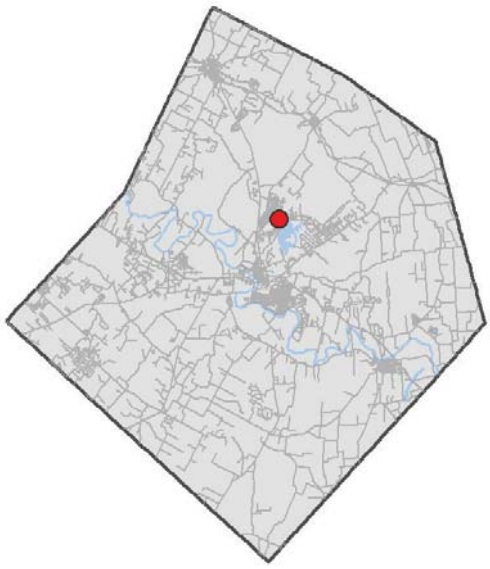
PROJECT IDENTIFICATION AND FEEDBACK
This project was identified through discussions with stakeholders and an analysis of safety concerns. This project improves and addresses safety issues, particularly visibility concerns, as desired by stakeholders and members of the public.

ESTIMATED PROJECT COST
Modification/Reconstruction: $312,000

Project Extent and Proposed Alignment



Project Location



*These estimates represent program-level costs for budgeting purposes only. Actual project costs are dependent on market conditions, and will not be known until the time of design and construction.

Project 023: Pope Bend North

Rank 19 / Score 42.25

DESCRIPTION
Realign Pope Bend North south of Hodge Lane to address safety/visibility concerns (project length: 0.6 miles).

2010-2015 CRASHES
7 (9.07 per mile)

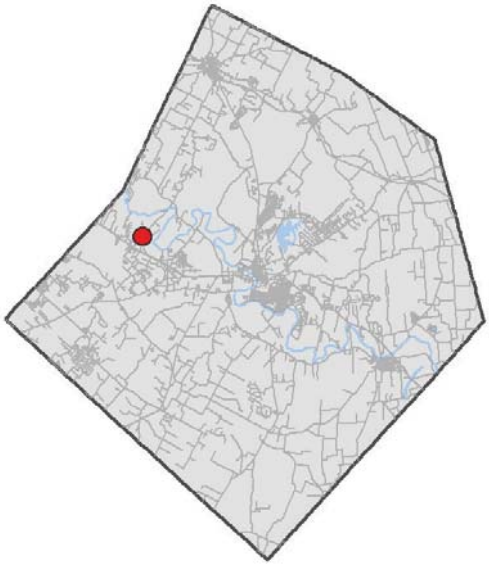
DAILY TRAFFIC FLOW
n/a

PROJECT IDENTIFICATION AND FEEDBACK
This project was identified through discussions with stakeholders and an analysis of safety concerns along County roadways. There is general support for this project, and it increases safety - one of the goals arising from stakeholder/public feedback.

ESTIMATED PROJECT COST
Modification/Reconstruction: $330,000

Project Extent and Proposed Alignment

Project Location



*These estimates represent program-level costs for budgeting purposes only. Actual project costs are dependent on market conditions, and will not be known until the time of design and construction.

Project 024: Pope Bend South

Rank 20 / Score 42.20

DESCRIPTION
Realign Pope Bend South between Cedar Creek High School and Simpson Ave to address safety/ visibility concerns; connect Lois Lane to new alignment (project length: 0.2 miles).

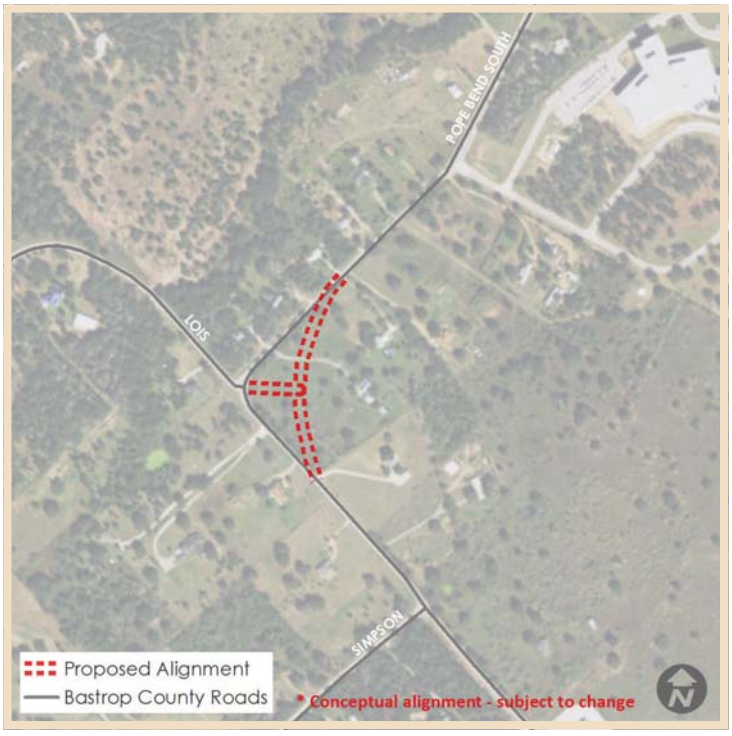
2010-2015 CRASHES
7 (30.33 per mile)

DAILY TRAFFIC FLOW
2010: 1,385 vehicles
Projected 2040: 2,169 vehicles

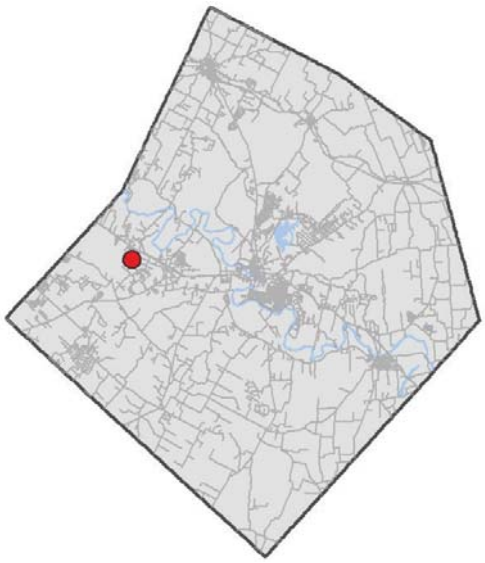
PROJECT IDENTIFICATION AND FEEDBACK
This project was identified through an analysis of safety concerns along County roadways. This project addresses safety concerns prioritized by stakeholders and members of the public - especially the safety of roads near schools.

ESTIMATED PROJECT COST
New Construction: $103,000
Modification/Reconstruction: $135,000
Total: $238,000

Project Extent and Proposed Alignment



Project Location



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Project 019: McBride Ln.

Rank 21 / Score 41.67

DESCRIPTION
Extend McBride Lane to connect neighborhoods along Cardinal Ln./Dr. with Old Potato Rd. (project length: 0.5 miles).

2010-2015 CRASHES
0

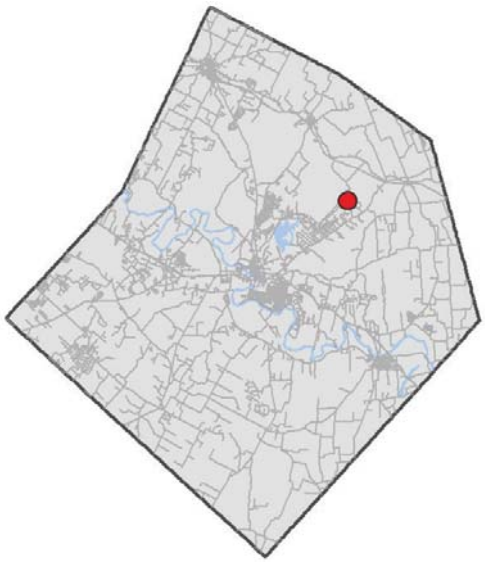
DAILY TRAFFIC FLOW
n/a

PROJECT IDENTIFICATION AND FEEDBACK
This project was identified through discussions with stakeholders. This project accomplishes the goals of connectivity and improved access to neighborhoods set out by stakeholders and the public.

ESTIMATED PROJECT COST
New Construction: $332,000

Project Extent and Proposed Alignment

Project Location



*These estimates represent program-level costs for budgeting purposes only. Actual project costs are dependent on market conditions, and will not be known until the time of design and construction.

Project 011: Bateman Rd. Extension

Rank 22 / Score 41.13

DESCRIPTION
Extend Bateman Rd. to Red Rock Ranch Rd. to provide better connectivity to neighborhoods located along Red Rock Ranch Rd. and Sand Hills Rd. (project length: 0.8 miles).

2010-2015 CRASHES
n/a

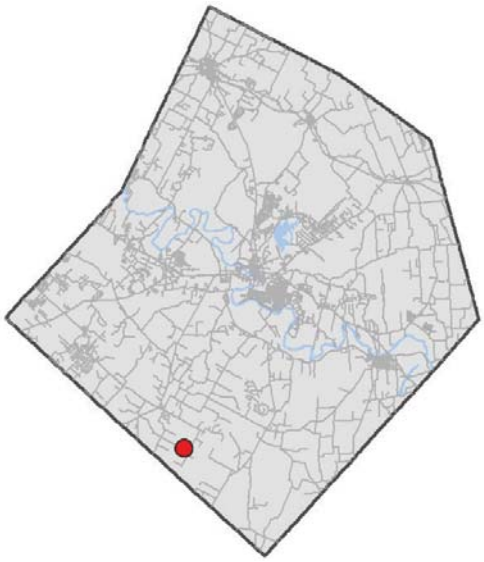
DAILY TRAFFIC FLOW
n/a

PROJECT IDENTIFICATION AND FEEDBACK
This project was identified through discussions with stakeholders and an analysis of locations with limited access points. This project increases connectivity and access to neighborhoods, both of which are goals set out by stakeholders and the public.

ESTIMATED PROJECT COST
New Construction: $2,063,000

Project Extent and Proposed Alignment

Project Location



*These estimates represent program-level costs for budgeting purposes only. Actual project costs are dependent on market conditions, and will not be known until the time of design and construction.

Project 001: Lower Elgin Rd.

Rank / Score
23 / 41.09

DESCRIPTION
Realign/straighten Lower Elgin Rd. between FM 1704 and FM 969 to address visibility/safety concerns (project length: 6.5 miles).

2010-2015 CRASHES
20 (2.81 per mile)

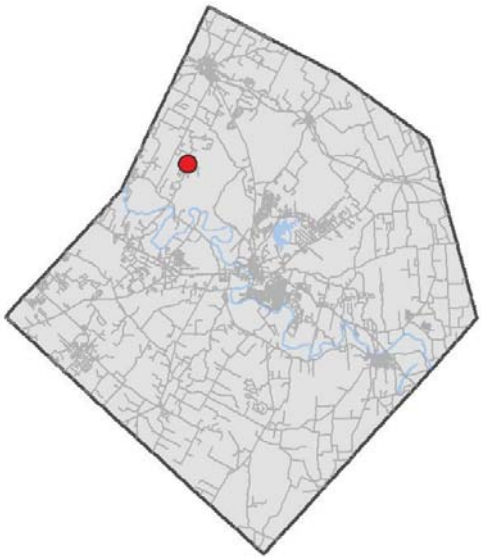
DAILY TRAFFIC FLOW
2010: 1,736 vehicles
Projected 2040: 13,683 vehicles

PROJECT IDENTIFICATION AND FEEDBACK
This project was identified through discussions with stakeholders and an analysis of safety concerns along County roadways. There is general support for this project, and it addresses safety concerns similar to those addressed by other projects supported by stakeholders and the public.

ESTIMATED PROJECT COST
Modification/Reconstruction: $1,793,000

Project Extent and Proposed Alignment

Project Location



*These estimates represent program-level costs for budgeting purposes only. Actual project costs are dependent on market conditions, and will not be known until the time of design and construction.

Project 010: Old Piney Trail/Squirrel Run Connection

Rank 24 / Score 40.65

DESCRIPTION
New road connecting Old Piney Trail/Kinsey Rd. and Squirrel Run (project length: 0.2 miles). This project is already planned for construction and was funded through HUD grants. A similar project on S. Egress Rd. is already completed and was funded through HUD grants as well.

2010-2015 CRASHES
n/a

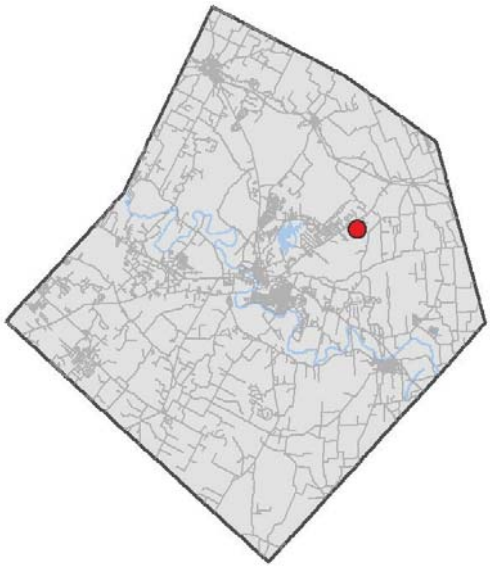
DAILY TRAFFIC FLOW
n/a

PROJECT IDENTIFICATION AND FEEDBACK
This project was identified through discussions with County staff and stakeholders and is already planned for construction. This project provides connectivity and better access to neighborhoods, similar to other projects supported by stakeholders and the public.

ESTIMATED PROJECT COST
Funded through HUD Grants

Project Extent and Proposed Alignment

Project Location



*These estimates represent program-level costs for budgeting purposes only. Actual project costs are dependent on market conditions, and will not be known until the time of design and construction.

Project 012: New Road - Mesquite Dr. to Morris Ln.

Rank 25 / Score 40.57

DESCRIPTION
Construct new road from Mesquite Dr. to Morris Ln. to enhance connectivity and access to neighborhoods along Mesquite Dr. (project length: 0.5 miles).

2010-2015 CRASHES
n/a

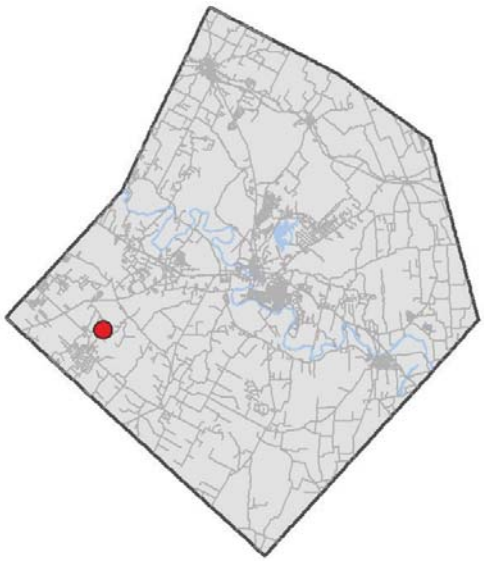
DAILY TRAFFIC FLOW
n/a

PROJECT IDENTIFICATION AND FEEDBACK
This project was identified though discussions with stakeholders and an analysis of locations with limited access points. This project increases connectivity and access to neighborhoods, and can enhance emergency accessibility as well. These improvements reflect goals set out by stakeholders and the public.

ESTIMATED PROJECT COST
New Construction: $959,000

Project Extent and Proposed Alignment

Project Location



*These estimates represent program-level costs for budgeting purposes only. Actual project costs are dependent on market conditions, and will not be known until the time of design and construction.

Project 028: South Old Potato Rd.

Rank 26 / Score 40.18

DESCRIPTION
Implement continuous monitoring and operational improvements on South Old Potato Rd. between SH 21 and Antioch Rd. to address visibility/ safety concerns (project length: 1.1 miles).

2010-2015 CRASHES
5 (3.94 per mile)

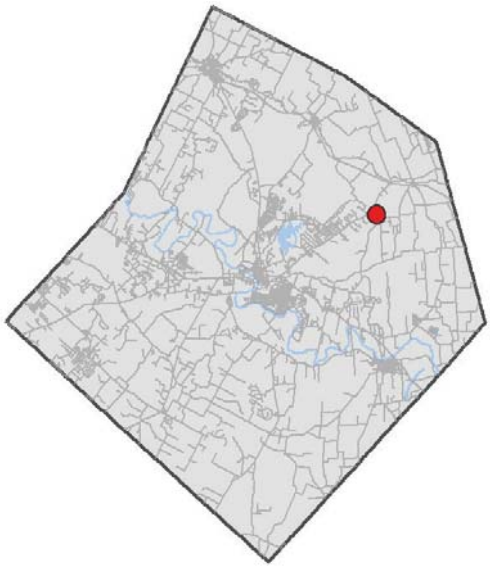
DAILY TRAFFIC FLOW
2010: 872
Projected 2040: 1,991 vehicles

PROJECT IDENTIFICATION AND FEEDBACK
This project was identified through an analysis of safety concerns along County roadways. This project improves safety, which is a major goal set out by stakeholders and the public.

ESTIMATED PROJECT COST
Modification/Reconstruction: $323,000

Project Extent and Proposed Alignment

Project Location



*These estimates represent program-level costs for budgeting purposes only. Actual project costs are dependent on market conditions, and will not be known until the time of design and construction.

Project 002: Thousand Oaks Dr.

Rank 27 / Score 39.30

DESCRIPTION
Realign/straighten Thousand Oaks Dr. to address visibility/safety concerns (project length: 1.0 miles).

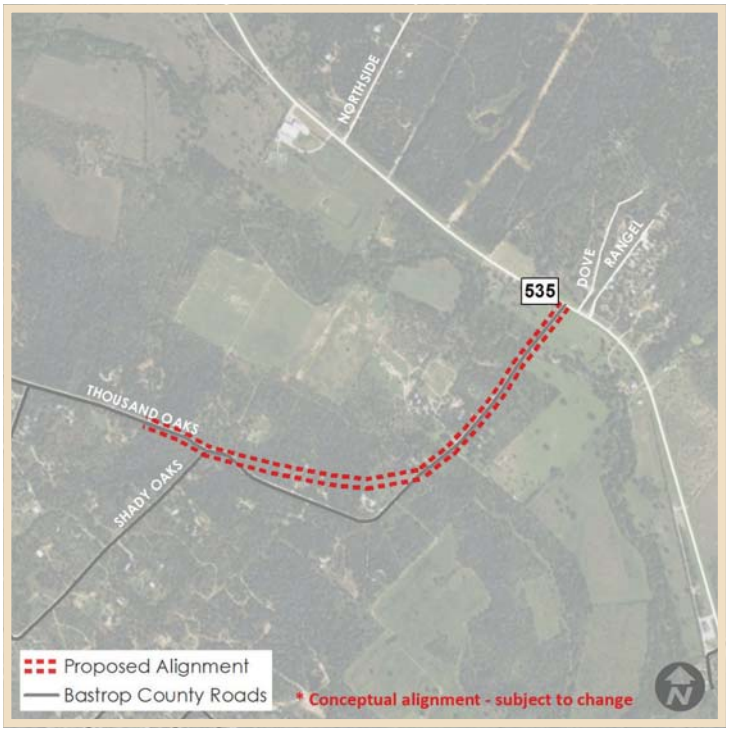
2010-2015 CRASHES
1 (0.79 per mile)

DAILY TRAFFIC FLOW
2010: 30 vehicles
Projected 2040: 881 vehicles

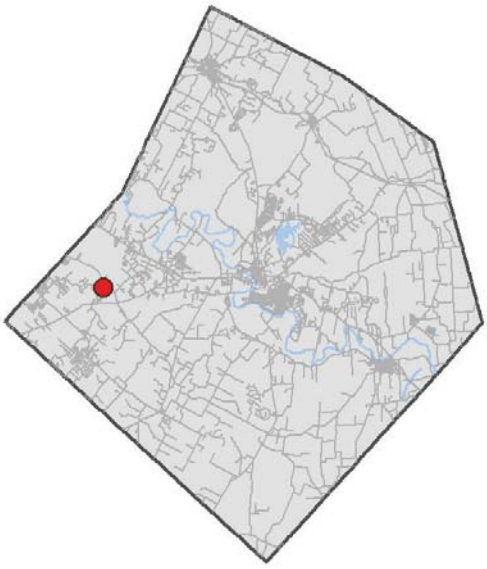
PROJECT IDENTIFICATION AND FEEDBACK
This project was identified through an analysis of safety concerns along County roadways. This project addresses safety issues, similar to other projects with stakeholder/public support.

ESTIMATED PROJECT COST
Modification/Reconstruction: $375,000

Project Extent and Proposed Alignment



Project Location



*These estimates represent program-level costs for budgeting purposes only. Actual project costs are dependent on market conditions, and will not be known until the time of design and construction.

Project 008: Stockade Ranch Rd.

Rank 28 / Score 37.49

DESCRIPTION
Upgrade Stockade Ranch Rd. to a Collector from SH 21 to Paint Creek Rd. (project length: 5.8 miles).

2010-2015 CRASHES
2 (0.34 per mile)

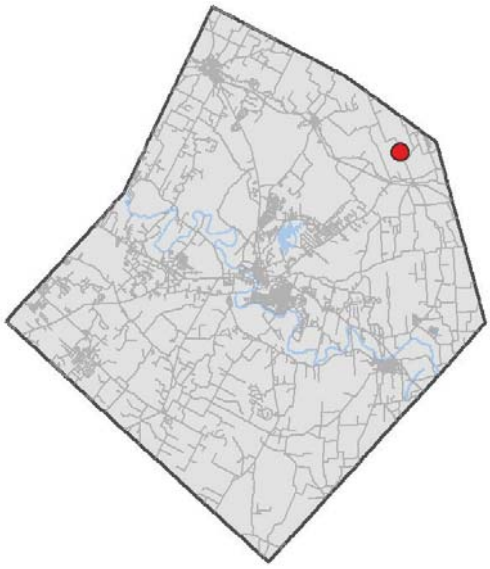
DAILY TRAFFIC FLOW
n/a

PROJECT IDENTIFICATION AND FEEDBACK
This project was identified through discussions with stakeholders and a review of future traffic conditions. This project addresses stakeholder/ public goals of accommodating growth and managing traffic congestion.

ESTIMATED PROJECT COST
Modification/Reconstruction: $4,628,000

Project Extent and Proposed Alignment

Project Location



*These estimates represent program-level costs for budgeting purposes only. Actual project costs are dependent on market conditions, and will not be known until the time of design and construction.

Project 004: North Old Potato Rd.

Rank 29 / Score 35.55

DESCRIPTION
Realign/straighten Old Potato Rd. between US 290 and SH 21 to address visibility/safety concerns (project length: 4.2 miles). Construction work for this project is already underway.

2010-2015 CRASHES
0

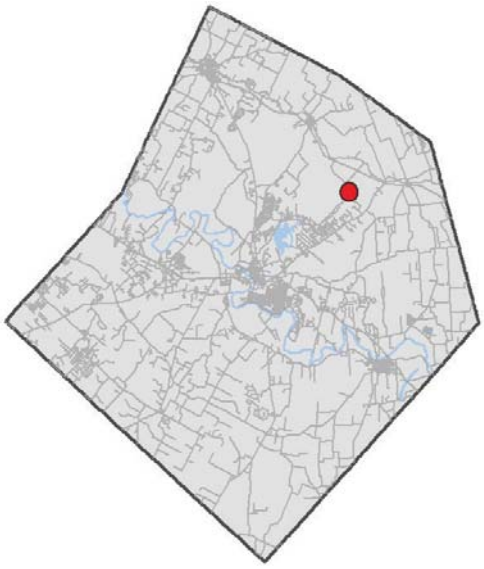
DAILY TRAFFIC FLOW
n/a

PROJECT IDENTIFICATION AND FEEDBACK
This project was identified through discussions with stakeholders. This realignment enhances safety of the road network, which is a goal obtained from stakeholder/public feedback.

ESTIMATED PROJECT COST
Modification/Reconstruction: $1,435,000

Project Extent and Proposed Alignment

Project Location



*These estimates represent program-level costs for budgeting purposes only. Actual project costs are dependent on market conditions, and will not be known until the time of design and construction.

Chapter Ten Financial Analysis

Financial Analysis

Financing county transportation system operations, maintenance and capital investment is a major role of county governments. According to the National Association of Counties (NACo), counties are among the primary stewards of the US transportation system, owning and maintaining 45% of the public roads and 39% of all bridges. Bastrop County is currently financially responsible for the operation and maintenance of nine hundred and thirty (930) centerline miles of roadway. To fund the operations, maintenance and capital investment associated with managing and improving this roadway network, the County has set up a combination of financing structures.

Current Financing

Financial support for County transportation system operations, maintenance and capital investment comes primarily from the County Road and Bridge Fund. Sources of revenue for the Road and Bridge Fund come from dedicated property taxes, motor vehicle registration revenue, fees for service, fund transfers from other accounts and interest earnings on these proceeds. The Road and Bridge Fund is administered as four distinct Special Revenue Funds, one for each of the four precincts.

Due to the continued population and economic growth in the county, there are an increasing number of new properties on the tax rolls. Due to these increases, as well as other factors, County property tax revenues have tended to increase in recent years. The increase between 2014 and 2015 was approximately 9%, and the difference between 2015 and 2016 was just over 5%. These trends are anticipated to continue for the foreseeable future and Road and Bridge Fund revenues are expected to increase in rough proportion to the overall increases.

The total fund balance in the Road and Bridge Fund is typically maintained in the range of between six million ($6M) and seven million ($7M) dollars with increases in revenue out-pacing increases in expenditures. The most recent published County Annual Financial Report (CAFR) for the year ending September 2015 reported the budget and revenue figures shown in Table 10.1.

As shown in Table 10.2, County Road and Bridge Expenditures for the same period were, by design, less than revenues resulting in an increase in the overall fund balance. After accounting for incoming revenues and outgoing expenditures, the year end fund balance of the Road and Bridge Fund increased by just under $2.0 million to a total fund balance of approximately $6.8 million.

Although the audited financial report for the 2015-2016 fiscal year will not be available until the first quarter of 2017, the County 2016-2017 Adopted Budget shows estimated year end revenues and expenditures with similar characteristics with revenues for the fiscal year ending September 2016 estimated to be approximately $ 7.7 million and expenditures estimated to be approximately $6.0 million. Based on revenue projections for the current 2016-2017 Fiscal Year, the 2017 budget for Roads and Bridges is set at $ 7.5 million an amount designed to balance anticipated revenue with proposed expenditures.

Table 10.1: County Road and Bridge FY 2015 Revenue

Category	Original Budget	Final Budget	Actual Revenue	Variance (Negative)
Property taxes	$5,178,700	$5,178,700	$5,262,956	$84,256
Licenses and permits	$1,120,000	$1,120,000	$1,175,776	$55,776
Charges for services	$116,000	$116,000	$376,808	$260,808
Investment earnings	$22,500	$22,500	$33,128	$10,628
Other	$100,000	$100,000	$238,021	$138,021
Total revenues	$6,537,200	$6,537,200	$7,086,689	$549,489

Source: 2015 Comprehensive Annual Financial Report (CAFR)

Table 10.2: County Road and Bridge FY 2015 Expenditures

Category	Original Budget	Final Budget	Actual Expenditure	Variance (Negative)
Road and Bridge Expenditure	$6,347,200	$6,347,200	$5,841,769	$505,431
Capital Outlay	$250,000	$250,000	$124,264	$125,736
Total Expenditures	$6,597,200	$6,597,200	$5,966,033	$631,167

Source: 2015 Comprehensive Annual Financial Report (CAFR)

Funding System Operations and Management

The priority expenditure of Road and Bridge Fund resources is for management, operation and maintenance of existing roadways. These operations and maintenance activities are typically carried out by County staff using County equipment. Maintaining roadway assets in a state of good repair is a priority objective of this plan and a key goal in federal and state performance management programs. One aspect of this systems management is to monitor roadway usage and to manage operating costs by upgrading unimproved (unpaved) roads as traffic increases to levels that make it more cost effective to pave the road than to continue to carry out frequent grading and repair.

That does not mean however, that the County has no opportunity for other transportation investments. Based upon the anticipated growth in revenues and the net gain in revenues against expenditures it is reasonable to assume that the County has a sustainable ability to generate a modest annual fund balance above and beyond the amounts expended for transportation system operation and maintenance. If the County chose to coordinate the four, precinct level, Special Revenue Funds into a consolidated financial resource the value of these funds, above those required for maintenance, would be approximately $1,000,000 annually. At the discretion of the Commissioners Court, these funds could be used to fund transportation system infrastructure investments to upgrade or expand the County system or to provide matching funds for larger projects funded through regional, state or federal programs.

Funding Transportation System Infrastructure Investments

Bastrop County primarily relies on a 'pay as you go' strategy of transportation infrastructure funding using General Fund and Road and Bridge Fund resources with only limited use of debt, which is typically implemented using Certificates of Obligation.

Certificates of Obligation

Certificates of obligation are authorized under Chapter 271 of the Texas Local Government Code. Certificates of obligation are a contract for debt to fund public infrastructure that can

be approved and issued by vote of the County Commissioners Court. The County issued a set of Certificates of Obligation, Series 2014 during fiscal year 2014 to pay for planned capital projects. The received funds and related capital projects are accounted for in the Certificates of Obligation, Series 2014 Capital Projects Fund.

Tax Anticipation Notes

Tax anticipation notes are authorized under Texas Government Code, title 9 Public Securities, Subtitle H, Chapter 1431. Under this statute the County has the authority to issue these securities through a pledge of property taxes or other revenue sources. Tax anticipation notes may be issued for a variety of purposes relevant to the transportation system including engineering, purchase of rights-of-way and construction of public works such as roadways. There is no election or publication requirement. However, to issue Tax Notes, the County Auditor must recommend issuance. Tax Notes have a short maturity which may not exceed seven years. When used for construction, the County must conduct a competitive procurement.

[1] The Road Ahead: County Transportation Funding and Financing, National Association of Counties, Policy Research Paper Series, Issue #2, 2014

General Obligation Bonds

General obligation bonds are bonds funded through the County property taxes. General obligation bonds require a public referendum. Therefore, general obligation bonds require significant advance preparation, put a substantial logistical burden on the County and are only a viable funding mechanism when there is sufficient political consensus in the community. General obligations bonds are typically only used for urgently needed major capital projects that are beyond the scale or cost of projects the County is currently willing to take on depending solely on its own financial resources.

Cost Sharing Partners

No county in the country undertakes the effort of funding transportation infrastructure on its own. Transportation system funding is, by necessity, a forward-thinking process that requires the use of a variety of strategies, financial resources and partnerships to create and maintain a sustainable long-term transportation funding program. Principal among these funding partners are the state and federal governments.

As local governments created by states, counties rely on the partnership with the states and the federal government to support their transportation assets.[1]

Regional, State, and Federal Funding Programs

Federal Formula Funding

Federal gas tax revenues from the federal highway trust fund are returned to the states through a federal formula funding program for transportation infrastructure and mobility improvements. The funding program is authorized through the current surface transportation legislation titled ***Funding America's Surface Transportation (FAST) Act***. Within the FAST Act, there are numerous funding categories that are apportioned through various programs, including through the metropolitan planning program administered by metropolitan planning organizations (MPOs). The designated MPO for the Austin metropolitan area is the Capital Area Metropolitan Planning Organization (CAMPO). Through its Transportation Improvement Program (TIP) and Regional Transportation Plan (RTP), CAMPO plans, prioritizes, and funds a program of multi-modal transportation projects. CAMPO has forecast a program of funding that totals approximately $35.1 billion to fund projects in the region over the 25-year life of the RTP, with approximately $1.1 billion in projects planned for Bastrop County. Key examples of programs identified in the CAMPO 2040 RTP that provide funding resources that may be appropriate for supporting the County's transportation plan include, but are not limited to:

The **Surface Transportation Block Grant Program (STBG)**, formerly called the Surface Transportation Program (STP), is one of the core formula programs under the FAST Act that can be used by states and localities for projects on any federal-aid highway, any public road bridge projects, facilities for non-motorized transportation, transit capital projects and public bus terminals and facilities. Half of the STP funds a state receives must be distributed to areas based on population. Also an amount equal to 15 percent of the state's FY2009 Highway Bridge Program apportionment must be dedicated to bridges not on the federal-aid highway system (off-system bridges). The program is authorized at about $10 billion annually for FY 2013 and 2014 with approximately $700 million a year dedicated to off-system bridges.

The **Highway Safety Improvement Program (HSIP)** - The FAST Act continues the Highway Safety Improvement Program (HSIP) to achieve a significant reduction in traffic fatalities and serious injuries on all public roads, including non-State-owned public roads and roads on tribal lands. The HSIP requires a data-driven, strategic approach to improving highway safety on all public roads that focuses on performance. The FAST Act continues the overarching requirement

that HSIP funds be used for safety projects that are consistent with the State's strategic highway safety plan (SHSP) and that correct or improve a hazardous road location or feature or address a highway safety problem.

The **Transportation Alternatives Program (TAP)** - A statewide program administered by the Texas Department of Transportation that provides federal funds for non-traditional improvements adjacent to or within the right of way of a transportation facility. TAP focuses on active transportation projects such as pedestrian and bicycle facilities, infrastructure for pedestrian access to public transportation, projects that enhance pedestrian mobility, and Safe Routes to School infrastructure projects.

Competitive Grant Programs

While formula based funding programs typically provide secure funding yearly based on federal funding levels, other potential funds are available through competitive (discretionary) programs and grants, some of which are non-recurring. Competitive grants are tied to various policy objectives at the local, state, or federal level. Examples of competitive grants include resiliency grants to prepare for natural disasters or climate change, neighborhood based grants to improve roadways or travel options in low income neighborhoods, or discretionary grants to fund innovative approaches to multi-modal infrastructure improvements. Competitive grants place applicants into a larger pool and select those that provide the most benefit or are the most qualified based on the selection criteria. This differs from formula funding programs as it is not tied to specific funding categories and is at the discretion of the selection committee. Examples and brief descriptions of potential competitive grants that Bastrop County could utilize in the future are described below.

The **Transportation Investment Generating Economic Recovery (TIGER)** grant program - The TIGER grant program is a recurring discretionary federal program that funds innovative projects, including those that span transportation modes and jurisdictions, that are generally difficult to fund through traditional federal programs. The TIGER program looks for projects that will provide long-term benefits in the areas of safety, economic competitiveness, state of good repair, quality of life, and environmental sustainability.

The **Fostering Advancements in Shipping and Transportation for the Long-term Achievement of National Efficiencies (FASTLANE)** grant program - The FASTLANE grant program is a new discretionary federal funding program seeking to fund infrastructure improvements for critical freight and highway projects. Some project types that qualify for FASTLANE grants include certain freight projects, highway and bridge projects on the National Highway System, and some grade crossing and grade separation projects.

Public-Private Partnership

Another mechanism for funding transportation infrastructure is for the County to work with the private sector in various forms of public-private partnership in order to affect cost sharing in the development of transportation system facilities.

Construction and Dedication

The most direct public-private collaboration is a thoroughfare planning agreement between a private land developer and the County. Under this concept, the developer designs and builds a street or road that serves as part of a traffic impact mitigation strategy or otherwise provides access and circulation related to a specific development. Once completed, the developer eventually dedicates the roadway to the County as public convenience. When the County accepts dedication, it takes on the responsibility for maintaining the facility. In this way the costs are shared because the developer bears the initial one-time construction costs and the County bears the continuing maintenance and upkeep responsibilities over time. Similar dedications can be used to donate rights-of-way to the County.

In this type of Developer-County collaboration, the County subdivision regulations and associated design standards serve as the starting point for establishing minimum standards for roadway construction, but these regulations serve only as a starting point. It is important that the developer and the County understand and agree on design standards and cross-sections associated with the transportation facility in question.

On the one hand, the County must be firm in refusing dedication of substandard facilities, which may create unsustainable maintenance burden. Traditionally developers saw streets as a necessary utility that ate up developable space. Tendency was to minimize right of way, minimize cross section and load bearing capacity and get the liability off their plate as early as possible.

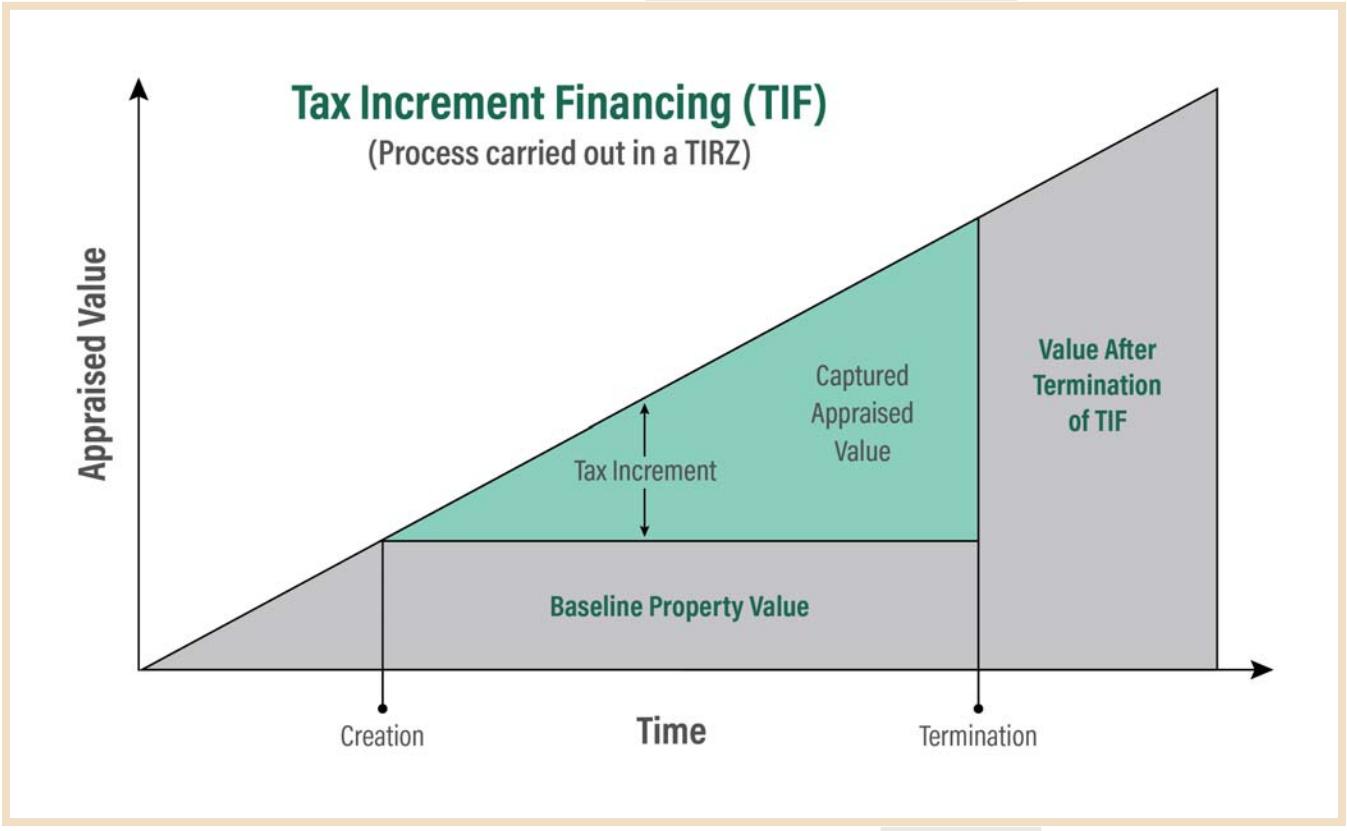
Today, through the influence of institutions such as the Urban Land Institute (ULI) and the Complete Streets coalition, the approach is to treat the transportation network within each development as an amenity that increases the appeal and value of the properties. Complete streets facility dedication provides high-quality facilities that enhance quality of place for residents but may also present maintenance challenges for the County because the County does not have the resources, expertise of equipment to maintain these multi-modal systems constructed with complex components and unfamiliar materials.

Tax Increment Reinvestment Zone (TIRZ)

Another innovative source of revenue for public-private financing of certificates of obligation or other bond financing is the use of future local property taxes that are realized from the benefits of the proposed transportation investment. When the proposed transportation improvements are expected to enhance property values or support additional economic activity it may be possible to capture the added tax revenue for use in funding the project through a procedure called tax increment financing. Tax increment financing is a mechanism that dedicates the tax on the net increase in property value above current value that occurs as a function of the project improvement or natural growth in value, as shown in Figure 10.1. The application of tax increment financing is typically implemented through the development of a Tax Increment Reinvestment Zone (TIRZ).

A TIRZ must be a primarily commercial/business area, not residential in nature. The sponsoring municipality or county must pass an ordinance to dedicate the tax increment and create the TIRZ based upon a reinvestment zone financing plan and required public input. Taxing entities,

Figure 10.1: Tax Increment Financing Process



other than the instituting entity, have freedom to decide what portion of the increment they want to contribute to the TIRZ, and can pass motions stating whether they will participate in the district, and if so, at what level. Under current state law, the governing body of a county may designate a contiguous geographic area in the county as a TIRZ and a municipality can do the same for a contiguous or noncontiguous area in the corporate limits and/or in the extraterritorial jurisdiction of the municipality.

Bastrop County, in partnership with the City of Elgin, used this specific funding mechanism to fund the extension of 11th Street (renamed Lee Dildy Boulevard) starting at US 290 and connecting to Saratoga Farms Boulevard. This expansion provided an increase of 5,000 feet of space for commercial activity and job creation.

Special Assessment District

Another tax-based source of revenue to support issuance of infrastructure bonds is the use of dedicated taxes through the creation of a Special Assessment District. The typical model for funding infrastructure through a mechanism of this type is for area businesses to contribute an additional sales tax element to fund specific improvements from which they are expected to derive benefit. In Texas, the State has identified this type of funding mechanism as a Special Purpose District and has authorized numerous types; those most applicable to this project include Road Districts and Road Utility Districts. Creating these districts allows local jurisdictions to levy taxes and issue bonds to provide funding for the construction and maintenance of the roads in the districts. Road Utility Districts may be established by the County Commissioner Court after a public hearing, while the establishment of Road Districts must be confirmed by an election.[2]

Conclusion

Historically, County funding priorities have first focused on preserving and maintaining existing roadways before investing in new capital projects. The nature of this plan is to continue to support that priority and to additionally ensure that the County gets the best value return on any capital investment it does make. To this end, the 2016 BCTP provides a program of needed projects prioritized based on their contribution to achieving the Plan goals and improving the County transportation system.

The total proposed infrastructure investment for the program of projects in the Transportation Plan is approximately $90 million, as shown in Table 10.3. Possible funding channels and strategies for various portions of the proposed projects include public-private partnerships, federal and state funding through the CAMPO RTP, and County funding. Possible funding amounts (based on summed project costs) from each of these sources is shown in Table 10.3.

One public-private partnership is already under discussion with the developer of XS Ranch related to constructing Project 029. A TIRZ is another

[2] http://www.senate.state.tx.us/SRC/pdf/SL-SpPurposeDistricts.pdf

possible public-private partnership option which Elgin has successfully implemented, and could present funding options for projects in this Plan. In order to fully utilize federal and state funding opportunities through CAMPO, Bastrop County should have at least a limited ability to provide matching funds. The CAMPO RTP provides a significant opportunity for funding through the inclusion of major capital investments in the RTP program of projects.

Many of the proposed projects in this Plan constitute improvements to County roads that will require county level funding. Historically, the County funds such projects through a combination of sources, including, but not limited to: County Road and Bridge Fund revenues above maintenance expenditures, strategic support from the General Fund programmed into the County Capital Improvement Program using certificates of obligation, and periodic supplemental support from state and federal formula and discretionary grants.

Based on the proposed project list, phased implementation of the full program of county projects identified in the Plan could be achieved within the Plan horizon through an average expenditure of approximately $1 million per year over the 25-year horizon of the Plan or a total transportation capital investment of approximately $25 million. This level of funding is well within the range of combined funding that the County has historically appropriated for transportation infrastructure.

Therefore, based on historic funding patterns and anticipated revenue trends it is reasonable to conclude that the County has the fiscal capacity to provide the required level of financial resources to carry out a metered long-term program of capital investments to upgrade, improve, or expand the county transportation system as described in this plan.

Table 10.3: Potential Funding Sources for the Program of Projects

Funding Source	Estimated Total Costs	Percent of Total
Public-Private Partnership	$7,886,000	8.8%
Federal and State (through CAMPO)	$57,795,000	64.6%
County	$23,789,000	26.6%
Cost of All Programmed Projects	*$89,470,000*	*100%*

Chapter Eleven Other Recommended Strategies and Policy Initiatives

Strategies and Initiatives

In addition to the projects listed in the previous chapters, there are targeted strategies and policy initiatives that are recommended for consideration by the County. These recommended strategies and policy initiatives can both address identified areas of need, and also, in some cases, make it easier for the County to secure funding to address those needs.

Consider Establishing a Unified County Transportation District

Recent disastrous fires and floods in the county coupled with the rapid population growth within the county, have demonstrated the need for the County to be able to respond to rapidly changing transportation needs in a flexible manner, with all available resources. In addition, to achieve the 2016 BCTP stated goals related to implementing multi-modal travel options, supporting economic development and sustaining Bastrop County's positive role in the regional market place requires a more comprehensive and strategic approach. The traditional system of dividing up transportation funding allocations geographically does not allow for the kind of flexible response capacity to meet these transportation needs.

The current geographically based funding allocation system was designed to ensure that the transportation needs (and at the time of the design that meant building roads) of all of the precincts within the county were met in an equitable manner. This goal can still be met with other carefully constructed funding structures. One option to address this need for more flexibility would be to create a countywide transportation district that would establish a process for addressing identified deficiencies using an established prioritization system that would ensure that all needs within the county would be treated on an equitable basis. The creation of a countywide transportation district would also make it more feasible for the County to use funding strategies such as general obligation bonds. As the county continues to grow, these alternative funding strategies may be needed to address the rapidly changing needs of the county.

It is recommended that the County open discussions among the political leadership and with County residents, business owners, and other stakeholders to evaluate if such an approach would provide more efficient and flexible transportation funding mechanism as well promote a more comprehensive and sustainable approach to implementing a multi-modal transportation system.

Implement an Operational Improvement and Safety Enhancement Program

A universal theme brought up by participants during public meetings, during stakeholder interviews, and during steering committee meetings was the importance of safety on the transportation system. In investigating safety issues with County stakeholders during plan development and during the technical analysis of crashes, it became clear that one potentially effective and immediately implementable step to help achieve a safer county transportation system would be a program of operational improvements.

Included in suggestions for early action, low cost, relatively high benefits operational improvements were suggestions for:

- Centerline and edge of pavement striping;
- Prioritized sign replacement and maintenance in high crash locations;
- Addition of reflectors and other visual aids;
- Upgrade of traffic control devices at key locations;
- Trimming vegetation at key locations to maintain sight lines and traffic control visibility; and
- Establishing an online feedback mechanism (web or social media based) for residents to report problem locations or issues experienced on the county transportation system.

A program of operational improvements and safety enhancements to carry out these measures could be implemented as part of the County's routine system preservation and maintenance program by establishing criteria for prioritizing high crash locations. In addition, there may be opportunities to find contributing funding partners for these actions. TxDOT has a Highway Safety Improvement Program (HSIP) and given the importance placed on safety issues by residents and other stakeholders, there may be willingness by developers and business owners to participate financially.

Expand Active Transportation Education Initiatives

Active transportation is always part of every trip. Even auto trips begin and end with people walking, or wheeling, to and from their autos as they leave one place and enter another. In addition, more people are using recreational bicycling as a weekend activity for both adults and children. There is even a national Safe Routes to Schools (SRTS) initiative that encourages elementary and middle school children to use active transportation to get to and from school. Several communities within the county (i.e. Smithville and Elgin) have implemented SRTS Plans under the National SRTS program. At the other end of the age spectrum, many aging and disabled persons are using wheelchairs (motorized and not) to get to their desired destinations. Unfortunately, the lack of sidewalks often means that these wheelchair users are being forced to use the roadways to get where they need to go. It is important to provide for the safe use of the transportation system by these active transportation users.

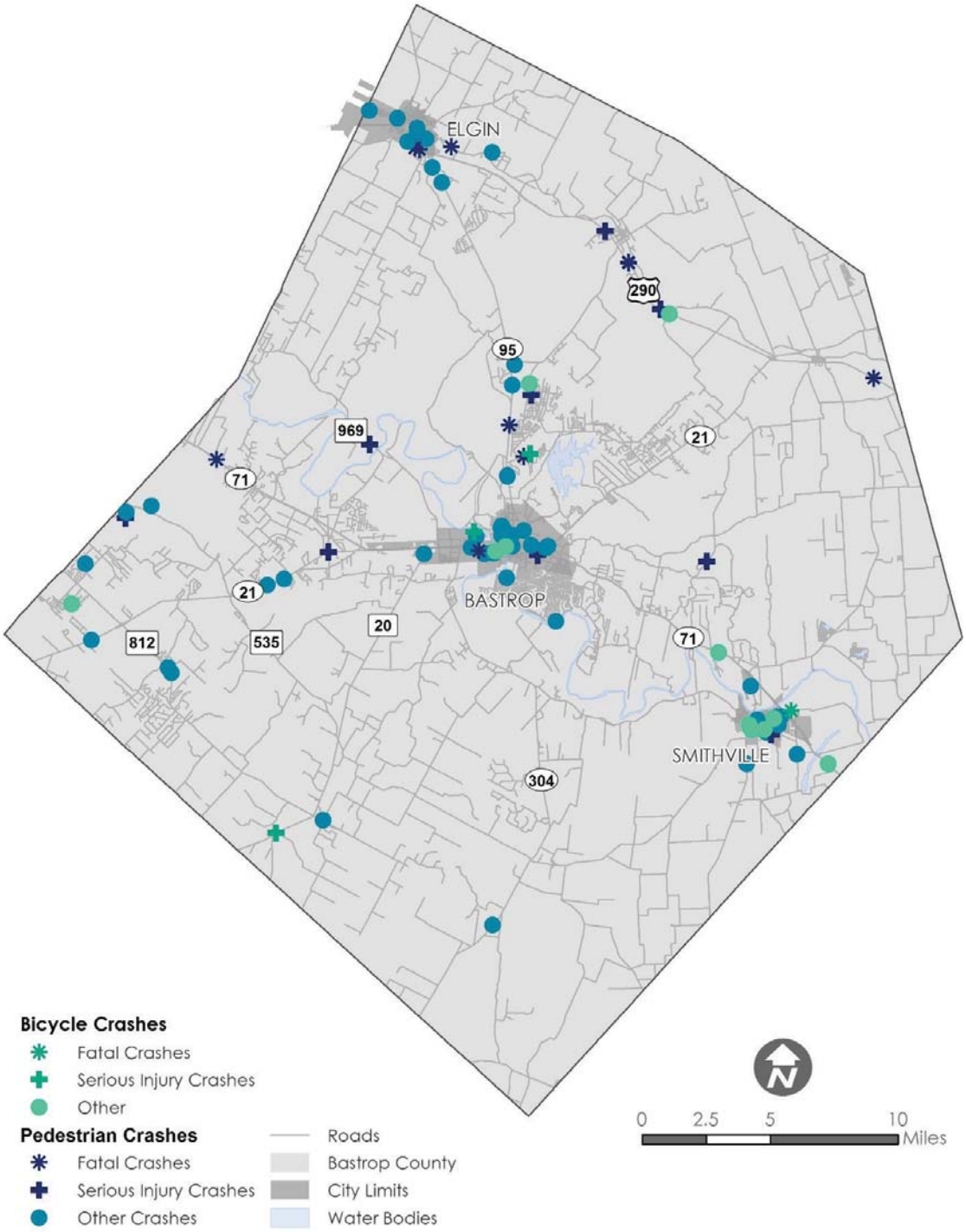
Map 11.1 shows crashes involving bicycles or pedestrians that have occurred on the Bastrop County roads between 2010 and 2015. It is clear from this graphic that safety improvements for active transportation users need to be addressed, and as the number of vehicles on the County's roadways increases, this need will only grow larger.

It is therefore recommended that the County expand and energize upon existing programs to make countywide Active Transportation Education a priority. The education initiatives should market both drivers and active transportation users on Share the Road safety. The County should also be prepared to continue and increase participation in regional initiatives sponsored by their regional planning partners. Current opportunities for regional collaboration on active transportation include:

- The TxDOT Austin District Bicycle Commission's forthcoming plan to unify practices for bicycle planning on TxDOT roads; and
- The CAMPO Active Transportation Plan to inventory active transportation facilities in the region, assess active transportation needs, and propose solutions.

In conjunction with these activities, as County roads are constructed or reconstructed, wider shoulders or other considerations for active transportation users should be included in County projects and proposed for inclusion in the regional planning efforts.

Map 11.1: Crashes Involving Bicycles or Pedestrians from 2010 to 2015



Expand School Transportation Safety Initiatives

In many areas of Bastrop County, children use school buses to travel to and from school. As Map 11.2 shows, there have been a number of crashes in the county that involved school buses. Some of these crashes resulted in the serious injury of children who depend on this mode of transportation every day. Some communities have installed cameras on buses (i.e. City of Elgin) to aid in enforcement of drivers passing school buses during loading and unloading periods.

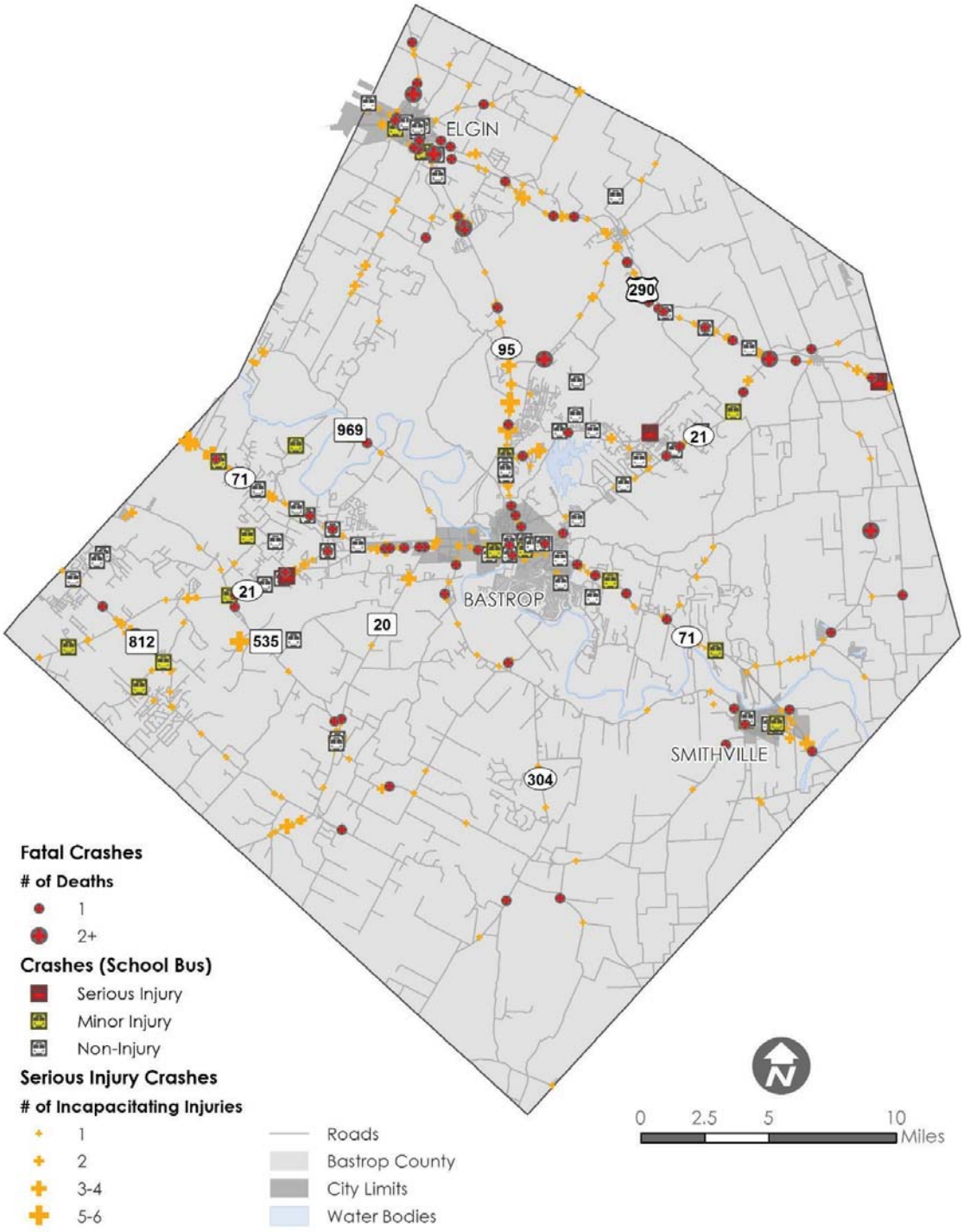
In addition, many parents drop-off and pick-up their children before and after school, congesting the roadways near schools at those times of day. Some children even walk or ride their bikes to school in areas with limited sidewalks. All of these children are using the county transportation system to get to and from school.

The technical analysis of the type and location of school bus crashes and stakeholder input from school transportation professionals and public safety officials during the safety stakeholder workshops indicated that, although roadway infrastructure improvements may help, the key issues with school transportation safety appear to be driver behavior, education, and enforcement.

It is therefore recommended that the County collaborate with the local ISDs on a School Transportation Safety Initiative. This initiative should consider including:

- Continuing the liaison with ISDs initiated during plan development to gather ongoing input from school bus drivers, school administrators, and parents on hot spots for school bus safety and other safety needs;
- Conducting a driver safety education program in collaboration with TxDOT, CAMPO, and the ISDs, with emphasis on safe interactions with school buses and school aged bicyclists and pedestrians;
- Increasing enforcement of school bus and pedestrian related traffic laws, particularly on the approaches to school sites and loading/unloading areas along bus routes using innovative technology, such as cameras on buses;
- Implementing the use of school bus video cameras to aid in modification of driver behavior and facilitate regulatory enforcement;
- Supporting local Safe Routes to School programs initiated by the ISDs or community organizations;
- Coordinating with schools and the community to identify safe pick-up/drop-off locations away from busy streets;
- Educating parents on safe driving techniques when dropping children off at school, as well as young student drivers traveling to and from school;

Map 11.2: Crashes Involving School Buses 2010 to 2015



- Providing clear signage and instructions for the pick-up/drop-off procedures at schools;
- Employing crossing guards at vulnerable locations and on buses where particular boardings/alightings are dangerous; and
- Planning, designing, constructing, and maintaining pedestrian-friendly infrastructure, particularly near schools and neighborhoods within walking/cycling distance.

Plan for New and Emerging Transportation Technology

At the public meetings for this Plan, several members of the public mentioned the need for the County to address emerging transportation methods and technologies, such as ride sharing businesses, driverless cars, and charging for auto use during congested periods. Although it may be some time before changes that are seen in large urban areas become important to Bastrop County, it is still necessary that the County Transportation Planning initiatives take into consideration emerging transportation methods and technologies as they make transportation related decisions on funding and regulation. The rate of change in the world is accelerating and future transportation technology changes may not be predictable, but they are inevitable. Therefore, it is important that part of the process of planning for future transportation needs includes careful consideration of any emerging transportation technology.

Prepare a Transit Service Plan

Throughout the public participation activities and stakeholder engagement meetings conducted as a part of plan development, participants stressed the importance of transit and identified a need for and expressed strong support for increased transit service coverage throughout the county. The views expressed in the public dialogue were reinforced by the results of the analysis of transit dependence and potential ridership outlined in the transit section of the Needs Assessment (Chapter 4).

Current transit service, both within the county and to regional destinations outside the county, is provided by Capital Area Rural Transportation System (CARTS). To begin the process of better understanding the transit needs of Bastrop County residents, it is recommended that the County undertake, in collaboration with CARTS, local municipalities, and other County planning partners, development of a transit service plan. A transit service plan would provide additional insight into the transit needs of County residents and the various service strategies that could be employed to address current and future needs.

The County should also stay active in regional transit planning activities that may provide transportation solutions for Bastrop County commuters. CAMPO recently considered

conducting regional transit studies of areas outside of the urban core. In addition, the regional urban transit provider, the Capital Metropolitan Transportation Authority (CapMetro), is studying options for rail or premium bus service connecting communities in Bastrop County to regional urban activity centers.

By collaborating with these regional planning partners, the County may be able to leverage its own transit planning efforts to expand the range of transit options and transportation solutions as the county continues to grow and travel demand continues to increase.

Conclusion

The Bastrop County Transportation Plan would not have been possible without the input and vision provided by residents, stakeholders, the BCTP Steering Committee, government agencies, the Commissioners Court, and all others who participated in the various public workshops, stakeholder interviews, and open houses.

The combined efforts of the Bastrop County community has culminated in a Transportation Plan that can effectively guide transportation investments in the county over the next 25 years. The projects and programs highlighted in this plan will provide safer, more connected, and accessible transportation throughout Bastrop County.