

# LLANO COUNTY

Transportation + Economic Development Plan

With support from:

Adopted December 14, 2015  
By the Llano County Commissioners' Court

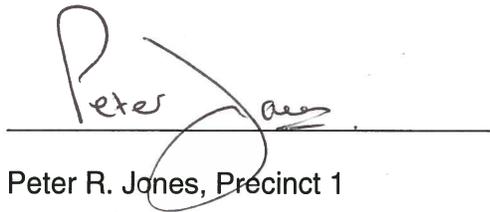




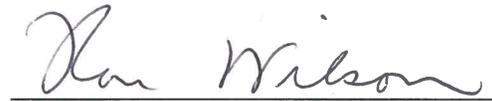
Adopted by majority vote of the Llano County Commissioners Court on this 14 day of December, 2015.



Mary S. Cunningham, Llano County Judge



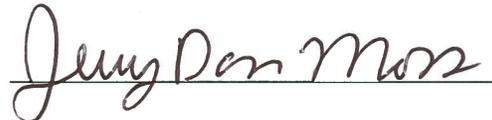
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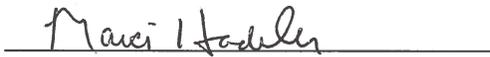


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# Acknowledgments

The Llano County Transportation and Economic Development plan is the work of many people dedicated to planning the best transportation system, and developing the best economic development strategies for Llano County. The plan was prepared through a partnership with regional and local governments and local resident volunteers. The authors of the Llano County Transportation and Economic Development plan would like to acknowledge the following individuals for their invaluable contributions to the plan.

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Patrol Sergeant

Stan Farmer  
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Joe Freeman  
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Lynda Gamage  
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Mike Reagor  
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Pat Scudder  
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Danny Stone  
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Jay Ward  
Llano County Citizen Representative

Ron Wilson  
Llano County Commissioner

Richard Wooten,  
Llano County Road & Bridge Supervisor

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Patrol Sergeant

Casey Callahan  
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Mary Cunningham  
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Steve Griffith  
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Kathy Hussy  
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Mike Reagor  
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Tom Stewart  
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Jay Ward  
Llano County Citizen Representative

David Willmann  
Llano National Bank President

Ron Wilson  
Llano County Commissioner

# Executive Summary

Llano County, TxDOT, and CAPCOG developed the Llano County Transportation and Economic Development Plan to identify transportation priorities and integrate those priorities with strategies for economic growth. The plan recognizes the need for coordination of significant countywide projects and is a blueprint for future transportation facilities. Extensive public input was obtained to ensure that the goals and strategies represent the interests of Llano County residents and stakeholders.

The need for such a plan is driven by the continued population growth occurring in the nearby Austin–San Antonio region, which has contributed to increased development in the area since 1990. Continued development of the County’s unincorporated areas, especially within the unincorporated community of Kingsland and around the cities of Horseshoe Bay and Llano and near State Highways (SH) 71 and 29, can be expected to have a more direct impact on Llano County in the future. A steady rise in population and employment is projected for the county, with population exceeding 22,000 and over 5,500 jobs expected by 2040 (Table 15). Interestingly, much of the population growth Llano County has experienced in recent years has been retirees, contributing to a median age of 55 among county residents, much higher than the region.

Demographic and economic information was used along with historic traffic data to project the ability of the county’s road network to handle future growth. Over the last decade, traffic count locations within Llano County have grown within the southern half of the county, with the highest growth occurring on RM 1431 in Kingsland near the Burnet County line. Count locations in the northern half of the county experienced a decline in traffic volumes during the same period (Figure 41). Research from the Texas A&M Transportation Institute indicates traffic volumes in Llano County are not expected to exceed the county’s roadway capacity by 2040, with the exception of RM 1431 in Kingsland between RM 2900 and the Burnet County line (Figure 45).

Transportation infrastructure should be designed to support economic growth and lure investment, and much of Llano County’s population is well-connected to major markets, such as Austin and San Antonio, as well as regional markets, such as Marble Falls, and Fredericksburg. This, added to Llano County’s natural beauty, has contributed to a strong tourism industry, the third highest producing sector after agriculture and oil and gas. Likewise, this natural beauty makes it an attractive retirement destination.

The large share of retirees among Llano County’s sparse population creates a challenge for businesses considering locating to the area, due to the low availability of skilled workers. Also, a portion of the population opposes change that would drive growth in jobs and population. The difference in ages, income, and community size within the population can make it hard to align the interests of the residents, making it difficult to organize and address issues that face the county. However, despite these differences, pooling the communities’ strengths can create a more economically vibrant future and better quality of life for residents.

Several long-term economic development goals and strategies emerged during the planning process. Highest among them is to create a county-wide committee to manage quality, long-term growth. Another goal is to optimize the county’s tourism industry by consolidating its presence on the internet and enhancing the City of Llano’s downtown historical and commercial square. A third goal would strengthen the foundation for business recruitment and expansion through partnerships with Central Texas College and the Texas Workforce Commission. A final goal would support the county’s work-at-home and entrepreneurial capacity by improving high-speed internet infrastructure and identifying business development services to aid small businesses.

Finally, traffic analysis, challenges and opportunities and existing plans were combined with public and stakeholder input to create a comprehensive list of needed transportation projects (Table 19). In addition, TxDOT developed cost estimates for selected projects (Table 20).

Llano County is poised for continued growth, and this plan stands as a blueprint to accommodate this growth and build the local economy. A broad public involvement effort was implemented to give the people of Llano County a voice in future project developments and local and state funding decisions. This plan should be updated periodically as conditions change and the economy evolves.

# Table of Contents

Acknowledgments .....	i
Llano County Transportation Advisory Committee.....	iii
Llano County Economic Development Advisory Committee .....	iv
Executive Summary .....	v
List of Figures.....	ix
List of Tables.....	xi
Chapter 1—Introduction .....	1
1.1 Report Organization .....	1
1.2 Study Background and Purpose.....	1
1.3 Study Area .....	2
1.4 Plan Participants.....	3
1.5 Purpose and Benefits of a County Transportation and Economic Development Plan.....	4
1.6 Relationship between Transportation, Land Use, and Economic Development.....	4
1.7 Public Involvement .....	5
1.8 Plan Process.....	8
Chapter 2—Existing Conditions .....	9
2.1 Summary of Existing Plans.....	9
2.2 Land Use Inventory .....	10
2.3 Demographic Trends .....	13
2.4 Socioeconomic Trends .....	18
2.5 Existing Transportation Conditions.....	22
2.6 Economic Development Existing Conditions.....	35
2.7 Existing Environmental Conditions .....	41
Chapter 3—Economic Development.....	44
3.1 Overview.....	44
3.2 Strengths and Challenges for Llano County.....	46
3.3 Goals and Strategies .....	47
3.4 Organizing and Implementation.....	50
Chapter 4—Future Conditions and Traffic Trend Analysis .....	52
4.1 County-Level Base Year (2010) Demographic Trends .....	52
4.2 County-Level Analysis for Forecast Year (2040) Demographic Trends.....	60
4.3 Traffic Growth Analysis.....	64
Chapter 5—Transportation and Economic Development Plan .....	74
5.1 Infrastructure Needs Assessment .....	74
5.2 Planned and Programmed Transportation Improvements .....	74
5.3 Recommended Transportation and Economic Development Improvements.....	76
5.4 Maps of Recommended Transportation Improvements .....	91
Chapter 6—Recommendations and Plan Implementation Strategies .....	97
6.1 Findings and Recommendations .....	97
6.2 Potential Project Costs .....	97
6.3 Possible Funding Sources.....	98
6.4 Implementation of the Plan.....	98

Appendix A—Llano County Transportation and Economic Development Plan Questionnaire  
Results ..... 101

Appendix B—Demographic Control Totals for Llano County Technical Memorandum..... 137

Appendix C—Llano County Traffic Trends Technical Memorandum ..... 161

# List of Figures

Figure 1. Llano County Vicinity Map.....	3
Figure 2. City of Llano Zoning Map (Source: City of Llano).....	12
Figure 3. City of Horseshoe Bay Zone Zoning Map (Source: City of Horseshoe Bay).....	13
Figure 4. Historic Population Growth in Llano County and Nearby Counties.....	15
Figure 5. Llano County Projected Population Growth (Source: Texas State Data Center, 2014).....	16
Figure 6. Llano County Population by Percent Age Group (Source: U.S. Census Data).....	16
Figure 7. Median Age in Llano County Compared to Other Regions (Source: 2010 U.S. Census).....	17
Figure 8. Race/Ethnicity in Llano County in 2010 (Source: Texas State Data Center).....	18
Figure 9. Projected Race/Ethnicity in Llano County, TX (Source: Texas State Data Center).....	19
Figure 10. Projected Race/Ethnicity in State of Texas (Source: Texas State Data Center).....	19
Figure 11. Percentage of Population Living Below the Poverty Line in Llano County, the State of Texas, and the United States (Source: U.S. Census Data).....	20
Figure 12. Educational Attainment in Llano County, 2013. (Source: U.S. Census Bureau).....	21
Figure 13. Educational Attainment in Llano County by Age Cohort, 2013. (Source: U.S. Census Bureau).....	21
Figure 14. Llano County Roadway Classification (Source: TxDOT).....	22
Figure 15. Average Daily Traffic in Llano County in 2013 (Source: TxDOT).....	23
Figure 16. Average Daily Heavy Truck Traffic (2013) (Source: TxDOT).....	25
Figure 17. Crashes Resulting in Fatalities or Incapacitating Injuries in Llano County (2009–2013) (Source: TxDOT).....	26
Figure 18. Crashes Resulting in Non-Incapacitating Injuries or No Injuries in Llano County (2009–2013) (Source: TxDOT).....	27
Figure 19. Pavement Conditions in Llano County, 2013 (Source: TxDOT).....	28
Figure 20. Employment Locations of Llano County Workforce as Percentage of Total Workforce (Source: American Community Survey 2006–2010).....	29
Figure 21. Commute Time as Percentage of Llano County Workforce (Source: American Community Survey, 2009–2013).....	30
Figure 22. Labor Force in Llano County, 2014 (Source: Sites on Texas 2.0).....	35
Figure 23. Llano County Employment by Sector, 2014 (Source: Sites on Texas 2.0).....	36
Figure 24. Rates of Self Employment, 2013 (Source: U.S. Census Bureau).....	37
Figure 25. Map of Census Tracts in Llano County.....	37
Figure 26. Unemployment in Llano County, CAPCOG Region, Texas and the United States, 2013 (Source: U.S. Census).....	38
Figure 27. Unemployment by Llano County Census Tract, 2013. (Source: U.S. Census Bureau).....	38
Figure 28. Median Income for Llano County, the State of Texas, and the United States, 2000, 2013 (Source: U.S. Census Data).....	39
Figure 29. Change in Median Household Income by Llano County Census Tract. (Source: Sites on Texas 2.0).....	39
Figure 30. Percent of Residents that Work From Home, 2013. (Source: U.S. Census Bureau).....	40
Figure 31. Housing Supply by Llano County Census Tract. (Source: Sites on Texas 2.0).....	40
Figure 32. Housing Occupancy by Llano County Census Tract and Tenure, 2014 (Source: Sites on Texas 2.0).....	41
Figure 33. FEMA Potential Flood Hazards in Llano County (Source: Texas Natural Resource Information System).....	42
Figure 34. Population Density in Llano County, 2010 (Source: U.S. Census, TTI).....	53
Figure 35. 2005 Population-to-Employment Ratios for Travis, Hays, Bastrop, and Llano Counties (Source: U.S. Census Bureau, Texas Workforce Commission, TTI).....	56
Figure 36. Employment Density in Llano County, 2010 (Source: Texas Workforce Commission, TTI).....	58
Figure 37. Projected Population Density in Llano County, 2040 (Source: Texas State Data Center, TTI).....	61

Figure 38. Projected Employment Density in Llano County, 2040 (Source: Texas Workforce Commission, TTI).....	63
Figure 39. Traffic Count Locations in Llano County (Source: TxDOT, TTI).....	65
Figure 40. Traffic Count Locations in Kingsland, City of Llano and Horseshoe Bay (Source: TxDOT, TTI).....	66
Figure 41. Estimated Traffic Growth in Llano County (between 2003 and 2010) (Source: TxDOT, TTI).....	67
Figure 42. Estimated Traffic Growth in the City of Llano, Kingsland and Horseshoe Bay (between 2003 and 2010) (Source: TxDOT, TTI).....	68
Figure 43. 2010 Levels of Service (LOS) in Llano County (Source: TTI).....	69
Figure 44. 2010 Levels of Service (LOS) in the City of Llano, Kingsland and Horseshoe Bay (Source: TTI).....	70
Figure 45. Projected 2040 LOS in Llano County (Source: TTI).....	72
Figure 46. Projected 2040 LOS in the City of Llano, Kingsland and Horseshoe Bay (Source: TTI).....	73
Figure 47. Planned and Programmed Projects in Llano County (Source: TxDOT).....	75
Figure 48. Recommended Roadway Expansions in Llano County.....	92
Figure 49. Recommended Safety Improvements in Llano County.....	93
Figure 50. Recommended Roadway Repairs in Llano County.....	94
Figure 51. Recommended Bicycle, Pedestrian and Transit Improvements in Llano County.....	95
Figure 52. Recommended Tourism Improvements in Llano County.....	96

# List of Tables

Table 1. Historic Population and Compound Annual Average Growth by Period for Llano, Blanco, Burnet, Gillespie, Mason, San Saba, and Travis Counties and Texas from 1970 to 2010 (Source: U.S. Census Data). .....	14
Table 2. Llano School District Enrollment 2010–2014 (Source: Texas Education Agency). .....	17
Table 3. Historical School Age Population within Llano County (U.S. Decennial Census Data). .....	18
Table 4. Llano County Revenue for FY2014–2015 (Source: Llano County). .....	31
Table 5. Llano County Expenditures for FY2014–2015 (Source: Llano County). .....	32
Table 6. Llano County Road and Bridge Revenue for FY2014–2015 (Source: Llano County). .....	33
Table 7. Llano County Road and Bridge Expenditures for FY2014–2015 (Source: Llano County). .....	34
Table 8. Number of Households and Average Household Size for Llano County and Texas from 1980 to 2010 (Source U.S. Census, TTI). .....	54
Table 9. Total Employment, Total Population, and Population-to-Employment Ratios for Llano County for 2005, 2010, and 2013 (Source: U.S. Census Bureau, Texas Workforce Commission). .....	56
Table 10. Number and Percent Employment by Type for Llano County for 2005, 2010, and 2013. ....	57
Table 11. Historic Median Household Income for Llano County and Texas in Nominal and Constant 2010 Dollars (Source: U.S. Census). .....	59
Table 12. Summary of Demographic Data for 2010. ....	59
Table 13. Llano County Projected Population (Source: Texas State Data Center, TTI) .....	60
Table 14. Projected Households and Average Household Size for Llano County (Source: Texas State Data Center, TTI). .....	60
Table 15. Llano County Employment-to-Population Ratio Projections (Source: Texas State Data Center). .....	62
Table 16. Base 2010 and Projected Employment by Type from 2020 to 2040 for Llano County. ....	62
Table 17. Llano County Median Income Projections from 2020 to 2040 (Source: Texas State Data Center, Texas State Comptroller Consumer Price Index Forecast, TTI) .....	64
Table 18. Recommended Llano County Control Totals from 2010 to 2040. ....	64
Table 19. Llano County Recommended and Planned Transportation Improvements. ....	77
Table 20. Llano County Recommended and Planned Transportation Improvement Cost Estimates for Select Projects (Source: TxDOT). .....	97

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# Chapter 1—Introduction

## 1.1 Report Organization

The Llano County Transportation and Economic Development Plan is the result of a collaborative effort between Llano County and the Capital Area Council of Governments (CAPCOG) with support from the Texas Department of Transportation (TxDOT) and Texas A&M Transportation Institute (TTI) to develop a vision for the economic growth and transportation improvements to guide Llano County through the year 2040.

The report is organized into the following chapters:

- Introduction—description of the study area, background, and purpose; study participants; county transportation plan purpose and benefits; transportation and economic development relationship; public involvement; and study process.
- Existing Conditions—discussion of the existing land use; natural environment and air quality; safety conditions; transportation conditions; and revenue for the City of Llano, the community of Kingsland, and the City of Horseshoe Bay.
- Economic Development—discussion of the existing demographic and socioeconomic trends and conditions, including age and population, employment, schools, and health facilities; state of the county economy; tourism; development along U.S. highway corridors; broadband Internet; and future economic development recommendations for the county.
- Future Conditions and Traffic Trend Analysis—discussion of future population and employment trends, traffic trends, and planned and programmed roadway improvements.
- Transportation and Economic Development Plan—visualization of how recommended transportation and economic development improvements create a comprehensive strategic plan for the future growth and development of Llano County.
- Recommendations and Plan Implementation Strategies—findings and recommendations from the study, possible funding sources for the projects, and steps to implement the plan.

## 1.2 Study Background and Purpose

The Llano County Transportation and Economic Development Plan was undertaken because Llano County, CAPCOG, and TxDOT recognized the need for a coordinated regional transportation plan. This plan provides guidance for system connectivity and continuity, both within and between counties, as well as the integration of economic development strategies with standard transportation analyses to provide greater context for planning and implementation of transportation improvements. In addition, CAPCOG and Llano County officials took advantage of the opportunity to provide insight on the best strategies to develop long-term economic prosperity for Llano County. TxDOT sponsored the Llano County Transportation and Economic Development Plan in an effort to develop a long-range transportation and economic development strategy that Llano County might not otherwise have the resources to develop.

A comprehensive countywide plan is a blueprint for the future that looks at all modes of transportation, including roads, transit, pedestrian, and bicycle facilities. The Llano County Transportation and Economic Development Plan allows county officials to identify and preserve rights of way (ROWs) needed for expansion of existing facilities as well as future new corridors to serve anticipated growth and development. One benefit to a long-range plan is the ability to identify future needs and plan for them. This will be necessary for ROW acquisition and utility

relocation for major roadway projects. To aid both TxDOT districts and local governments involved in TxDOT/Local Government projects, the TxDOT Right of Way (ROW) Division has developed the Real Estate Acquisition Guide for Local Public Agencies and the Relocation Assistance Manual. More extensive information is provided in TxDOT's Local Government Project Management Guide, updated in January 2015.

The need for such a plan is driven by the continued rapid population growth occurring in the nearby Austin-San Antonio region. Significant development has occurred in the area since 1980, and continued development of the unincorporated areas around the cities of Llano and Horseshoe Bay, as well as the unincorporated community of Kingsland, and state roadways such as State Highways (SH) 71, 29, 16 and FM 1431 can be expected to have a more direct impact on Llano County in the future.

A proactive public involvement/outreach process assured that this comprehensive multimodal transportation and economic development plan was developed by county residents for county residents to address the needs of a growing population.

### **1.3 Study Area**

Llano County is located west of Burnet County. Figure 1 provides a vicinity map for Llano County. The study area for the Llano County Transportation and Economic Development Plan included all of Llano County and coordinated with adjoining counties.



**Figure 1. Llano County Vicinity Map.**

Llano County is approximately 966 square miles. The county seat is the City of Llano, and the incorporated cities in the county are the City of Llano and Horseshoe Bay. Additionally, there are several unincorporated communities in Llano County including Kingsland and Buchanan Dam. The 2010 population of Llano County was 19,301 residents, with an average density of 21 residents per square mile.

Llano School district is the only public school district serving the county. The school district contains two elementary schools, one middle school, and one high school.

## 1.4 Plan Participants

Four groups or agencies participated in the Llano County Transportation and Economic Development Plan planning process. The agencies and their responsibilities are listed below:

- Llano County—served as the lead agency directing the project, headed by the county judge, commissioners, and staff.

- CAPCOG—provided support to other agency members; provided support to county and local officials; provided guidance for the public involvement activities; provided technical analysis for specific aspects of existing and future conditions; hosted the website; and assured that the planning process was consistent with the local and regional transportation planning process.
- TxDOT—provided support to other agency members; provided guidance for the public involvement activities; coordinated with CAPCOG to facilitate data sharing; provided technical analysis for specific aspects of existing conditions; and assured that the planning process was consistent with the local and regional transportation planning process.
- TTI—developed future demographic and transportation projections; provided overall guidance for participants; assured uniformity in the process and content of the plan; provided technical analysis for specific aspects of existing conditions, future conditions and finance; facilitated public meetings; served on the project management team; oversaw the project website; and provided technical support and analysis of the project questionnaire.

In addition to the participants listed above, a Transportation Advisory Committee (TAC) and an Economic Development Advisory Committee (EDAC) were formed to provide guidance and input on the planning process. The advisory committees were comprised of elected officials, county residents, and representatives of local businesses, chambers of commerce, and local independent school districts (ISDs). Various members of local governing bodies also served on the two committees.

## 1.5 Purpose and Benefits of a County Transportation and Economic Development Plan

The purpose of a county plan is to create a blueprint for the future that evaluates the current and future needs of all modes of transportation in order to identify and preserve ROWs necessary to accommodate future expansion and growth. Section 201.619 of the Texas Transportation Code outlines a process that allows TxDOT and a county to identify future transportation corridors that are important to the accommodation of future growth. This plan is the first step in that process. Additionally, Section 232.0033 of the Texas Local Government Code authorizes the county commissioners' court to refuse a plat for recordation if all or part of the subdivision is located within the area of the alignment of an environmentally cleared future transportation corridor so designated through the above process.

The Llano County Transportation and Economic Development Plan serves as a collective vision of how transportation and economic development needs will be addressed as growth occurs in the future. It is a guideline for the county, cities within the county, and residents to consider in planning new residential, commercial, and industrial developments. The county will be able to share this plan with other entities, such as utility providers, school districts, economic development groups, and land developers. The Llano County Transportation and Economic Development Plan will also be a reference during any general planning updates and will be instrumental as undeveloped land is converted to other uses or as property is redeveloped.

## 1.6 Relationship between Transportation, Land Use, and Economic Development

Transportation and land use are interrelated. This means, in part, that land use affects the level of transportation service that is needed. For example, where land is used in a low-density residential pattern, frequent transit service is usually not cost effective. Similarly, it means that the level of

transportation service affects the kind of land use that will be suitable for an area. For instance, an established truck route will make it easier for adjacent land to be used for industrial or commercial uses. Conversely, a new large-scale residential development will generate additional travel for the existing roads that provide access to the new development. Improvements to the roads serving the development may be needed to improve access to the development. A multimodal, high-quality transportation system can help attract or retain intended land uses.

In addition to land use affecting the level of transportation service needed, the interrelationship of land use and transportation can affect economic development as well. As land use drives transportation infrastructure needs, changes in transportation infrastructure will in turn provide increased opportunities for development and affect access to employment.

Given the relationship between transportation and land use, decisions about needed transportation facilities and programs should take into account the demands of the local population and the growing economy. Transportation planning should provide for a circulation system that reflects existing and proposed land use patterns—to provide efficient access within a commercial core for pedestrians, bicyclists, cars, trucks, and buses—while also encouraging quiet access in a residential neighborhood. Investments in the transportation system are expected to support growth and/or redevelopment targeted by the county's land use goals.

Land use plans at both the regional and local level are used to forecast future transportation demands. Projected employment and population growth translate to growth in traffic volumes in specific geographic areas. High-intensity land uses, such as office space and retail, generate significant demands on the transportation system. Planning for high-intensity land use should include an assessment of the traffic impact on the existing streets.

## 1.7 Public Involvement

The public involvement strategy for the Llano County Transportation and Economic Development Plan revolved around the guiding principle that the plan be developed by Llano County, for Llano County. To ensure that this plan is a reflection of the needs and values of Llano County residents, the project team sought to provide decision makers and members of the public with ample opportunities to get involved early and often throughout the development of the plan. Strategies to involve the public in the planning process included meeting often with citizen advisory committees; developing a project website and cohesive look for project materials; making presentations at city council and commissioner court meetings; proactively seeking traditional and social media involvement; using a questionnaire to broaden involvement and holding workshops and pop-up open houses throughout the county. The following section provides details regarding the public involvement efforts conducted during the development of the Llano County Transportation and Economic Development Plan.

### 1.7.1 Advisory Committees

Two citizen advisory committees were appointed by Llano County Judge Mary Cunningham to guide the planning process, share information, and implement the public involvement plan. The Transportation Advisory Committee (TAC) and Economic Development Advisory Committee (EDAC) both met regularly throughout the development of the Llano County Plan. While the TAC identified transportation issues and proposed improvements, the EDAC concentrated on economic development-related issues and strategies (refer to Chapter 3) which were integrated into the plan to provide a more comprehensive blueprint for the county.

### *1.7.1.1 Transportation Advisory Committee (TAC)*

The TAC was tasked with providing oversight for the transportation planning process and ensuring that the community's vision was reflected in the final plan. The committee completed the following activities:

- Provided background on development patterns, trends, and future needs for member organizations.
- Provided comments on the public involvement plan.
- Provided feedback on public information materials prepared for public meetings and outreach events.
- Provided guidance on assumptions made for the future of the county, such as the allocation of future population and employment growth.
- Participated in mapping exercises to identify transportation issues and to propose recommendations for transportation improvements.
- Reviewed and provided comments on the draft plan.
- Developed and supported the final plan adoption process.

Members of the Transportation Advisory Committee included:

- Tony Austin, Hill County Transit District
- Billy Bell, B&L Construction Owner
- James Boyd, Cuplin & Associates
- Randy Brown, Patrol Sergeant
- Kyle Cuplin, Cuplin & Associates
- Stan Farmer, Horseshoe Bay City Manager
- John Fowler, Rancher
- Shannon Franklin, TxDOT Llano County Maintenance Section Supervisor
- Joe Freeman, Rancher
- Lynda Gamage, Resident
- Brenda Guerra, TxDOT Assistant Area Engineer
- Steve Landers, Resident
- Peter Jones, Llano County Commissioner
- Briley Mitchell, Llano County Chamber of Commerce
- Jerry Don Moss, Llano County Commissioner
- Bobby Ramthun, TxDOT Area Engineer
- Mike Reagor, City of Llano Mayor
- Linda Raschke, Llano County Commissioner
- Pat Scudder, Resident
- Danny Stone, Kingsland Volunteer Fire Department
- Jay Ward, Resident
- Ron Wilson, Llano County Commissioner
- Richard Wooten, Llano County Road & Bridge Supervisor

### *1.7.1.2 Economic Development Advisory Committee (EDAC)*

The EDAC was tasked with analyzing current demographic and economic data for Llano County and recommending economic development strategies that would encourage business investment and job growth within the county. The committee's recommendations are outlined in Chapter 3.

Members of the Economic Development Advisory Committee included:

- Randy Brown, Patrol Sergeant
- Casey Callahan, Llano Independent School District Superintendent

- Mary Cunningham, Llano County Judge
- Brenda Durst, Buttery Company
- Steve Griffith, Retired School Principal
- Rick Howe, Resident
- Kathy Hussey, Resident
- Peter Jones, Llano County Commissioner
- Randy Leifeste, Castell General Store Owner and Developer
- Clayton Leverett, Rancher and Realtor
- Sharon Maki, Resident
- Ray McCasland, Edwater Resort Owner
- Charles Miller, Resident
- Jerry Don Moss, Llano County Commissioner
- David Pope, Horseshoe Bay City Council
- Linda Raschke, Llano County Commissioner
- Tom Stewart, Kingsland Municipal Utility District Operations
- Jay Ward, Resident
- David Willmann, Llano National Bank President
- Ron Wilson, Llano County Commissioner

### **1.7.2 Llano County Questionnaire**

A specific goal of the Llano County Transportation and Economic Development Plan included gathering residents' opinions and thoughts about future growth, transportation issues and economic development for their county. A survey was designed to solicit this information. Survey data collection began in May and ran through July 2015. 206 county residents completed the survey. The surveys were completed via paper copies distributed in public meetings, at local community facilities, and at businesses or online through a weblink. Appendix A provides a summary of the results, which were used in developing transportation and economic development proposals for the plan.

### **1.7.3 Pop-up Open Houses**

In addition to gathering input through the questionnaire, three pop-up open houses were held in the community to inform residents about the status of the plan and provide them an opportunity to comment on the work thus far. In an effort to reach Llano residents where they were, the project team decided to set up a table at three locations throughout Llano County. The project team held pop-up open houses at the following locations:

- Thursday, June 25, 2015 from 6 p.m. to 8:30 p.m. at the Badu House in Llano.
- Friday, June 26, 2015 from 10 a.m. to 1 p.m. at the Kingsland Library.
- Friday, June 26, 2015 from 1:30 p.m. to 3 p.m. at the Horseshoe Bay Post Office.

Project team members asked participants what transportation issues they felt were important to the future of Llano County at the open houses. Participants had the option of marking their issues on maps, writing them on spreadsheets or verbally explaining them to project representatives. Participants were also asked to complete survey. Approximately 75 people provided input to the plan at the open houses.

### **1.7.4 Final Open House**

On October 17<sup>th</sup>, 2015 from 10:00 AM to 4:00PM, project team members held an open house at the Wild West Weekend in the City of Llano. Project team members set up a booth at the festival

and provided interested attendees with information about the findings and recommendations of the plan. In addition, attendees were given the opportunity to review project findings and provide input by filling out comment sheets or providing input verbally to project members. Approximately 60 people attended the open house; four of whom submitted written comments for consideration in the plan. The following exhibits were on display at the open house:

- Maps of Llano County Transportation Issues and Recommendations (Figure 48, Figure 50, Figure 51, Figure 52 and Figure 52).
- Handout of Economic Development Strategies.
- 2010 Population Density in Llano County (Figure 34).
- 2040 Projected Population Density in Llano County (Figure 38).
- 2010 Employment Density in Llano County (Figure 36).
- 2040 Projected Employment Density in Llano County (Figure 38).
- 2010 Level of Service (LOS) in Llano County (Traffic Conditions) (Figure 43).
- 2040 Projected Level of Service (LOS) in Llano County (Traffic Conditions) (Figure 45).
- Planned and Programmed Roadway Projects in Llano County (Figure 47).

The majority of comments received verbally reinforced input provided by the two advisory committees. Written comments include: Llano needs a gym and a Walmart; a request to pave all county roads or replace with better road base than caliche; concern about visibility at the intersection of SH 71 and Market Street; and the timing of stop lights at SH 71 and SH 16 which may back-up traffic unnecessarily.

## 1.8 Plan Process

The planning process was conducted in three phases. Phase I was the project initiation stage and consisted of data collection, baseline mapping, public involvement planning, committee establishment, and initial coordination efforts. Phase II was the needs assessment stage in which land use forecasts, traffic projections/travel demand modeling, needs analysis, scenario planning, and additional public involvement took place. Phase III was the actual plan development stage. This stage included identification and evaluation of potential projects, and final adoption of the plan by the county.

## Chapter 2—Existing Conditions

In order to develop a plan for the future, the first step in the planning process was to gain an understanding of the existing conditions in Llano County. A variety of factors were considered in the assessment of needs, including:

- A review of previously developed comprehensive, transportation and economic development plans in order to document and incorporate previous planning efforts.
- Land uses that influence transportation needs as they relate to the location of residential, commercial, educational, and industrial developments.
- Demographic and socioeconomic analyses, which help describe who is living/working in Llano County and lay the foundation for population and employment projections.
- Traffic volumes for both cars and heavy trucks in order to document and analyze current traffic patterns.
- Vehicle crash data to help identify key locations where spot improvements may be warranted.
- A review of alternative modes of transportation available in the county in order to document a comprehensive view of the transportation options.
- Existing economic information in order to establish a baseline of economic conditions that were used to develop future goals and strategies for economic development.
- Numerous natural, environmental features that affect decisions on both land use and transportation.
- Air quality standards issued by the Environmental Protection Agency (EPA), which will impact the transportation planning activities in most metropolitan planning organizations (MPOs) and in turn may impact the ability of adjacent counties to provide a coordinated transportation system.

### 2.1 Summary of Existing Plans

This section reviews the existing comprehensive plans for the cities within Llano County, as well as any previously developed transportation or economic development plans.

#### 2.1.1 City of Llano Comprehensive Plan

In 1998, the City of Llano prepared a comprehensive plan. The following five elements were selected as the most relevant to address the community's development:

1. Land Use Plan.
2. Major Street or Thoroughfare Plan.
3. Park Plan.
4. Central Area Study.
5. Zoning Ordinance.

Of these sections, the Thoroughfare Plan and the Central Area Study most directly address transportation issues. As noted in the Thoroughfare Plan, "major streets provide the framework... around which the urban community is developed." The influence of the highway and street system design on the City's formation is highlighted. Roads are designated and defined as major, secondary or collectors based on their volume and purpose.

The Thoroughfare Plan also reports on traffic volumes, street conditions, and vehicular safety. At the time, the intersection of Bessemer and Young Streets, followed by Main and Ford Streets,

had the highest traffic counts in the City. It also states Llano lacks a continuous route to move traffic parallel to the river. Improvements were suggested for the central business district (CBD), including public restrooms, refuse containers, new sidewalks and sidewalk/curb/gutter repairs, and off street parking.

### **2.1.2 City of Horseshoe Bay Comprehensive Plan**

The City of Horseshoe Bay has not developed a comprehensive plan at the time the Llano County Transportation and Economic Development Plan was developed.

### **2.1.3 Capital Area Comprehensive Economic Development Strategy 2010–2015**

As part of the CAPCOG region, Llano County was included in other planning efforts. The Comprehensive Economic Development Strategy (CEDS) report is a recurring update of CAPCOG’s economic development planning for the region. The Capital Area CEDS is designed to “look at our region as a unit of cities and counties that compete globally for employers and workers” and to provide data and support for good policy decisions. The report summarizes how the Capital Area is experiencing a transition from technological manufacturing to technology services and contains several emerging industry clusters such as renewable energy and clean technology. The 2010–2015 CEDS provides four overarching goals and various objectives to meet those goals. The goals of the CEDS for the Capital Area region include the following:

- Develop a globally competitive workforce that encourages businesses to start, locate, and expand in the Capital Area.
- Make the Capital Area the most entrepreneur-friendly region in the United States.
- Enhance the Capital Area’s economic competitiveness.
- Make the Capital Area a leader in the clean energy economy.

As the lead organization, CAPCOG states that the economic development plans outlined in the report be implemented to align closely with regional, transportation, and other development plans for the region. It also suggests that assistance will be provided to communities in the region to identify opportunities for growth in the state of Texas’s six targeted industry clusters: advanced technologies and manufacturing, aerospace and defense, biotechnology and life sciences, information and computer technology, petroleum refining and chemical products, and energy.

### **2.1.4 Burnet-Llano County Regional Water Facility Study**

In 2011, Llano County joined Burnet County in a study to evaluate the feasibility of developing regional water infrastructure to serve existing and future populations through 2040. Sparked by challenges experienced during the drought in 2009, the study was initiated to identify and evaluate regional solutions for water distribution and treatment to provide system reliability and the efficient sharing of water resources. The report presents the results of an evaluation of multiple alternatives for regional water treatment and transmission facilities in the region and recommends various intake structures and water treatment plans based on the best combinations of cost, regulatory compliance, and water quality.

## **2.2 Land Use Inventory**

Land use is a term planners and policymakers employ that simply describes how humans use the land. Descriptive terms commonly associated with land use include:

- Type—including residential, commercial, industrial, agricultural, etc.
- Intensity—meaning rural, exurban, suburban, and urban.
- Density—persons or households per square mile.
- Connectivity—in terms of transportation, water, wastewater, power, etc.

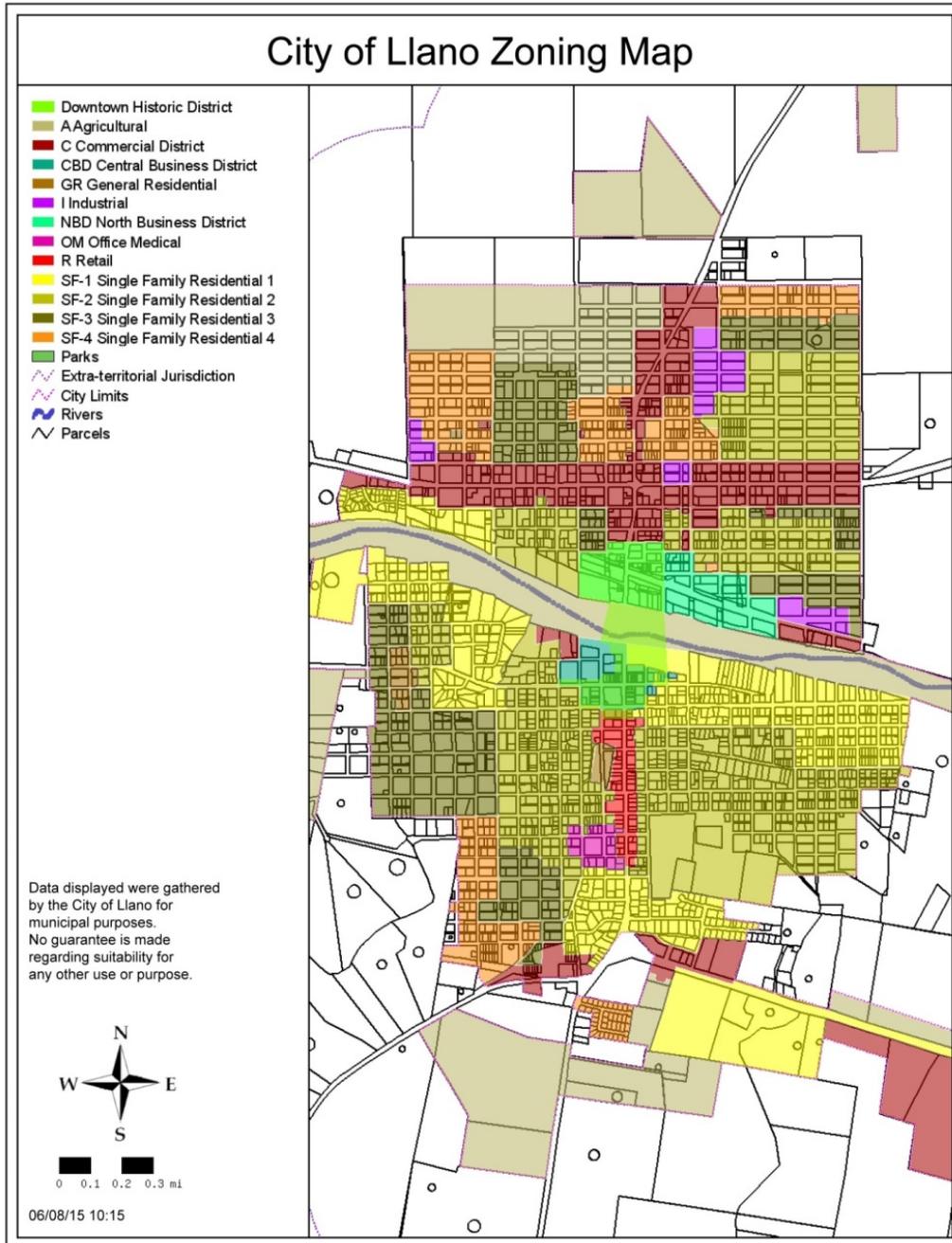
Understanding changing land use patterns will provide insights for future transportation requirements.

In the past, the planning perspective was that land use determines transportation needs. For example, traffic associated with a new development on a county road outside of town creates demand for additional lanes. The new development is the catalyst for increased road capacity. Many communities are finding that increasing road capacity to support existing development can actually spur additional growth that, in turn, increases traffic and the demand for additional capacity. This demonstrates a much closer connection between land use and transportation.

The three major communities of Kingsland, Horseshoe Bay, and Llano currently comprise the majority of the county's population. Historically, Llano County's rural land use pattern has been supported by a network of local, county, farm-to-market, and state arterial roadways that satisfied county residents' transportation needs. If, however, there is a shift in the transportation infrastructure required to support the needs of the county's residents, understanding these changing land use patterns will provide insights for future transportation requirements and the types of land use they stimulate.

### **2.2.1 City of Llano Land Use**

Figure 2 shows the current zoning for the city of Llano. The current zoning features a commercial district along the SH 29 corridor. Llano's CBD is located in the center of town along SH 16, and the city's north business district (NBD) is located just north of the Llano River on SH 16. The City of Llano also has a downtown historic district that spans both the CBD and NBD.



**Figure 2. City of Llano Zoning Map (Source: City of Llano).**

The majority of single-family residential developments are located south of the Llano River. The areas north of SH 29 are zoned for a mix of higher density single-family and multi-family land uses. The area beyond the core of commercial and residential developments is zoned primarily for agricultural land uses. West of town is a large regional park, Robinson Llano County Park, which is located along the Llano River. Additionally, there are several large subdivisions outside the city limits, to the west and south of the City of Llano.

## 2.2.2 City of Horseshoe Bay Land Use

Figure 3 shows the current zoning for the City of Horseshoe Bay. The current zoning features predominantly residential developments and recreational areas, with a few general commercial and governmental land uses located in the center of the city. Residential land uses include single family, garden home, two-family, multi-family, and trailer homes.

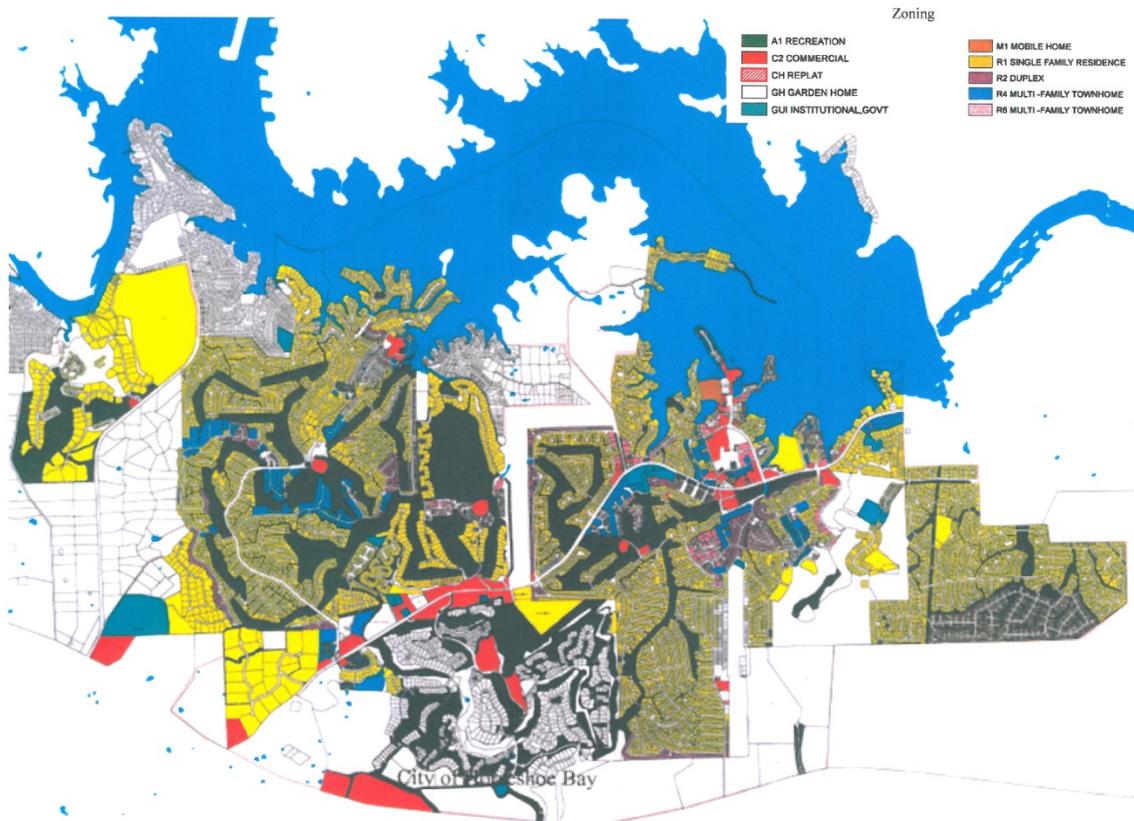


Figure 3. City of Horseshoe Bay Zone Zoning Map (Source: City of Horseshoe Bay).

## 2.2.3 Kingsland Land Use

Kingsland is an unincorporated area in southwest Llano County with some areas in Burnet County. As an unincorporated area, there is no local government for the provision of services; instead, the counties of Llano and Burnet administer those functions. As such, no current or future land use map has been developed for the community of Kingsland.

## 2.3 Demographic Trends

The demographic trends discussed in this chapter are based upon the baseline population and employment figures taken from the 2010 U.S. Census as this is the most recent and complete dataset available to researchers at the time the analysis was conducted.

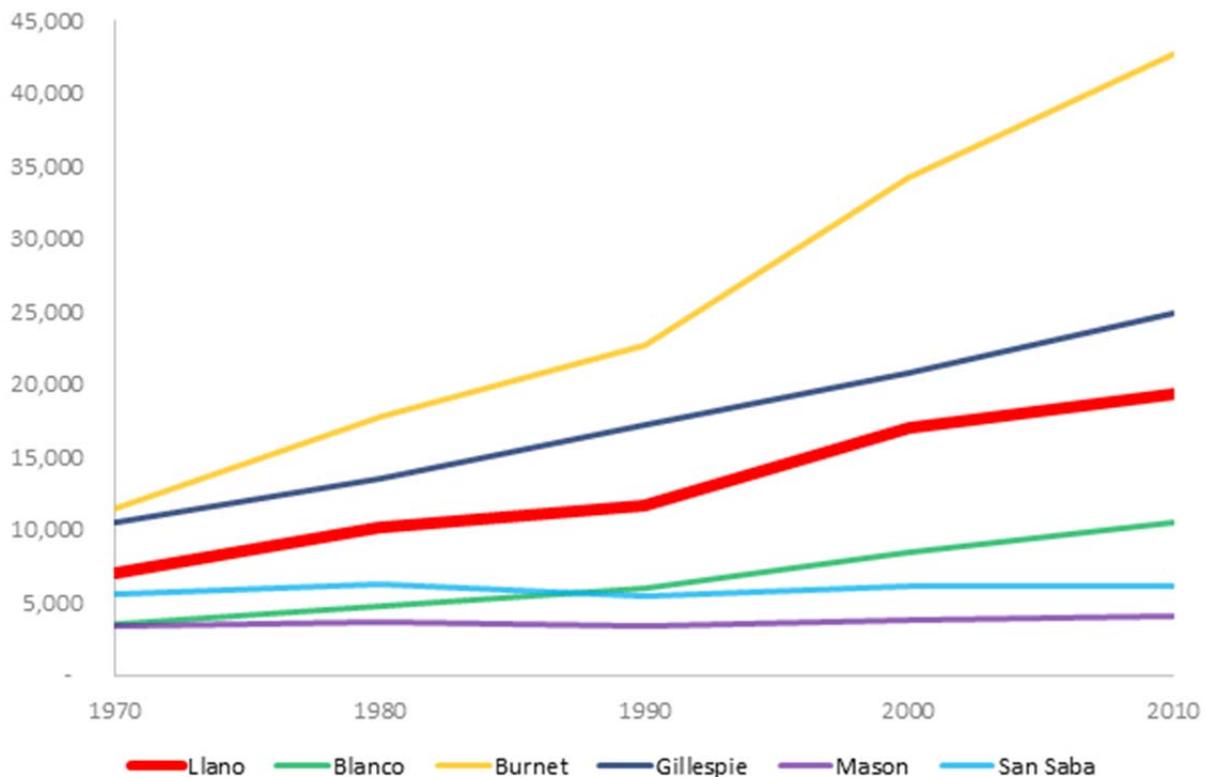
### 2.3.1 Population

Population data from the U.S. Census Bureau were obtained for Llano County. In addition, population data for the neighboring and nearby counties of Blanco, Burnet, Gillespie, Mason, San Saba, and Travis as well as the state of Texas were obtained in order to provide a comparison of current and historical populations of the counties in the region. These data reflect the official population count for the county and are useful in the analysis of past and current growth trends. Table 1 shows the 1970 to 2010 population for Llano, other nearby counties, and the state, along with the compound annual average growth in population by decade and for the period from 1980 to 2010.

**Table 1. Historic Population and Compound Annual Average Growth by Period for Llano, Blanco, Burnet, Gillespie, Mason, San Saba, and Travis Counties and Texas from 1970 to 2010 (Source: U.S. Census Data).**

County	Population				
	1970	1980	1990	2000	2010
Llano County	6,979	10,144	11,631	17,044	19,301
Blanco County	3,567	4,681	5,972	8,418	10,497
Burnet County	11,420	17,803	22,677	34,147	42,750
Gillespie County	10,553	13,532	17,204	20,814	24,837
Mason County	3,356	3,683	3,423	3,738	4,012
San Saba County	5,540	6,204	5,401	6,186	6,131
Travis County	295,516	419,573	576,407	812,280	1,024,266
<b>Texas</b>	<b>11,198,655</b>	<b>14,229,191</b>	<b>16,986,510</b>	<b>20,851,820</b>	<b>25,145,561</b>
County	Compound Annual Average Growth by Period				
	1970 to 1980	1980 to 1990	1990 to 2000	2000 to 2010	1970 to 2010
Llano County	1.25%	1.38%	3.90%	1.25%	3.45%
Blanco County	0.91%	2.47%	3.49%	2.23%	3.66%
Burnet County	1.49%	2.45%	4.18%	2.27%	4.50%
Gillespie County	0.83%	1.92%	1.78%	1.23%	2.89%
Mason County	0.31%	-0.73%	0.88%	0.71%	0.60%
San Saba County	0.38%	-1.38%	1.37%	-0.09%	0.34%
Travis County	1.18%	3.23%	3.49%	2.35%	4.23%
<b>Texas</b>	<b>0.80%</b>	<b>1.79%</b>	<b>2.07%</b>	<b>1.89%</b>	<b>2.73%</b>

Compared to Blanco, Burnet, Gillespie, and Travis Counties, Llano County’s population growth has been fairly consistent over the period examined—between 1970 and 2010—with the highest growth during the period between 1990 and 2000. For each of the past three decades, the population in Llano County has been increasing at an annual rate of between 1.3 and 4 percent per year, a rate greater than the state of Texas as a whole, and typically less than the growth experienced in the core urban Travis County. The exception was between 1990 and 2000, when Llano grew at an annual rate of 3.9 percent while Travis County’s population grew at a rate of 3.5 percent. Comparatively, the growth in Llano County has been most similar to that of Gillespie County, and greater than the growth experienced in Blanco, San Saba, and Mason Counties. Figure 4 provides an illustration of the above counties’ population growth between 1970 and 2010. Note that Travis County has been omitted from Figure 4, as the total population and population growth are far greater than the other counties in Table 1.



**Figure 4. Historic Population Growth in Llano County and Nearby Counties.**

As shown in Figure 4, Llano County’s population growth slowed between 2000 and 2010 compared to the period between 1990 and 2000, especially in comparison to nearby counties such as Burnet and Gillespie Counties.

The Texas State Data Center developed population projections for Llano County. Historical data and forecasted population estimates can be seen in Figure 5. The forecast shown uses the assumption that the counties in-migration will occur at the same rate in Llano County as it occurred during the period from 2000 to 2010. Under this projection, the population of Llano County will increase from 19,301 in 2010 to 22,787 in 2040.

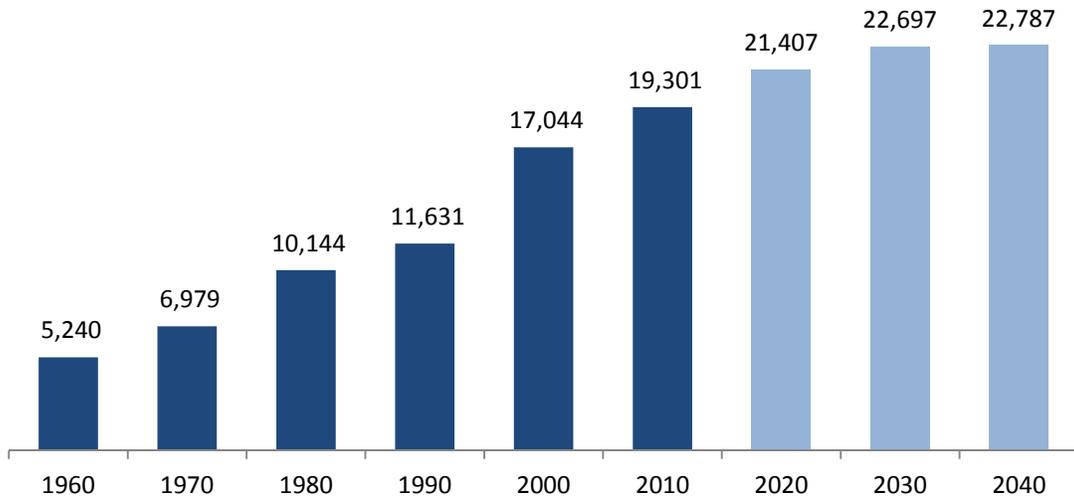


Figure 5. Llano County Projected Population Growth (Source: Texas State Data Center, 2014).

### 2.3.3 Age

According to 2010 census data, approximately 4 percent of the population in Llano County in 2010 was under the age of five, 13 percent was of school age (ages five through 19), 51.6 percent was of adult employment age (20 through 64), and 31 percent was of retirement age (65 and older), as shown in Figure 6. Since 2000, the most notable shifts in the population distribution include a 3 percent decrease in the population age 35 to 44 and a 2 percent increase in the population age 60 to 64 in Llano County.

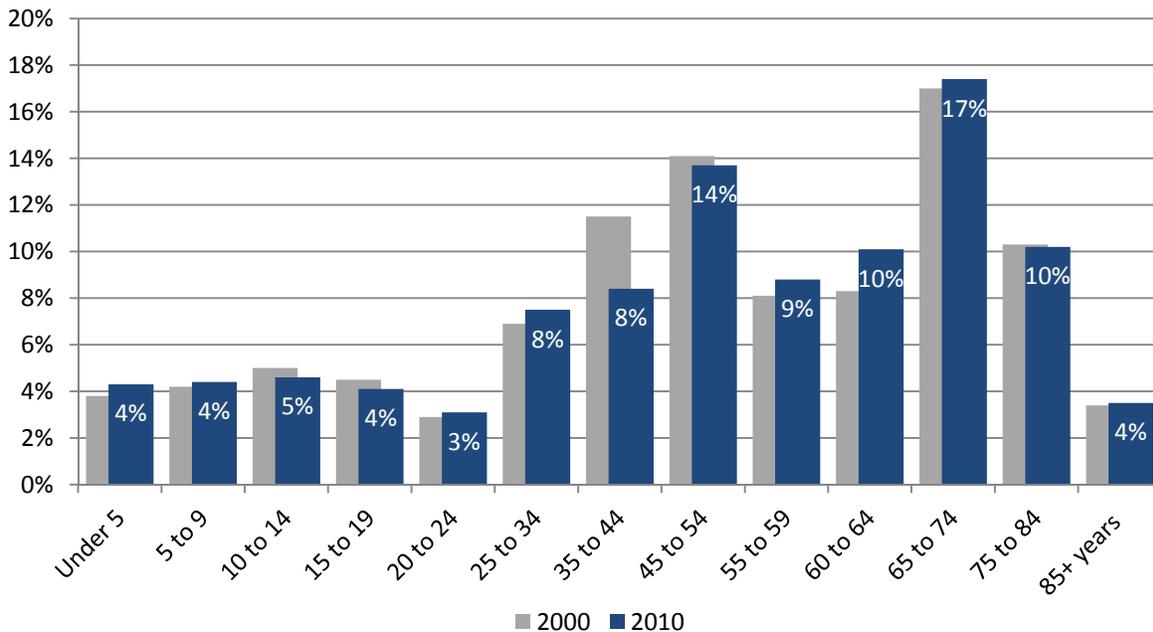
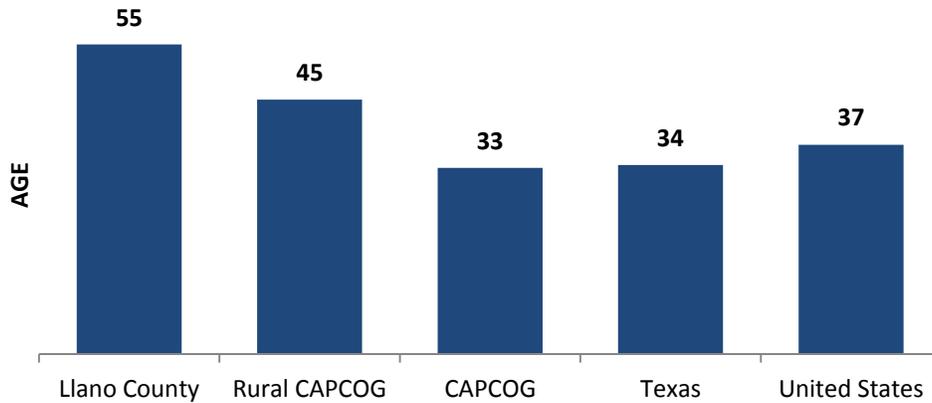


Figure 6. Llano County Population by Percent Age Group (Source: U.S. Census Data).

As shown in Figure 7, the median age in Llano County is 55, according to 2010 U.S. Census data. This reflects the high proportion of retirement age population shown in Figure 6. Figure 7 also provides the median age for all of the rural counties in the CAPCOG region, as well as the median age for the entire CAPCOG region, including the urbanized areas. The CAPCOG region includes Bastrop, Blanco, Burnet, Caldwell, Fayette, Hays, Lee, Llano, Travis, and Williamson Counties. At 55, the median age in Llano County is at least 10 years older than the median age of all rural counties in the CAPCOG region (45). When compared to the entire CAPCOG region, including the urban cores, the median age in Llano County is more than 20 years older than the median age of the entire region (33).



**Figure 7. Median Age in Llano County Compared to Other Regions (Source: 2010 U.S. Census).**

### 2.3.4 Schools

There are four schools within the Llano School District: Packsaddle Elementary, Llano Elementary, Llano Junior High School, and Llano High School. Table 2 shows the enrollment data from 2010–2014.

**Table 2. Llano School District Enrollment 2010–2014 (Source: Texas Education Agency).**

School	2010–11	2011–12	2012–13	2013–14	2014–15
Llano Elementary, Llano	437	406	412	390	395
Packsaddle Elementary, Kingsland	539	500	502	517	511
Llano Junior High School, Llano	418	400	411	419	412
Llano High School, Llano	513	527	499	497	477
<b>Total</b>	<b>1907</b>	<b>1833</b>	<b>1824</b>	<b>1823</b>	<b>1795</b>

Decennial U.S. Census data were used to calculate the total number of children in Llano County that are school age (defined as between the ages of 5 and 19) in the years 1990, 2000, and 2010. Table 3 provides the aggregate total of all children who lived within Llano County and either enrolled in the Llano ISD or were otherwise educated, such as home or private schooled.

**Table 3. Historical School Age Population within Llano County (U.S. Decennial Census Data).**

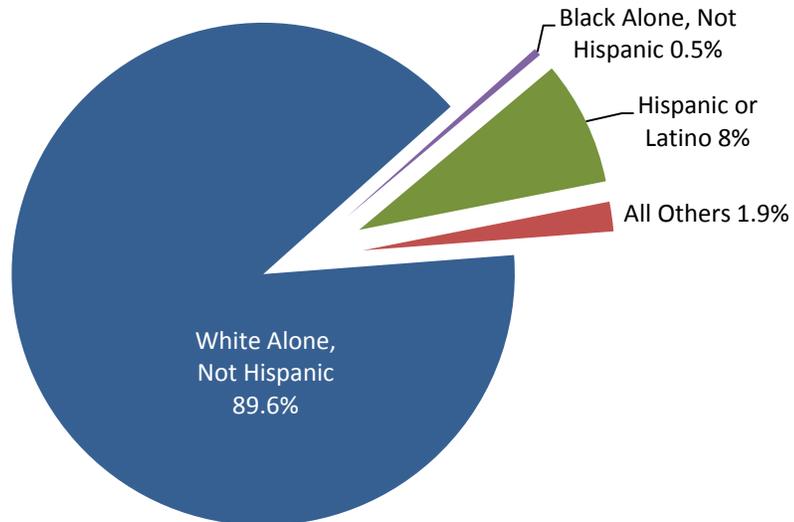
	1990	2000	2010
<b>School-age Children (5–19)</b>	1554	2339	2540
<b>Total Population</b>	11,631	17,044	19,301
<b>Percentage of Total Population</b>	13.4%	13.7%	13.2%

## 2.4 Socioeconomic Trends

This section reviews the race/ethnicity, income, poverty level trends and educational attainment within Llano County.

### 2.4.1 Race/Ethnicity

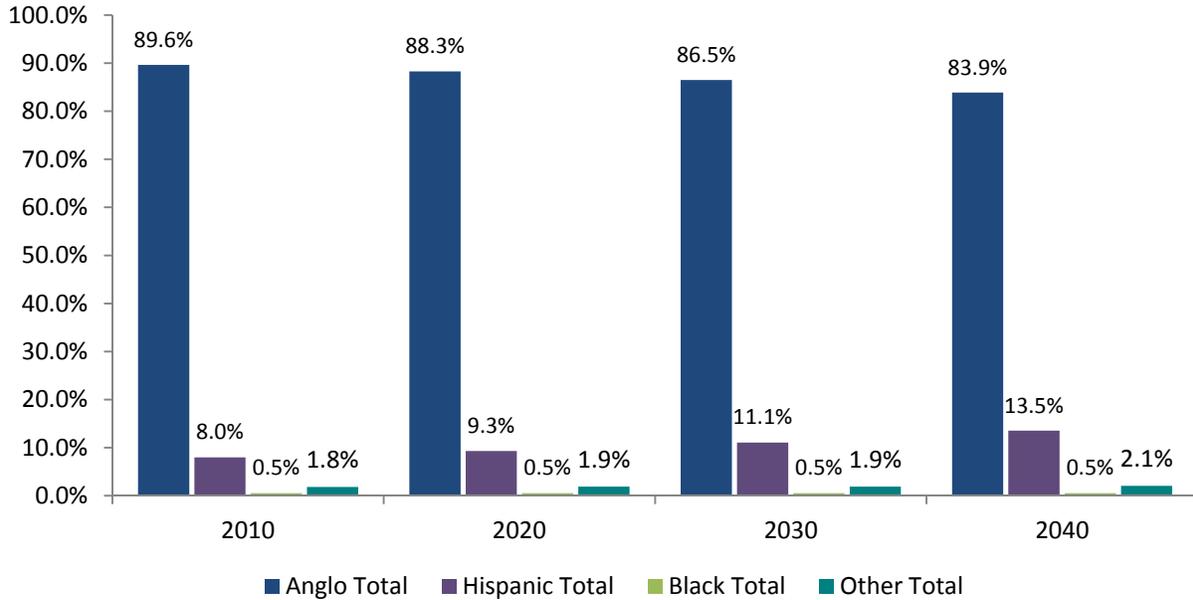
According to the Texas State Data Center, the racial makeup of Llano County was 89.6 percent Anglo, 8 percent Hispanic, 0.5 percent Black, and 1.8 percent Other in 2010, as shown in Figure 8.



**Figure 8. Race/Ethnicity in Llano County in 2010 (Source: Texas State Data Center).**

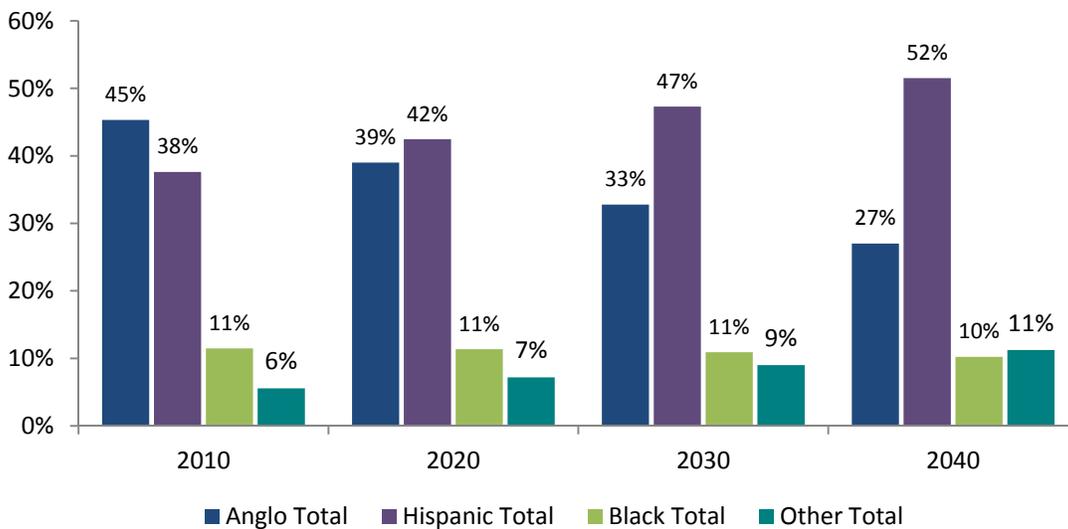
The Texas State Data Center also provides projections for the future population of race and ethnicity within the state of Texas, shown in Figure 9. Based on these data projections, the race/ethnicity of the Llano County population will remain mainly Anglo between 2010 and 2040, though the proportion of Anglo residents will shrink from 89 percent of the population to 84

percent of the population by the year 2040. The Hispanic population will grow from 8 percent in 2010 to more than 13 percent of the county population in 2040.



**Figure 9. Projected Race/Ethnicity in Llano County, TX (Source: Texas State Data Center).**

Figure 10 shows the projected race/ethnicity for the state of Texas from 2010 to 2040. Statewide, the Hispanic population will become the majority in the state of Texas by the year 2040 (52 percent), while Anglos will represent only about 27 percent of the total population. The projection for the state of Texas is in contrast to the projections for Llano County, where the Anglo population is expected to remain the majority of the population.



**Figure 10. Projected Race/Ethnicity in State of Texas (Source: Texas State Data Center).**

## 2.4.2 Poverty Levels

U.S. Census data provide the percentage of the population that lives below the poverty level. Figure 11 provides the percentage of the population that lives below the poverty level for the state of Texas as a whole and Llano County. As shown in Figure 11, the percentage of the population that lived under the poverty level grew both within Llano County and in the state of Texas between the years 2000 and 2013. During this period, the percentage of the population living below the poverty line grew nearly 4 percentage points in Llano County, from 10 percent to 14 percent, as compared to a 2 percentage point increase throughout the state of Texas, which grew from 15 percent to nearly 18 percent. The percentage of the population in Llano County living below the poverty line was 5 percent lower than the statewide average in 2000 and 3 percent lower than the statewide average in 2013. The percentage of the population for Llano County and the state of Texas that lived below the poverty level in the year 2000 was taken from the 2000 decennial census. The percentage of the population for all geographies living below the poverty level in 2013 was taken from 2009–2013 American Community Survey five year estimates.

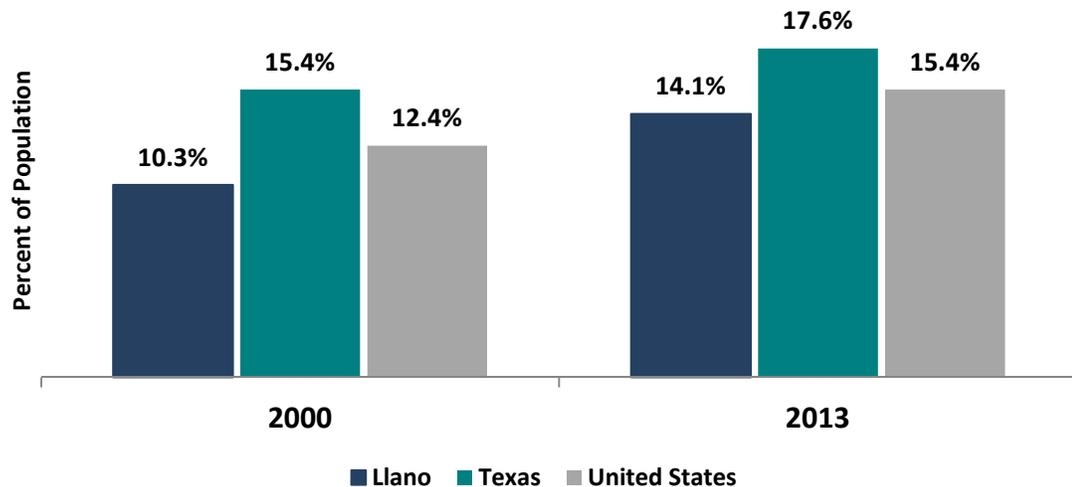


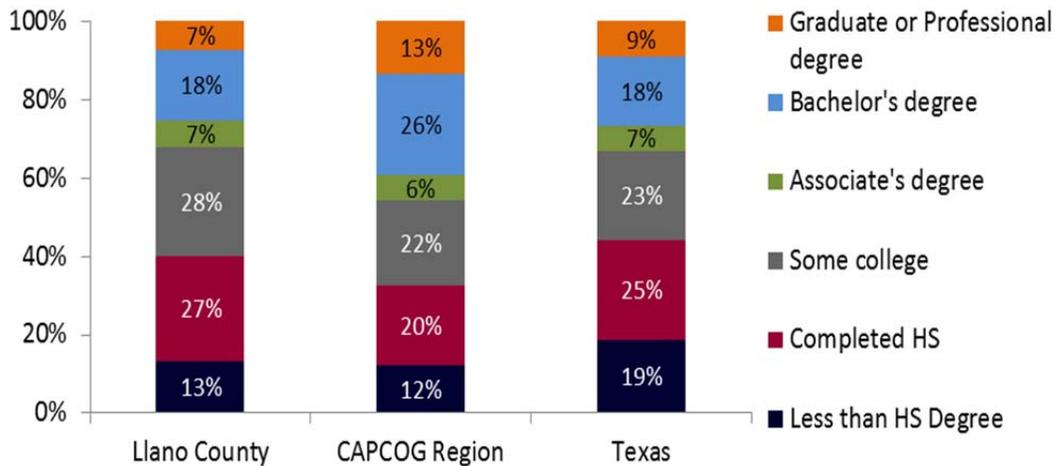
Figure 11. Percentage of Population Living Below the Poverty Line in Llano County, the State of Texas, and the United States (Source: U.S. Census Data).

## 2.4.3 Educational Attainment

U.S. Census data provides educational attainment divided into the following categories:

- Received graduate or professional degree
- Received bachelor's degree
- Received associate's degree
- Attended some college
- Completed high school
- Did not complete high school

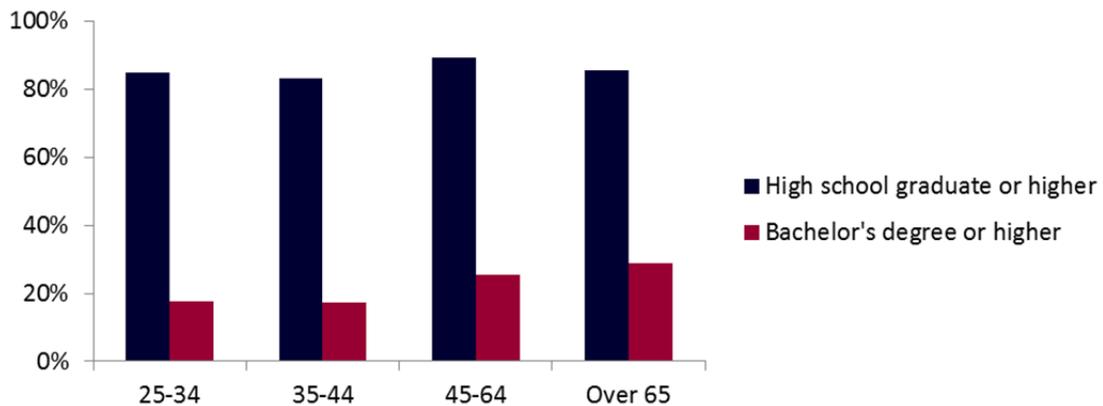
Figure 12 provides the educational attainment for Llano County residents in comparison to the educational attainment of the CAPCOG region and the State of Texas as a whole.



**Figure 12. Educational Attainment in Llano County, 2013. (Source: U.S. Census Bureau).**

Educational attainment in Llano County is lower than the CAPCOG region overall, but is comparable to the State of Texas figures. About 32 percent of Llano County residents have a college degree of some kind, while only 13 percent of residents have less than a high school degree or GED-equivalent level of attainment.

Though the overall proportion of the county that has earned at least a bachelor's degree suggests that Llano County's educational attainment is comparable to the statewide average, this may not be an accurate reflection of the educational attainment of the segment of the population in Llano County that is of workforce age. Figure 13 provides educational attainment in Llano County by age cohort.



**Figure 13. Educational Attainment in Llano County by Age Cohort, 2013. (Source: U.S. Census Bureau).**

As shown in Figure 13, the retirement age segment of the population (65+) and the near retirement age segment of the population (45-64) have a greater percentage of residents who have achieved a bachelor's degree or higher as compared to the two working age segments of the population (25-34 and 35-44). This trend should be monitored when considering workforce development in Llano County.

## 2.5 Existing Transportation Conditions

This section provides an overview of Llano County’s roadway network, traffic volume, heavy truck volume and alternative modes.

### 2.5.1 Roadway Network

The roadway system in Llano County is provided and maintained by the state, the county, the City of Llano and the City of Horseshoe Bay. It provides a network for people and goods to move through and within Llano County. Figure 14 is a map of the roadway network within Llano County.

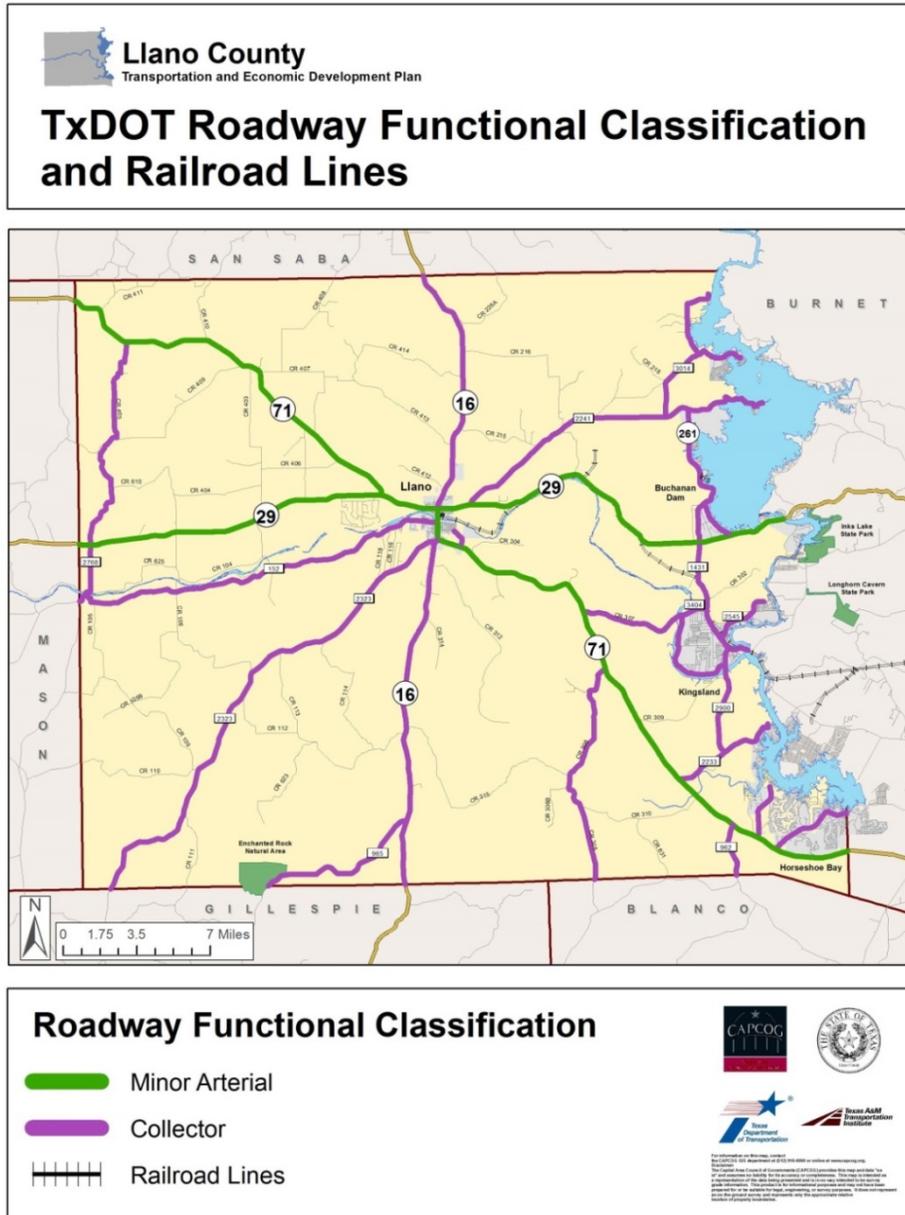
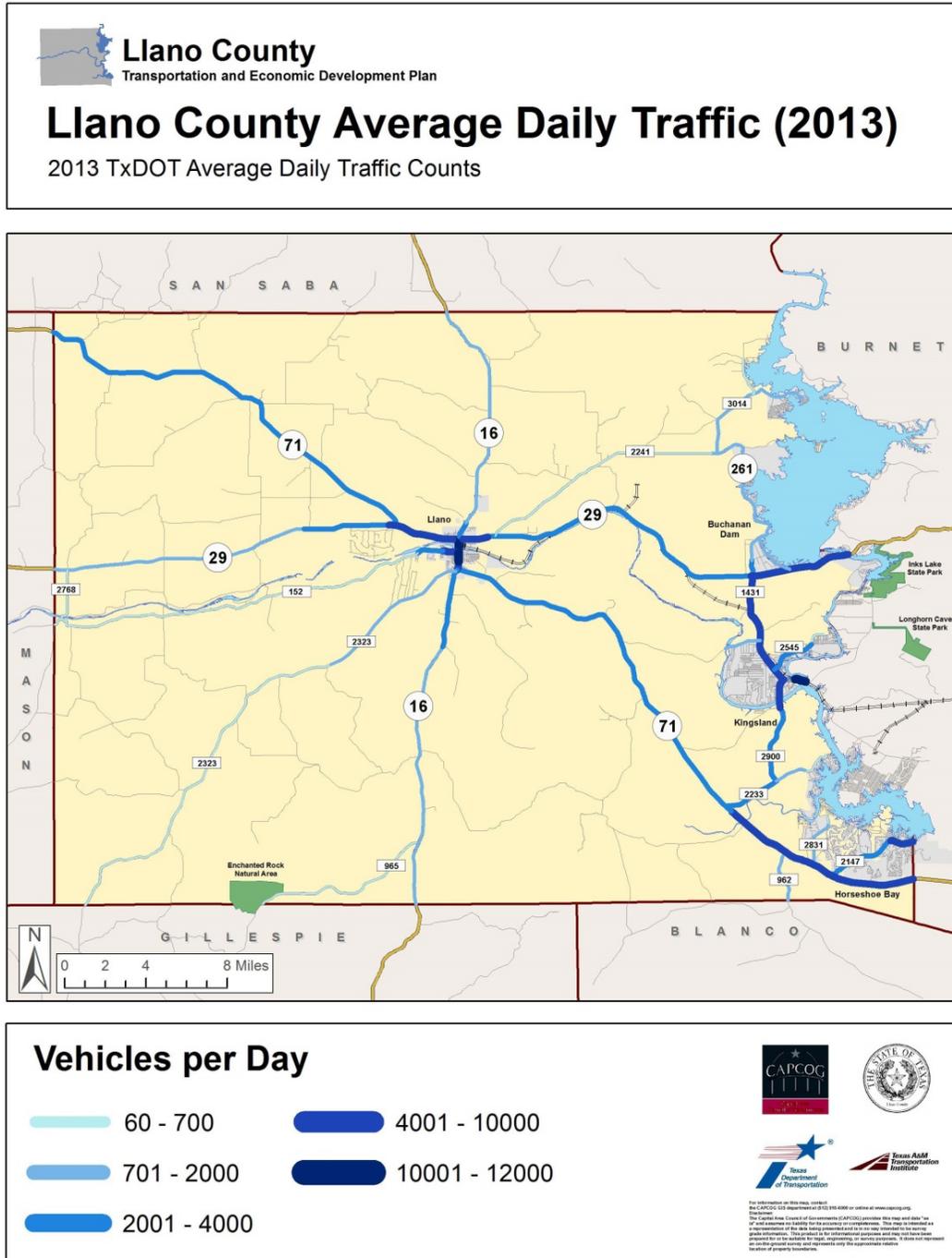


Figure 14. Llano County Roadway Classification (Source: TxDOT).

## 2.5.2 Average Daily Traffic

TxDOT conducts annual traffic counts in all counties throughout the state. Figure 15 provides the most up to date traffic counts for roadways in Llano County.



**Figure 15. Average Daily Traffic in Llano County in 2013 (Source: TxDOT).**

The higher traffic volumes correlate with the location of population centers as Figure 15 shows. The roadways on the eastern edge of the county, on both SH 71 and SH 29 as well as in and around Horseshoe Bay and Kingsland, carry the most daily traffic. In addition, daily traffic

increases within the City of Llano as all of the major roadways intersect within the city. Finally, it is notable that SH 71 in the northwest corner of the county carries a significant amount of daily traffic. Considering the smaller population in that part of the county it is reasonable to assume that SH 71 carries a significant amount of regional through traffic in the northwest part of Llano County.

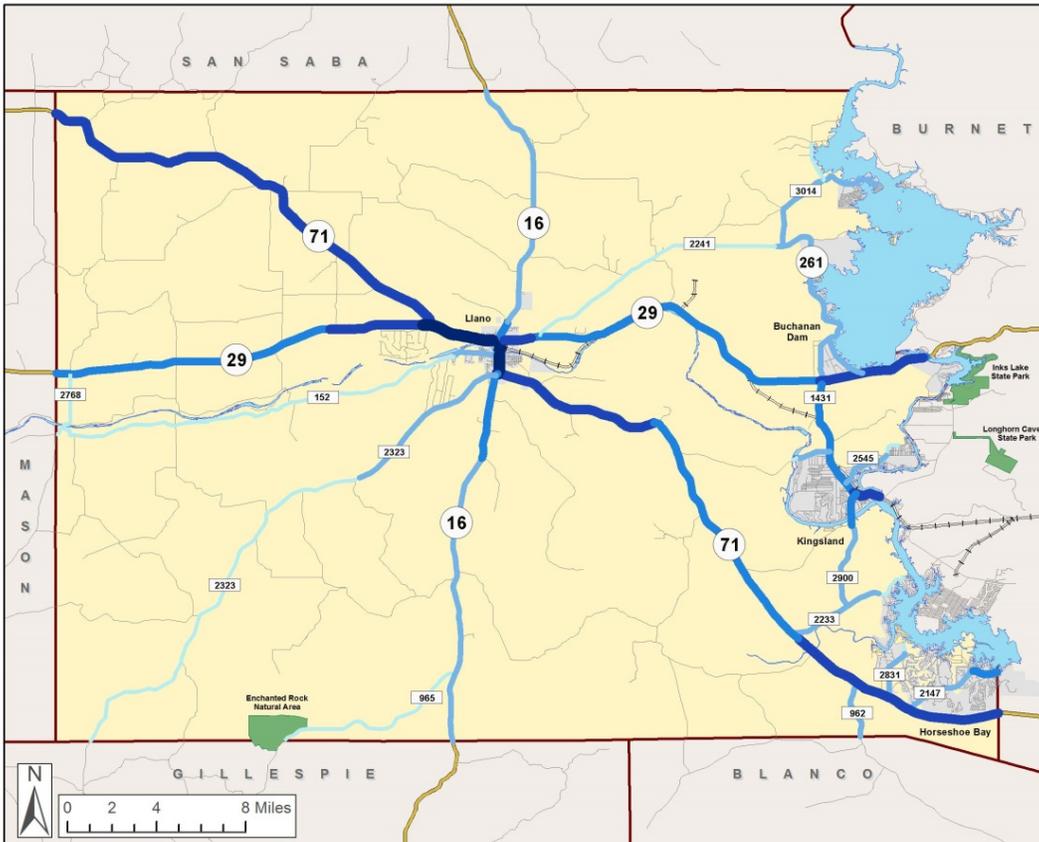
### **2.5.3 Heavy Truck Traffic**

It is important that industrial sites, which affect the economic well-being of the community, are served by appropriate roadways that are designed, constructed, and designated for truck use. Large trucks may hinder the operation of local roads built for the use of passenger vehicles. Heavier vehicles cannot maneuver and stop/start with the same agility as passenger vehicles, thereby reducing traffic flow and causing damage to the existing pavement.

Figure 16 provides an illustration of the average daily heavy truck traffic in Llano County. SH 71 and SH 29 carry the largest amount of daily heavy truck traffic in the county with the largest amount of heavy truck traffic traveling on the eastern segments of SH 29 and SH 71. Interestingly, the northwest segment of SH 71 also carries a large amount of heavy truck traffic compared to the rest of the county. Similarly to Average Daily Traffic (non-heavy trucks) shown in Figure 15, it is reasonable to assume that this indicates a large amount of regional heavy truck traffic that travels in Llano County.

# Average Daily Heavy Truck Traffic (2013)

2013 TxDOT Average Daily Traffic Counts



## Heavy Trucks per Day

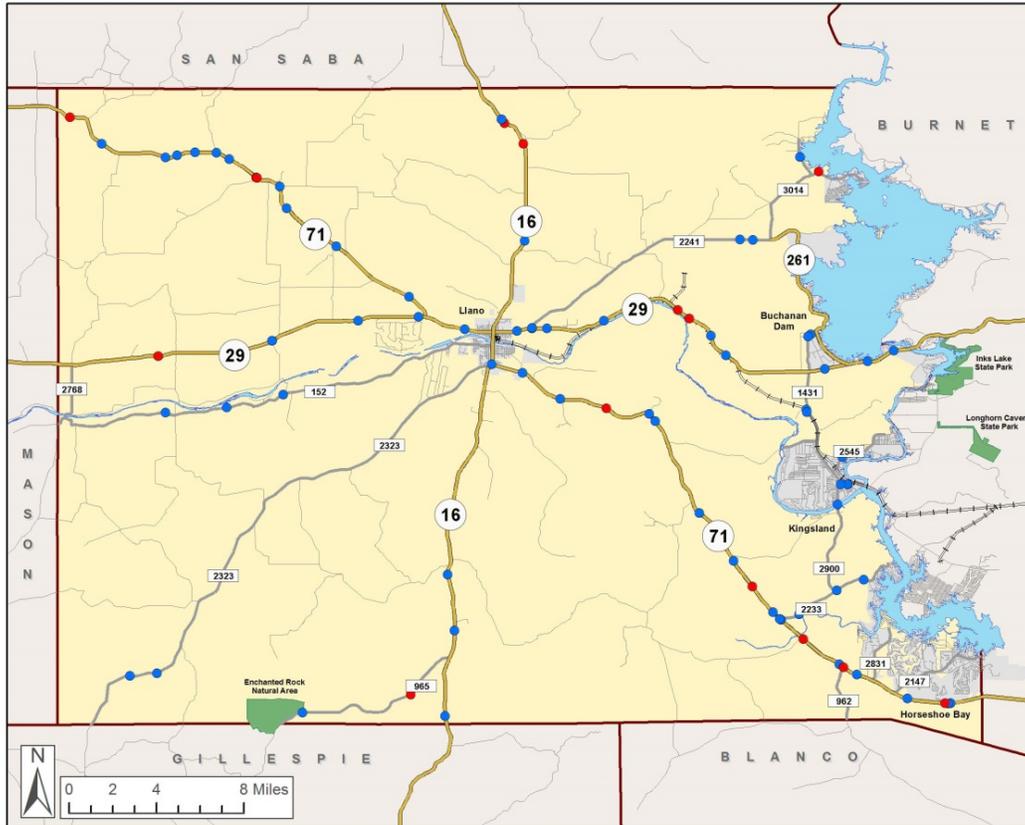


Figure 16. Average Daily Heavy Truck Traffic (2013) (Source: TxDOT).

## 2.5.4 Transportation Safety

Figure 17 provides a graphic illustration of fatal crashes and crashes that resulted in incapacitating injuries between the years of 2009 and 2013.

# Serious Crashes in Llano County (2009 - 2013)



## Crash Injury Severity

- Fatal Injury
- Incapacitating Injury



For information on this map, contact the CAPCOG GIS department at 817.864.8888 or visit us at www.capcog.org. This map is a representation of the data being presented and is not intended to be used as a substitute for professional engineering or architectural services. The information on this map is provided for informational purposes only and does not constitute a warranty or any other form of liability. CAPCOG is not responsible for any errors or omissions on this map or for any consequences arising from its use. CAPCOG is not responsible for any damages or losses resulting from the use of this map.

**Figure 17. Crashes Resulting in Fatalities or Incapacitating Injuries in Llano County (2009–2013)**  
(Source: TxDOT).

In addition, Figure 18 provides an illustration of minor vehicle accidents in Llano County between 2009 and 2013. Injury crashes commonly occur in the urban environments and along the major highways. Fatal crashes occur rarely, but they occur around population centers and highways.



Llano with portions that are considered “good” or “fair”. Pavement conditions should be monitored as conditions change.

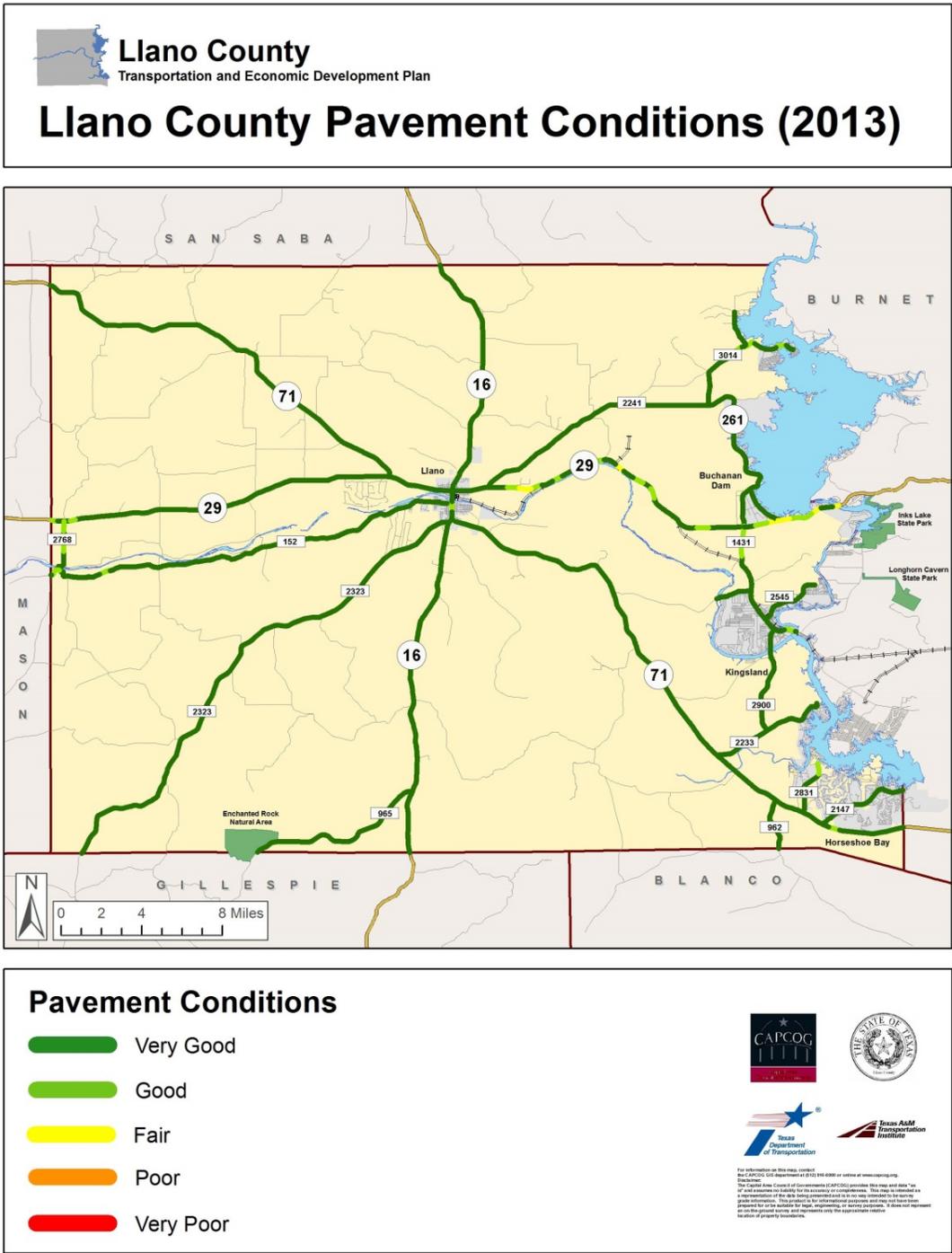
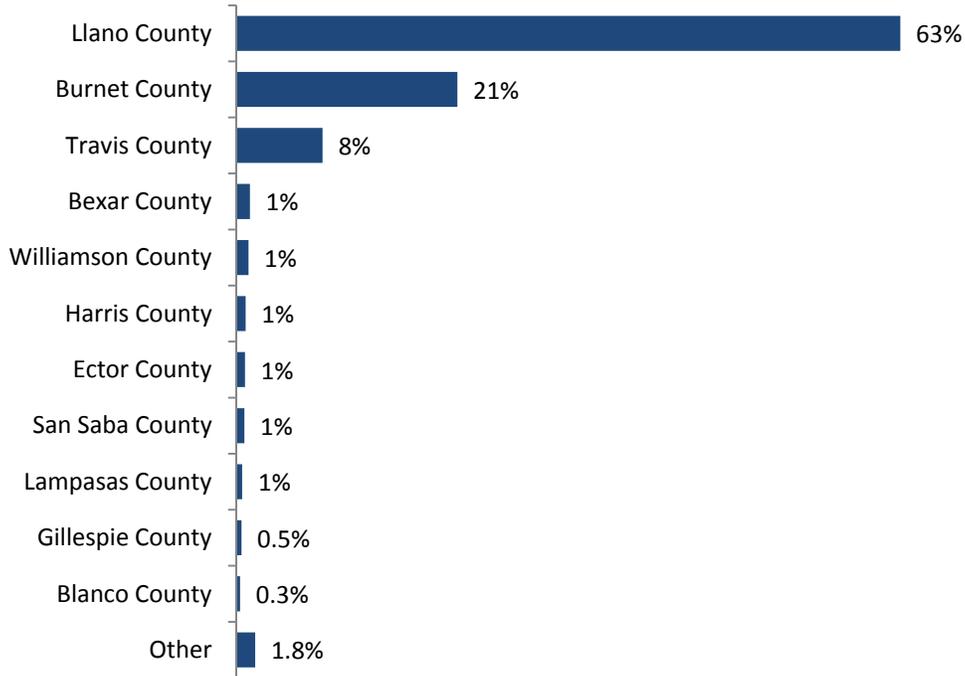


Figure 19. Pavement Conditions in Llano County, 2013 (Source: TxDOT).

## 2.5.6 Commute to Work

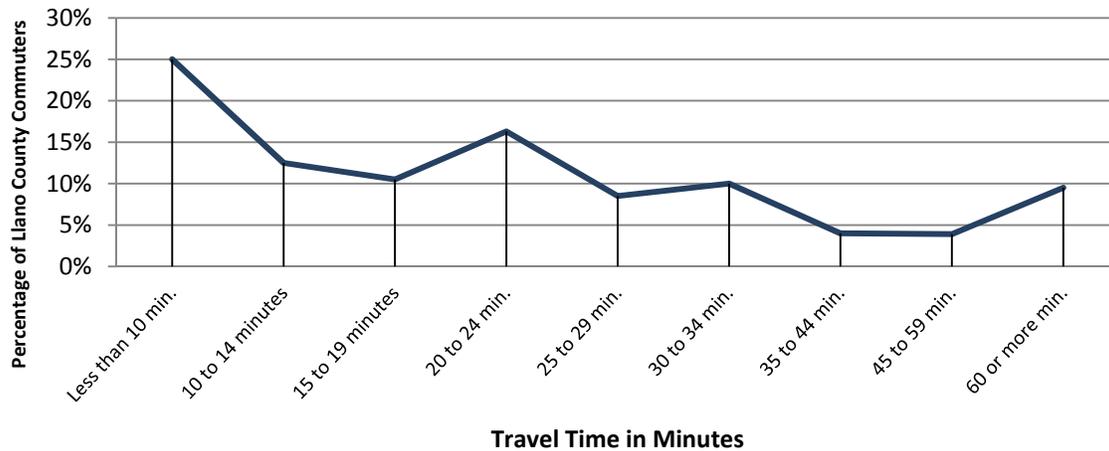
American Community Survey (ACS) data provide insight into the commuting patterns of the residents of Llano County. Figure 20 shows the location of employment for Llano County residents who commute to work (excluding individuals who work at home or are not employed). The bar chart represents the percentage of the Llano County workforce that commutes either within Llano County or to neighboring counties.



**Figure 20. Employment Locations of Llano County Workforce as Percentage of Total Workforce (Source: American Community Survey 2006–2010).**

The majority of Llano County workers commute to work within Llano County. The location that captures the second highest percentage of Llano County commuters is Burnet County, which draws in 21 percent of Llano County workers traveling for work. Eight percent of Llano workers commute to Travis County, the next largest recipient of commuters from Llano County.

ACS data also provide insight into the travel time to work for commuters who reside in Llano County. Figure 21 illustrates the amount of time that Llano County workers spend traveling to work each day.



**Figure 21. Commute Time as Percentage of Llano County Workforce (Source: American Community Survey, 2009–2013).**

As shown in Figure 21, approximately 48 percent of Llano County residents who commute to work travel less than 20 minutes to reach their destination. This aligns with the data shown in Figure 20, which indicates that the majority of Llano County residents who commute within Llano County. In addition, approximately 13 percent of Llano County residents who commute to work spend over 45 minutes traveling to their place of employment.

## 2.5.7 Alternative Modes of Transportation

Llano County relies upon a diverse network of transportation infrastructure. This section looks at the transit and bicycle-pedestrian aspects of Llano County’s transportation infrastructure.

### 2.5.7.1 Transit Element: Hill County Transit District: The HOP

As the Llano County population grows, the level and type of transportation service historically provided by The HOP will need to grow to meet the needs of the growing population, especially as the retirement age population continues to grow. Additionally, the public involvement process shed light on the public’s interest in increased public transit options in Llano County. To increase the efficiency of the transportation system, public transit vehicles can be utilized to accommodate many people who are taking similar routes to a common destination, as well as those who are unable to drive, walk, or bicycle to their destinations. Paratransit is a flexible alternative to traditional fixed-route/scheduled transit and utilizes vehicles such as shuttle buses, vans, and taxis. Paratransit service ranges from those allowing pick-up/drop-off along a defined route by request to those offering on-demand curb-to-curb service within a given geographical area.

Hill County Transit District operates The HOP, a regional public transit system that started in the 1960s as a volunteer transit service that has since grown to serve a nine-county area covering over 9,000 square miles. Currently, The HOP provides Llano County residents with demand responsive transit service to and from non-emergency medical and health care appointments, to health and human service agencies, to meals programs, senior center activities, to personal business, shopping, education, employment, training, recreational activities and to other needed community functions and activities. The HOP provides transportation for anyone of any age and there are no eligibility guidelines.

### 2.5.7.2 Pedestrian and Bicycle

Since vehicle parking is not always at the front door of a destination, every trip includes at least a short journey as a pedestrian. The City of Llano has a downtown district that is conducive to pedestrian and bicycle travel, including short block lengths, sidewalks, and crosswalks. In addition, the state highway system includes wide shoulders that provide comfortable bicycle connections in some areas. Horseshoe Bay and Kingsland have some development that is amenable to pedestrian and bicycle access and may consider development that improves bicycle and pedestrian connectivity if it is desirable in their communities.

Bicyclists use the roadway network for work commuting, school trips, shopping, and social purposes. When striped shoulders or bike lanes are provided, they increase the predictability of bicycle and vehicle placement in the lanes, increasing the safety of passing events. TxDOT is currently working on a bicycle plan for the 11-county Austin District, which includes Llano County. Consideration for the provision of bicycle facilities is part of every road widening project. Typically, in rural areas, this is exhibited as wider road shoulders that allow for bicyclists to safely use the roadway infrastructure without impeding motor vehicle use.

## 2.5.8 Transportation Financing

The following section reviews the revenues and expenditures for transportation funding for Llano County and the cities Llano and Horseshoe Bay.

### 2.5.8.1 Llano County Revenue and Transportation Expenditures

Llano County receives the majority of its revenue from property tax. Table 4 shows revenue sources and amounts for Llano County in the fiscal year of 2014 to 2015 (FY2014–2015).

**Table 4. Llano County Revenue for FY2014–2015 (Source: Llano County).**

Revenue Sources	Revenue (\$)	Revenue (% of Total)
Current Property Tax Levy	\$10,582,364	82%
Delinquent Property Taxes	\$138,562	1%
Other Taxes, Penalties and Int.	\$74,722	1%
Licenses and Permits	\$692,764	5%
Inter-Government	\$161,474	1%
Other Receipts	\$1,245,237	10%
<b>Total Revenue</b>	<b>\$12,895,123</b>	<b>100%</b>

Expenditures in Llano County slightly outpaced revenue for the FY2014–2015. The largest expenditure is on salaries, wages, and benefits for county employees. Table 5 shows the total expenditures for Llano County in the FY2014–2015.

**Table 5. Llano County Expenditures for FY2014–2015 (Source: Llano County).**

<b>Expenditures</b>	<b>Expenditures (\$)</b>	<b>Expenditures (% of Total)</b>
Salaries and Wages	\$5,683,415	42%
Benefits	\$2,400,045	18%
Other Operating Items	\$4,572,517	33%
Capital Outlay	\$385,556	3%
Debt Service	\$632,764	5%
<b>Total Expenditures</b>	<b>\$13,674,297</b>	<b>100%</b>

Llano County receives the majority of its revenue for roads and bridges from property taxes and vehicle licensing fees. Table 6 shows available funds for roads and bridges in Llano County for the FY2014–2015.

**Table 6. Llano County Road and Bridge Revenue for FY2014–2015 (Source: Llano County).**

<b>Revenue Source</b>	<b>Revenue Amount (\$)</b>
<b>Taxes</b>	
Current Property Tax Revenue	\$1,322,596
Delinquent Property Tax Rev	\$15,861
Penalty & Interest	\$12,954
<b>Total Tax Revenue</b>	<b>\$1,351,411</b>
<b>Licenses &amp; Permits</b>	
Motor Vehicle License Fees	\$368,205
Child Safety Fee	\$15,624
Road Cut Permits	\$250
Sales & Use Tax Vehicle	\$38,645
Optional Vehicle License Fees	\$208,647
<b>Total Licenses &amp; Permits Revenue</b>	<b>\$631,371</b>
<b>Intergovernmental Revenue</b>	
Gross Weight/Axle Weight Fee	\$14,911
State Lateral Road Revenue	\$22,504
<b>Total Intergovernmental Revenue</b>	<b>\$37,415</b>
<b>Miscellaneous</b>	
Tax Collector Fee	\$150
Interest Earnings Revenue	\$650
Miscellaneous Revenue	\$4,854
Judgements/Bond Fort.	\$1,167
Sale of Assets Revenue	\$30,000
<b>Total Miscellaneous Revenue</b>	<b>\$36,821</b>
<b>Total Revenue</b>	<b>\$2,057,018</b>

Table 7 shows road and bridge expenses from the 2014–2015 fiscal year. As shown, salaries, employee benefits, and materials contributed most to road and bridge expenditures. For the FY2014–2015, the Llano County Road and Bridge Fund had an income of \$2,057,018 and expenses of \$2,156,486.

**Table 7. Llano County Road and Bridge Expenditures for FY2014–2015 (Source: Llano County).**

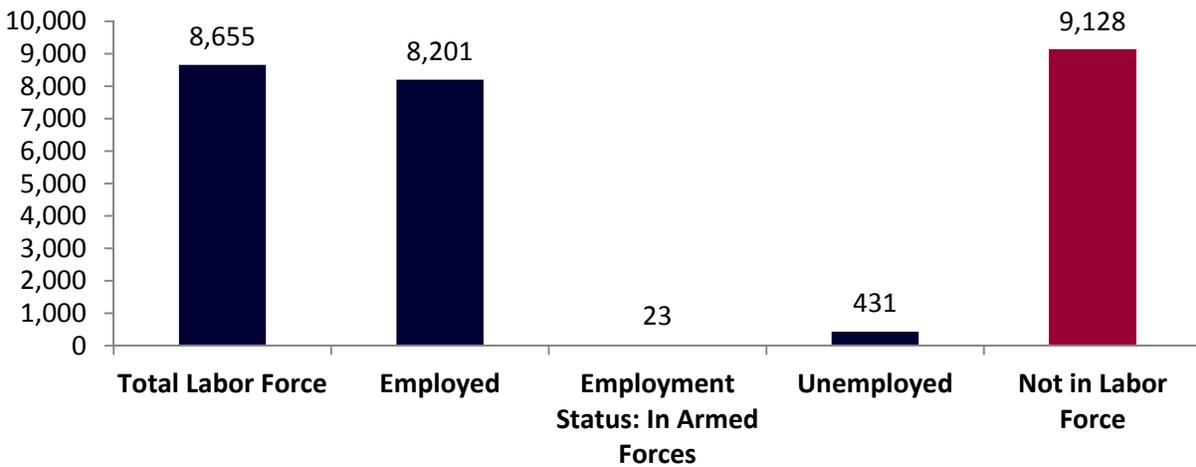
<b>Expenditure</b>	<b>Expenditure Amount (\$)</b>
Road Commissioner	\$46,680
Labor	\$568,751
Telephone Allowance	\$3,000
Benefits	\$326,805
Postage	\$150
Operating Supplies	\$50,000
Tires	\$30,000
Fuel Oil/Flats	\$220,000
Road Materials	\$600,000
Cattle Guards	\$14,000
Telephone	\$3,100
Utilities	\$14,000
Conference/Dues/Training	\$1,000
Vehicle Maintenance	\$70,000
General Repair & Maintenance	\$75,000
Computer Maintenance	\$1,200
Equipment Rental	\$6,000
Uniforms Expense	\$6,500
Unallocated	\$60,000
Recycle Expense	\$1,200
Miscellaneous Expense	\$2,100
Land & Buildings Expense	\$7,000
Machinery & Equipment	\$50,000
<b>Total Expenditures</b>	<b>\$2,156,486</b>

## 2.6 Economic Development Existing Conditions

The following section will provide current economic information in order to establish a baseline for economic conditions in Llano County that were used to develop future goals and strategies for economic development

### 2.6.1 Llano County Workforce

The Llano County workforce is split fairly evenly between residents who are in the labor force and those who are not, as shown in Figure 22. Note that this figure represents individuals in the labor force within Llano County, as opposed to jobs that are located within Llano County.



**Figure 22. Labor Force in Llano County, 2014 (Source: Sites on Texas 2.0).**

For Llano County residents who are currently in the labor force, the majority are able to find employment. Overall, the county's unemployment figure remains below 5 percent, compared with 5 percent for the state of Texas and 4.7 percent for the CAPCOG region.

Figure 23 summarizes the employment in Llano County by industry sector in 2014. This figure shows that residents of Llano County are employed across a number of industry sectors. Accommodation and Food Services, Healthcare and Retail Trade feature prominently as key employment sectors, employing roughly one-third of all Llano County residents. Of note, agriculture and oil and gas, two sectors which are very productive in Llano County's economy, employ relatively few workers in the county.



**Figure 23. Llano County Employment by Sector, 2014 (Source: Sites on Texas 2.0).**

### 2.6.2 Llano County Self Employment

Llano County has high rates of self-employment as over 21 percent of Llano County’s workers classified themselves as self-employed in 2013. This is more than double the statewide average. Of all of Llano County’s self-employed workers, most work in an unincorporated business, meaning there is not a distinction between their personal and corporate income. Figure 24 shows the percentage of the workforce within Llano County that is self-employed as compared to the State of Texas and United States as a whole. Figure 24 also provides the comparison of unincorporated businesses vs. incorporated businesses within the three geographies.

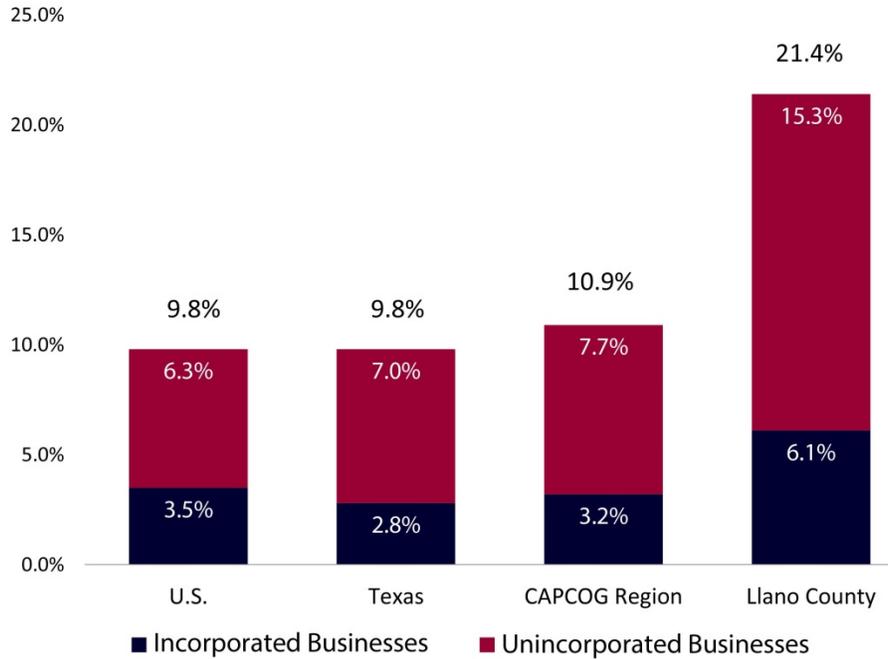


Figure 24. Rates of Self Employment, 2013 (Source: U.S. Census Bureau).

### 2.6.3 Census Tracts within Llano County

The following analyses present data aggregated at the census tract level. Figure 25 provides a map of the census tracts in Llano County for reference.

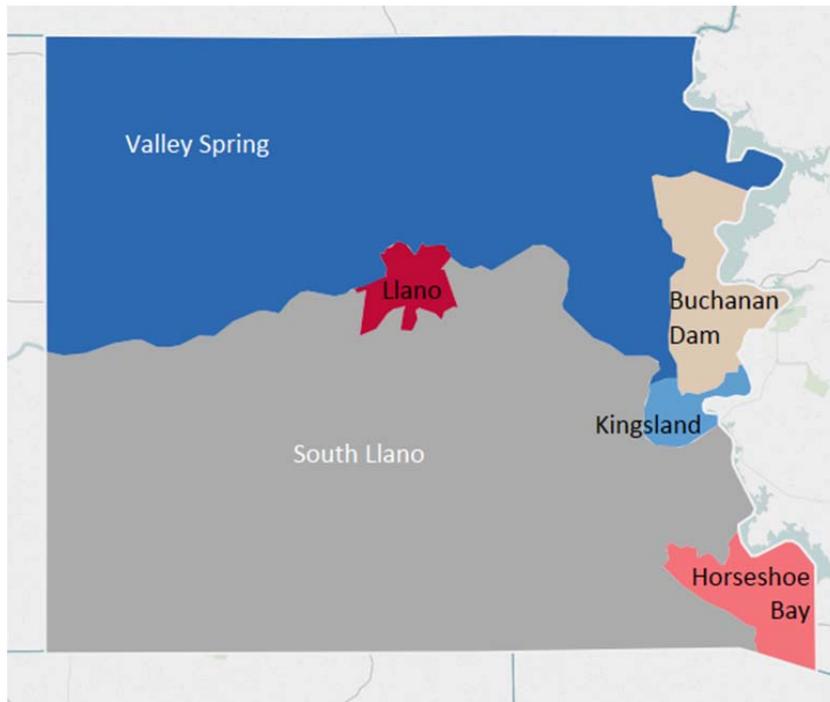
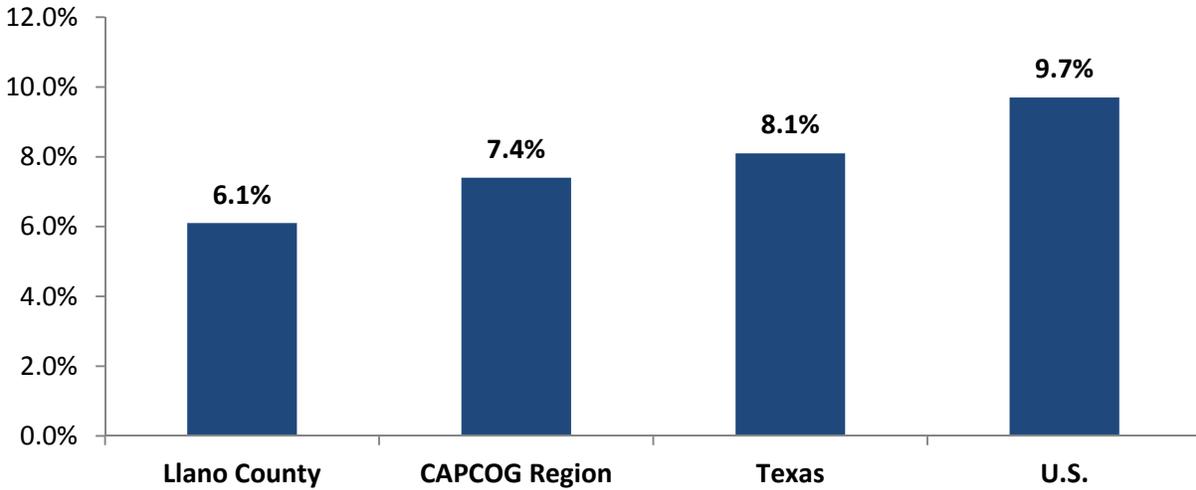


Figure 25. Map of Census Tracts in Llano County.

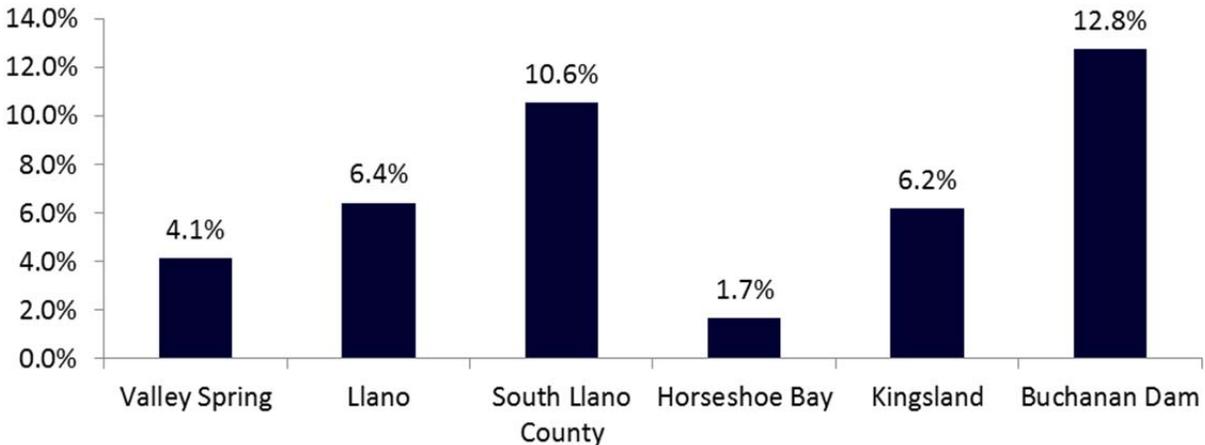
## 2.6.4 Llano County Unemployment Rates

Figure 26 provides the unemployment rate in Llano County compared to the CAPCOG region, as well as Texas and the United States.



**Figure 26. Unemployment in Llano County, CAPCOG Region, Texas and the United States, 2013 (Source: U.S. Census).**

Figure 27 provides 2013 unemployment rates by census tract for Llano County. Horseshoe Bay, where most residents are of retirement age, boasts the lowest unemployment rate in the county at 1.7 percent. Buchanan Dam has the highest level of unemployment at 12.8%.

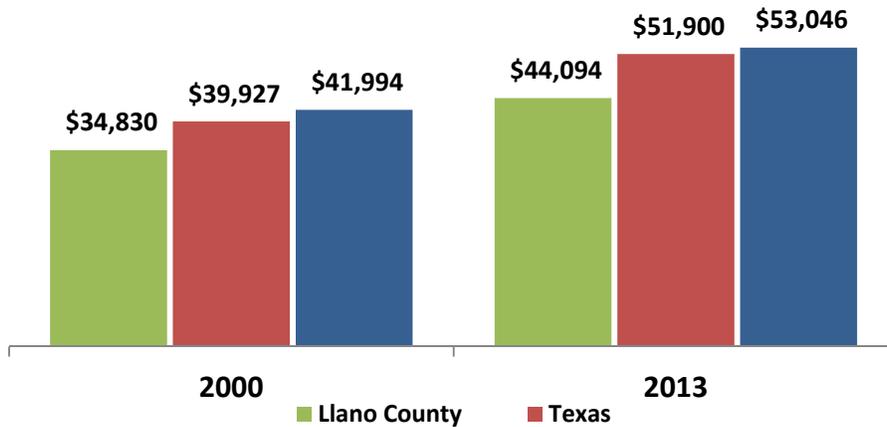


**Figure 27. Unemployment by Llano County Census Tract, 2013. (Source: U.S. Census Bureau).**

## 2.6.5 Income in Llano County

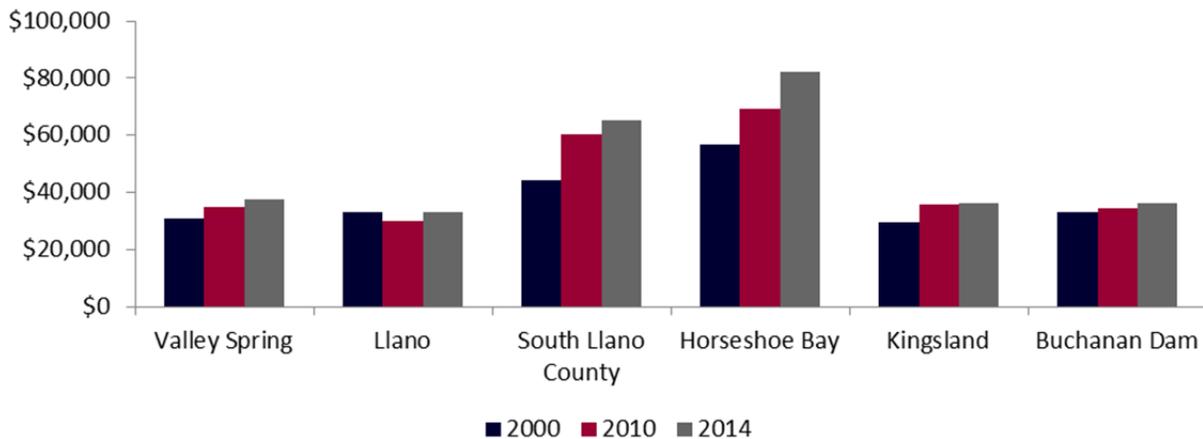
The median household income for Llano County in 2010 was \$41,830, lower than the median income for the state of Texas, which was \$49,646 in 2010. Figure 28 provides the median income for Llano County (shown in green), the state of Texas (shown in red), and the United States (shown in blue) for the period of 2000 through 2013. The median income in Llano has increased

more than the United States median but less than the median income for the state of Texas. Note that the 2000 incomes are from the decennial census— and the 2013 median household income is from the ACS 2009–2013 five-year estimates.



**Figure 28. Median Income for Llano County, the State of Texas, and the United States, 2000, 2013 (Source: U.S. Census Data).**

Figure 29 illustrates the change in median household income for each census tract in Llano County between the years 2000 and 2014. Between 2000 and 2014, the largest increase in household income was in Horseshoe Bay and South Llano County. Income growth was largely flat during this throughout the rest of the county.



**Figure 29. Change in Median Household Income by Llano County Census Tract. (Source: Sites on Texas 2.0).**

### 2.6.6 Percentage of Llano Workforce that Works from Home

Llano County residents work from home at a greater rate than either the statewide or nationwide averages. Figure 30 provides the proportion of residents that work from home within each census tract in Llano County as well as the county, the State of Texas and the United States as a whole. 12 percent of workers in Llano County work from home, compared to 4 percent both in Texas and in the United States. All census tracts within Llano County reported at least 10 percent of their

workers working from home, a figure that is 2.5 times the state and national averages. Llano County’s residents that work from home are engaged in a wide range of activities, ranging from ranchers to consultants who work remotely. Despite the prevalence of working at home, there is not a “typical” job performed from home in Llano County.

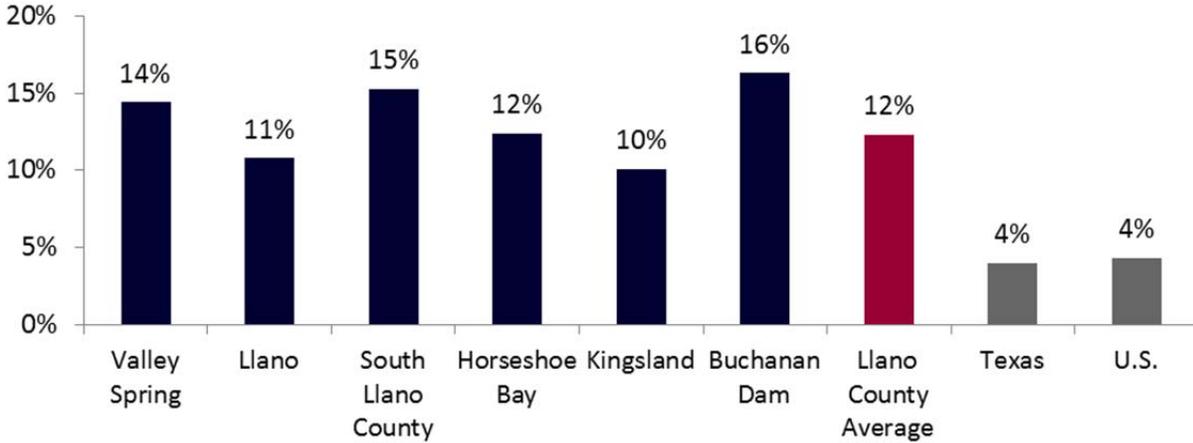


Figure 30. Percent of Residents that Work From Home, 2013. (Source: U.S. Census Bureau).

### 2.6.7 Llano County Housing Supply

Housing supply reflects the population centers of Llano County, and the stock of housing is not expected to expand considerably over the next several years. Figure 31 shows the projected growth in housing stock for Llano County census tracts.

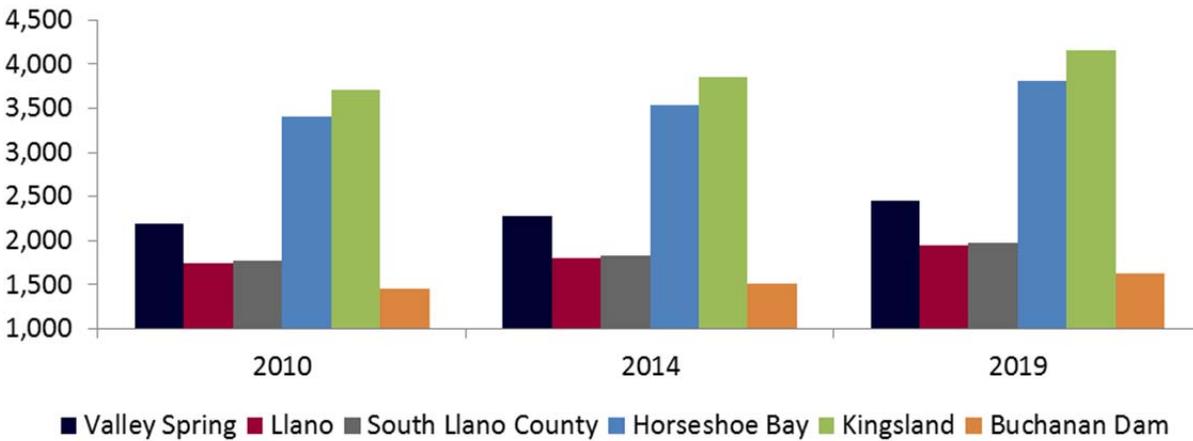
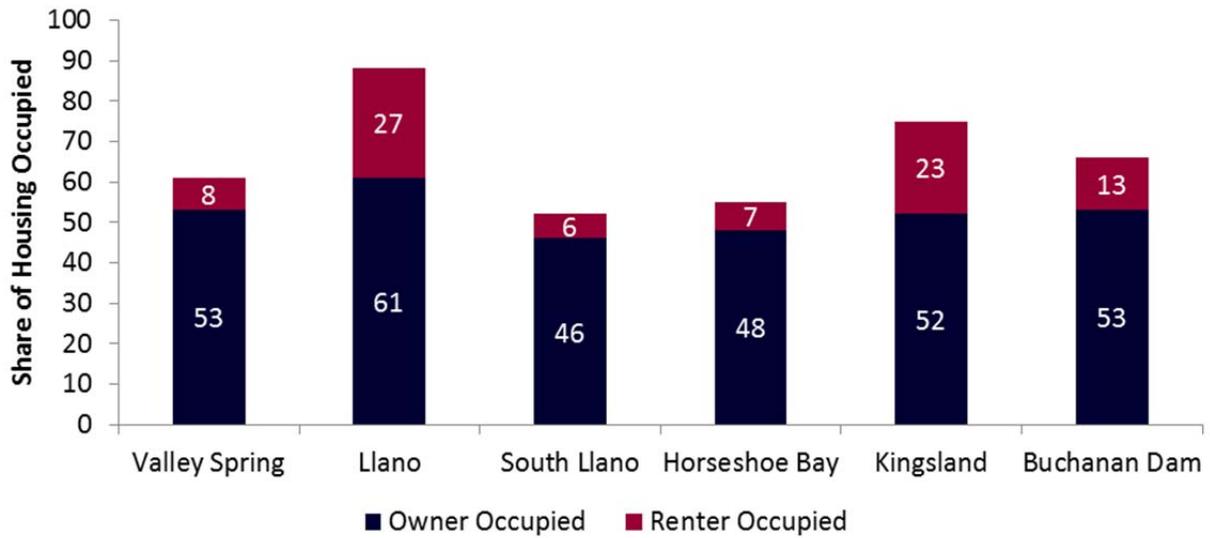


Figure 31. Housing Supply by Llano County Census Tract. (Source: Sites on Texas 2.0).

Figure 32 provides an illustration of occupied housing stock within Llano County by census tract. Within the City of Llano, there is very limited housing vacancy. In some of the other census tracts, vacancy rates are much higher, likely reflecting part-time occupancy associated with vacation homes.



**Figure 32. Housing Occupancy by Llano County Census Tract and Tenure, 2014**  
 (Source: Sites on Texas 2.0).

## 2.7 Existing Environmental Conditions

This section presents information about flooding and air quality data for Llano County.

### 2.7.1 Flooding

Periodic flooding occurs throughout the county along creeks, reducing roadway connectivity and creating safety hazards. The Federal Emergency Management Agency (FEMA) has identified areas of potential flood hazards, as seen in Figure 33. In consultation with the public, TxDOT, and local staff, the Llano County Transportation and Economic Development Plan consider several opportunities to improve existing low-water crossings. Future consideration may be made for low water crossings located on CR 2768 in Castell, CR 103 East of Castell, and CR 102 East of CR 103.

# FEMA Potential Flood Hazards in Llano County

Source: Texas Natural Resource Information System



**Legend**

- FEMA Potential Flood Hazards
- Water Features in Llano County







For information on this map, contact the CAPCOG GIS Department at (817) 915-6800 or visit at www.capcog.org. CAPCOG, a local Council of Governments (COG) provides this map as a public service. CAPCOG and its member governments do not warrant the accuracy, reliability, or completeness of the data being presented and do not assume any liability for any errors or omissions. This product is for informational purposes only and shall not be used for any legal, engineering, or survey purposes. It does not constitute an official record and should not be used for any legal or survey purposes. It does not constitute an official record and should not be used for any legal or survey purposes. It does not constitute an official record and should not be used for any legal or survey purposes.

Figure 33. FEMA Potential Flood Hazards in Llano County (Source: Texas Natural Resource Information System).

## **2.7.2 Air Quality**

In addition to population growth, traffic, and weather, air quality is an important shared condition that affects life throughout the region. Federal and state transportation planning guidance requires that the air quality impact of transportation-related emissions be considered in the state air quality planning process. Ground-level ozone is the primary air pollutant of concern in Central Texas. Llano County is currently in air quality attainment. However, if the ozone standard is lowered by EPA within the next few years, the Austin and San Antonio areas are likely to be designated as nonattainment, which may affect future development in Llano County.

## Chapter 3—Economic Development

This chapter will provide economic development strengths and challenges, economic development goals and strategies as well as implementation approaches for Llano County to consider.

### 3.1 Overview

Llano County is the third in a series of counties for which CAPCOG has teamed up with TxDOT and TTI to conduct transportation and economic development planning. The Blanco County and Lee County Transportation and Economic Development Plans preceded this one. And while the primary focus of these plans is on transportation, years of economic development experience suggests that transportation infrastructure has significant implications for economic development. When performed in conjunction, transportation and economic development planning can be mutually reinforcing. In 2010–2011, CAPCOG and TxDOT began discussing transportation plans for counties in the Capital Area that are outside the region’s core area served by the Capital Area Metropolitan Planning Organization (CAMPO), and CAPCOG proposed adding the economic development component to these plans.

Identifying appropriate economic development strategies and codifying them in a plan is complex. The strategies vary necessarily because of the unique circumstances of local economies, because there are often competing visions for future development among residents, and economic development relies heavily on local governments and community stakeholders to provide leadership.

CAPCOG staff conducted four meetings, two in Llano and two in Kingsland, to discuss economic issues in Llano County over a five-month period beginning in April 2015. The meetings were well attended with a mix of private and public sector representatives. These meetings were organized with the assistance of County Judge Mary Cunningham and at least one member (often more) of the commissioners’ court attended each meeting. This is important because ultimately they must be the safety net to ensure efforts to carry out the plan are pursued. More important, however, is that the plan is being done with participation from residents of the county, cities, and unincorporated areas, giving the plan a holistic look at the long-term sustainability of the economy.

We asked participants at the first meeting to tell us about economic development efforts in general in the county. This prompted conversation about downtown Llano, activities that bring folks into the county from elsewhere, and where growth is happening in Llano County. We wanted to know about the impact of the new Baylor, Scott, and White hospital, the reliability of broadband, the county’s level of dependence on the hunting season for tourism revenues, and how the schools perform. We learned from these conversations that there is demand for a new grocery store; that Castell has a bicycle race (and numerous other events designed to attract tourism activity); that Kingsland is the center of population growth, but that managing its growth is difficult because it is not an incorporated community; that there is a 40-acre parcel for potential economic development use behind the county building; and that the old theater on the Downtown Llano square is being renovated.

Participants at the second meeting of this process always receive a presentation from CAPCOG about demographic and economic trends. This is designed to provide a foundation for further conversations about strengths and challenges in the county, rooting potential economic development strategies in the county’s present reality.

The third meeting, held in Kingsland, gave us the opportunity to begin asking specific questions about economic development and transportation. The dynamic of the county and the relationship between its communities becomes an important topic at this meeting, because successful economic development depends on the ability to arrive at a common vision, to achieve consensus on how the county should grow, whether a greater number and variety of employment opportunities are desired, and what type of resources are used, or are not used, to support tourism and business development activities. At this meeting we also learned more about infrastructure, regulatory issues, and natural resources.

During the fourth and final meeting for EDAC in August, TxDOT staff reviewed the results of the survey work done by TTI. Although the survey asked questions related to both transportation and economic development, we will discuss the latter in this section.

The survey received 206 responses, roughly one percent of the Llano County population. The responses indicated that a large share of residents believe tourism should continue to play a significant role in economic development efforts. About 75 percent of respondents said that the trend toward non-traditional office workers (e.g., employees that work from home or a shared space) was a good idea but that it would be a challenge as long as reliable broadband service is limited. The majority of respondents said that the proximity to Austin and San Antonio along with the cost of living and recreational/tourism activities represented the greatest assets for economic development options. These responses were not a surprise, nor were the most common answers when asked to name the greatest challenges the county faces. The top three responses were the availability of a skilled workforce to support business development, the availability of quality jobs (a response that ties with the county's workforce challenge), and the current utility infrastructure (specifically water, power, and broadband).

In addition to answering multiple choice survey questions, most survey respondents included additional written comments. While these covered a wide range of issues, there were a few that appeared repeatedly: new businesses are not welcome; more employers are needed, including as a way to keep local kids from moving away for jobs; and the need for high speed internet/broadband. Other comments, although less prevalent, noted that the local communities do not seem to cooperate, that tourism should be more than mostly seasonal, that long-term planning would be good, and that Llano County needs a brand. Whether or not these survey responses are all true or not, they reflect perception, and when considering economic issues, perception often shapes reality.

The survey responses also included comments about transportation that directly impact tourism and economic development efforts. Without shoulders along many of the roads, a battle of sorts exists between local folks trying to get somewhere and the cyclists or sightseers who are not moving quickly. Many respondents felt more could be done with public transportation whether its bus service or rail; a mention was made referencing the need for these services for seniors also.

The next step for this final meeting was to outline our observations to clarify what we've heard to date and begin pointing out what issues seem to need addressing, both short term and long term. These fell into four categories: building the foundation of stakeholders, identifying resources and filling gaps, selecting short and long term goals, and recruiting community leaders to take on projects.

## 3.2 Strengths and Challenges for Llano County

Llano County's existing conditions reveal some of the county's key strengths, as well as major challenges for the county to address in the future. Proper economic development considers the strengths of a given region and identifies strategies to build on these strengths. Similarly, one must evaluate options for overcoming challenges that do exist.

In Llano County, one of the most obvious strengths is the natural beauty that exists throughout the county. From the Highland Lakes, to the Llano River, and to the rolling hill country, Llano County draws a large number of visitors every year. Tourism (NAICS 7139: Amusement and Recreation Activities) accounted for \$34.9 million in Gross Regional Product (GRP) for Llano County in 2013, the third highest sector after agriculture and oil and gas, according to EMSI's estimates. Likewise, this natural beauty makes Llano County an attractive location for households that move for retirement. This influx of retirees, in fact, is the force keeping Llano County's population stable.

Similarly, much of the county's population is well-connected by highways to major markets, such as Austin and San Antonio, as well as regional markets, such as Marble Falls and Fredericksburg. This strong infrastructure network, particularly when accentuated by the suggestions in this strategy, facilitates economic activity throughout the entire county. For that reason, the transportation component of this plan identifies multiple opportunities to optimize transportation capacity by adding passing lanes, turn lanes, and shoulders in key locations in the county.

This highway infrastructure is linked to another strength for the county, namely that growth from the Austin area continues moving westward, making Llano County an increasingly feasible option for business location. Growth that is already taking place in Marble Falls and the new hospital at SH-71 and SH-281 reflect the growth potential for Llano County's economy as development continues westward.

On the other hand, numerous challenges exist as well. First, Llano County is sparsely populated, and a large share of the population in the County consists of retirees. This poses a challenge for businesses considering locating in Llano County, namely the identification and employment of skilled workers. This challenge is compounded by the lower educational attainment outcomes in the county, relative to the rest of the Capital Area.

There is also a segment of the population in Llano County that is opposed to additional economic development. This portion of Llano County residents tends to be opposed to change in the county that would drive increased growth in jobs and population. This poses a challenge for an economic development strategy which must, by definition, deal with these issues. More importantly, however, this poses a challenge in taking a unified, organized, and inclusive approach to shaping the future of Llano County.

Finally, there is one issue that Llano County faces that can be both a strength and a challenge: the considerable differences that exist between communities within the county itself. Differences in income, age, size, and so forth across Llano County's communities can make it difficult to align the interests of the residents in the county. It can also make it hard to organize and collaborate to address the issues the county faces. However, the differences across Llano County's communities also represent a key strength. Individually, the county's communities are small and lack many of the key ingredients for growth, but collectively, these communities can pool strengths to create a more economically vibrant future and a better quality of life in Llano County.

## 3.3 Goals and Strategies

### 3.3.1 Goal 1: Create a County-Wide Committee for Long-Term Economic Growth

Economic development is fundamentally about making communities the best place they can be for the people who live there. This tends to involve creating and maintaining a quality of life that allows access to good education, employment opportunities that pay livable wages or better, public safety services that protect people and their property, and infrastructure that provides utility services, drainage, streets, and mobility. The community's goals, meaning the county and its cities collectively, should be about sustaining and improving these quality of life factors. Education, public safety, and infrastructure are core services that governmental entities must provide; the quality of those services often depends on the financial capacity of the entity.

In Llano County, population is shifting to the east, near the lakes. Specifically, Kingsland, once a small unincorporated community, has become the largest population center in the county. This growth, in addition to ever-increasing costs of providing services, demands the county to assess its own allocation of resources, its long-term economic sustainability, and identify the path toward continuing to improve economic conditions for all communities in the county. The goals and strategies identified here are targeted toward ensuring Llano County continues to see improvements in economic opportunity and quality of life in the years ahead.

One of the key challenges facing Llano County is the difficulty it has in arranging cross-community collaboration. There are considerable differences in interests, objectives, and resources across Llano County. A county-wide committee should be organized and charged with developing recommendations that address community development issues related to managing growth, supporting core public services, and building the foundation for economic prosperity for citizens and businesses.

**Strategy 1.A** Appoint a committee of diversified interests and experience that includes representatives from both incorporated and unincorporated areas of the county, and members from the business community, private citizens, and those involved in community services such as healthcare, education, economic development, and aspects of government.

**Strategy 1.B** Task the committee with identifying goals for the county and address how those can be accomplished by managing ongoing growth to ensure economic sustainability for local governments and citizens. Members of this committee must ask themselves if their region is on track for providing the opportunities that make this an attractive place for people to live and if not, what needs to change. Recommendations should include monitoring the implementation of development strategies, developing new recommendations for development as issues arise in the county, and serving as a mechanism for organizing the county's communities. Initially, this committee should focus on detailing key recommendations to be considered at a joint meeting of county and city officials then committing them to writing as a record of their work.

### 3.3.2 Goal 2: Optimize Llano County's Tourism Industry

Tourism is the best way to bring new dollars from outside the county and its cities without bearing the cost of additional services and infrastructure for schools, housing, law enforcement, and so on. Llano County has had success over the years in a wide range of tourism-related activities ranging from deer hunting to rock climbing to downtown shopping.

A more organized and focused effort to increase tourism would bring in more revenue for businesses and local governments. At present, Llano County's existing tourism activity is one of the key economic strengths of the local economy, as there are many natural attractions in the county. Between the three chambers of commerce in the county, many activities and events are also marketed. The *Travel Texas* website has postings for both Llano and Kingsland and the *Hill Country Portal* provides a fairly thorough introduction to the available tourism options, potentially helping someone familiarize themselves with a community of interest.

In addition to the county's natural tourism assets, downtown Llano has an appealing and marketable collection of unique businesses and plays host to some annual events. The downtown square, with its historic buildings and identity, offers a great opportunity for more destination tourism. Not unlike most downtowns, the area now serves as a traditional commercial part of town with businesses providing services to local consumers and has a few businesses that hope for customers who are visiting the area. There are additional stores and places of interest along SH-71, north of the river, bordering the Buttery Creek Park, which seem more focused on visitors, as they offer antiques and collectibles. But not unlike many downtown areas, there is a good collection of establishments that do not appear connected beyond geographical proximity.

Considering Llano County's existing tourism activities, many of the tourism options are in close proximity, but they are not necessarily connected to form cohesive tourism experiences. In some cases, tourism experiences exist but are inadequately promoted, hence an emphasis on tourism signage in the transportation component of this plan. Moreover, one might imagine greater synergies between downtown Llano and the county's more rural tourism assets. For example, tourists may be likely to stop by to shop and eat after they have been exploring other areas or participating in activities held outside the downtown area. In the transportation component of this plan, hike and bike trails are noted as potential opportunities for linking tourists who come to experience the county's rural features with some of the cities in Llano County.

**Strategy 2.A** The downtown Llano area, including the square, is an underutilized asset with regard to economic development. A streetscaping project designed to provide a geographic orientation with a common look and theme can enhance the character and ambiance of public space, increasing the square's appeal and the amount of time tourists are likely to spend there. Put another way, people are more likely to park and explore an area that has a friendly appeal with benches, light posts, landscaping, and a walkway system that connects the entire area incorporating pavers or aggregate stone strategically. A fountain on the courthouse lawn would add charm to the greenspace that makes downtown squares more interesting than just a commercial street. The theme should be incorporated into a walking bridge and picnic area along Buttery Creek. The transportation component of this plan references important improvements to walkability along RM 152 near its intersection with SH 71.

**Strategy 2.B** Consider a single website for all visitor information for the county, a one stop shop that is designed with art and information limited to the places and activities and maintain current dates for all events. The website can offer suggested tourism itineraries targeted to the specific tourist profiles desired.

### **3.3.3 Goal 3: Strengthen the Foundations for Business Recruitment and Expansion**

Because Llano County and neighboring areas have enjoyed strong tourism, there has been less focus on recruiting new employers to the county. There are, however, many reasons why this should be considered. Over one third of Llano County's working households are presently commuting outside the county for jobs. Those who choose to work in the county have employment options mostly constrained to the service and retail sectors, which tend to be low-paying jobs. In most areas of Llano County, households are earning low incomes and are seeing

minimal, if any, income growth. Although incomes are not increasing, the cost of living is expected to continue to increase, placing more financial burden on working Llano County households. This includes increases in property taxes that will eventually be necessary as the cost of education, public safety, streets and drainage, and other public services also go up. Residential development rarely covers the cost of providing government services to that development unless appraised values are very high and services provided are limited.

Businesses share the financial burden with residential areas, and recruiting the right new businesses can create more jobs that offer higher wages. Residential development typically precedes business development, so now is a good time to start planning for this second phase. Companies choose a location based on several factors: the availability of a raw resource that can be processed or manufactured, in order to be near to other businesses with which the businesses interact to either buy or sell products, the availability of workers with needed skillsets, or to lower operating costs. Llano County, particularly the Kingsland area, is becoming appealing to some businesses because it is very affordable for a business with regard to real estate costs and taxes, the number of available workers is increasing, and the community college in Marble Falls provides an opportunity to train workers on needed skills.

**Strategy 3.A** Work with Central Texas College to determine willingness to provide worker training and identify the types of industries that can be served based on their staffing capacity. Funding from the Skills Development Fund, a Texas Workforce Commission program, is available to fund collaboration between businesses and community colleges to design and deliver worker training. Additionally, public transit via The HOP is available to help potential students/workers without reliable transportation attend Central Texas College to develop their skills. The transportation component of this plan calls for improving public awareness of The HOP as a transit solution.

**Strategy 3.B** Identify contiguous property that could be targeted for the location of businesses; it should have access to roads and utilities and be for sale at a reasonable cost by current owners. Work with the county to provide incentives that could include using tax increment financing to fund common infrastructure for the new business coupled with grant funding. Selecting a location for businesses should also drive some decisions about roads; once businesses move in, the quantity and type of traffic can change simply because more vehicles are coming and going including workers, commercial service trucks, freight haulers, and so on. The type of business suitable for this area will determine the vehicle demands.

### **3.3.4 Goal 4: Nurture Llano County's Work-At-Home and Entrepreneurial Capacity**

The core of this region, Travis County, has experienced constant growth that now spills into the counties surrounding it, including Burnet County. Burnet County's growth, particularly along the western boundary, continues and that is now impacting Llano County. This trend is likely to continue, and this provides Llano County with an opportunity. Increasingly, people want to enjoy aspects of the Austin area but not live there, since many people want to trade traffic congestion and affordability for a more rural setting. In today's economy many jobs can be done anywhere as long as reliable broadband is present.

**Strategy 4.A** Work with nearby Internet Service Providers to extend fiber optic network coverage into Llano County. Currently, the Guadalupe Valley Telephone Cooperative provides fiber optic telecom services to Blanco County. Similarly, Time Warner Cable provides fiber optic services to Marble Falls. These two companies would appear to have the best ability to begin servicing the eastern part of Llano County (where population is most dense) with fiber optic service. Bringing that service to Llano County will require working with these companies to provide them with needed information regarding

forecasts of household growth and where business growth is taking place. However, once fiber service is established, the potential employment and employer recruitment opportunities for Llano County expand considerably.

**Strategy 4.B** One of the best economic development strategies is to make it easier for start-up businesses to grow locally. The employment data suggest there may be folks working from home, but it's difficult to determine if they are working remotely from their jobs or in business for themselves. Someone who is starting to see growing sales of a product or service may be ready to explore an expansion but is uncertain about the process. Often the next step is to make sure there are business development services for start-ups that will help with a business plan, with the identification of financing, and with strategies for marketing. The Small Business Development Center (SBDC) at Texas State University includes Llano County in its regional service area and will schedule visits if requested; the SBDC also provides business planning and management tools. BCL of Texas (Business and Community Lenders) is a regional non-profit that offers a full range of services for both business and community projects and has done a significant amount of work outside of metro areas. BCL will provide a small business owner with everything from credit review and financial planning to actually financing the deal; they also develop and finance small housing development.

### 3.4 Organizing and Implementation

Planning efforts at the county level are not the norm because cities typically do their own planning for growth and development; however, in counties like Llano that are largely undeveloped and have limited resources, success will be best achieved according to how the cities and county work together to define the larger framework. This does not take away from the work of each individual community; their best efforts will be served by how the county government and its stakeholders manage short-term issues to lay the foundation for long-term economic sustainability. In fact, the cities will be better positioned to prosper if the county is successful as a region. Conversely, how well the cities and census designated places perform economically builds county-wide stability.

Why start with a county-wide committee? During some of our meetings we heard that some people in Llano County do not want change; this is not unusual coming from folks who have moved to or grown up in a rural county that is picturesque, peaceful, and provides what is most commonly called quality of life. The problem is that once change is recognizable, it's going to continue. In that case, the best option is to get in front of it and decide how it will look. This can't be addressed by multiple groups who have differing views of managing the challenges that will influence the area's future—transportation, broadband communications, education, social services, and business development as well as the type of development coinciding with current and planned support infrastructure for these challenges. With limited resources within the county and an increasingly smaller group of state and federal agencies able to fund these issues, a strategic process is needed to leverage all available funding. The ultimate goal is to make the entire community the best place for people to live.

The biggest hurdle for the county and its communities will not be getting a group of stakeholders to meet and make recommendations about growth; it will be implementing any of them. Ideally the work of the committee should address:

- How the county's government will have a reasonably healthy budget for the next 10 years to ensure core services like emergency services and communications, law enforcement, transportation, and social services like healthcare and senior services.
- Educational opportunities are preparing citizens for the jobs that will pay livable wages or better.

- More small and medium size employers will locate inside the county to decrease job commutes while also contributing to the city and county tax revenue.
- Reliable broadband services support educational and entrepreneurial functions desired by citizens and businesses.
- Transportation as well as water and sewer infrastructure is built and maintained to support residential and commercial development.

There should be many conversations about when and how these issues could be tackled and who takes the lead. These conversations should be committed to written recommendations.

# Chapter 4—Future Conditions and Traffic Trend Analysis

## 4.1 County-Level Base Year (2010) Demographic Trends

This section provides current data for population, household, income, and employment information for Llano County, Texas. It is important to note that researchers used 2010 US Census data because much of the analysis that was conducted in this chapter required demographic data at the census block level and decennial census data was the most accurate dataset available for Llano County at this level.

### 4.1.1 Population

As explained in Chapter 2, population data were obtained from the U.S. Census Bureau for Llano, Blanco, Burnet and Gillespie Counties and Texas as a whole.

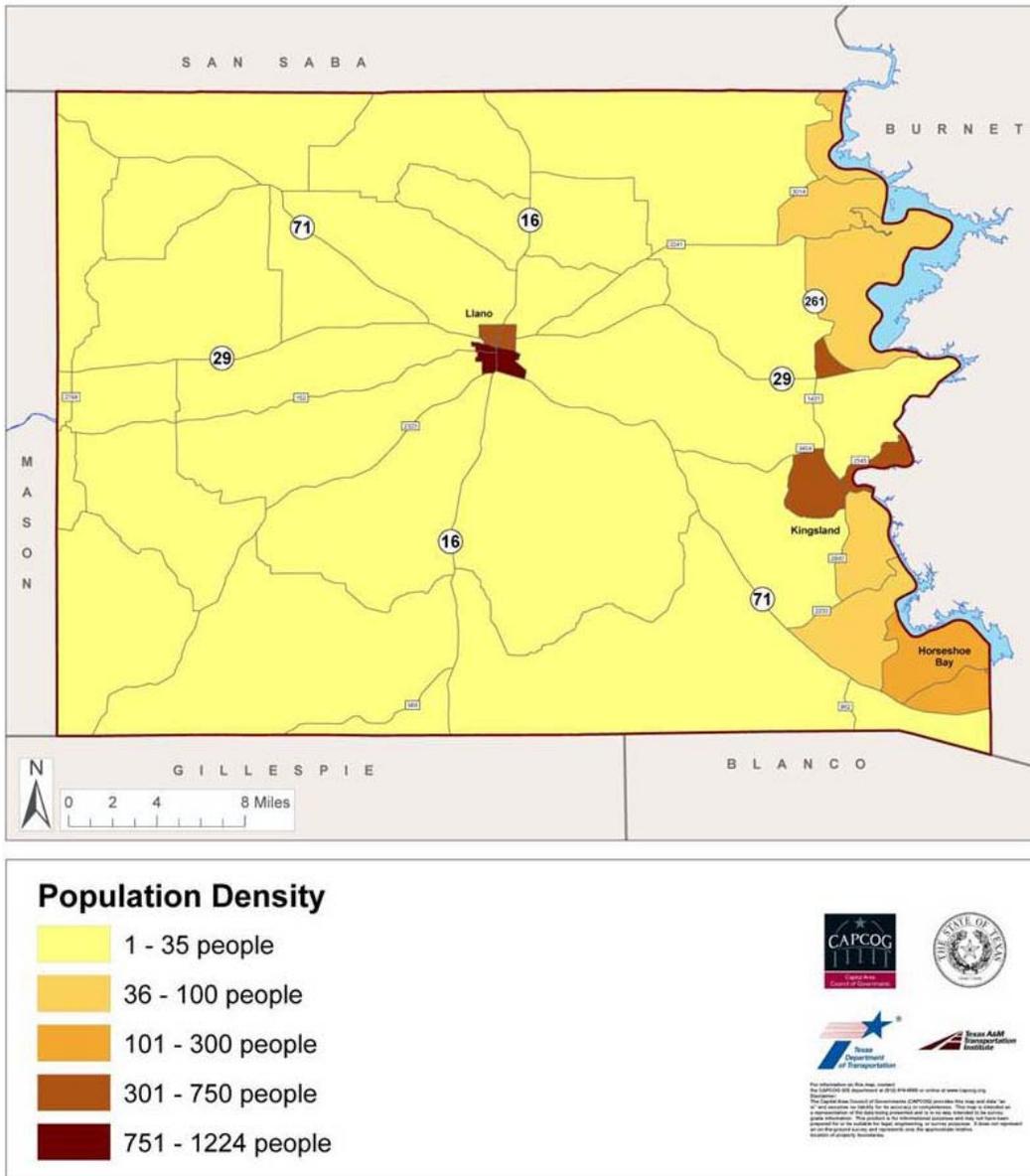
Figure 34 shows the population density in Llano County as of 2010. The majority of the population is located in the urban centers and along the eastern edge of Llano County.



**Llano County**  
Transportation and Economic Development Plan

## Llano County Population Density (2010)

Source: U.S. Census Bureau



**Figure 34. Population Density in Llano County, 2010 (Source: U.S. Census, TTI).**

Data on average household size and number of households were obtained from the U.S. Census for Llano County and Texas. The historic number of households and average household size for 1980 through 2010 are provided in Table 8. The average household size in Llano County and the state has decreased over the past 30 years. However, household size for the state has leveled off, increasing slightly from 2.73 to 2.75 persons per household between 1990 and 2010, while the average number of persons per household in Llano County has continued to decline.

Numerous factors affect household size including, but not limited to, age, fertility, marriage/divorce rates, and general economic conditions. The likely reason for the difference in average household size between Llano County and the state is the difference in the age and race/ethnicity of the two populations. The majority of the population of Llano County is Anglo and older compared to Texas's younger, increasingly Hispanic population. Hispanics have higher fertility rates than Anglos and often have extended families in one household. The increase in the Hispanic population across the state has been a major factor driving the stabilizing/slight increase in average household size.

**Table 8. Number of Households and Average Household Size for Llano County and Texas from 1980 to 2010 (Source U.S. Census, TTI).**

Area	Number of Households				Percent Change 1980-2010
	1980	1990	2000	2010	
Llano County	4,438	5,292	7,879	9,008	102.97%
Texas	4,934,936	6,070,937	7,393,354	8,922,933	80.81%
Area	Average Household Size				Percent Change 1980-2010
	1980	1990	2000	2010	
Llano County	2.21	2.15	2.13	2.12	-4.07%
Texas	2.81	2.73	2.74	2.75	-2.18%

#### 4.1.2 Employment

Employment is dependent on numerous factors such as population, labor force, labor force participation, educational attainment, economic conditions, technology changes, and many other factors difficult to predict. But, reasonable estimates of future employment can be made based on population and analysis of historical trends. Llano County employment for 2005, 2010, and 2013 were obtained from Texas Workforce Commission (TWC).

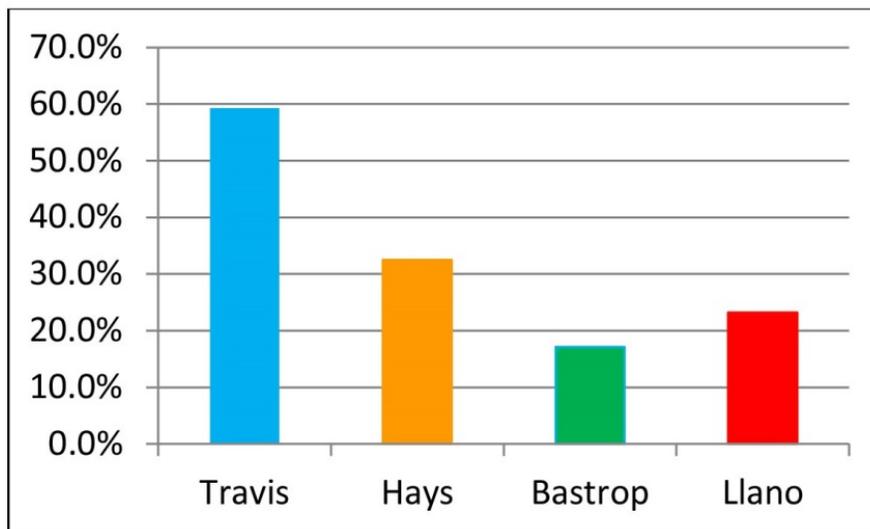


Table 9 Table 9 provides the total TWC employment, total population, and population-to-employment ratios for the three years of data.

**Table 9. Total Employment, Total Population, and Population-to-Employment Ratios for Llano County for 2005, 2010, and 2013 (Source: U.S. Census Bureau, Texas Workforce Commission).**

Employment and Population	2005	2010	2013
Total Employment	4,226	4,129	4,350
Total Population	18,236	19,301	19,444
Employment/Population	23.2%	21.4%	22.4%

The ratio of population to employment varies by area and is contingent on the type and amount of development (urban, suburban, or rural) and the household structure and size. Generally, counties that contain urban employment centers have a higher ratio of population to employment than surrounding suburban and rural counties. Additionally, urban areas that consist of several counties generally have a core county, the county with the highest density of population and employment, and this county has a higher ratio of population to employment than the other counties within the urban area. These core counties have a higher ratio because the greater employment draws employees from surrounding counties where employment is lower. In urban areas with multiple counties, the core county tends to maintain a higher population-to-employment ratio, although over time the other counties will begin to increase their ratio as the population grows and employment in certain sectors (most notably retail, service, and education) increases to support that population. Figure 35 illustrates the concept of different population-to-employment ratios using 2005 available data for Travis, Hays, Bastrop, and Llano Counties.



**Figure 35. 2005 Population-to-Employment Ratios for Travis, Hays, Bastrop, and Llano Counties (Source: U.S. Census Bureau, Texas Workforce Commission, TTI).**

The distribution of employment by type (basic, retail, service, and education) varies between counties and is dependent on the economic base of an area. Over time, the distribution by type can change as industry, technology, and economic conditions change. For example, over the past 20 to 30 years, many areas have experienced a drop in the percent of basic employment and an increase in the percent of service employment. The downward trend in basic employment is largely due to loss of manufacturing jobs and increases in productivity, while the increase in service employment can generally be attributed to improvements in technology, increased government programs, and generally good economic conditions. Generally, the retail sector accounts for between 20 and 25 percent of county employment. The expansion of retail

employment in Llano County appears to coincide with the growth of the hunting and leisure (tourism) industries within the county over the past 10 to 15 years and would be supporting those industries as well as local and surrounding county resident needs.

Employment by type (number and percent of total employment) from TWC for Llano County for the years 2005, 2010, and 2013 are provided in Table 10. As indicated by the data, retail employment currently represents the largest employment sector in Llano County, accounting for slightly over 40 percent in 2013, up from 31 percent in 2005. This is unusual. Service employment is the next largest sector with almost 33 percent of total employment, followed by basic (19 percent) and education (7.5 percent).

**Table 10. Number and Percent Employment by Type for Llano County for 2005, 2010, and 2013.**

Employment Type	Number			Percent		
	2005	2010	2013	2005	2010	2013
Basic	1,047	862	840	24.76%	20.88%	19.31%
Retail	1,327	1,458	1,755	31.38%	35.31%	40.34%
Service	1,534	1,478	1,428	36.27%	35.80%	32.83%
Education	321	331	327	7.59%	8.02%	7.52%
<b>Total</b>	<b>4,229</b>	<b>4,129</b>	<b>4,350</b>			

Figure 36 provides the employment density in Llano County. Similar to population density, current employment density within Llano County is focused in urban centers, though employment is not as densely located along the eastern edge of the county as is population.

# Llano County Employment Density (2010)

Source: Texas Workforce Commission

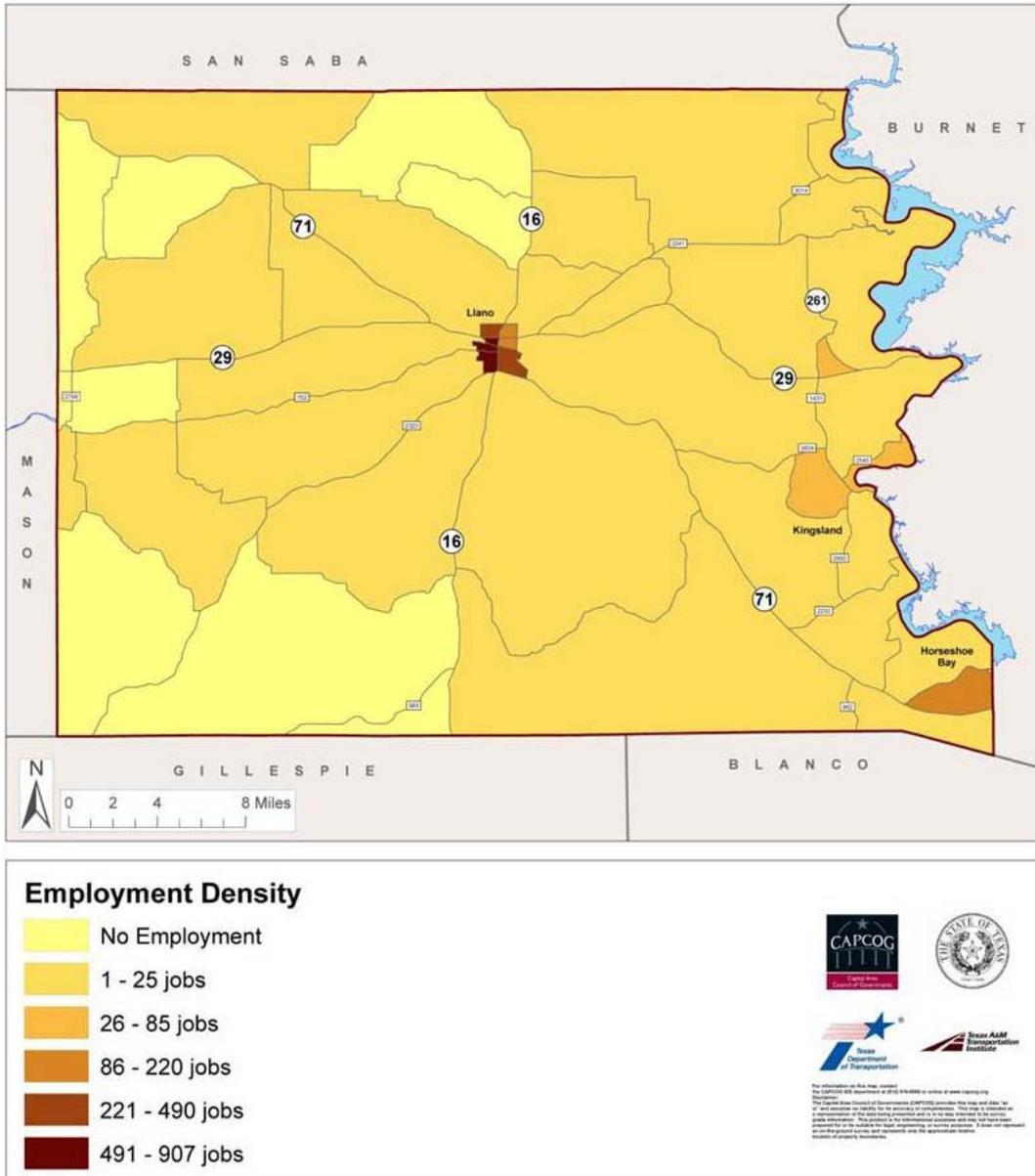


Figure 36. Employment Density in Llano County, 2010 (Source: Texas Workforce Commission, TTI).

### 4.1.3 Income

Historic median household income in nominal (real) and constant (adjusted for inflation to 2010) dollars for Llano County and Texas is provided in Table 11. The 1980 to 2000 income data are

from the decennial census for those years. The decennial median household incomes have been adjusted using the Consumer Price Index for All Urban Consumers (CPI-U) to reflect the census year versus the year the data represent (e.g., the 1980 census data reflect 1979 incomes). The 2010 income data are from the ACS five-year dataset. The data in Table 11 illustrate how the median household income for Llano County has generally trended in a similar fashion to that of the state in each decade and over the 1980 to 2010 30-year period; however, the median household income for Llano County has remained lower than that of the state.

**Table 11. Historic Median Household Income for Llano County and Texas in Nominal and Constant 2010 Dollars (Source: U.S. Census).**

Area	1980	1990	2000	2010
<b>Nominal Dollars</b>				
Llano County	\$14,011	\$20,071	\$36,001	\$41,969
Texas	\$18,963	\$28,476	\$41,269	\$49,646
<b>Constant 2010 Dollars</b>				
Llano County	\$37,079	\$33,486	\$45,588	\$41,969
Texas	\$44,946	\$42,550	\$46,805	\$44,465

#### 4.1.4 Summary

Table 12 presents a summary of the demographics obtained for Llano County for 2010.

**Table 12. Summary of Demographic Data for 2010.**

Population and Households	2010
Population	19,301
Households	9,008
<b>Median Household Income</b>	
Nominal Dollars	\$41,969
Constant 2010 Dollars	\$41,969
<b>Employment</b>	
Basic	862
Retail	1,458
Service	1,478
Education	331
Total	4,129

Please refer to Appendix B for a more detailed explanation of the base year (2010) demographics.

## 4.2 County-Level Analysis for Forecast Year (2040) Demographic Trends

For each of the past three decades, population in Llano County has been increasing at a compound average annual rate of between about 1.5 and 4.0 percent per year. Llano County's rate of growth has, for each decade and the 30-year period, been less than that for Blanco and Burnet Counties. The rate of growth in Llano County compared to that in Gillespie County and the state has varied by decade, but did slightly exceed the growth of Gillespie County and the state over the 30-year period. Mason County has experienced significantly slower growth than each surrounding county and the state.

### 4.2.1 Projected Population

Population projections were obtained from the TSDC for Llano County. The 2010 population and 2020–2040 population projections are provided in Table 13, which shows a total population increase in Llano County of 3,499 persons.

**Table 13. Llano County Projected Population (Source: Texas State Data Center, TTI)**

Area	2010 Census Population	Projected Population		
		2020	2030	2040
Llano County	19,301	21,417	22,710	22,800

Population growth over the 2010 to 2040 30-year period reflects a much slower growth rate than that which occurred over the past 30 years. As is the case in many rural Texas counties, the amount of population change in Llano County will largely depend on net migration. Although there is considerable growth anticipated for the state and for several of the counties within the Austin District (particularly Hays, Travis, and Williamson Counties), Llano County is more remote and separated from these high-growth areas. That separation generally translates into slower growth because access to the areas of high job creation is reduced. Rural counties throughout the state are experiencing slow or declining growth as the population growth becomes more concentrated in urban areas. Given the inherent uncertainties attached to most variables used to calculate population projections, the potential for change in local area policies and economic conditions, and the strong growth in the Austin/San Antonio areas, any long-term planning effort requires consistent review of projections to account for recent changes that impact those projections.

Estimates of the future number of households were prepared based on estimates of group quarters population and the TSDC projections of average household size to better reflect the number of households expected under the recently revised TSDC population projections. The suggested projections for households and average household size are provided in Table 14. The slight decrease in the number of households between 2030 and 2040 is the result of slow population growth and the increase in the average household size from 2.11 to 2.14 persons per household.

**Table 14. Projected Households and Average Household Size for Llano County (Source: Texas State Data Center, TTI).**

Households and Household Size	2020	2030	2040
Number of Households	10,001	10,665	10,521
Average Household Size	2.12	2.11	2.14

Figure 37 provides the projected population density in Llano County in 2040. Demographers use information such as availability of developable land, existing and planned infrastructure (sewer and water) as well as proximity to employment centers to project future locations of population growth. As shown in Figure 37, future population growth is expected in the City of Llano as well as in and around Kingsland.

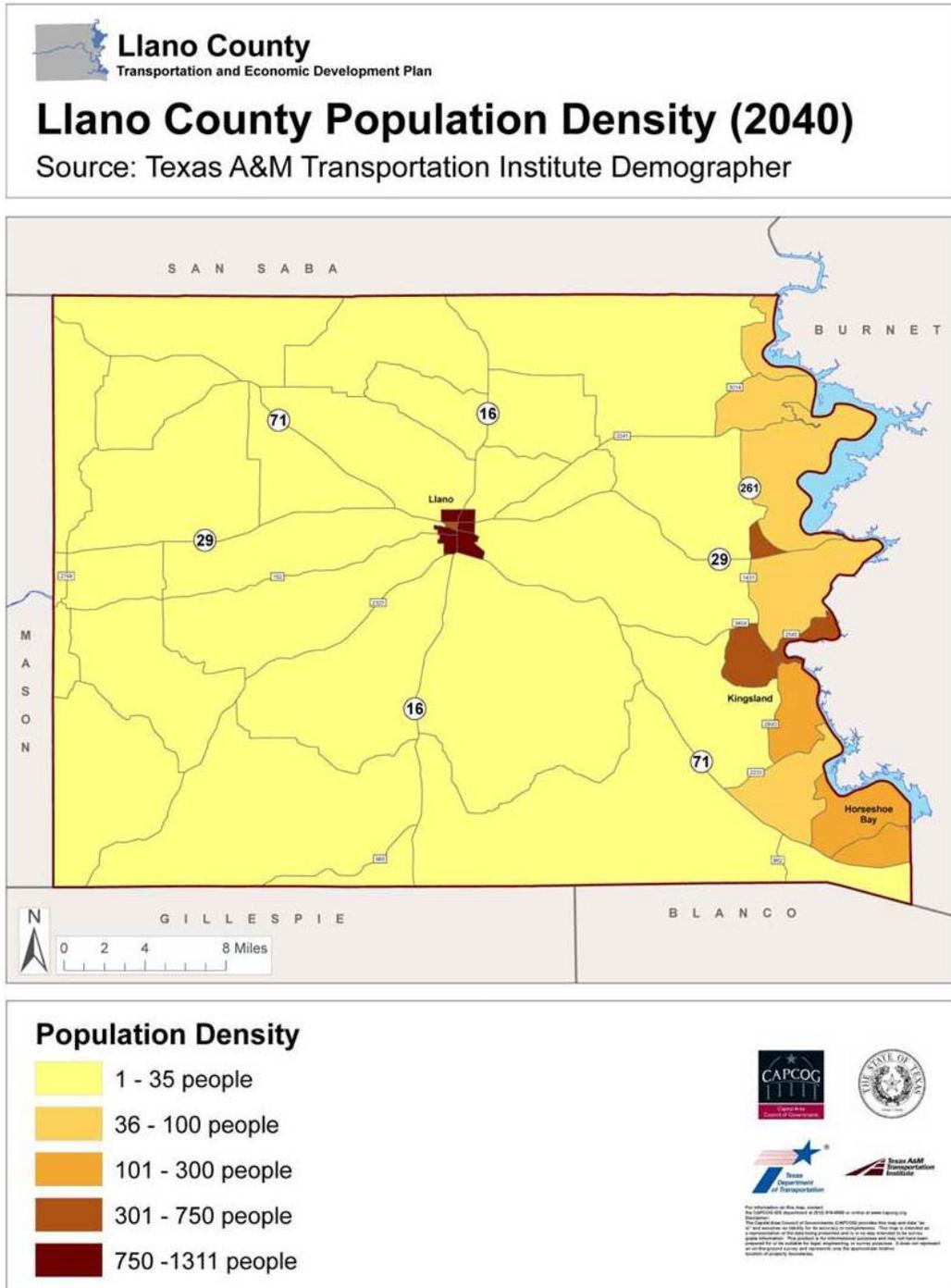


Figure 37. Projected Population Density in Llano County, 2040 (Source: Texas State Data Center, TTI).

## 4.2.2 Projected Employment

Future estimates of the total employment for Llano County were based on the 2010 base year population-to-employment ratio and population projections from the TSDC. It is expected that the population-to-employment ratio in Llano County will increase slightly over the next 30 years. Population projections, employment projections and estimated population-to-employment ratios are provided in Table 15.

**Table 15. Llano County Employment-to-Population Ratio Projections (Source: Texas State Data Center).**

Employment and Population	2010	2020	2030	2040
Total Employment	4,129	4,862	5,450	5,586
Total Population	19,301	21,417	22,710	22,800
Employment/Population Ratio	21.4%	22.7%	24.0%	24.5%

Estimates of future employment in Llano County were made based on the suggested population projections from the TSDC and past, current, and anticipated future employment by type. The suggested employment projections by type of employment are provided in Table 16. As the data indicate, it is expected that the percentage of employment in the basic sector will continue to decline slightly over the 2010 to 2040 period. Likewise, the percentage of employment in retail is expected to decline but still remain higher than that found in other areas. The percent employment in the service sector is expected to increase to accommodate the increased population, particularly the growing retirement community. Finally, given the modest population growth and relatively constant percentage of school-aged children under this projection scenario, the percentage of employment in education should remain relatively stable.

**Table 16. Base 2010 and Projected Employment by Type from 2020 to 2040 for Llano County.**

Employment Type	2010	2020	2030	2040
<b>Percent Employment by Type</b>				
Basic	20.9%	19.0%	18.6%	18.2%
Retail	35.3%	35.0%	34.5%	34.3%
Service	35.8%	38.5%	39.4%	40.0%
Education	8.0%	7.5%	7.5%	7.5%
<b>Employment by Type</b>				
Basic	862	924	1,014	1,017
Retail	1,458	1,702	1,880	1,916
Service	1,478	1,872	2,147	2,234
Education	331	364	409	419
<b>Total</b>	<b>4,129</b>	<b>4,862</b>	<b>5,450</b>	<b>5,586</b>

Figure 38 provides the projected population density of Llano County in 2040. Similar to the projected population density in 2040, future employment growth is projected primarily in the City of Llano and in and around Kingsland.

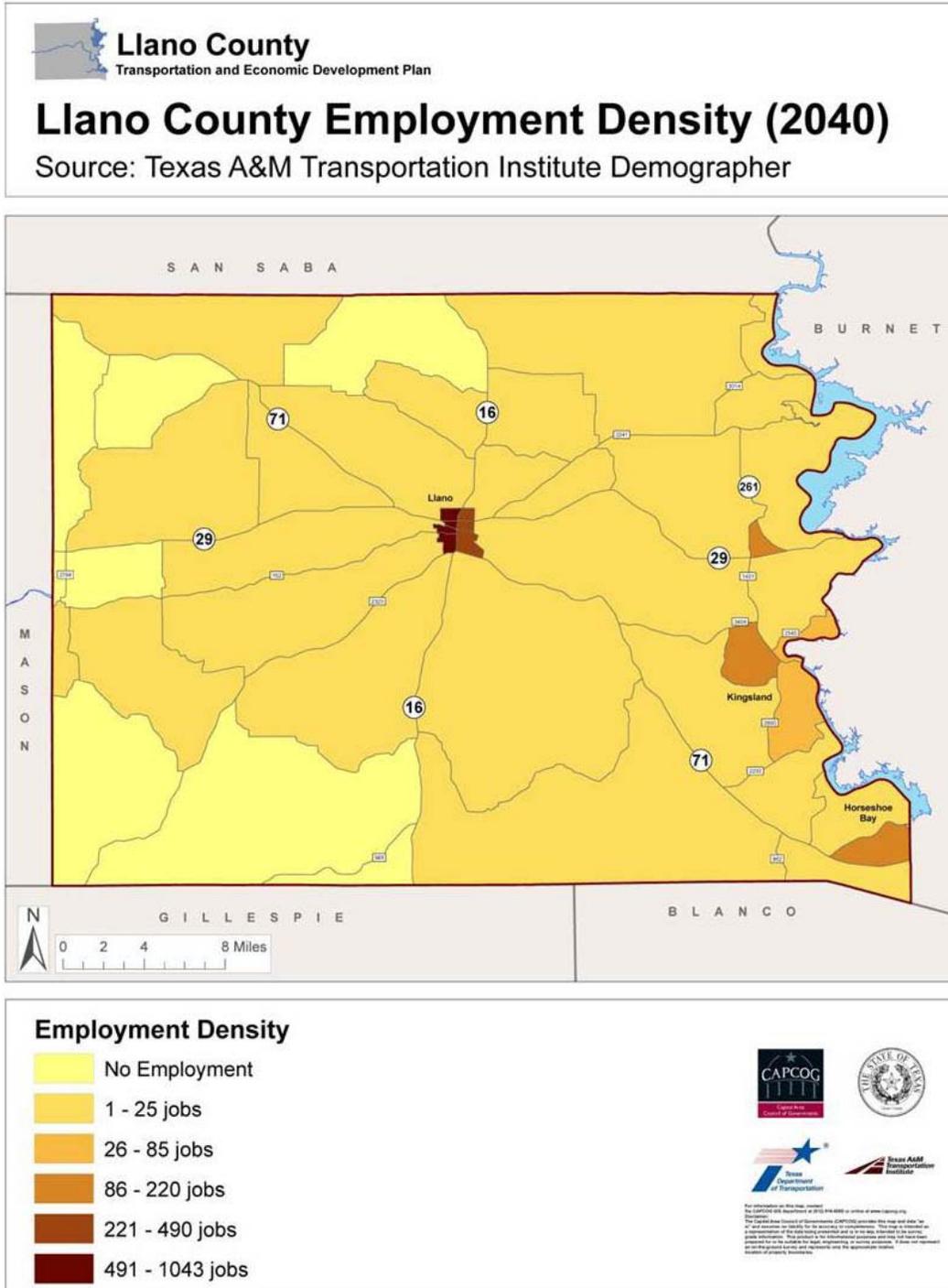


Figure 38. Projected Employment Density in Llano County, 2040 (Source: Texas Workforce Commission, TTI).

### 4.2.3 Projected Income

TSDC prepares forecasts of household income for counties throughout the state. The median income forecasts for Llano County for 2020 through 2040 are provided in nominal (real) and 2010 constant (adjusted for inflation) dollars in Table 17.

**Table 17. Llano County Median Income Projections from 2020 to 2040 (Source: Texas State Data Center, Texas State Comptroller Consumer Price Index Forecast, TTI)**

Median Household Income	2020	2030	2040
Nominal Dollars	\$52,787	\$62,812	\$76,931
Constant 2010 Dollars	\$43,683	\$42,695	\$42,555

### 4.2.4 Summary

The Llano County population, household, median household income, and employment (total and by type) projections for the forecast years of 2020, 2030, and 2040 are summarized in Table 18.

**Table 18. Recommended Llano County Control Totals from 2010 to 2040.**

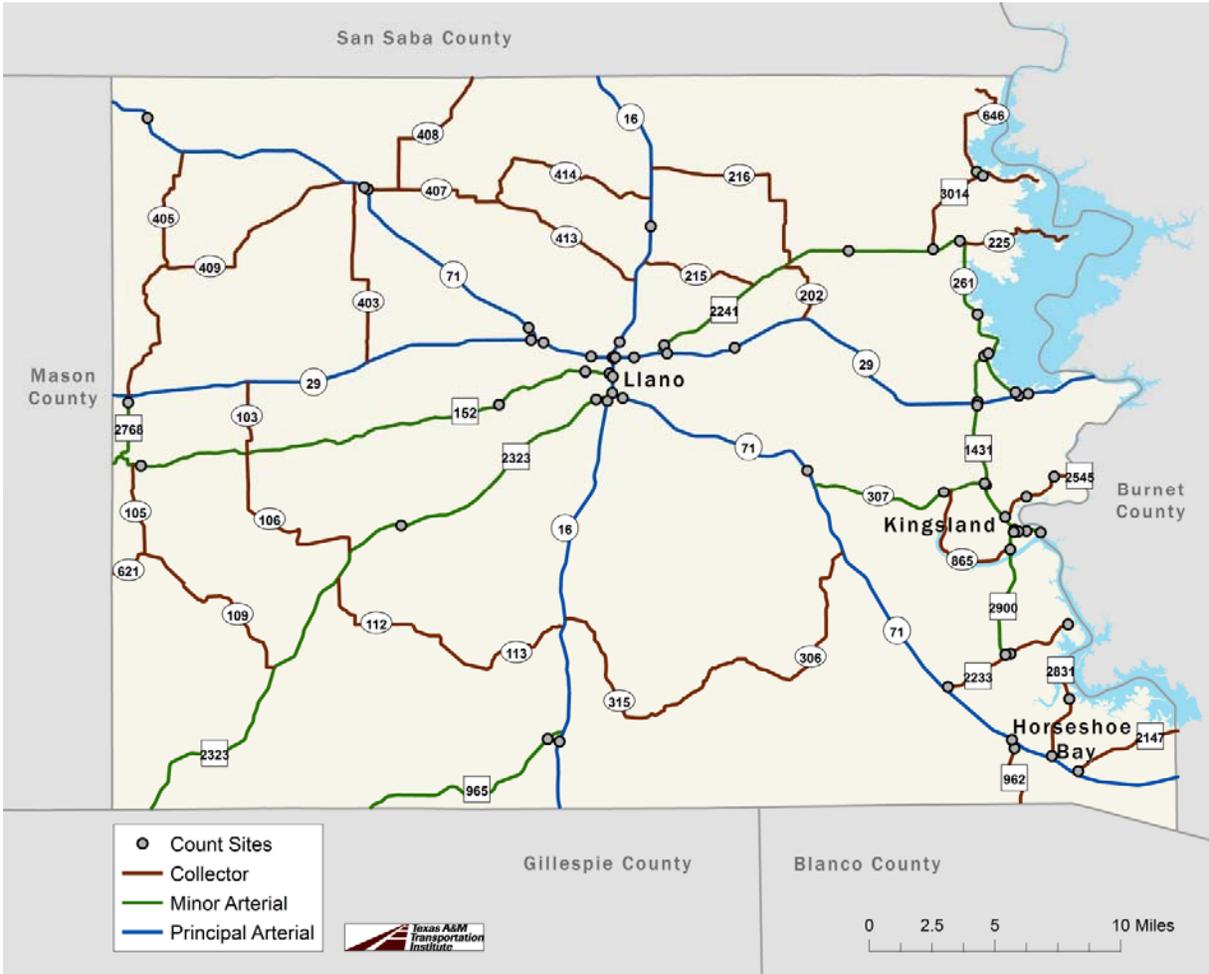
Demographic Data Component	2020	2030	2040
Population	21,417	22,710	22,800
Households	10,001	10,665	10,521
Average Household Size	2.12	2.11	2.14
<b>Median Household Income</b>			
Nominal Dollars	\$52,787	\$62,812	\$76,931
Constant 2010 Dollars	\$43,683	\$42,695	\$42,555
<b>Employment</b>			
Basic	924	1,014	1,017
Retail	1,702	1,880	1,916
Service	1,872	2,147	2,234
Education	364	409	419
<b>Total</b>	<b>4,862</b>	<b>5,450</b>	<b>5,586</b>

Please refer to Appendix B for a more detailed explanation of the forecast year (2040) demographic trends.

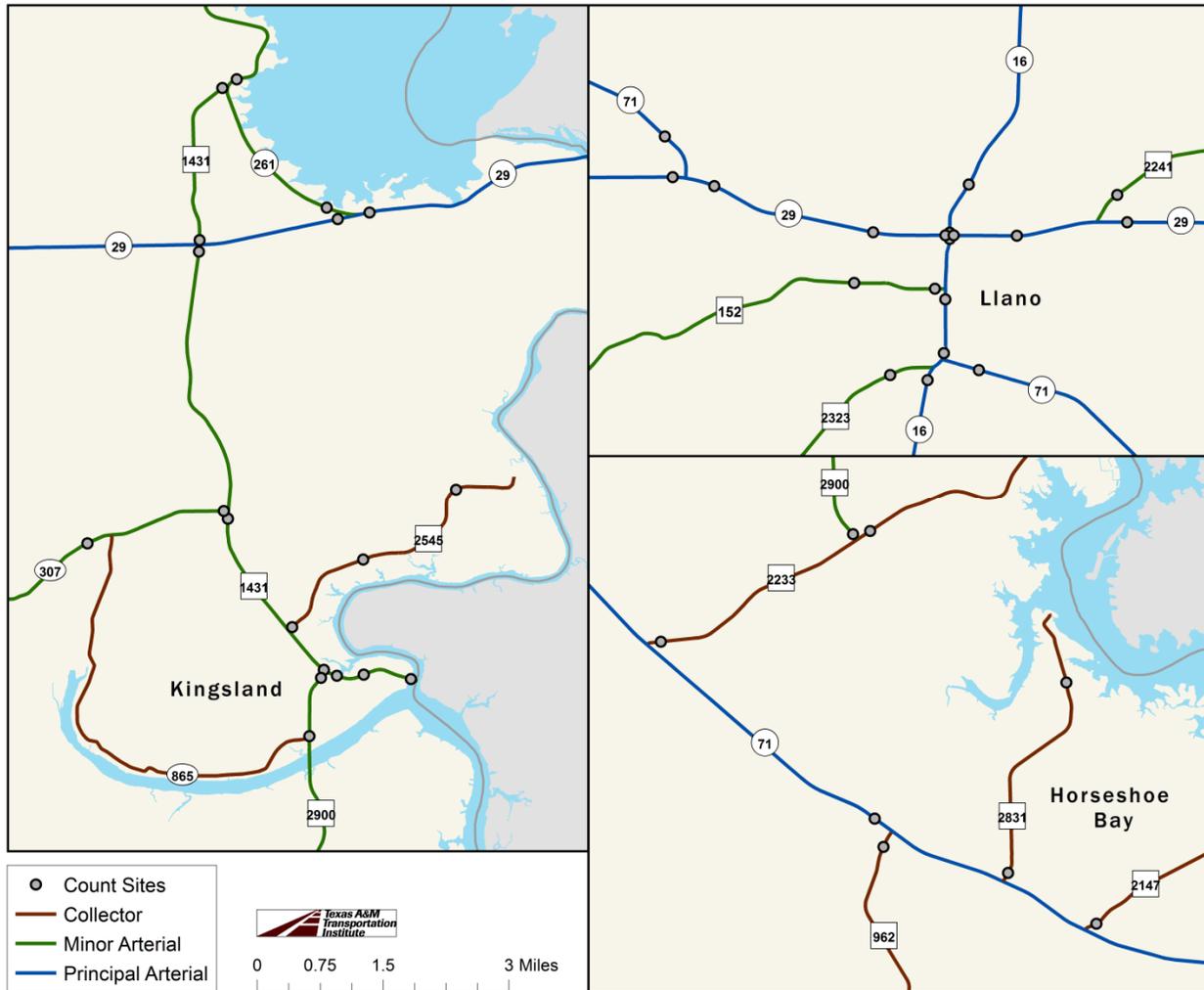
## 4.3 Traffic Growth Analysis

The section estimates current and projected traffic growth for Llano County. As discussed in the previous sections, the county had a population of less than 20,000 in 2010 and major growth is not expected over the next 30 years. Typically, regions with populations under 50,000 do not use

a three or four step transportation modeling process, but instead analyze existing and projected traffic counts to evaluate current conditions and project future traffic conditions and congestion. This analysis assesses traffic trends in the county to develop a better understanding of future needs. In order to develop base year and forecast year analyses of traffic trends, annual counts (measured in annual average daily traffic [AADT] volumes) were used for current and projected traffic conditions. Figure 39 provides a map of the 65 traffic count locations throughout Llano County and Figure 40 provides a zoomed in view of the traffic count locations in Kingsland, the City of Llano and Horseshoe Bay.



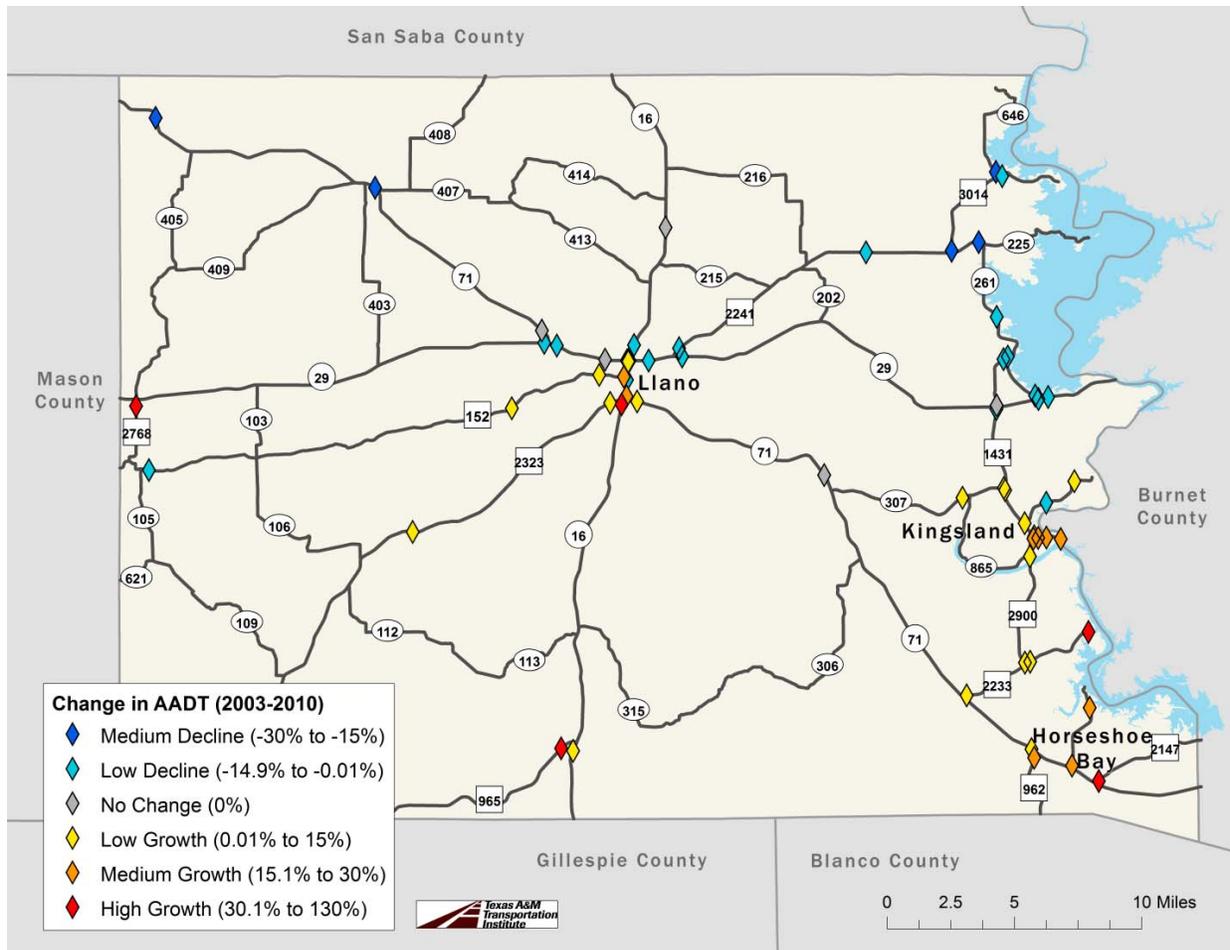
**Figure 39. Traffic Count Locations in Llano County (Source: TxDOT, TTI).**



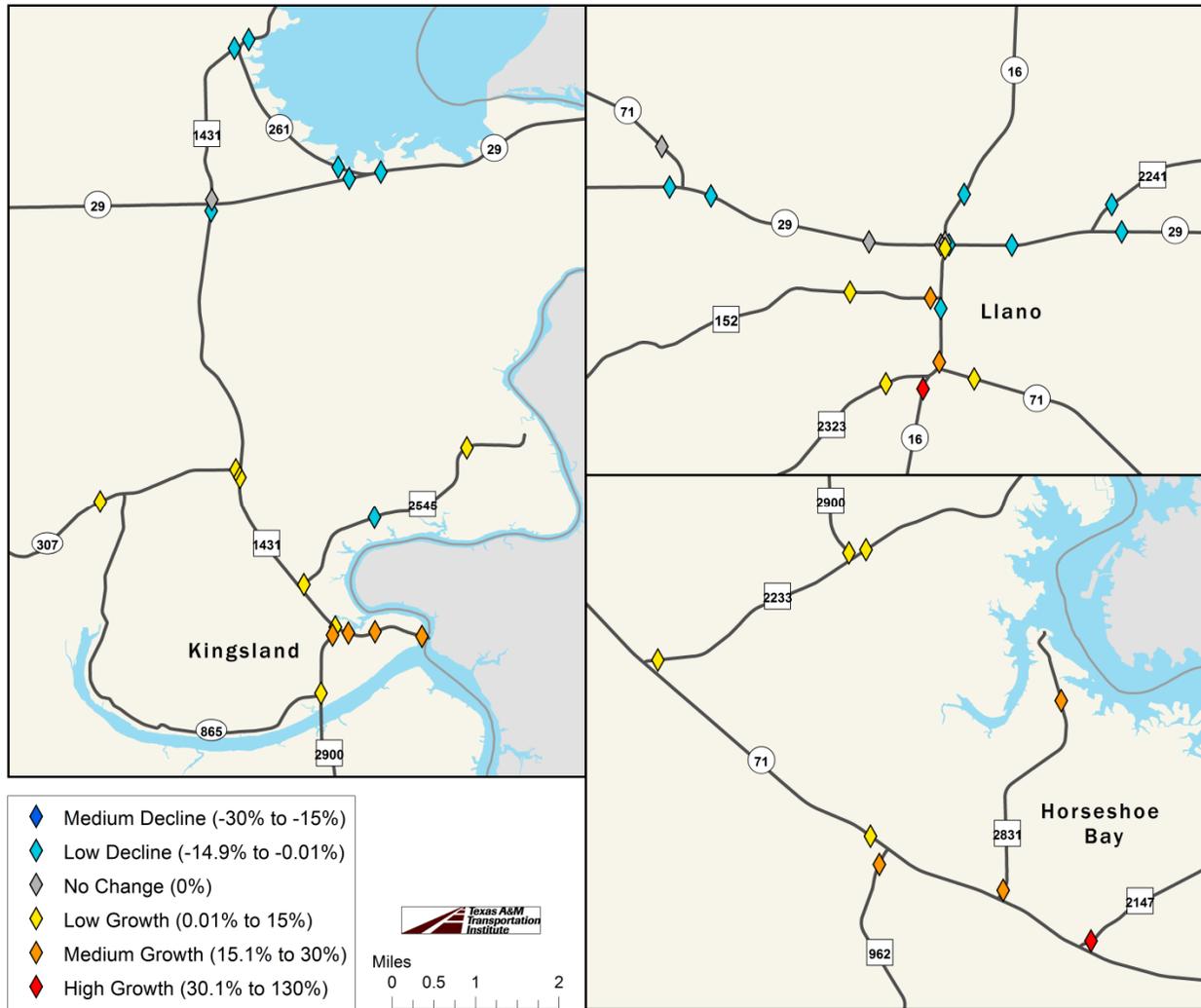
**Figure 40. Traffic Count Locations in Kingsland, City of Llano and Horseshoe Bay (Source: TxDOT, TTI).**

### 4.3.1 Base Year (2010) Analysis Results

Analysts evaluated the AADT growth rate of each traffic count location in Llano County between 2003 and 2010. Figure 41 provides a map of each location and indicates whether the location experienced medium decline, low decline, no change, low growth, medium growth or high growth. As shown in Figure 41, the traffic count locations within Llano County with the highest growth in traffic volume are on SH 16 in the City of Llano; RM 2147 near Horseshoe Bay at SH 71; on RM 2233 near Sunrise Beach Village; in the west end of the county on RM 2768 near SH 29; on RM 965 near SH 16; and throughout Kingsland, with higher growth occurring on RM 1431 near the Burnet County line. Count locations in the northern half of the county, particularly near Buchanan Dam and on SH 29 near Llano have experienced a decline in traffic volume during the 2003-2010 period. Figure 42 provides a zoomed in map of AADT growth rates in the City of Llano, Kingsland and Horseshoe Bay.



**Figure 41. Estimated Traffic Growth in Liano County (between 2003 and 2010) (Source: TxDOT, TTI).**



**Figure 42. Estimated Traffic Growth in the City of Llano, Kingsland and Horseshoe Bay (between 2003 and 2010) (Source: TxDOT, TTI).**

Figure 43 provides the 2010 LOS (level of service) for each of the count locations in Llano County. LOS is a measure of whether a roadway's capacity is sufficient for the measured traffic volumes. LOS is graded A-F, with LOS A through C indicating that a roadway's traffic volume is well within a roadway's design capacity, indicating free flow to stable flow traffic conditions. LOS D and E indicate that traffic volumes are nearing the roadway's design capacity and LOS F indicates that traffic volumes have exceeded a roadway's design capacity, indicating a breakdown in traffic flow. Figure 43 illustrates that the traffic volumes in Llano County do not exceed the county's roadway capacity, and with the exception of Kingsland at the FM1431 bridge at the Burnet County line, all count locations had an LOS of A to C. Figure 44 provides a zoomed in map of the LOS for each of the count locations in the City of Llano, Kingsland and Horseshoe Bay.

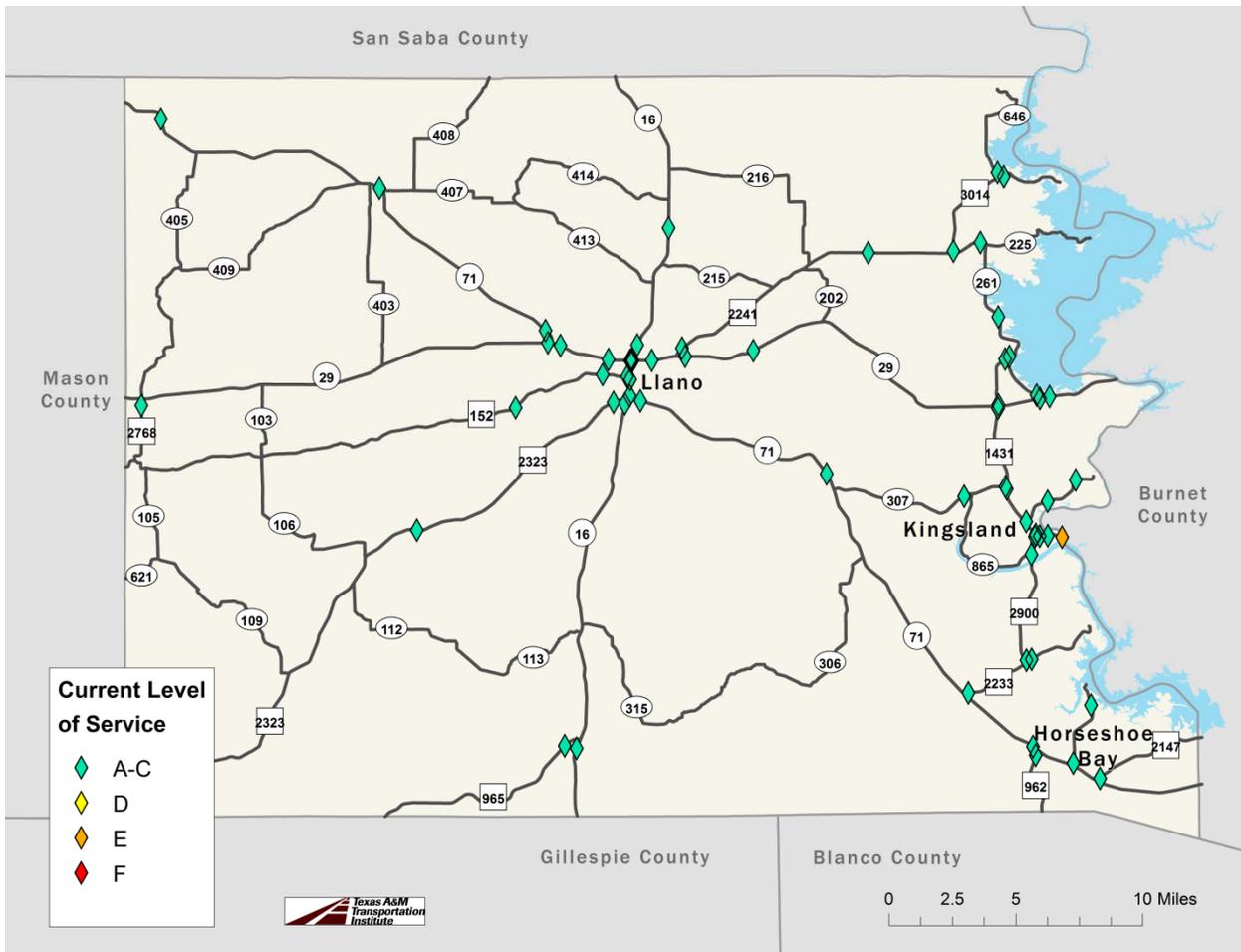
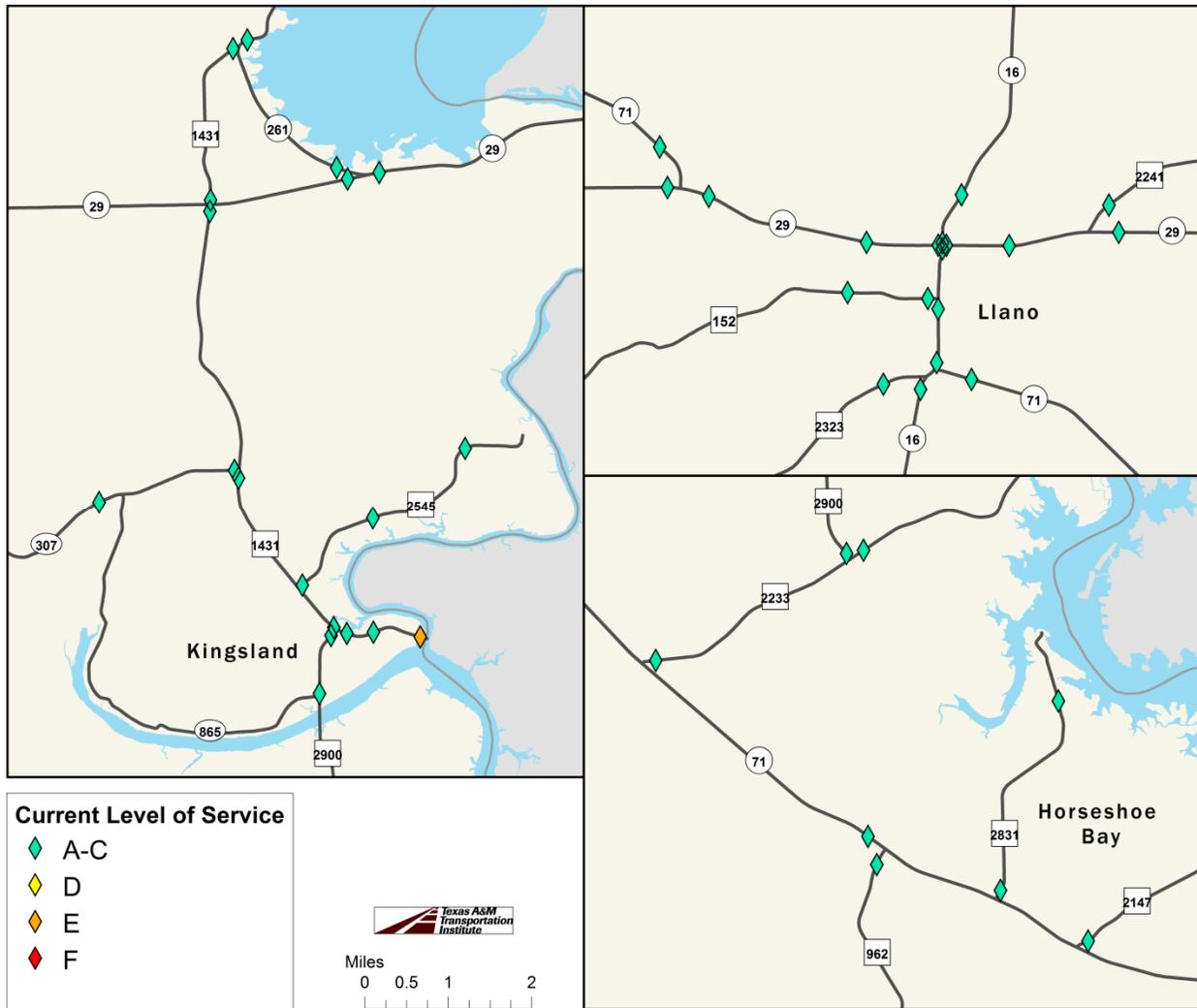


Figure 43. 2010 Levels of Service (LOS) in Llano County (Source: TTI).



**Figure 44. 2010 Levels of Service (LOS) in the City of Llano, Kingsland and Horseshoe Bay (Source: TTI).**

### 4.3.2 Forecast Year (2040) Analysis Results

Following the base year traffic growth analysis, further analysis was conducted to evaluate potential future scenarios for the 2040 forecast year. Given the uncertainty associated with long-range traffic projections, three different methodologies were used to develop scenarios. Each of these projections considers the impact of regional population and traffic growth on local traffic patterns, in addition to anticipated growth within Llano County. As the region continues to grow, conditions will change and this assessment should be reevaluated.

- Scenario I (Demographics): Forecasted growth factors were developed for each traffic count site within Llano County using 2010 and projected 2040 demographic data. Three sets of growth factors were developed based on projected population, households, and employment and the resulting forecast volumes calculated were allocated to each traffic count site. The maximum projected volumes for each traffic count site were chosen as a potential worst case demographic-based scenario.
- Scenario II (Historic Trends): Traffic trends were developed based on historic count data. Annual counts dating back as far as 1990 were used to create linear and exponential

trend formulations, resulting in two sets of forecast volumes. Again, the maximum projected volume was selected for each site as a potential worst-case scenario. This scenario may be less likely to occur because it is not reasonable to assume that traffic will continue to grow at historic rates without considering regional demographic trends. However, the scenario is presented to provide additional context.

- Scenario III (TxDOT Statewide Analysis Model): Volumes were estimated using the 2040 scenario from TxDOT's Statewide Analysis Model (SAM). Demographic and employment data are used as inputs into the SAM, a four-step travel demand model. Because the SAM model does not cover the entire Llano County network, 2040 volumes were unable to be assigned to 13 of the count locations.

The demographic-based scenario (Scenario I) might be more likely to occur than the historic traffic-trend-based scenario (Scenario II), particularly for roads influenced by local traffic, because it is not reasonable to assume that traffic will steadily grow independently of regional demographic characteristics. In addition, because Scenario III provided a less detailed analysis of future traffic trends, Scenario I was chosen as the most likely scenario and thus the following 2040 traffic analysis is based on the results of Scenario I. The results of all scenarios can be viewed in greater detail in Appendix C of this report.

Figure 45 provides an illustration of the projected 2040 LOS in Llano County based on Scenario I. Figure 46 provides a zoomed in map of the projected 2040 LOS in the City of Llano, Kingsland and Horseshoe Bay.

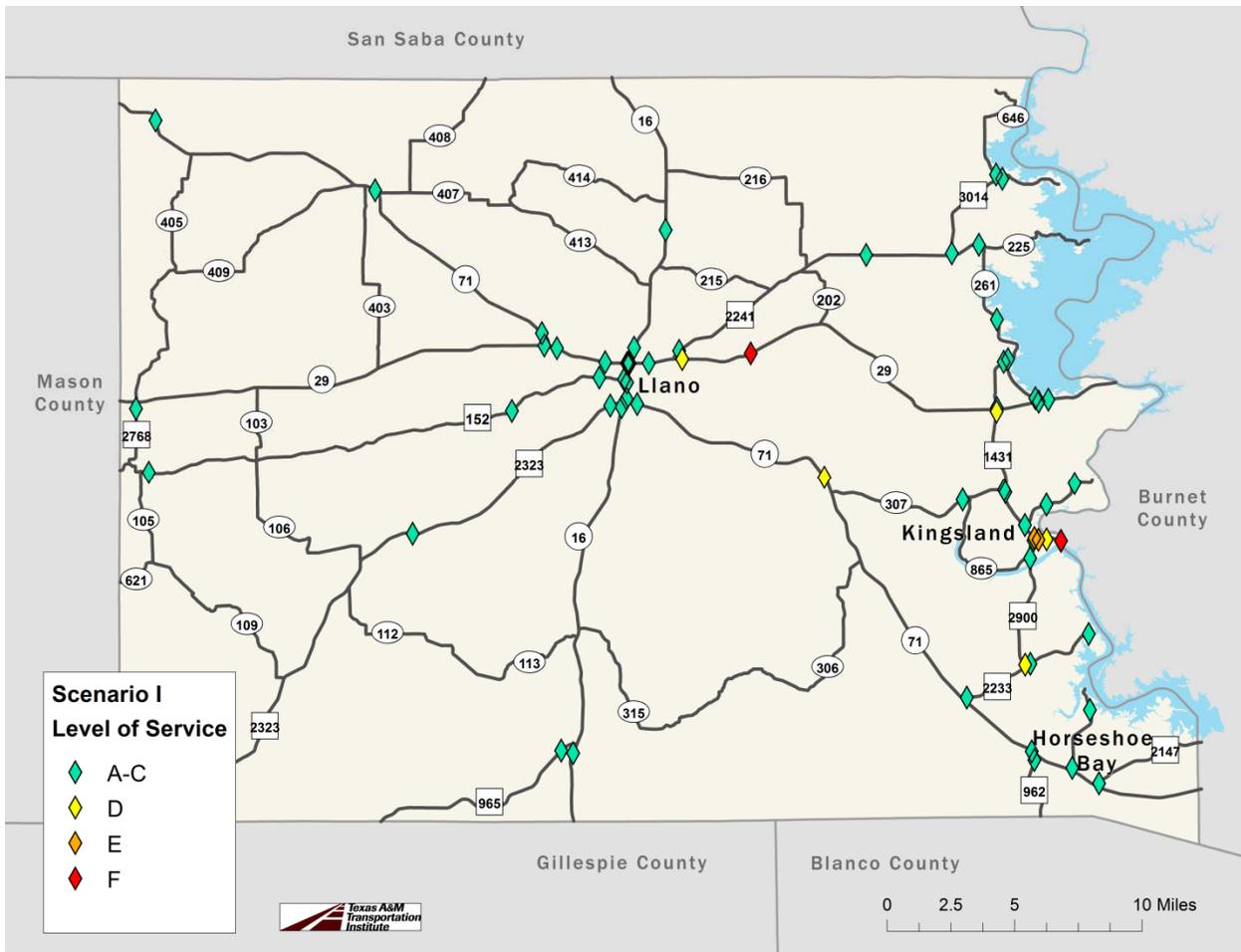
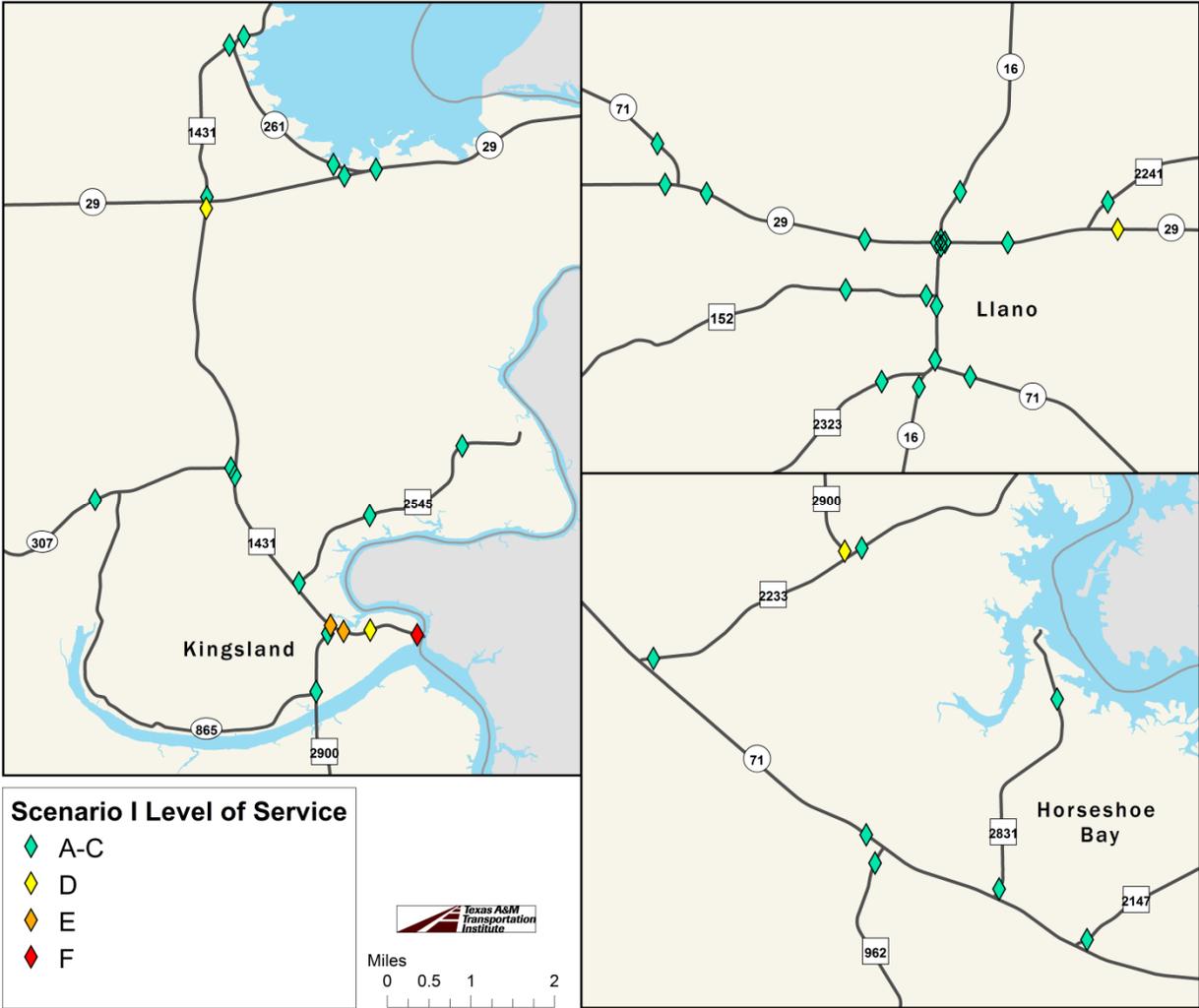


Figure 45. Projected 2040 LOS in Llano County (Source: TTI).



**Figure 46. Projected 2040 LOS in the City of Llano, Kingsland and Horseshoe Bay (Source: TTI).**

Under Scenario I, traffic volumes are expected to increase at every count location, though the majority of the count locations in the county are still operating at an acceptable LOS (A-C). RM1431 in Kingsland is projected to be nearing capacity or exceeding capacity in 2040, and SH29 east of the City of Llano also shows a count location that is LOS F.

Please refer to Appendix C for a more detailed explanation of the traffic growth analysis.

# Chapter 5—Transportation and Economic Development Plan

## 5.1 Infrastructure Needs Assessment

An integral part of developing an effective plan is assessing the needs of the county. The transportation requirements of the county may also differ depending on one's perspective. Municipal, county, and TxDOT technical staff may recognize needs differently than the general public. To ensure a comprehensive needs assessment, the Llano County Commissioners' Court carefully selected the members of the project's two advisory committees to represent a broad spectrum of county residents with diversified areas of interest, expertise and knowledge. The two advisory committees, with input from citizens through the pop-up open house meetings, the survey or otherwise providing comments, developed a list of recommended transportation improvements along with suggested economic development enhancements, as shown in Table 19.

As the population of and employment of Llano County grows, more housing and schools will be built, more goods will be transported, and more business will be conducted within the county. To maintain economic vitality as well as the quality of life of the citizens, the transportation infrastructure must be periodically assessed and updated. Identifying infrastructure needs assures that environmental quality concerns can be avoided or mitigated when planning future transportation improvements.

## 5.2 Planned and Programmed Transportation Improvements

TxDOT has several transportation improvements that have already been programmed for Llano County. These planned projects are either underway or will begin within the next few years. These improvements address some of the more immediate transportation needs within the county. Figure 47 provides a map of the six projects that are in the 2015–2018 TxDOT Statewide Transportation Improvement Program (STIP) and are currently planned and programmed for Llano County.



# TxDOT Roadway Projects in the Statewide Transportation Improvement Plan (2015-2018)



### Description of Roadway Project

- Safety & Signalization
- Resurfacing
- Bridge Project

Map ID	Hwy	Description of Work	Year*	Project Cost
LC1	SH 29	Replace deck at Pecan Creek	2015	\$1,697,956
LC2	SH 29	Full depth repair, level up and overlay	2015	\$1,331,000
LC3	SH 71	Full depth repair, level up and overlay	2015	\$1,308,100
LC4	SH 29	Texturize shoulders	2017	\$230,135
LC5	CR 103	Replace bridge/approaches	2017	\$500,000
LC6	RM 2323	Level-up and seal coat	2018	\$1,437,000

\*Year: Ready to let date

Figure 47. Planned and Programmed Projects in Llano County (Source: TxDOT).

## 5.3 Recommended Transportation and Economic Development Improvements

The recommended transportation improvements, shown in Table 19, were identified by members of the advisory committees and the public. The recommendations are then categorized according to the following project types:

- Roadway Safety.
- Tourism Signage.
- Roadway Repair.
- Roadway Expansion.
- Transit Service.
- Pedestrian/Off-Road Hike & Bike Trails.

Within each section, a specific location is described, the identified issue is explained, a planned or proposed improvement is offered, other comments are provided to offer agency feedback, verification of project funding is given, and designation of jurisdictional responsibility for project implementation is listed. Some transportation issues identified by the community are short-range in nature – such as adjusting traffic signal timing or filling potholes, while others represent long-range needs of citizens – such as adding passing lanes on rural highways or expanding the RM 1431 bridge over the Llano River.

The majority of the recommended improvements address transportation issues on the existing TxDOT roadway system. This includes both state highways and Ranch-to-Market roads located within Llano County. Other transportation projects under the jurisdiction of Llano County, including the Kingsland area, as well as the cities of Llano and Horseshoe Bay are also listed. Likewise, the table includes recommendations for the HOP transit services offered to Llano County residents by the Hill Country Transit District.

**Table 19. Llano County Recommended and Planned Transportation Improvements**

<b>Llano County Roadway Safety</b>						
<b>ID</b>	<b>Location</b>	<b>Issue/ Problem</b>	<b>Community's Recommended Solution/Improvement</b>	<b>Agency's Comments</b>	<b>Funded</b>	<b>Responsible Organization</b>
<b>1</b>	Low water crossing east of the Llano Bridge	This low water crossing needs improvement	Reinforce the crossing to ensure bridge is adequate in the event of an emergency	TxDOT conducted bridge feasibility study that evaluated alternatives	N	City of Llano
<b>2</b>	Roadway on both ends of the Llano Bridge	No crosswalks on SH 16 near the bridge	Add crosswalks	Not signalized; evaluate for signalization and pedestrian crossing	N	City of Llano/TxDOT
<b>3</b>	High cross traffic volume from side streets onto SH 16	Difficulty entering SH 16	Optimize signal timing at downtown intersection and Hwy 71	Evaluate signals for timing	N	City of Llano/TxDOT
<b>4</b>	SH 71 at Summit Rock Blvd	Turn lanes needed; no right and left hand turn lanes	Turn lanes needed	Evaluate opportunities for funding	N	TxDOT
<b>5</b>	RM 152 W	Speed limit in Castell is 35 mph; lots of traffic	Lower speed limit to 15 mph through town	30 mph minimum on this type of facility; evaluate for speed study	N	TxDOT

Llano County Roadway Safety						
ID	Location	Issue/ Problem	Community's Recommended Solution/Improvement	Agency's Comments	Funded	Responsible Organization
6	RM 1431 Bridge	Safety hazard where road narrows at bridge	Add sign to alert narrowing	Evaluate signage	N	TxDOT
7	SH 71 at RM 2147	Too short of a left turn lane onto RM 2147 from SH 71	Longer turn lane; striping/reflectors	Let date December 2015; Complete summer of 2016; Resurfacing 0.2 mile west of RM 2233 to Burnet County line; Est. cost \$2.6 million	Y	TxDOT
8	SH 71 at W Haynie St	No crossing signal or handicap accessibility to different sides of road	Crosswalk and flashing lights	Not signalized; evaluate for signalization and pedestrian crossing	N	TxDOT
9	RM 2831 at Golden Nugget in Horseshoe Bay	Dangerous intersection	Reworking of intersection	Evaluate for right-of-way acquisition	N	TxDOT
10	SH 16 and SH 71	Traffic approaching the City of Llano too fast	Speed sign or bumps to slow traffic	Evaluate for speed study	N	TxDOT

Llano County Roadway Safety						
ID	Location	Issue/ Problem	Community's Recommended Solution/Improvement	Agency's Comments	Funded	Responsible Organization
11	RM 2900 and Euel Moore Dr near elementary school in Kingsland	Traffic is traveling too fast through this area with children	Lower speed limit in this pedestrian area to 25 mph	Evaluate for speed study	N	TxDOT
12	Market St at SH 71	Limited sight distance for traffic from north on SH 71		Evaluate potential intersection improvements	N	TxDOT/City of Llano
Llano County Tourism / Signage						
ID	Location	Issue/ Problem	Community's Recommended Solution/Improvement	Agency's Comments	Funded	Responsible Organization
13	SH 29 and SH 71 entering Llano	No welcome signs	Add roadway signs		N	City of Llano
14	Llano Bridge	Make the Llano Bridge more attractive	Add lights over the top of the bridge	Would be difficult due to maintenance requirements	N	City of Llano

Llano County Tourism / Signage						
ID	Location	Issue/ Problem	Community's Recommended Solution/Improvement	Agency's Comments	Funded	Responsible Organization
15	Llano Municipal Airport	A larger runway will encourage larger planes and increased traffic	800' to 1000' additional runway space	City may place on ballot for funding consideration	N	City of Llano
16	SH 16 N & S of RM 152 for arena/event center	No one knows we have the facility	Add roadway signs	City or county may provide a sign for TxDOT to install	N	City of Llano/Llano County
17	RM 2900 and Euel Moore Dr	Tourists can't find park	Add a sign for the park, public parking, and the boat ramp	City or county may provide a sign for TxDOT to install	N	Llano County (Kingsland)
18	Kingsland Community Park	Sign is dilapidated	New sign and add swimming area	City or county may provide a sign for TxDOT to install	N	Llano County (Kingsland)
19	Kingsland Community Park	No park sign at RR 1431 and RR 2900	Add a park sign	City or county may provide a sign for TxDOT to install	N	Llano County (Kingsland)

Llano County Roadway Repair						
ID	Location	Issue/ Problem	Community's Recommended Solution/Improvement	Agency's Comments	Funded	Responsible Organization
20	Woodlawn Drive in Kingsland	Unpaved surface	Pave street or use different base material		N	Llano County (Kingsland)
21	Skyline Drive to RM 1431 in Kingsland	Potholes	Fix the potholes		N	Llano County (Kingsland)
22	Steen Rd in Kingsland	This is a dirt road	Page this road		N	Llano County (Kingsland)
23	All low water crossings in Llano County	Low water crossings need maintenance	Some slabs needed for repair		N	Llano County
24	CR 315	No concrete slabs on river portion of road	Add concrete to this area	Evaluate for Engineering Specifications and Design	N	Llano County
25	SH 16/SH 71 at Main St and Sandstone St in Llano	Signal timing too long causes congestion and long waits	Adjust timing; Set lights to flash between 12AM and 6AM	Change signal to flashing between 12A and 6A	N	TxDOT

Llano County Roadway Expansion						
ID	Location	Issue/ Problem	Community's Recommended Solution/Improvement	Agency's Comments	Funded	Responsible Organization
26	Llano Bridge	Needs to be wider	Make into a four lane bridge	TxDOT conducted bridge feasibility study that evaluated alternatives	N	City of Llano/TxDOT
27	Llano Bridge	Leave the existing bridge alone	Create a bypass or beef up the low water crossing	TxDOT conducted bridge feasibility study that evaluated alternatives	N	City of Llano/TxDOT
28	RM 152 from SH 16 to 2 mi west of Llano City limits	Congestion with left turns	Add a left turn lane or center turn lane	Evaluate for right-of-way acquisition; 3rd priority for Llano Co on CARTPO 2014 Regional Priority List	N	TxDOT
29	Llano County roads	Keep them open	Assess need for road closures		N	Llano County
30	River Oaks Drive in Kingsland	Low water crossings not marked on curves and is dangerous	Add markings		N	Llano County (Kingsland)
31	Wood Forest Rd in Kingsland	The roads do not connect to the neighboring roads	Build connector roads		N	Llano County (Kingsland)

Llano County Roadway Expansion						
ID	Location	Issue/ Problem	Community's Recommended Solution/Improvement	Agency's Comments	Funded	Responsible Organization
32	RM 1431 in Kingsland from RM 2545 to RM 3404	Congestion with left turns	Add center turn lane and sidewalks	Evaluate for cost feasibility	N	Llano County/TxDOT
33	SH 29 east of Llano	Need passing lane	Add passing lane; add left turn lanes; add shoulders	Evaluate for future Super 2 (phase 1); highest ranked Llano Co project on CARTPO 2014 Regional Priority list	N	TxDOT
34	SH 29 west of Llano	Need passing lane	Add passing lane; add left turn lanes; add shoulders	Evaluate for future Super 2 (phase 2)	N	TxDOT
35	SH 16 south of Llano	Need passing lanes; important for medical services; tourists have no way to get off highway for pictures	Add passing lanes; widen shoulders; turning lanes	Evaluate for future Super 2 (phase 1)	N	TxDOT

Llano County Roadway Expansion						
ID	Location	Issue/ Problem	Community's Recommended Solution/ Improvement	Agency's Comments	Funded	Responsible Organization
36	SH 16 north of Llano	Need passing lanes; important for medical services; tourists have no way to get off highway for pictures; many accidents	Add passing lanes; widen shoulders; turning lanes	Evaluate for future Super 2 (phase 2)	N	TxDOT
37	RM 1431 Bridge	Not enough lanes; medical clinic and EMS use this bridge	Expand bridge to four lanes	TxDOT will continue to submit the project for federal bridge funds; second highest ranked Llano Co project on CARTPO 2014 Regional Priority list	N	TxDOT
38	RM 2147 in Horseshoe Bay (From Ferguson Dr. to SH 71)	Left turn lane needed through western portion of Horseshoe Bay	Left turn lane; widen road	Evaluate for right-of-way acquisition	N	TxDOT

<b>Llano County Roadway Expansion</b>						
<b>ID</b>	<b>Location</b>	<b>Issue/ Problem</b>	<b>Community's Recommended Solution/ Improvement</b>	<b>Agency's Comments</b>	<b>Funded</b>	<b>Responsible Organization</b>
<b>39</b>	RM 2233 from SH 71 to Sunrise Beach Village	No shoulders	Add shoulders and passing lanes	Evaluate for right-of-way acquisition for shoulders; passing lanes not warranted due to low traffic volumes	N	TxDOT
<b>40</b>	RM 962 from SH 71 to Blanco County line	Narrow	Add shoulders and passing lanes	Evaluate for right-of-way acquisition for shoulders; passing lanes not warranted due to low traffic volumes	N	TxDOT
<b>41</b>	RM 2147 to RM 1431	Large workforce north of the river that works in Horseshoe Bay	Connect RM 2147 to RM 1431	Not feasible to cross lake in Llano County; may be possible in Burnet County	N	TxDOT



<b>Llano County Roadway Expansion</b>						
<b>ID</b>	<b>Location</b>	<b>Issue/ Problem</b>	<b>Community's Recommended Solution/ Improvement</b>	<b>Agency's Comments</b>	<b>Funded</b>	<b>Responsible Organization</b>
<b>42</b>	SH 71 north of the City of Llano	No shoulders	Add shoulders	Evaluate for future Super 2	N	TxDOT
<b>43</b>	SH 29 to Rio Llano Dr in Llano	A large population live in this area and there is no left turning lane	Add a turning lane	Evaluate for right-of-way acquisition	N	TxDOT
<b>44</b>	RM 2831 in Horseshoe Bay	Inadequate road shoulders	Add shoulders	Evaluate for right-of-way acquisition	N	TxDOT
<b>45</b>	SH 71 from Burnet County line to RM 2233	Inadequate passing lanes	Add more passing lanes	Evaluate for future Super 2	N	TxDOT

Llano County Transit Service						
ID	Location	Issue/ Problem	Community's Recommended Solution/ Improvement	Agency's Comments	Funded	Responsible Organization
46	All over Llano	Need to let people know there is a transit service available	Get the word out about HOP	HOP is aware of the public's lack of awareness of public transportation. HOP is consistently attempting new avenues of public awareness.	N/A	HOP
47	Horseshoe Bay	Transit services need to be available for the elderly and disabled to get to the hospital	Make transit more available	HOP does provide service for the elderly and disabled to go to several clinics and hospitals in the Marble Falls area. A vehicle runs daily from Llano to Marble Falls.	N/A	HOP



<b>Llano County Transit Service</b>						
<b>ID</b>	<b>Location</b>	<b>Issue/ Problem</b>	<b>Community's Recommended Solution/ Improvement</b>	<b>Agency's Comments</b>	<b>Funded</b>	<b>Responsible Organization</b>
48	Horseshoe Bay	Need transit service from Horseshoe Bay to Marble Falls for shopping/medical service for elderly and the disabled.	Make transit more available	HOP provides a trip for shopping purposes on Wednesday going through Horseshoe Bay; there is limited seating and seats are reserved 24 to 72 hours prior to the trip.	N/A	HOP



<b>Llano County Pedestrian/Off-Road Hike &amp; Bike Trails</b>						
<b>ID</b>	<b>Location</b>	<b>Issue/ Problem</b>	<b>Community's Recommended Solution/ Improvement</b>	<b>Agency's Comments</b>	<b>Funded</b>	<b>Responsible Organization</b>
49	RM 152 in Llano	Add walkway or sidewalks into town; a lot of people walk these streets and they need a place to walk other than the road; bike and pedestrian lane	Walkways, bike trails, and hike path	City applied for Transportation Alternatives Program funding	N	City of Llano/TxDOT
50	SH 16/SH 71 at Llano High School	Students walking on shoulders	Add sidewalks	Evaluate opportunities for funding in conjunction with the City	N	City of Llano/TxDOT
51	Throughout Llano County	Not enough hike and bike trails	Add hike and bike trails		N	Llano County

Llano County Pedestrian/Off-Road Hike & Bike Trails						
ID	Location	Issue/ Problem	Community's Recommended Solution/Improvement	Agency's Comments	Funded	Responsible Organization
52	Euel Moore Dr in Kingsland	Bad curve; no sidewalks; narrow road	Widen road and build sidewalks		N	Llano County (Kingsland)
53	Several roads in Kingsland	Roads are not paved and have no sidewalks	Pave the roads and add sidewalks		N	Llano County (Kingsland)
54	RM 2900 and RM 1431 in Kingsland	Extremely dangerous for pedestrians; need sidewalks for elementary school	Traffic calming and sidewalks	Evaluate opportunities for funding in conjunction with the County	N	Llano County/TxDOT (Kingsland)
55	SH 16, SH 29, and SH 71	Debris on shoulders	Sweep shoulders more frequently	Sweeping is coordinated with local governments as needed; large debris removal as needed	N	TxDOT

## 5.4 Maps of Recommended Transportation Improvements

In an effort to visualize how the recommended improvements would create a comprehensive strategic plan for future growth and development of Llano County, four maps were designed that summarize the proposed transportation initiatives of the public involvement process. The maps identified below are shown on the following pages:

- Recommended Roadway Expansions (refer to Figure 48).
- Recommended Safety Improvements (refer to Figure 50).
- Recommended Roadway Repairs (refer to Figure 51).
- Recommended Bicycle, Pedestrian and Transit Improvements (refer to Figure 52).
- Recommended Tourism Improvements (refer to Figure 52)

These four graphic illustrations cumulatively represent proposed transportation improvements and enhancement that support the strategies for economic development. These are the foundations of the official Transportation and Economic Development Plan for Llano County. Upon adoption by the Llano County Commissioners' Court, this plan will serve as a legal foundation on which the county can make future decisions on transportation and development issues. As with any plan, the county will need to periodically revisit the recommended projects and other elements of the plan in order to update it with current information and innovative improvements that address new issues that arise in the future.

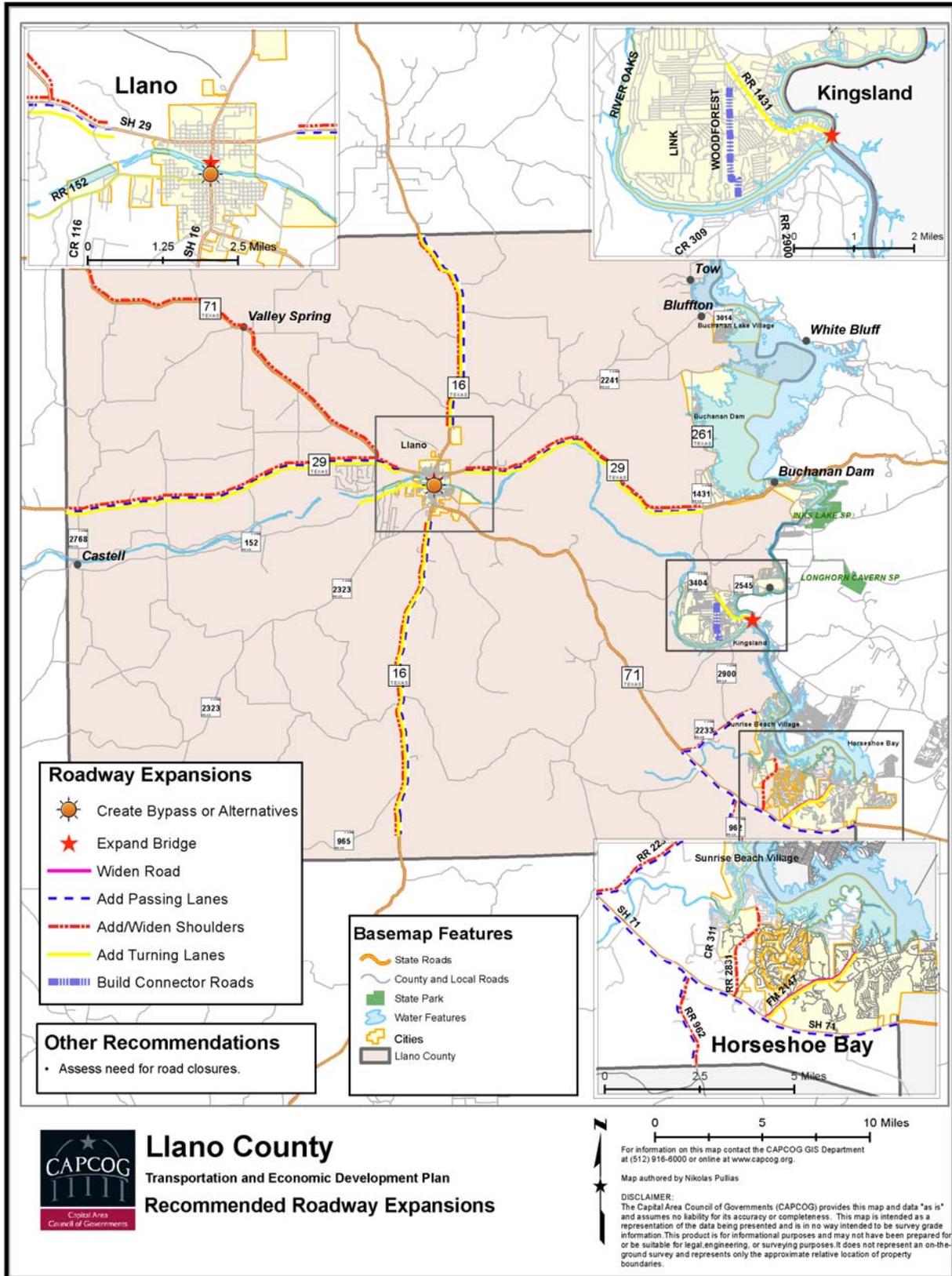


Figure 48. Recommended Roadway Expansions in Llano County.

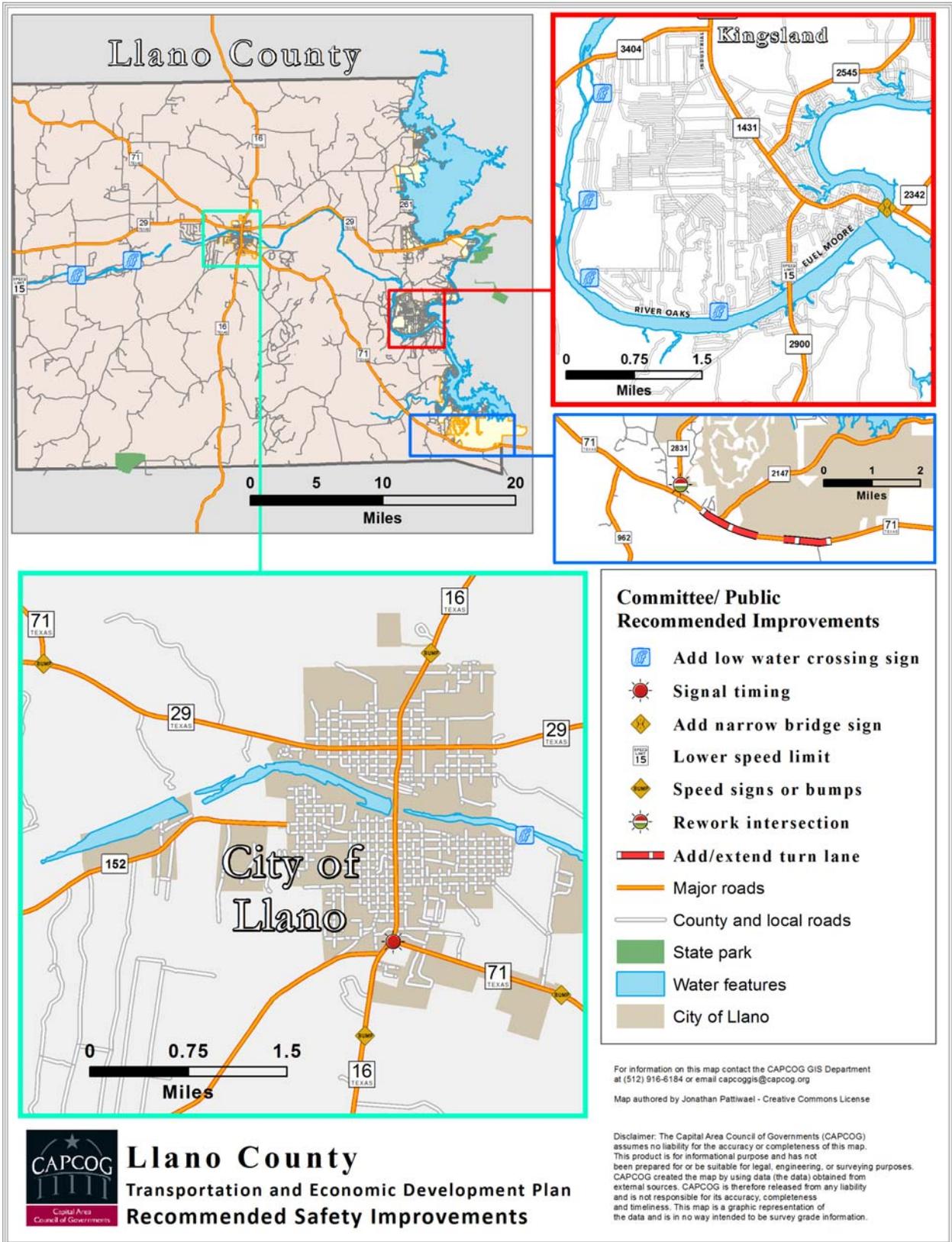


Figure 49. Recommended Safety Improvements in Llano County

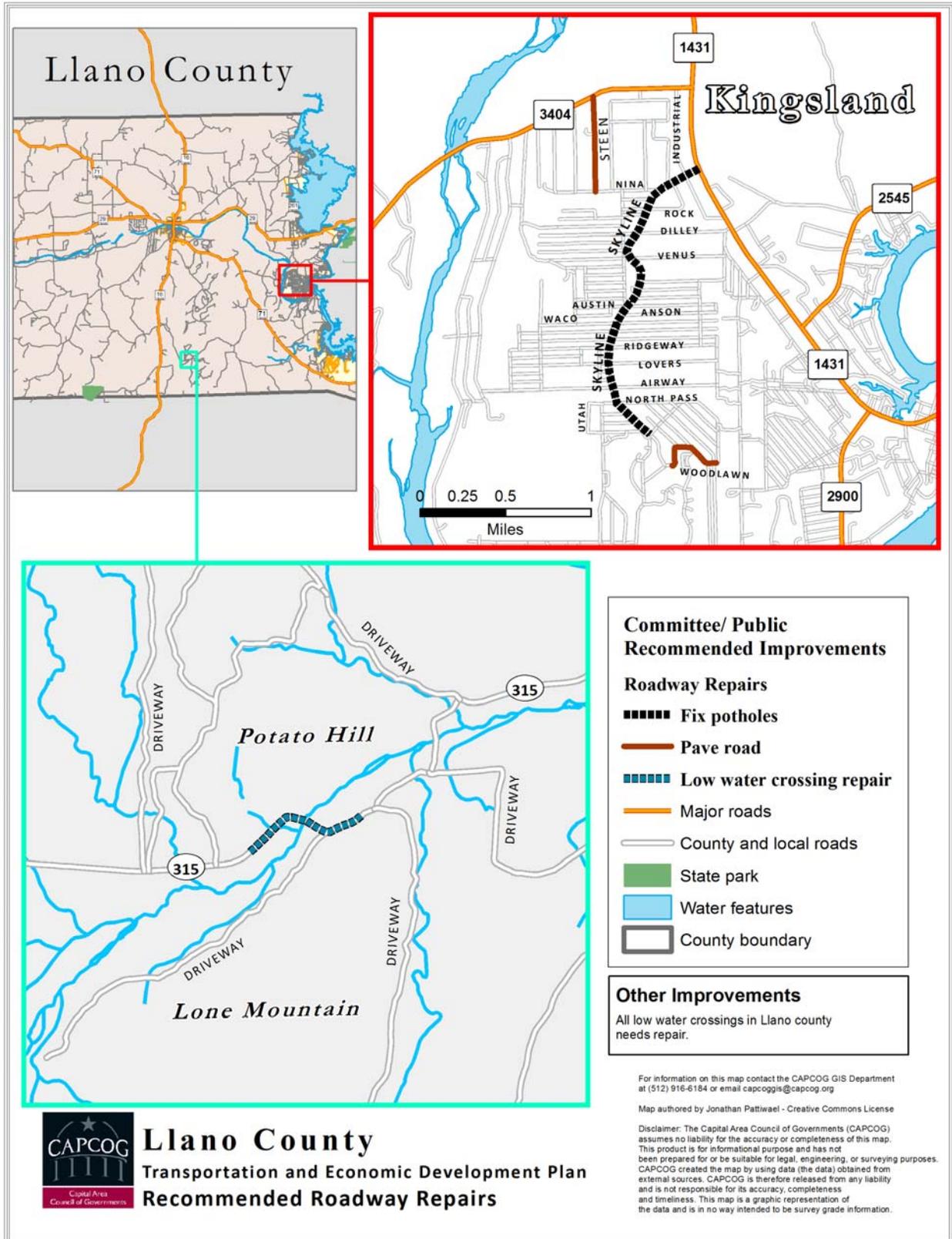


Figure 50. Recommended Roadway Repairs in Llano County.

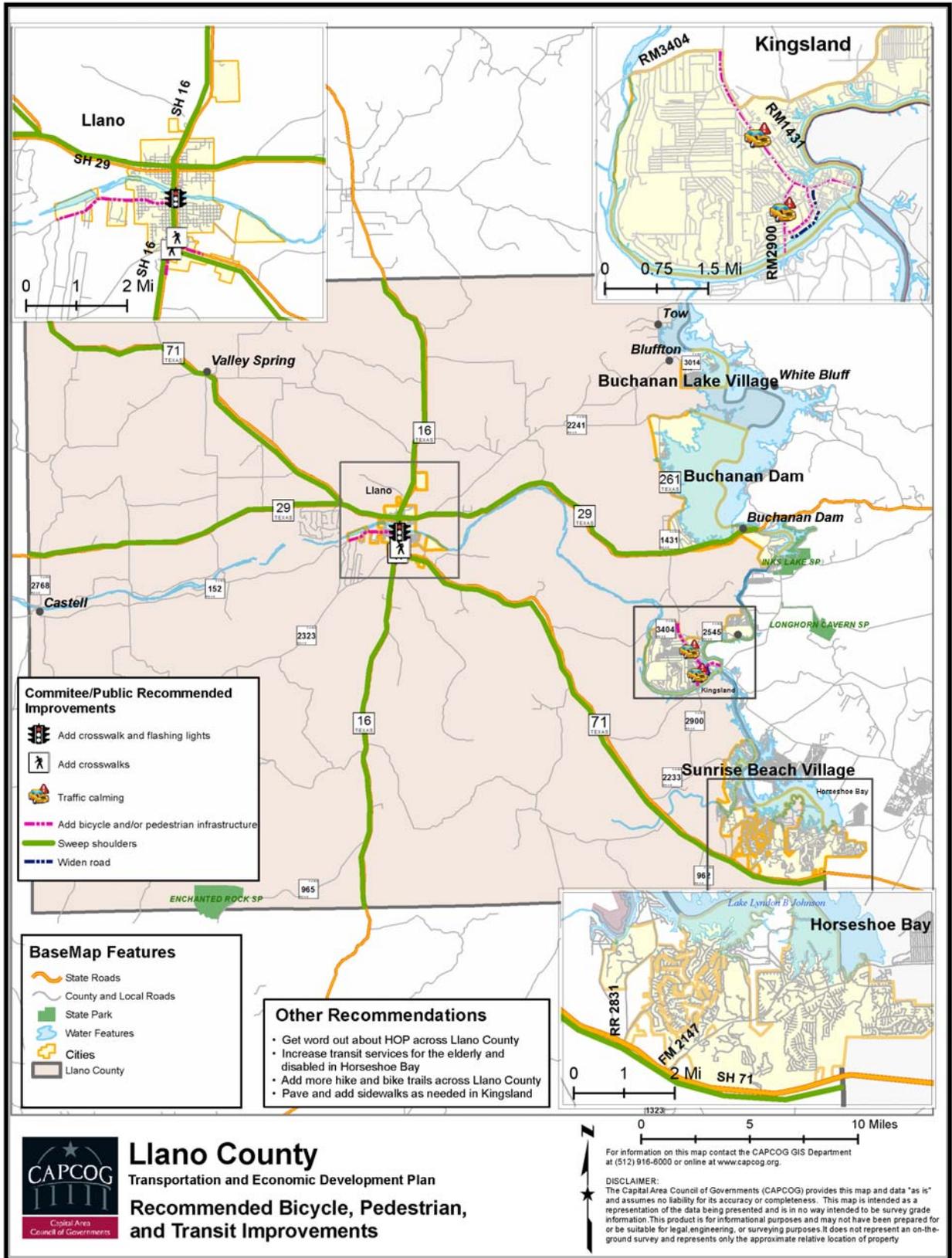


Figure 51. Recommended Bicycle, Pedestrian and Transit Improvements in Llano County.

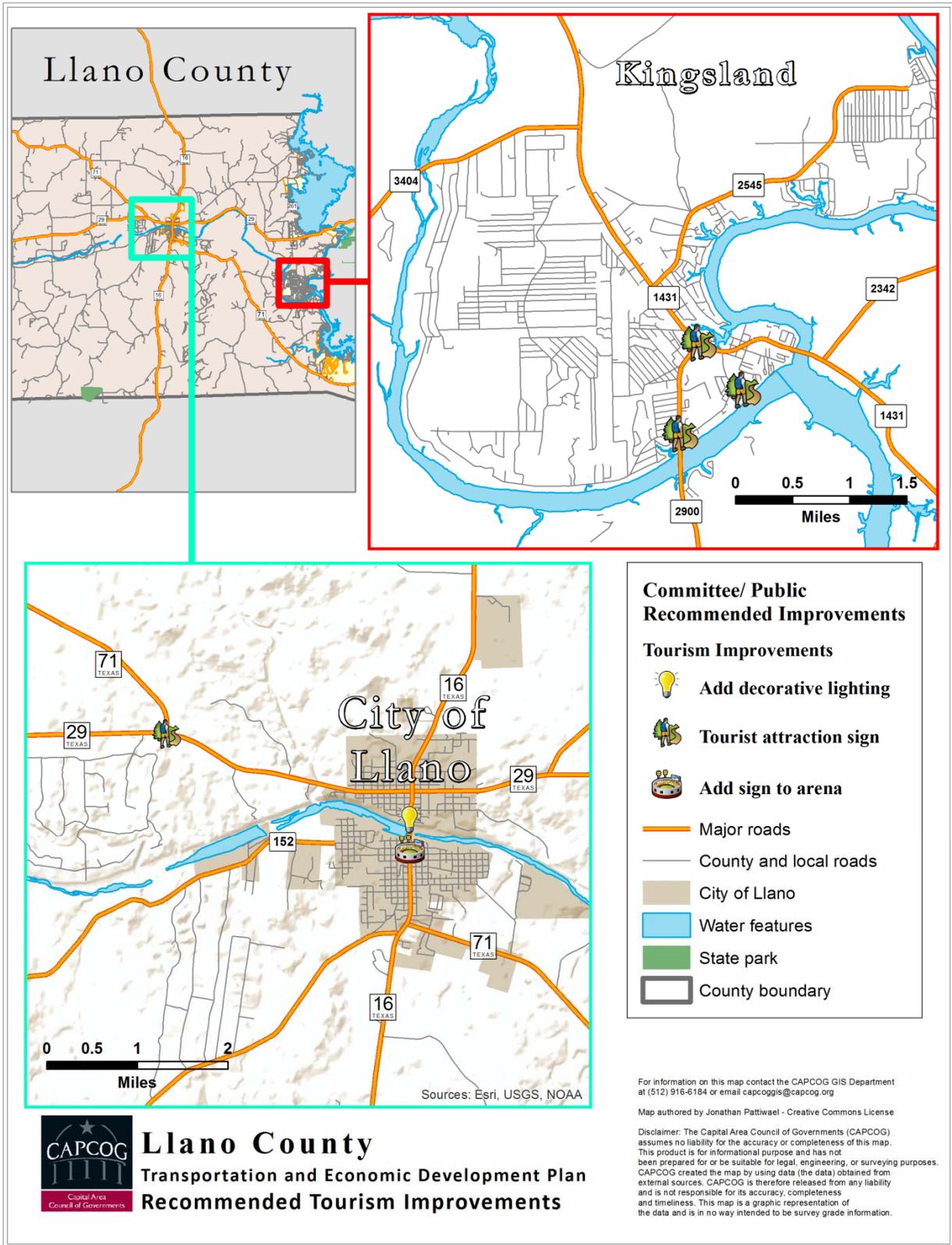


Figure 52. Recommended Tourism Improvements in Llano County.

# Chapter 6—Recommendations and Plan Implementation Strategies

## 6.1 Findings and Recommendations

The Llano County Transportation and Economic Development Plan process provided insight into the potential future transportation conditions in Llano County. This insight, along with input from TAC, EDAC, and the public, was instrumental in developing the transportation improvement project list shown in Chapter 5. The priority of any given project may change over time as conditions change and funding becomes available. To keep the plan relevant, it should be reviewed periodically. How often this occurs will be dependent on how often and to what extent the conditions in Llano County change.

## 6.2 Potential Project Costs

Of the 55 recommended projects listed in Chapter 5, TxDOT provided cost estimates for ten potential roadway projects in Llano County. Table 20 provides the location, project limits, scope, estimated cost, and scheduled let date of these transportation projects. Please note that the estimated costs are shown in present value and only represent construction costs. They do not account for additional costs that the project may incur, such as acquiring additional right of way, design costs, utility adjustments, etc.

**Table 20. Llano County Recommended and Planned Transportation Improvement Cost Estimates for Select Projects (Source: TxDOT).**

ID	Highway	Limits From	To	Description	Expected Cost
#28	RM 152	SH 16	2 mi west of Llano City Limit	Add Center Turn Lane	\$5,700,000
#33a	SH 29	Llano city limit	RM 2241	Add Center Turn Lane	\$2,000,000
#33b	SH 29	RM 2241	RM 1431	Super 2	\$16,800,000
#35	SH 16	0.7 miles South of SH 71	RM 965	Super 2	\$17,200,000
#36	SH 16	0.13 miles south of CR 412	San Saba County Line	Super 2	\$14,800,000
#37	RM 1431	at Colorado River		Bridge replacement over Colorado River, 4 lanes, 10 ft shoulders	\$10,000,000
#38	RM 2147	Ferguson	SH 71	Continuous left turn lane and 10 foot shoulders	\$4,500,000
#39	RM 2233	SH 71	Sunrise Beach	Add shoulders	\$5,500,000
#42	SH 71	SH 29	Mason County Line	Super 2	\$24,800,000
#49	RM 152	Kuykendall Events Center	Exall Street	Add Sidewalks	\$1,300,000

## 6.3 Possible Funding Sources

This section of the transportation and economic development plan presents information about transportation funding programs and discusses possible funding sources. Funding sources may include local funds from property and/or sales tax, proceeds from bond sales or other dedicated funding sources. State funds may include revenue from state fuel taxes, registration fees, toll equity, proceeds from bond sales, or other dedicated sources, e.g. Proposition 1 funds. Federal funds include proceeds from the federal portion of the motor fuels tax. Other funding sources could include other debt financing mechanisms or public-private partnerships.

### 6.3.1 Regional Planning Support and Funding Availability

Llano County is adjacent to but not part of CAMPO and does not belong to any other MPO. Therefore, Llano County cannot access transportation funding programs that are administered through or with the cooperation of the MPO. Should Llano County join CAMPO in the future, funding opportunities through the MPO should be considered.

CAPCOG provides regional planning support to Central Texas counties, including Llano County. The Capital Area Regional Transportation Planning Organization (CARTPO) is a branch of CAPCOG that supports rural transportation planning. CARTPO serves as a forum for elected officials to come together on transportation issues to recommend changes in policy and practice, advocate for legislation, recommend regional priorities, direct certain planning and data initiatives, oversee the federally prescribed local consultation process, and collaborate with CAMPO. CARTPO and TxDOT often work together in planning transportation projects.

Availability of funding is a major factor in determining whether a project is authorized for further project development by TxDOT. TxDOT organizes its various fund sources into 12 categories, each associated with specific types of projects or ranges of eligible activities; eight of which are potentially available to rural areas. These include funds that are distributed based on formulae or measurable criteria, such as preventative maintenance and rehabilitation (Category 1), bridge and rail funds (Categories 6 and 10), safety funds (Category 8), transportation alternative program funds (Category 9), and supplemental transportation project funds (Category 10). Additionally, other funds are distributed based on legislation, Texas Transportation Commission selection, or local commitments, which include non-traditionally funded transportation projects (Category 3), district discretionary funds (Category 11), and strategic priority funds (Category 12).

Some local governments may choose to locally finance transportation improvements through the issuance of bonds. Typically when bonds are issued, they are linked with specific uses of the capital, such as capital improvement projects. There are two types of bonds Llano County could issue: a) a General Obligation Bond, which issues debt on behalf of the County with the expectation that that debt would be repaid through general public revenues, and b) a Revenue Bond, which implies that the revenues from the project itself will repay the debt. Bond issuance requires voter approval to be used as a vehicle for public finance.

## 6.4 Implementation of the Plan

As future development occurs within unincorporated areas, particularly the extra-territorial jurisdictions of the City of Llano and Horseshoe Bay, the decision to incorporate in the future), this plan will provide a blueprint for the future transportation system, which developers will need to consider when planning new communities. There is a direct relationship between land use, economic development, and transportation, and the impacts on the transportation system need to be considered as each new community is developed.



As stated in the introduction of this document, the plan is intended to be a tool for the county, the cities, the developers, the chambers of commerce, and the general public as Llano County continues to grow over the next 25 years. It is particularly important that residents within the county had the opportunity to identify transportation and economic development needs during the development of the plan.

The plan should be reviewed and updated on a regular basis to see if the assumptions are still valid. Likewise, if there are jurisdictional changes, the plan should be reviewed to make sure the priorities still make sense or to take advantage of new opportunities.

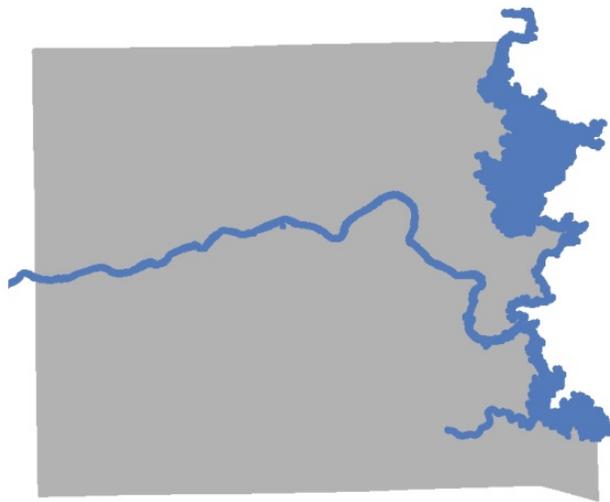


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## **Appendix A—Llano County Transportation and Economic Development Plan Questionnaire Results**





# LLANO COUNTY

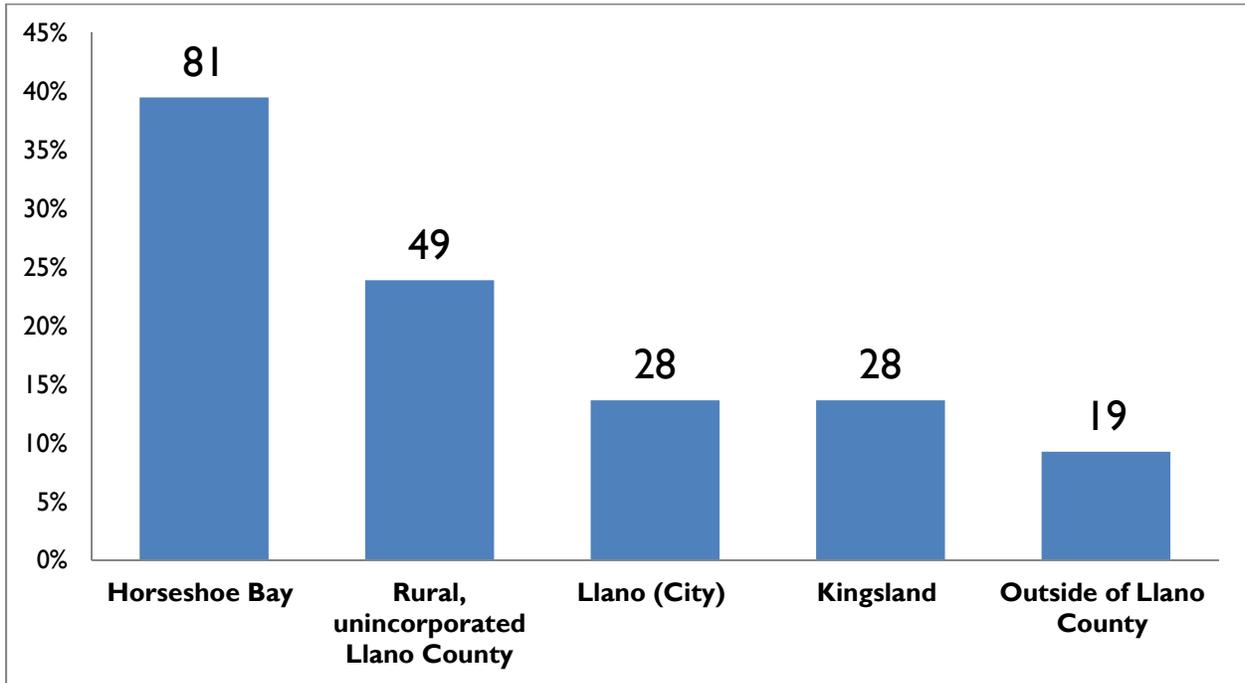
Transportation + Economic  
Development Plan

## SURVEY RESULTS

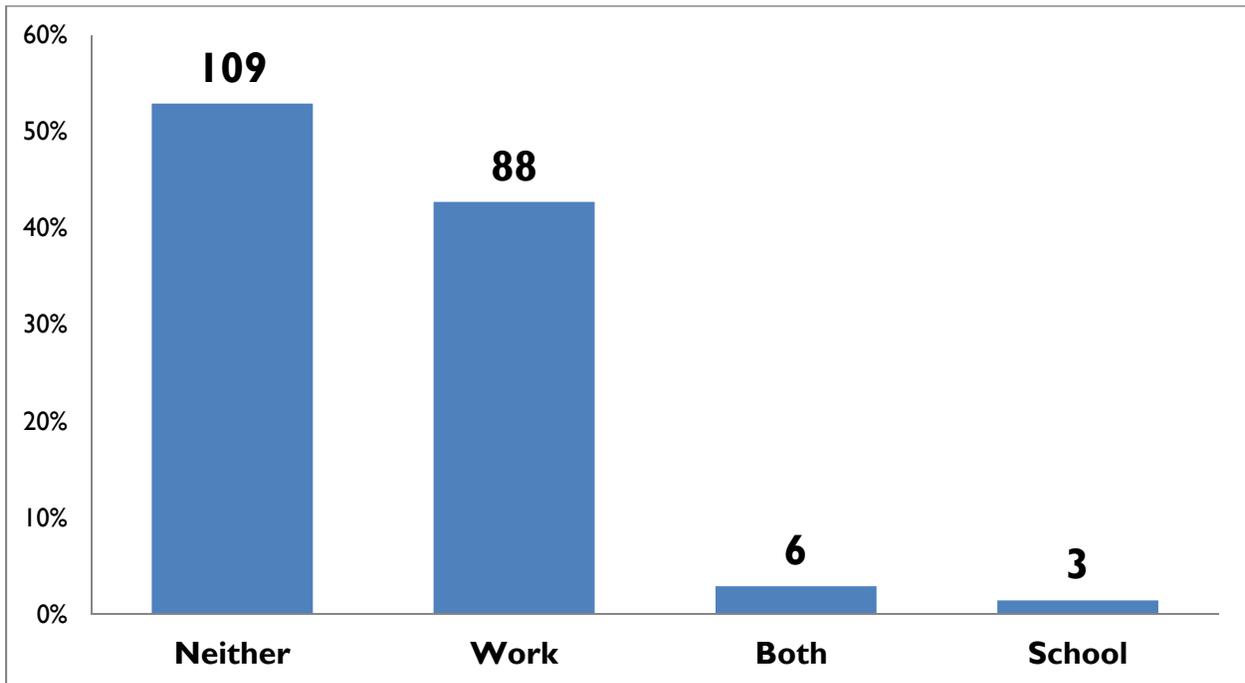
206 responses (~1% of Llano County population)

This questionnaire was open for responses from May 1, 2015 through July 31, 2015. A total of 206 responses were received. Respondents completed paper questionnaires at pop-up open houses, local community facilities and businesses as well as digital questionnaires on the project website ([www.llanocountyplan.org](http://www.llanocountyplan.org)). Results will be used in developing transportation and economic development proposals in the draft plan. For more information on the questionnaire, contact Ben Ettelman with the Texas A&M Transportation Institute at (512) 407-1166 or [b-ettelman@tti.tamu.edu](mailto:b-ettelman@tti.tamu.edu).

## WHERE IS YOUR PRIMARY RESIDENCE? (N=205)

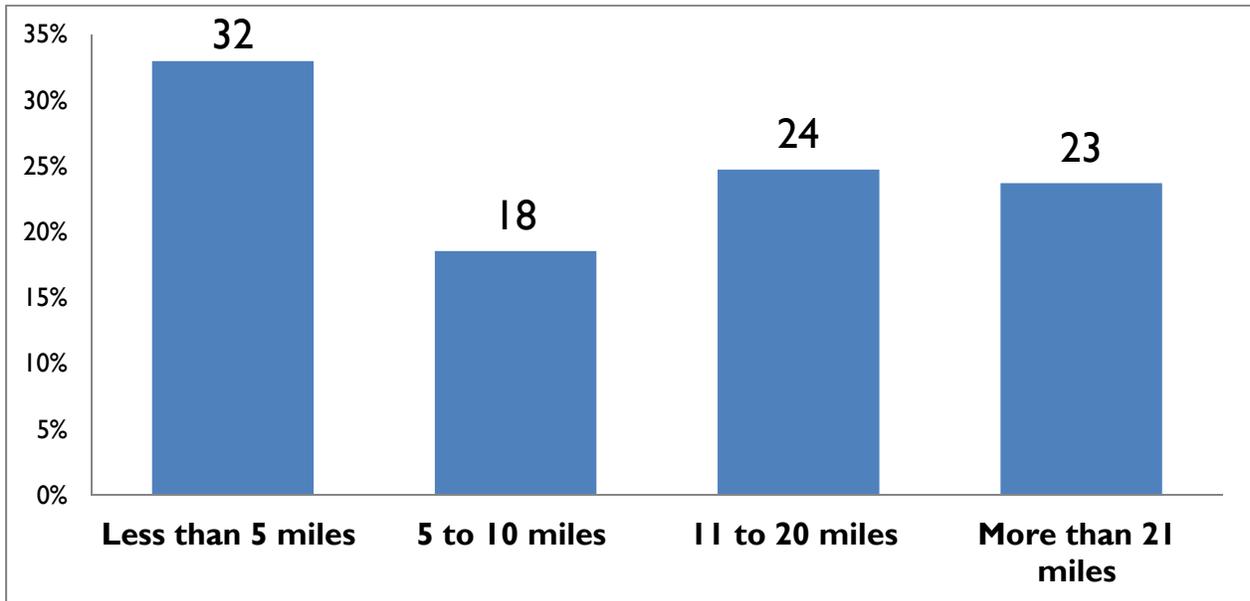


## DO YOU COMMUTE TO WORK OR SCHOOL? (N=206)

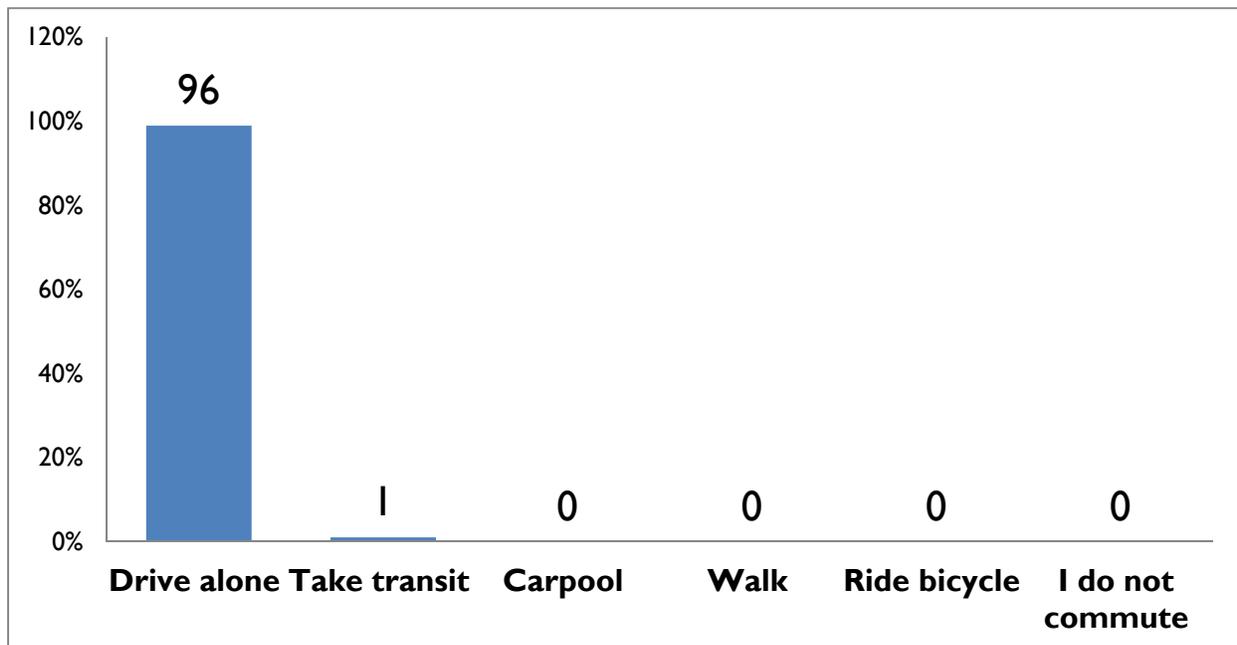


## TRANSPORTATION

HOW MANY MILES IS YOUR ONEWAY COMMUTE TO WORK OR SCHOOL? (N=97)



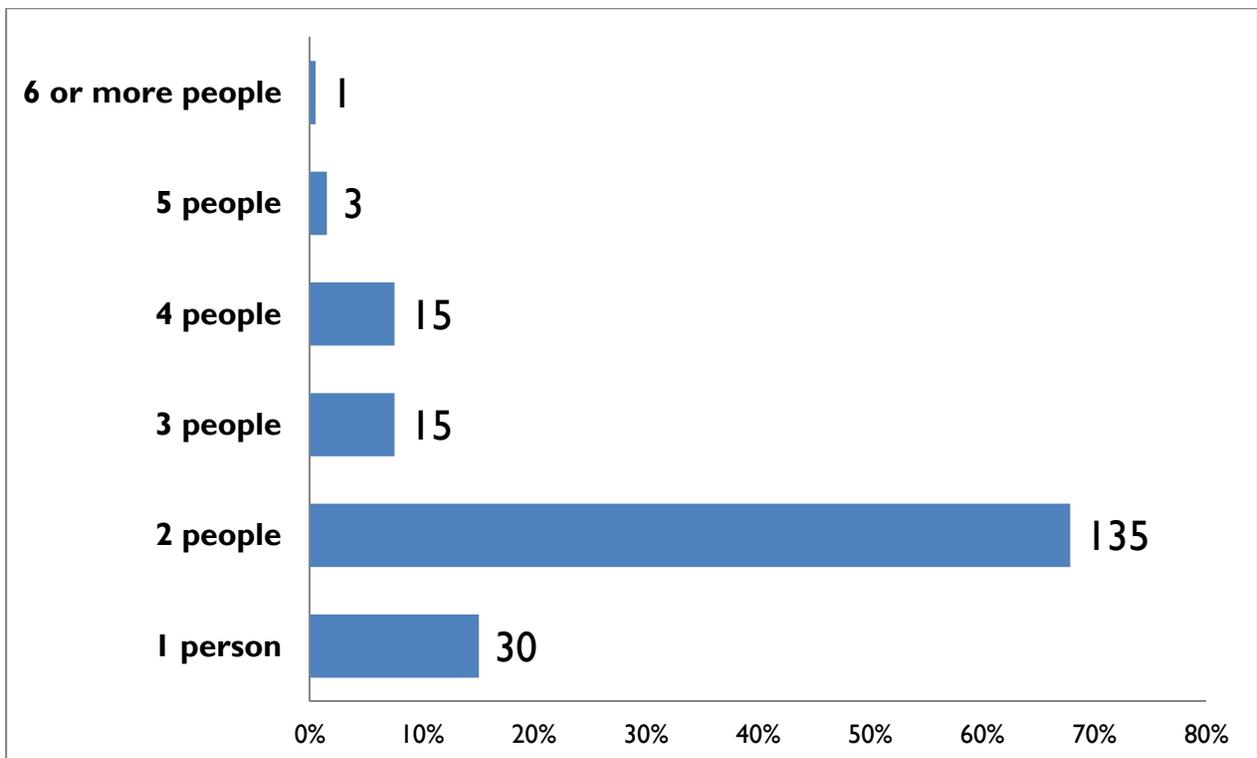
HOW DO YOU MAKE YOUR COMMUTE THE MAJORITY OF THE TIME? (N=97)



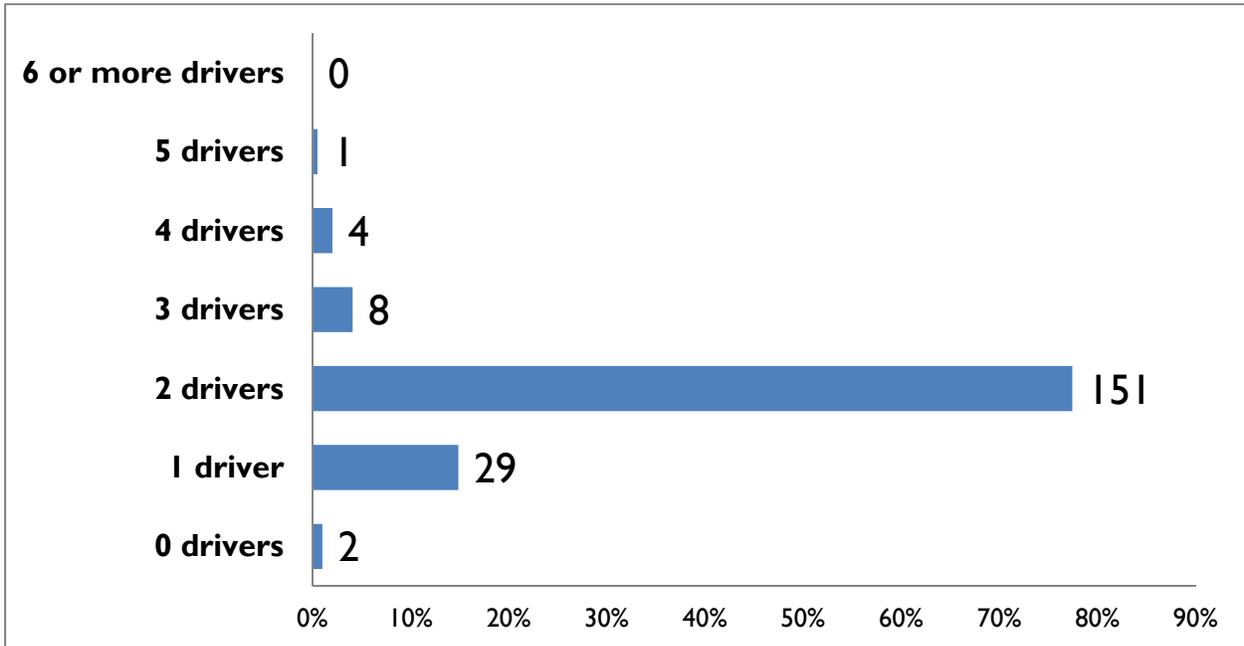
IF YOU ANSWERED “I DO NOT COMMUTE”, HOW MANY MILES DO YOU TYPICALLY DRIVE IN A SINGLE DAY FOR OTHER TRIPS SUCH AS SHOPPING OR ERRANDS? (N=102)

- **AVERAGE = 24 MILES**
- **RANGE = 0 to 83 MILES**

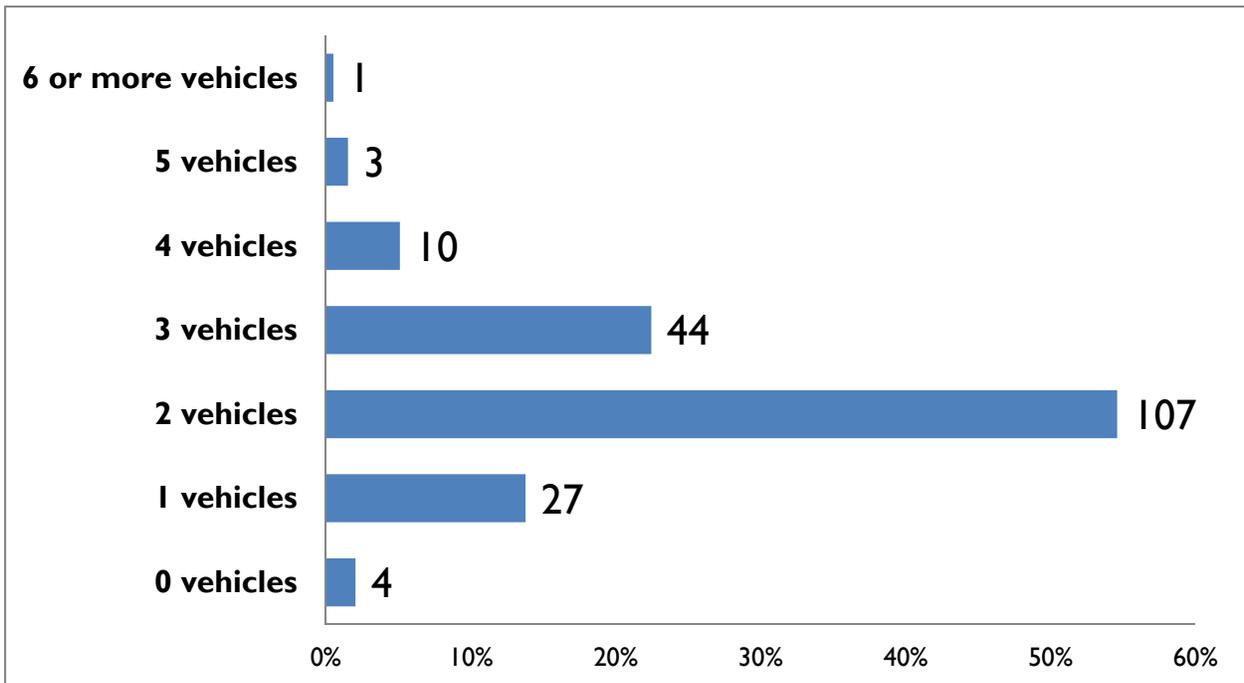
PLEASE TELL US ABOUT YOUR HOUSEHOLD:  
NUMBER OF PEOPLE (N=199)



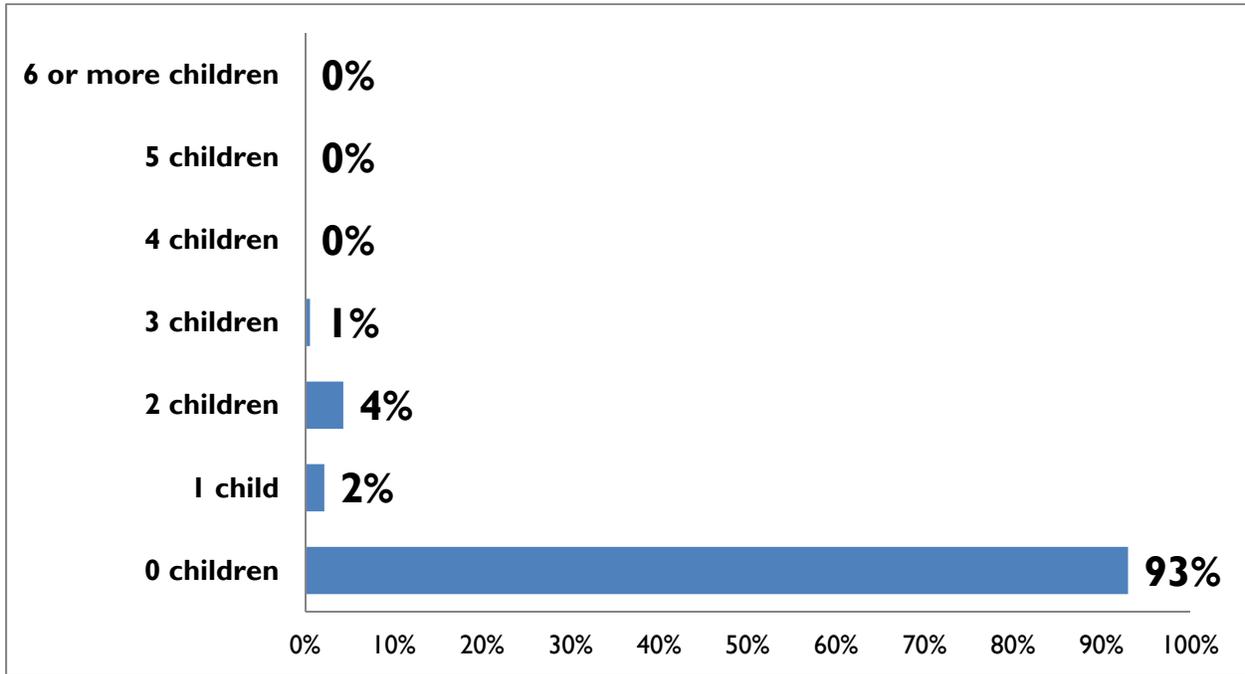
PLEASE TELL US ABOUT YOUR HOUSEHOLD: NUMBER OF DRIVERS (N=195)



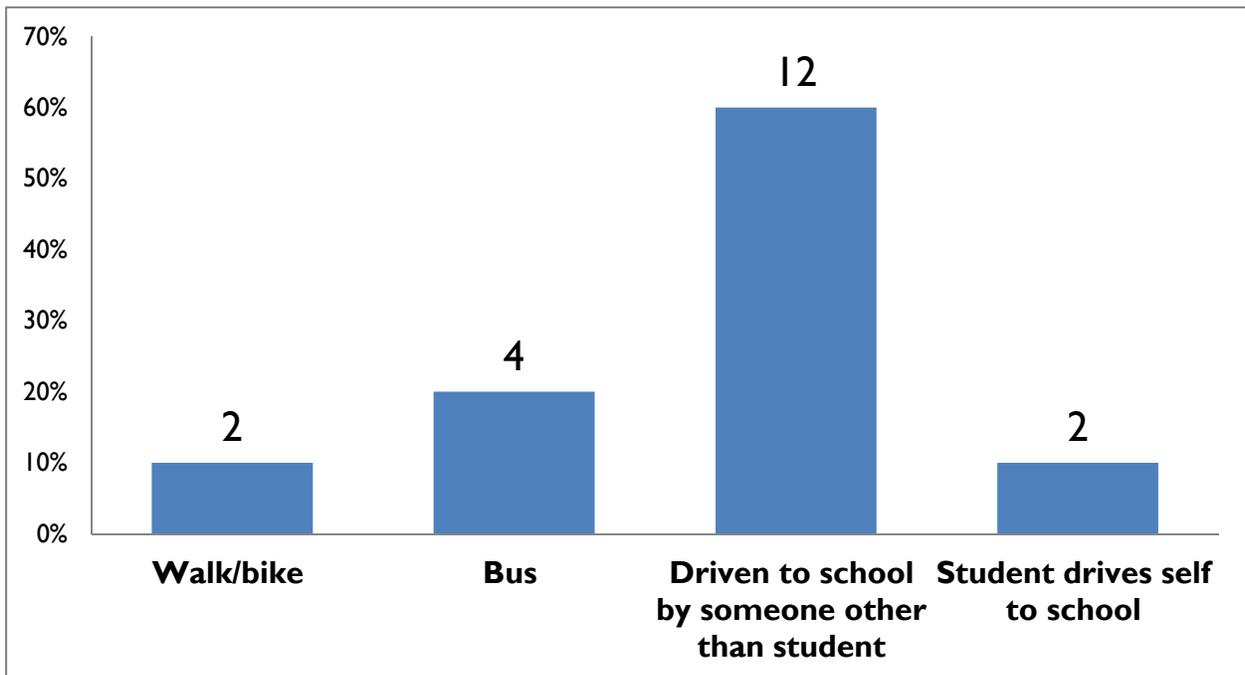
PLEASE TELL US ABOUT YOUR HOUSEHOLD: NUMBER OF VEHICLES (N=196)



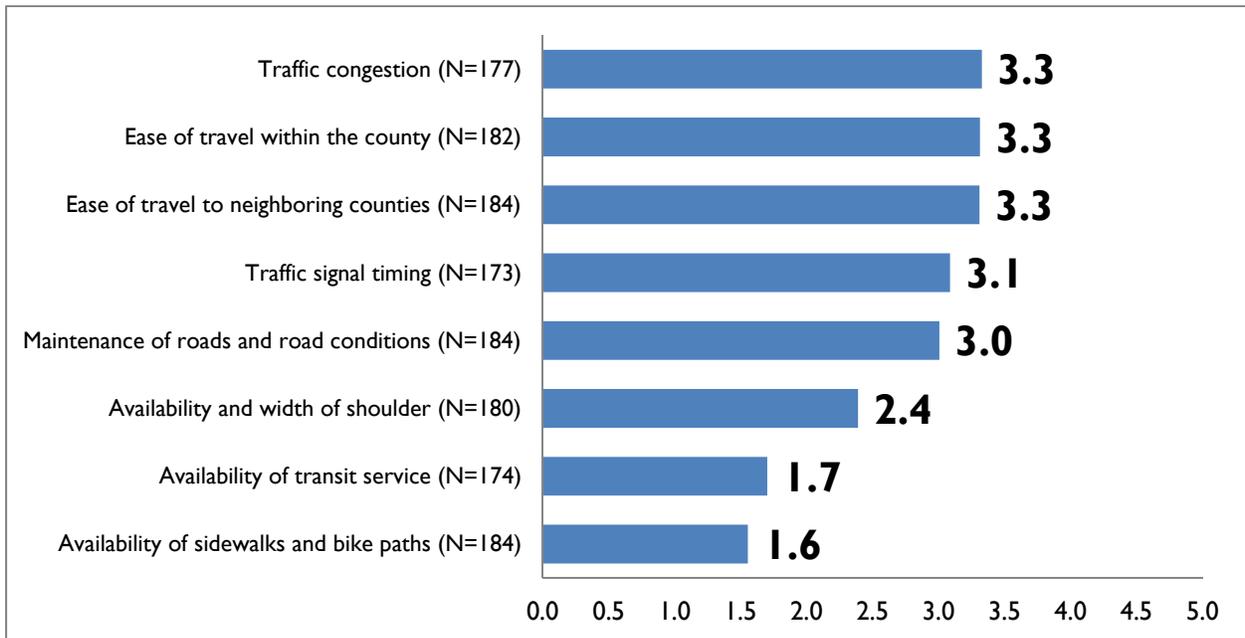
PLEASE TELL US ABOUT YOUR HOUSEHOLD:  
HOUSEHOLDS WITH CHILDREN ATTENDING K-12 (N=186)



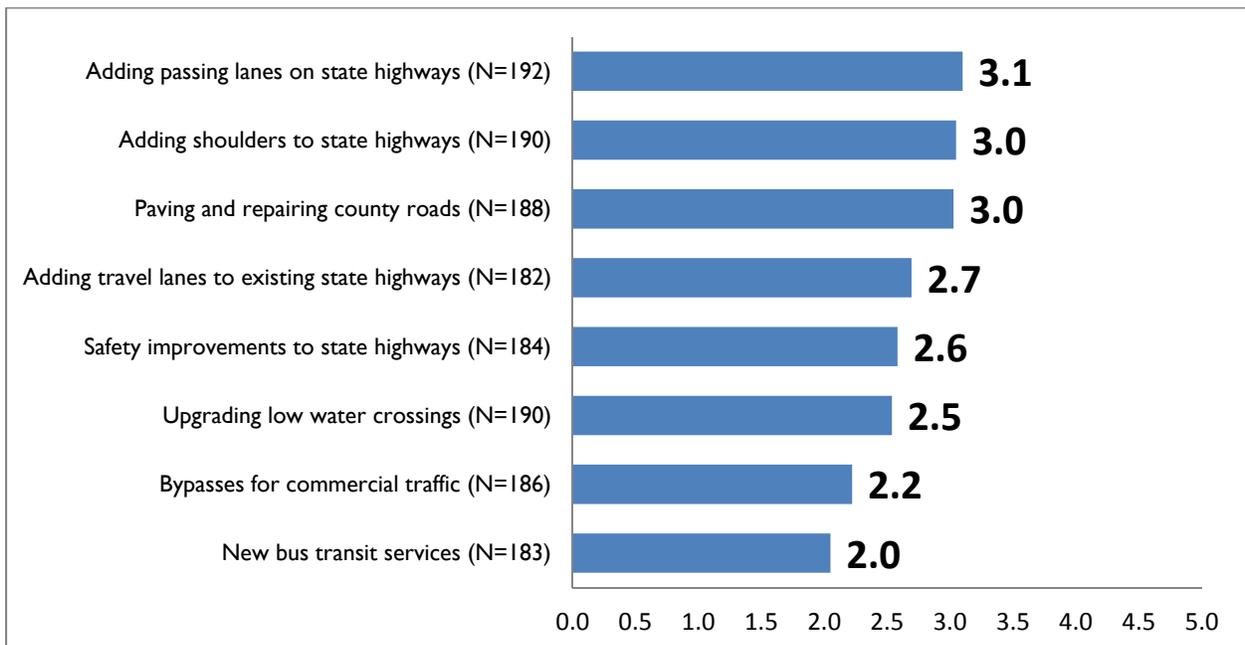
PLEASE CHECK ALL OF THE WAYS THAT YOUR CHILDREN TRAVEL  
TO SCHOOL (N=20)



## AVERAGE RANK OF ASPECTS OF THE LOCAL TRANSPORTATION SYSTEM (1 BEING POOR, 5 BEING EXCELLENT)



## HOW IMPORTANT DO YOU THINK IT IS TO ACCOMPLISH THE ITEMS BELOW IN THE NEXT 5-10 YEARS? (1 IS NOT AT ALL IMPORTANT; 5 IS MOST IMPORTANT)

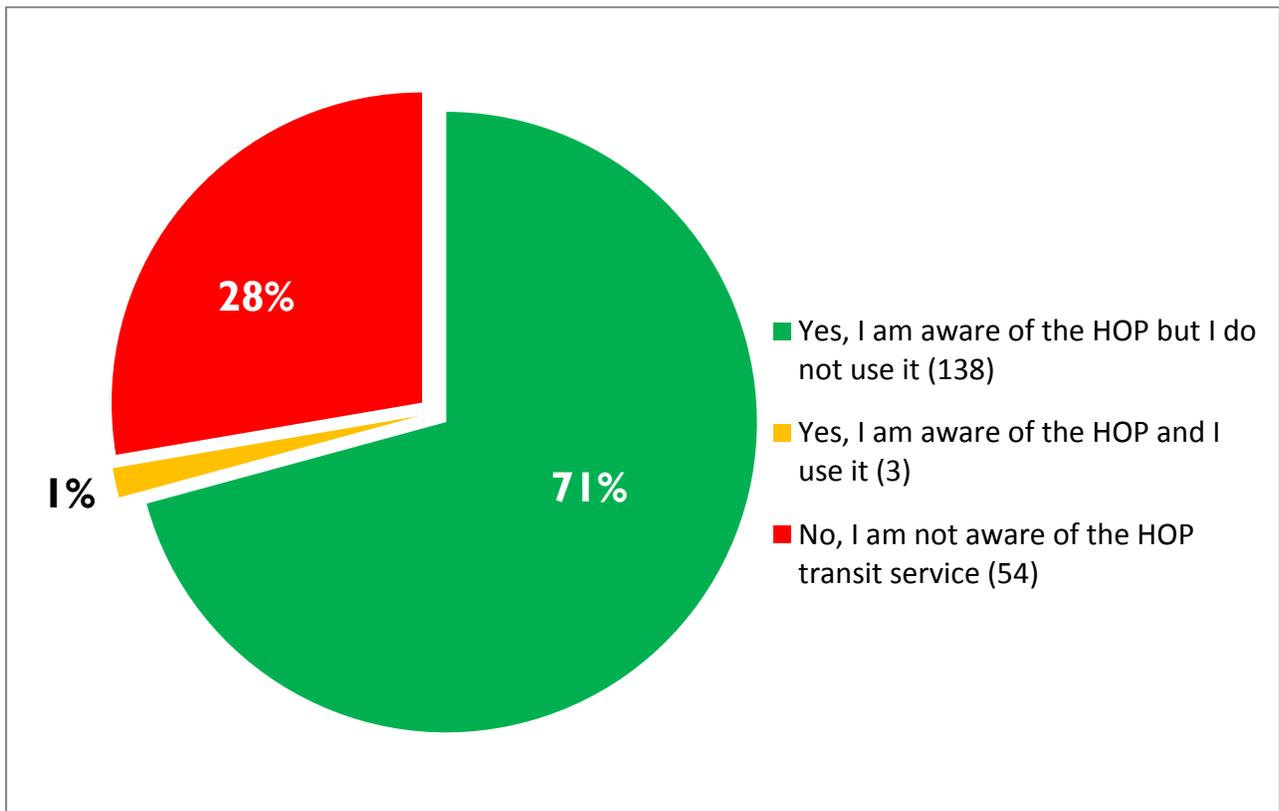


## HOW IMPORTANT DO YOU THINK IT IS TO ACCOMPLISH THE ITEMS BELOW IN THE NEXT 5-10 YEARS? (1 IS NOT AT ALL IMPORTANT; 5 IS MOST IMPORTANT) (OTHER)

- The congestion at 2900 and 1431 is impossibly dangerous. It was bad enough but when Buddies opened it doubled. I live on Bonny Cove and we have no alternate entrance or exit and it is deadly trying to get out of or turn into our street.
- Highway 16 between Fredericksburg and Llano needs additional travel lanes. There are no shoulders and very few places to pass.
- Adding left hand turn lane on State RR 2147.
- Reasonably priced limo/transport to airports/hospitals, medical, special shopping for seniors.
- There are pinch points for cyclists even on some new roads, such as the rebuilt Ferguson Powerplant Rd. I refer to guardrails so close to the edge of the road that cyclists are forced further into traffic lanes.
- Road layout and markings at intersections are very dangerous at times. E.g. the intersection of 71 and 2147. One can travel at 70 mph on route 71, yet you only have 100 yards turning lane in which to stop. Slowing down in the travel lane is dangerous. This is easily improved by changing the road markings.
- The rule of the road is to travel on the right. The right lane can never disappear; the right lane should always have priority. There should never be a sign that says "right lane ends" or "merge left". It is always the left lane that disappears (even if it does not look like it), and the traffic on the left that should merge with the right. A slow vehicle in the right lane cannot easily accelerate or slow down to merge left. The extra lane was provided for the convenience of the traffic on the left, now the traffic on the left has to find a way back to the right. Road markings should indicate the continuation of the right lane and ending of the left. Anything different is an invitation to an accident where the LEFT lane ends.
- Center turn lane on 2147 through all of Horseshoe Bay
- Continuous left hand turn lanes on FM 2147.
- extend left turn lane Hwy 71 to Hwy2147
- Re-stripe
- Hwy 2831 & Golden Nugget need for improvement
- Expand Hwy 2147 from Ferguson Rd to Hwy 71 add middle lane
- Adding left run lanes at critical locations in the county on state roads for additional safety.
- Llano County is in pretty good shape
- Stop using paving materials that cause so much road noise in cars!
- Repair of local roads in cities like Kingsland. I live at 205 Pierce Drive and the road is the worst I have ever seen. No local maintenance and repair
- Light rail from Llano through Kingsland on to Austin area
- adding flashing signal at SH 71 and FM 2147
- Adding a center turn lane on Hwy 2147 in Horseshoe Bay towards Hwy 71.
- Rapid train and bus service would assist all who commute and increase home sales in and around Horseshoe Bay.

- Keep improving upon 911 addressing and mile markers along the highways and county roads for emergency responses.
- Regional airport for the Hill Country
- Bike paths
- More transportation between Llano and Burnet.
- I think the county roads are in pretty good shape. The City of Llano roads are awful!
- Llano city streets are in terrible condition.
- Well painted lanes/lane markers
- Bypass Llano Hwy 71 to 29
- STOP THE TEXTING DRIVERS
- More options for mass transit and light rail
- Ban Bill Boards State and County Highways

### ARE YOU AWARE OF THE HOP TRANSIT SERVICE? (N=195)



## WHAT TRANSPORTATION ISSUES NOT MENTIONED IN THIS SURVEY DO YOU THINK ARE IMPORTANT FOR THE FUTURE OF LLANO COUNTY?

- Car sharing!
- Left turn lanes
- Do something about the dangerous intersection of 2900 and 1431 in Kingsland.
- It would be nice to stop more speeders and tailgaters.
- Bike lanes
- I would like to see bicycle paths.
- I would like to see HOP made so that we can understand exactly what it is and how to use it. I might use it if I could figure it out.
- Filled out once, then system deleted.
- It would be nice to have a road directly linking Horseshoe Bay to Blue Lake, a road that follows the contour of the lake -- Lakeside Drive. Planning for such a road for the entire length of the lake (both sides) should start now.
- Golf carts, and golf cart type maintenance vehicles should be kept off the main roads.
- Opening Clayton Nolen Dr. to TX71
- Continuous left hand turn lanes on FM 2147.
- transportation to the hospital
- Get all the streets in Kingsland paved
- Expansion of bridges to the same number of lanes as the state road. e.g. Hwy 29
- Better ways to alert people of high water over the slabs. Kids or other people remove barricades and people drive too fast down county roads enforce speed limits especially the slab road. Put blinking lights on barricades.
- Longer turn lane into HSB
- Better publicity for HOP. Make it easy to use and easy to find out how to use.
- I think Llano County does a pretty good job on streets, I see no need for any subsidized public transportation
- Middle turning lanes on highway 281 north of MF. Widening shoulders on 1431 between MF and Kingsland. Putting a bridge over HSB- huge waste of time to go from one side of LBJ to the other
- I'd like to see the county builder wider roads near park lands to accommodate more cyclists.
- Remember that bigger isn't always better. Most people who live in rural Llano County just want their roads to be passable and not wide enough etc. to encourage more commercial traffic. We live in the country because we like the peace and quiet we find here.
- LEAVE the Inks Bridge in Llano ALONE, maintain as one lane bridge. Upgrade structure as necessary but NEVER make this crossing of the Llano river four lanes, this would be a waste of tax payer money and KILL downtown Llano.
- The recently added turn lanes in downtown Llano are nuts - they create MORE traffic problems than they fixed. The same solution that was used at SH16 & SH29 was not used in Llano. I believe this represents the lack of citizen input - as is often the case.

- Paved roads in all sub-divisions to help maintain property values as well as quick, easy and safe access for emergency vehicles.
- Local roads within Kingsland as mentioned in prior question. Not even sure how to express concern and who to.
- Not having shoulders on the highways and/or four lanes, we will continue to have a high rate of accidents and deaths.
- More accommodation for bicyclists and walkers and non-car people.
- Safety first, but please don't lose rural, small-roads atmosphere in the name of "progress."
- Light rail. Llano to Kingsland to Burnet, Bertram, Liberty Hill to tie in to Leander and on.
- State Hwy 71 in Llano County needs to be multi-lane throughout the county.
- Better speed monitoring during summer months with increased visitor traffic volume.
- The passing lanes on Hwy 71 are wonderful! Lanes such as these are needed on Hwy 16 South, especially, but all highways need them. The left turn lanes in downtown Llano have caused a terrible traffic jam. Lights with left turn signals should be all that's needed.
- More lanes for traffic.
- Improved left turn lane into Horseshoe Bay from Hwy 71 to accommodate the growing traffic in to Horseshoe Bay. Adding a shoulder to the entire length of Hwy 2831 going in to Blue Lake and Deerhaven.
- Safety
- Rapid train service
- Alternatives to crossing the lake, paving, and additional lanes as people move into the area from Austin. Possible traffic control device will be needed on HWY 71 soon at 2233.
- Wider shoulder and passing lanes on major highways (example, like HWY 16 from Goldthwaite to I-20. I don't think it is very safe for bicyclers (and those driving) to ride on the highways that have 50+MPH speed limit.
- Regional airport for everyone in the Hill Country
- Wirtz Dam Road Bridge and connection to Hwy 71. By-Pass on east side of Marble Falls. These will affect a large population in S. Llano County.
- Make the city more bicycle friendly.
- Planning, funding and building roads in anticipation of the growth of the area.
- Less concerned with traffic control if there is sufficient roads and road width.
- Build a bridge over lake marble falls by the Wirtz Dam from Cottonwood Shores to Marble Falls. High priority.
- An in County bus line would work.
- Fixing roads (paving, pot holes).
- Large pot holes all over the city of Llano
- Widening 2147 through Horseshoe Bay and adding turn lanes...this is most important with the increase of traffic on 2147 and it being a major "cut thru" for many going to 281, etc.
- We need smoother asphalt paving for our highways. A few are smooth but most are a rougher surface which is very noisy and distracting for drivers.
- A way to help elderly effectively travel for their necessities - food/medicine/doctor appointments/elder care centers so they have some quality of life.
- Horseshoe Bay demographic is excellent candidate for Smart Cars. What infrastructure is required to support smart cars?

- It's important that public buses are not brought to Llano. It only brings undesirables to the area.
- Local travel assistance for seniors to markets, doctors, hospitals, and post offices.
- Better maintenance, especially in Kingsland.
- Sidewalks/bike paths
- Left turn lanes on 152 in the city toward Robinson Park
- Scenic overlooks, scenic rail trip
- Speeders on Hwy 29 between Buchanan Dam & Llano - level terrain, but needs passing lanes.
- More direct routes to other cities
- "TEXTING Drivers"
- The train needs to come here (from Bertram)
- Better roads to I35-Austin-San Antonio- Fredricksburg
- Light rail from Hill Country to Austin & San Antonio. More vans & bus service.
- Low cost transportation for Senior Citizens
- Additional lanes on major highways
- Beautification
- Ban Billboards
- Vegetation management.
- Better equipped/staffed R&B Dept.
- More frequent mowing, post wildflower seeding period.
- More Bike paths
- Bridges
- Road improvement in general
- Need more bike/ped lanes/access
- Consideration of replacing the 2 lane bridge- 1431 @ Kingsland
- Not sure what we have to offer to those without their own transportation. They need this to ensure their employment and healthcare.
- Commercial/18 wheeler traffic through small areas as the communities grow in population
- Taxi service would be nice
- Hwy 71 from Llano to Brady
- Sidewalks for seniors
- Street repairs and maintenance
- The school busses are useful for children
- Wild flower parking availability on road sides.
- I thought HOP was only for elderly & children & needs advance notice.
- Further improvements on SH to Austin from Llano
- More reflectors/barriers on Hwy 71
- Road repair
- Passing Lanes
- SLOW DOWN
- Shoulders on 2831
- Vet rides is a good help
- Widen roads, adequate lanes to move traffic

## WHAT ROAD(S) DO YOU FEEL ARE THE MOST UNSAFE OR DANGEROUS IN LLANO COUNTY AND WHY?

- County roads in general as they are typically narrow and sometimes driver speed
- Hwy 29 has no shoulder and few turning lanes. 2900 and 1431 in Kingsland has too much traffic going all different directions and too many streets and businesses located there. The parking in front of the El Bracero restaurant also obstructs the view when trying to exit Bonny Cove Drive and other subdivisions and businesses in that area.
- Highway 16 South (to Fredericksburg). No shoulders, few places to pass, limited visibility, lots of curves
- 71 is too narrow and not enough shoulder width.
- intersection of 2900 and 2233
- State RR 2147 through City of Horseshoe Bay because of lack of left turn lane.
- Highway 71 from 2147 to Llano. Drivers get frustrated and pass unsafely. I got run off the road myself by someone crossing the double yellow stripe.
- Road to Sunrise Beach from 71. No shoulder for cyclists and fair amount of traffic. Same for Kingsland to four corners.
- Route 71, because of poor markings and unsafe turnoffs. Wherever traffic turns there should be a turnoff lane long enough to allow traffic to slow from 70 to zero, if turning against oncoming traffic; and to 10 if doing a right turn.
- The correct sign posts for passing lanes should be "Drive right, Pass Left".
- The correct sign posts for the end of passing lanes is "Left Lane Ends, Merge Right".
- At the end of passing lanes, the lane dividing line should veer left showing the continuation of the right lane, and the ending of the left lane, with arrows on the road surface of the left lane pointing to the right.
- All are safe that we travel.
- FM 2147 in Horseshoe Bay needs left turn
- Most - deer.
- Virtually all roads have inadequate passing lanes, center turn lanes and shoulders
- FM 2147 - too much traffic and need left hand turn lanes.
- Hwy 71 - almost no passing zones
- 2147 - no shoulders
- Hwy 2147 from Ferguson Rd to Hwy 71
- 71 between 29 split just west of Llano and Brady and 71 between 2233 and Llano

- 1431 - busy, no shoulder
- Hwy 29 from Burnet to Llano. No passing lanes, limited shoulders and left turn lanes.
- Hwy 2147 in Horseshoe Bay have limited left turn lanes.
- Hwy 71 east of Hwy 2147 needs a left turn lane into Summit Rock subdivision.
- Hwy 71 east at Hwy 2147 need to have markings repainted to allow a longer left turn lane.
- the slab road and highways 16 both north and south 71 west no passing lanes
- 2147 - needs to be widened
- 1431- no shoulder
- 2147 West: heavy traffic, no center turn lanes, no shoulders, no passing lanes. Needs a lot of work.
- 71 from Llano to HS Bay could be improved a bit more, shoulders would help. It's certainly better than in the past.
- 281 too many trucks in marble falls
- Highways 29 and 71...not enough shoulders
- Highway 29 between Llano & Fuzzy Corner - frequently observed passing in no passing zones because of lack of decent passing areas and impatient drivers
- Bell Mountain - shoulders needed or passing lanes for farm related traffic - NOT Llano county but critical to Llano citizens regular travel
- Hwy 71 because of deer population especially at night.
- Hwy 71 west, vehicles are continually passing in a double yellow line area. Also, CR 408A and CR 408B as they are not paved and have heavy traffic.
- Hwy 2147
- No turn lanes from Ferguson Road to Hwy71
- Most all, as they do not have shoulders wide enough for passing.
- 261 is banked wrong. Seems like lot of wrecks on 1431 between 29 and the slab road.
- At least trouble lanes on every state road.
- State HWY 71
- RR2233 - lack of shoulders
- parts of RR261
- TX29 from Fuzzy's Corner to Llano
- Traffic volume is increasing on all of these roads.
- Highway 29 East and Highway 16 south due to slow drivers and few passing lanes.
- Hwy 2831 is in need of shoulder lanes for safety of bike riders and people who hit a deer and need to pull over.
- most major roads
- 71 at 2147
- I don't know<sup>11</sup>

- The hills on Horseshoe Bay wash out have no curbs and are dangerous.
- HWY 71 - it has improved some, but this is a high volume road. Also, HWY 16 - passing lanes needed.
- HWY 16 South to Fredericksburg, Enchanted Rock road, and HWY 29 between Llano and Burnet because there are no WIDE shoulders.
- Highway 29 center lanes are too close together.
- Highway 19: no shoulder, poor passing availability.
- Highway 71 too fast where only two lanes.
- highway 71
- 2147 - Needs a left turn lane all the way from 71 to 281.
- Many of the FM and CM are too narrow. The only ones I regularly travel are between HSB and Kingsland
- 71 is too narrow to Llano
- 16 South Narrow and bad sight lines
- 16 North speed not enforced
- 29 Out of Llano - speed not enforced
- The City of Llano, Hwy 29 and Hwy 16. With equipment frequently traveling these highways, the speed limit is too high.
- Most city roads are being reclaimed by the land. Awful hard on our cars and embarrassing when visitors come to town.
- 2147 needs to be 3 lanes from 281 to 71.
- 281 through marble falls is becoming a real nightmare due to heavy traffic.
- Hwy. 29. I do not think it has anything to do with the road just speed and not paying attention.
- N/A
- State Hwy 71 West because it is a well-traveled 2 lane State Hwy.
- 2147 lack of turn lanes and generally too narrow for the amount of traffic
- the intersection of 71 and 281 is very dangerous...no turn/entry lanes
- Hwy 71 from Burnet County / Llano County line to the improved section of Hwy 71 west of Hwy 2233
- Hwy 29 as it carries increasing # of vehicles with few safe passing and turning opportunities. But several of the smaller surrounding roads are heavily traveled when visitors come for wild flower season. Shoulders and or bike lanes would encourage more of these tourists to come as well as create opportunity for other events to get \$\$ to Llano County.
- County roads because folks drive too fast.
- No specific area.
- The roads I travel appear safe.

- Travel to Marble Falls so I do not know Llano roads
- Portions of HWY 71 between Horseshoe Bay and City of Llano-speed limit too high for road conditions (exp night).
- 29 East 16 South
- Hwy 152 people pass on the right, speed, enter roadway without looking. Speed limit signs change every 2 blocks entering or leaving town. Cops don't patrol. There are no sidewalks
- Hwy 16/71 thru Llano (city)
- Hwy 71 West & Hwy 29; No passing lanes
- 71 E Ok now. Worst is 29 E this is a killer. All state Hwys need at least one set of passing lanes.
- court house area E side
- Hwy 29 W - needs to be wider
- RR 152 (main st) widen
- Most main roads in Kingsland
- Hwy 29, Buchanan, & Llano. 70 mph speed limit, but many drivers push & tailgate on this road.
- Kingsland-no shoulders or sidewalks
- 29 Between K. & Llano because of such long ways between areas able to pass safely
- 71 & 29-these are highways that are bad when it rains
- 16 b/t Llano & Fredericksburg; no shoulders
- Intersecting of Hwy 71 & 281 where there are no merge lanes on 71
- Hwy 71 - deer, speeding drivers, drinking drivers
- Non known, Today low population density makes roadways adequate. As population increases in next decade, wider roads, easement, drainage ditches, signage will be needed.
- No shoulders-16 to Fredericksburg
- 29 East too much traffic for 2 lanes
- RM 1431 due to high traffic
- Hwy 16 , Too narrow, needs shoulders and passing lanes N to S county line to county line.
- Hwy 29 E to W, too narrow.
- Hwy 71 N of Llano, too narrow.
- Your improvements to 71 are very good, but just need to improve a few other spots on it. What's still needed is either turning lanes or exiting lanes. One good example is (I know this may be Burnet county but) the intersection of 71 & 281, plus with the new hospital, even more so!
- in Castell on Hwy 152, people come thru town way too fast
- HWY 71-the passing lanes recently added often confuse people-should be 2 lanes
- Hwy 29, no shoulders

- FM 152 because of deer
- County Roads, & low river crossings
- 103-Hwy 29-speeder going East Bound on 29 when you pull out barrier escape
- State Highway 29
- Hwy 29-too fast, no shoulder, commercial traffic
- Wood Forest sharp blind turns & deep ditch-no shoulder
- 1431: no shoulders serpentine
- Hwy 71 E - Needs more passing lanes
- Hwy 29 E - Has no passing lanes from Llano to Buchanan Dam. Also bad design.
- Unpaved County roads. Unable to stop; gravel causes skids; unbowed grass hides deer & cattle that move into road.
- Hwy 29 only 2 lanes, no shoulders
- Hwy 71, Hwy 16, Hwy 29 because of frequent wild flower lookers
- SH 71 - lots of traffic, speeding, do not know dangers of curved roads, etc.
- Hwy 29E, there is no shoulder, no passing lane, & lots of private drives of the very busy hwy
- CR 152-too narrow/no safe passing
- SH 165-too narrow/no safe passing
- Sandstone low water crossing & potholes. Hwy 71, Co. Rd. 308 in Llano. Not well lit.
- 29 needs shoulders
- CR 152-due to no shoulder or breakdown lanes
- Hwy 29 speeders
- 2831, deer by the highway, no place to pull over when broke down or hit a deer
- 2147, this road needs to be 5 lane due to the volume of traffic. Also needs to be 50 MPH again.
- 2147 need passing lanes: some vehicles go 30 MPH
- 71 turning traffic

## PLEASE LIST ANY ROAD, SIGNAGE AND/OR SAFETY IMPROVEMENTS THAT YOU THINK SHOULD BE MADE TO THE ROADS IN LLANO COUNTY:

- Automated vehicles!
- More speed limit signs.
- Longer left hand turn lane from Hwy 71 onto State RR 2147
- Clean up/ordinance to eliminate and prevent junk signage on roadsides and outside of buildings.
- 2147 is a shameful path from Marble Falls into our beautiful Horseshoe Bay.
- 281 at 71 is very dangerous, specifically when a car going from 281 merges onto 71 (either south 281 to west 71, or north 281 to east 71). There is no room to merge and little warning that it is going to be that tight.
- Signs noting the possible presence of cyclists on heavily traveled county roads.
- See previous comments.
- HWY 71 - 4 lanes on the entire stretch. Police monitor speeding.
- Open Clayton Nolen Dr. to TX71
- Center turn lane on remaining portion of 2147 in Horseshoe Bay
- Left hand turn lanes on FM 2147.
- Have done ... see answers to previous questions
- shoulders & passing lanes
- Pave all Kingsland streets
- See previous statement
- see previous
- Llano County roads are basically very good especially when compared with everyone else
- put turning lane in 281
- USE OF DECELERATION LANE ON 71 TO TURN ON 2147
- Bridges over low water crossings. bigger shoulders
- Use paving materials that decrease road noise in cars. The current materials create very bad road noise!
- The summit rock development seems to have spent little thought in adding a roadway onto 71 just east of 2147. At some point, someone will die there because of that lack of planning and oversight by roadway engineers.
- Excessive speed on rural roads - dirt and paved
- Any roads that do not go through or have an outlet should be posted as such to eliminate unnecessary traffic.
- None I find dangerous

- 1)FM2147 Turn lane extension from Ferguson Road to Hwy 71
- 2)Extend the turn lane yellow hatch stripes turning east onto Hwy 2147 from Hwy 71.
- 3)Golden Nugget @ FM 2831 very dangerous intersection need improvement
- lower speed limit in castell-fm152
- The intersection of Hwy 29 & Hwy 71 (Brady cut-off) is VERY dangerous because of the rise in the road (Hwy 29) just east of the cut off. At the VERY least, there needs to be a flashing light.
- The county should maintain the Slab; it is precious. It should be available to the people, with parking and trash bins but changed as little as possible
- Storm drain grate at 29 and 16 turning north from 29 to 16
- State Hwy 71 should have no stop lights on it. Any busy intersections should have overhead loops so that no traffic on Hwy 71 has to stop for local traffic.
- Center stripe on River Oaks Dr., Kingsland. Volume and frequent speeding have increased.
- Increase lanes on RR1431 bridge over the Colorado River.
- For those roads with wide shoulders, Signs should inform slow drivers to pull over to let faster drivers pass. If these shoulders are to be utilized correctly, here should be some sort of education process--in news media, etc.
- Hwy 2831 needs shoulder lanes.
- Caution light at 71& 2147
- most of the heavy traffic roads.
- Possible detour route signs if bridge is icy or areas are flooded. Believe an intersection light will be needed some day at FM 2233 and HWY 71.
- HWY 16 South to Fredericksburg, Enchanted Rock road, and HWY 29 between Llano and Burnet NEED WIDE shoulders.
- Widen shoulders on secondary roads
- To continue to sealcoat all county roads
- The lighted sign on Hwy 71 at Sandstone Mountain Ranch is an eyesore and surely a state code violation. It scares people at dark when they come upon it. You can't even read it.
- Inner city streets are being reclaimed by the land. Grass growing almost completely across the road in some case. Weeds in the road four feet high.
- N/A
- Bike lane from hwy 29, up 261 back to 29 near Llano and through to Castell to draw biking and other events. Light at Fuzzy's corner on 29 to better accommodate traffic.
- Travel/passing lanes on hwy 29 to Llano and on towards Mason.
- No specific suggestion.
- Do not pass with a solid line in your lane - I often see this happening. Enforcement needs to be vigilant to cite offenders.

- none
- Important to have well painted lane lines and markers embedded to indicate center and edges of the lanes.
- Widening Hwy. 71 continued
- another bridge across Llano river
- Welcome to Llano sign @ 16 & 71 South
- Lower speed limits on both hwy 29/16 going north & south through town
- lower speed limits on hwy 152 going through town going east & west
- City of Llano - 25 mph zone from Railyard south to Sandstone ST
- Add more passing lanes
- By Pass off east 29 to 71
- SHOULDERS
- Additional shoulders
- Passing Lanes
- Shoulders on roads
- River Oaks - low water crossings, Slab Road
- There are locations where bushy shrubs & trees make oncoming traffic difficult to see approaching.
- bridges
- pot holes
- Passing lanes. Alternate crossing at Llano
- can anything be done about deer crossing highways?
- make merge lanes on 71-281 intersections
- Reflectors, center stripes, signage on hills and curves on CRs.
- 71 E, 29 E
- Passing lanes Hwy 16 & Hwy 29. Bike & ped lanes, wide shoulders all roads
- already to many signs already and are too reflective and are blinding at night
- restaurant on 1431 and bonny cove with sonic and gas station, bad, very bad
- The new exit for Horseshoe Bay (into Summit Rock) is not marked, people miss it both day and night.
- potholes/rough roads that have been damaged by floods; kingsland and marble falls still have areas needing work
- Entrance into Horseshoe Bay from Highway 71
- Slower speed limits thru rural communities
- wide shoulders on 29 & Hwy 71
- Lower speed limit on FM 152 in Castell
- Speed limit in Castell

- Roads, County roads should be better marked
- traffic at lights downtown-need loop
- Bridge in Llano, traffic signals
- Sign at Euk Moore & 2900 for public boat ramp make 2900 35 mph from 1431 to bridge
- Flashing light at 71 & 2147
- Hwy 29 E speed limit should be lowered until some passing lanes are installed.
- Caution light Hwy 29 West
- In general, the city roads could use some much needed maintenance
- Stop signs on E Wallace 300-600 Block
- Super 2 on 29 and 16
- More passing lanes-enforcement of "no pass" striping
- Hwy 71, 16, & 29 should all be 4-lane or at least passing lanes added
- Reflectors & barriers, added esp. to 71 before turns etc.
- shoulder on 29
- Put shoulders on roads
- None
- There needs to be flag men during any work being performed. This is the most dangerous area I have ever lived in.
- Signs for pull-outs for slow traffic, RV's, trailers, 16 wheelers
- Bigger major turn off signs for Elderly & Visual problematic
- Stoplight at 2471 and Ferguson road; stoplight at 2471 and Horseshoe Bay Blvd.

## ECONOMIC DEVELOPMENT

### PLEASE RANK THE TOP THREE BIGGEST CHALLENGES TO ATTRACTING BUSINESSES TO LLANO COUNTY (N=463)

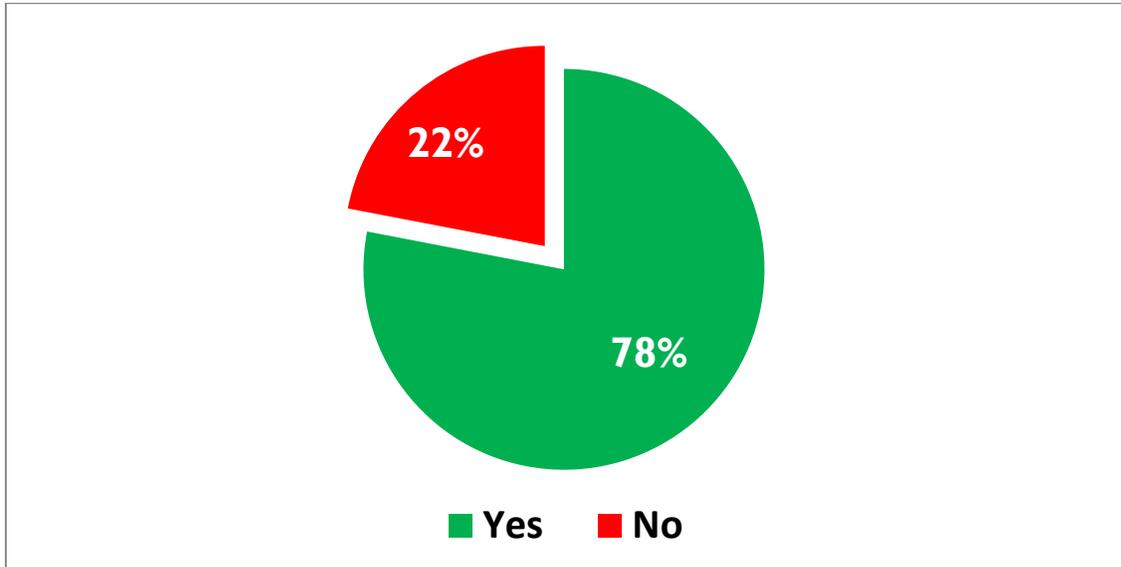
1. **Lack of access to skilled or trained workforce (224)**
2. **Distance from major markets and/or population centers (148)**
3. **Community attitude (109)**
4. Inadequate utilities (electric, water, broadband) (101)
5. Lack of amenities (e.g. restaurants, entertainment, etc.) (94)
6. Lack of water resources (94)
7. Lack of housing (64)
8. Lack of infrastructure such as roads, utilities and/or transit (54)
9. Cost of doing business (25)
10. Lack of available land for sale (22)

### WHAT IS THE BIGGEST CHALLENGE TO ATTRACTING BUSINESSES TO LLANO COUNTY? (OTHER)

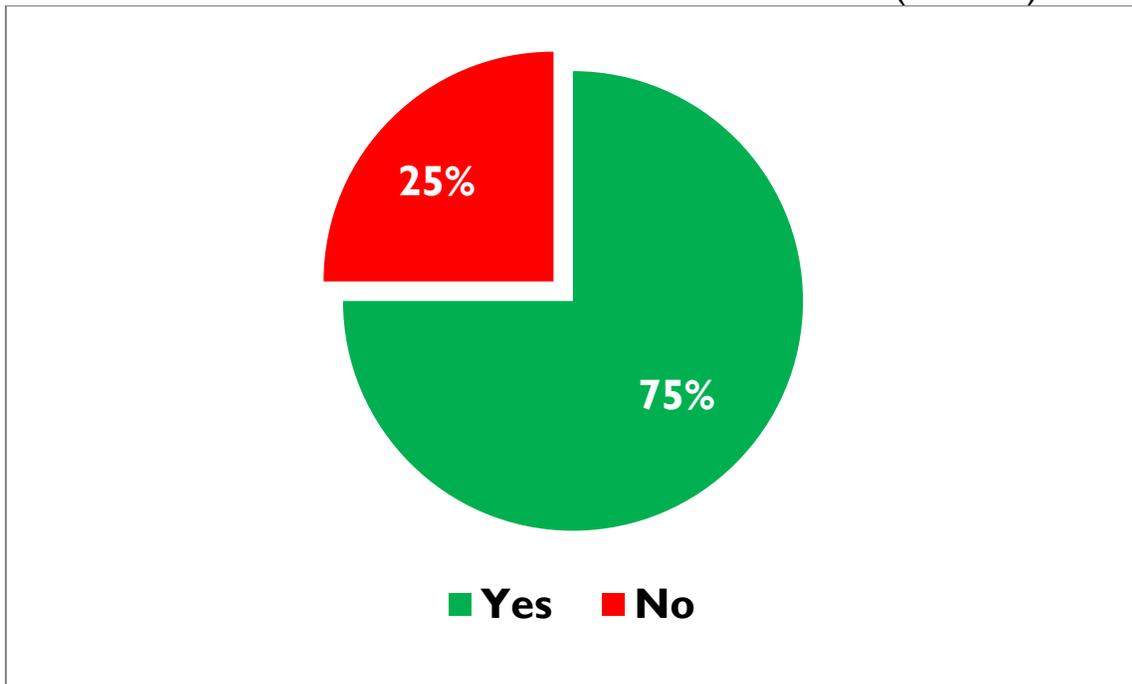
- I think the availability of quality broadband in the are is vital but hugely lacking.
- Business attracts business. Ensure there is nothing standing in the way of business coming, e.g. regulations and prohibitions. For example, a casino close to the junction of route 71 and 2471 similar to Turning Stone in New York would bring revenue and other business to the area. But you have regulations that prevent this from happening.
- Ranking of Llano ISD system vs others in the State
- Sending our precious water supply from Buchannan and LBJ to downstream farming is a travesty and the worry people have that lake levels will not come back hurts more than anything. I have friends (2) that have moved on because of this worry. A active Llano County task force to fight this issue or join others in their fight is the most important thing that Llano could do for future economic development.
- The biggest challenge is that we do not allow them to come. Old Llano families shut them out. There are a LOT of skilled workers living here, however we have no way to make a decent living here as there are no companies coming in. We do NOT shop locally because the wages paid here are no enough to pay the high prices. MOST of us go to Fredericksburg or Marble Falls to buy our groceries and while we are there, we also spend our money on their restaurants and other stores.
- better grocery store, less expensive groceries

- There is no doubt that the Dallas metroplex owes much of its growth to the DFW airport. It is not too soon to start thinking of a regional airport that will provide commercial travel on small planes linking Llano to Santone, Austin, Houston, Dallas, San Angelo, and from there to the rest of the world.
- I don't believe the city of Llano and Llano County offer a receptive climate (NOT talking weather here) for new business. Nor do I see any effort to solicit new business.
- I just wanted to reinforce the lack of broadband. There may be high - speed Internet in a few population centers of the county, but no true broadband. As far as Internet access to the rural county there needs to be a cooperative just like for electricity
- Lack of modern technology - good high speed internet service and television service other than satellite. In some areas, lack of land line phone service.
- Population - lack of rooftops.
- How much money is spent in Burnet, Gillispe counties that could stay here and bring needed tax money back to Llano county Just out of Llano around 200 thousand dollars a week goes to surrounding area.
- Lack of incentives and support to attract or help expand existing business
- Lack of employers who pay a decent wage in the County.
- Also, Llano has a bad reputation for a drug town. Too much Meth here. Just this morning male who was obviously impaired was just walking down the street and I was afraid to get out of my car until he passed.
- The work "ethics" of the work force is what is lacking. They don't show up for work after being hired and trained. Need more patrol to stop meth labs and drugs on our streets/roads. Roads are not safe because of the drivers!
- Better city layout & planning

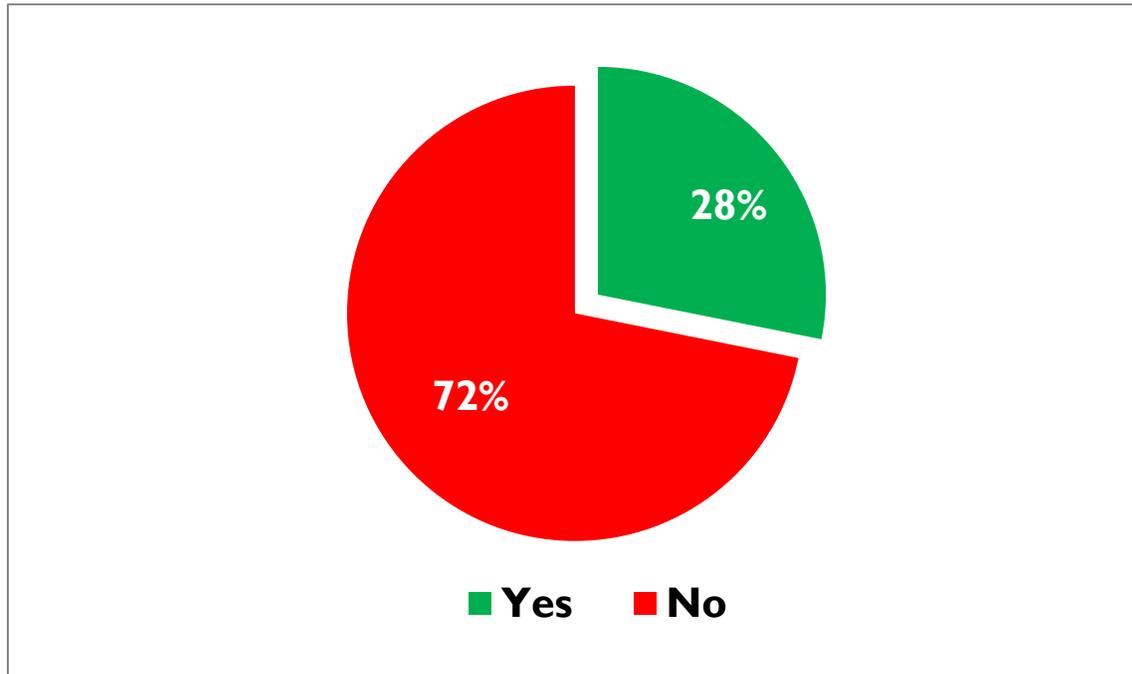
SHOULD TOURISM PROMOTION BE A PRIMARY PART OF AN ECONOMIC DEVELOPMENT STRATEGY IN LLANO COUNTY?  
(N=182)



IS LLANO COUNTY INCREASINGLY A LOCATION FOR BUSINESS OWNERS OR WORKERS WHO DO NOT NEED TRADITIONAL OFFICE SPACE AND WORK FROM HOME? (N=167)



## DOES THE BROADBAND SERVICE SUPPORT THIS TREND? (N=167)



## WHAT ISSUES RELATED TO THE LOCAL ECONOMY AND EMPLOYMENT NOT MENTIONED IN THIS SURVEY DO YOU THINK ARE IMPORTANT FOR THE FUTURE OF LLANO COUNTY?

- Quality of Schools
- We need focused community consensus to build the tourism up. I don't know how to do that, but that's my opinion. We have a lot of division currently
- I don't think we need a lot of growth in Llano County. Some growth may be good but too much growth causes traffic problems and cost of housing, etc. Austin has already ruined itself by bring in hundreds of thousand people. Let's keep Llano County small and friendly.
- citizenship
- Need more outside bike trails rec areas.
- Horseshoe Bay pays a major portion of the taxes in the county, but gets a very minor portion of the services. That's just not right. Llano County treats Horseshoe Bay like a captive cash cow.
- Quality healthcare
- I am not involved in business here, so any response would be speculative.
- Separation of Economy and State.

- The less the government (local, state, or federal) interferes with the economy the more it will prosper. So doing nothing is the best policy. You can make it known you do nothing by declaring Llano a Free Enterprise Zone. (HSB is a disaster in this respect as it tries to control everything.)
- Broadband is critical
- Not being able to promote the sale of your own property by placing a sign in Horseshoe Bay is ridiculous, unreasonable and against any common sense thinking.
- High speed internet service
- More broadband choices, faster broadband choices
- Lack of high-speed Internet service is a major problem for both business and education
- Need to target angel investors and entrepreneurs.
- Cooperation between our communities
- Addition of BSW Hospital
- sale of HSB Resort
- Kingsland is the largest community but is not incorporated. It needs to be incorporated under a realistic plan (which the 2011 incorporation effort was not). Then it could thrive and lead the county development effort, but not until.
- Affordable housing is in short supply for new employees moving to the area.
- Parts of Llano County are retirement communities and do not accommodate families with children and these retirees are generally not employable people.
- Should retirees increase it will require more businesses to support them.
- Tourism is a big draw for Llano County but it is hard to support expanded business ventures due to its seasonal nature.
- The recent drought has closed many businesses and hurt tourism.
- tourism comes and goes get something permanent. we do not have the infrastructure for manufacturing but what about offices workers. we have good schools not much road rage. not many bars for employees to get drunk at not much crime people are more productive when they have less places to get in trouble no hangovers at work. kids can do more school things than a big city. they are not forgotten in a corner somewhere.
- Housing for blue collar & medium income families
- Stop the insane policy of the LCRA and TCEQ of sending out precious water resources to a few highly subsidized downstream rice farmers. This is hurting your work greatly!
- we need improved internet access in rural areas that can't get cable
- TAXES
- No mid-level jobs...
- As a new resident, we've talked with friends about issues that seem to hold this area (including HSBay) back.

- In general, workforce attitudes seem poor and unmotivated. City fathers reinforce a status quo. And, county officials seem to welcome new residents only for their added tax revenues without consideration for needed changes or economic development.
- more grocery stores
- Fast, reliable internet access...countywide
- Improved storefronts
- Improved parking in downtown square
- Better access to golf course/event center on 152
- Targeting small/medium manufacturing businesses, new or existing, based on low cost of labor, skilled/trainable labor, property value, economic incentives.
- Disaster awareness plan.
- The county needs to attract larger businesses to promote better wages and County growth.
- Labor force willing to work and provide less financial incentive to not work. Welfare is a major issue.
- Attitude of local entities: city, county & chamber of commerce do NOT work together.
- If we don't pay better attention to the environment and don't stop poisoning everything, we don't have much of a future. We live between two rivers for pete's sake and there are still endless shelves of a thousand poisons on the hardware store shelves.
- Locals and especially the businesses seem to be unaware of the inevitable consequences.
- The governments should be encouraging rainwater collection and help for people who want to.
- Our kids are all forced to move away for access to both higher education and gainful employment
- The cities of Llano and Horseshoe Bay should open up to new development by outside companies. Both cities stifle commercial growth.
- Inadequate volunteer coordination and development. There are volunteers, but it is largely uncoordinated and there is a terrible lack of effective leadership from any of the local entities. There are skills in the county that are going unused for lack of leadership from business or government.
- Llano County needs major business attraction to help grow the economy. IE we would benefit from a major business being housed in our county.
- bad drug problems; entire county is run like a small country town versus how it should be run- a county with great potential- too much biz going to Austin when it should stay in the county- look at the local newspapers- you can't get online to get news for free- really??? and you want to promote the area- most cities have free access to their city and neighboring newspapers. what are you trying to hide? support of local business needs attention before you can bring in more. WAY too much money spent on tourism- what are

they coming to see?? empty store fronts? no charm? tourism is NOT coming to spend the night in MF, Llano etc...and they won't- nothing there. The big hotels and resorts are advertising so they get biz- you don't need to promote tourism until you have something promote. Need some fresh ideas and new people who will make the tough decisions.

- Affordable housing
- Hotels, roads, transportation and tourism is important if you want increased revenue to help assist in the building/construction and tax base.
- Llano County needs a marketable asset or "brand". What works for one city, may not work for another. What is unique and can work for Llano is what we need to find and utilize.
- Lack of unlimited data broadband in rural areas is an issue. I think if the infrastructure and community attitude was built to support a growing community, the skilled workers would come especially since the remote workforce is growing. My perception (City of Llano) is there is a lack of unity in leadership, a more us vs. them attitude, instead of, identifying goals and finding solutions as a community. I know not everyone will be happy, but there is too much division among the leaders. Also, there is a lack of excellence in the community and many things are done below standards. I know everyone is working hard but there seems to be a lack of enforcing housing codes, the city streets are embarrassing, etc. There are no standard operating procedures (SOP). I do understand the city has limited resources addressing many, many things, but feel if there were SOP, then every city workers time would be use more efficiently and effectively.
- Affordable housing for workers. Higher education (college or jr college)
- broadband network
- trained/skilled workforce
- improved healthcare
- restaurants and entertainment
- more grocery stores
- Lack of rail service. Inadequate transportation corridors into Austin and San Antonio. Lack of leadership in Economic Development. Lack of funding for ED projects.
- Improved zoning that is enforced.
- Better, faster Broadband services are needed.
- Bringing industry to Llano County is critical.
- My perception of Llano county is: there are people born and raised here and there are retirement people moving in. If that is shared it would need to change to attract any kind of industry
- Community is divided into cliques and there seems to be a strong anti new business group
- HEB and Wal-Mart should be encouraged to locate in Llano County so we can afford to live here.

- There are no clean, affordable places for visitors to stay. Motels have continued to deteriorate and people do not want to stay here.
- New, large businesses should be allowed so that there will be jobs for our citizens. Ones that will create competition for skilled workers, resulting in higher wages so that we can afford to buy locally.
- Higher ranked schools will attract more middle management and professionals who compare Llano schools to Travis school district.
- Higher wages. I go to Marble Falls to buy groceries because I cannot stand the inflation Llano (city) has. I also go to their stores due to prices differences.
- City govt's primary concern should be the welfare of the general public & should not be unduly influenced by local business owners who strive to keep competition at bay.
- Summer work projects for high school children so they gain insightful skills in selected fields of expertise. Property taxes are high for what is provided so lowering taxes is critical to enticing businesses to relocate to Llano County.
- Llano County can aggressively support 21st century infrastructure to help with safety matters: wifi/hi speed internet whether that is "broadband" or something newer, wearable cameras, safety drones, sensor technology, finger printing, eyeball recognition, phone apps to help with safety/emergency personnel, smart cars, smart boats. Smart investment in technology infrastructure will attract and keep good people in Llano County.
- To many minimum wage jobs
- Low low debt taxes, good fire and police depts, good communications, telephone, internet, TV, Wifi, newspapers (and WATER!!).
- Need for better organization
- Some long term planning
- Legalize real Margaritas
- Area needs more light industry & jobs; underdeveloped tourism & recreational potential- needs more promotion & improvement.
- Need to attract manufacturing into county-Bring back 54,000 mfg plants that have gone over seas since 2000
- "County clean up program." "Trash along 1431"
- Trashy appearance of Kingsland. Not an "easy" place/way to get rid of large trash. Keep Kingsland beautiful. Not active enough/not advertised enough
- taxes
- PROPERTY TAXES ARE TOO HIGH!!!!
- Planning for thriving communities. Ex. more school options
- Business incentives to locate in Llano city
- Recruit new business.

- More entertainment and dining that is attractive to higher income people.
- Revenue, planning, vision for future growth, preserving the natural beauty of the hill country.
- As mentioned the lack of technology infrastructure, Broadband Internet, cell phone signal strength, cable, etc.
- Need for job training/working with the local schools to have kids learn a trade/basic life skills.
- more business
- City fathers should encourage business, but them being business owners, they don't want competition.
- Bring in quality business-why are gas prices the same at Every Station in Llano and 10 to 20 cents cheaper elsewhere. Shop in Llano?
- It already has great people & fun activities!
- Modernization of local government entities with available new software and trained users.
- Beautiful country, great people
- small industrial businesses not to compete with each other or Buttery's
- Although mentioned, I believe the broadband
- Internet service here is Horrible!
- Broadband access-"last mile"-Verizon is not interested in rural services
- Not enough employment available
- No jobs for graduating high school students or GED students
- Hunting
- Skilled workers with good attitudes
- Awful cable television service by Northland Cable

PLEASE RANK THE TOP 3 GREATEST **ASSETS** THAT CAN  
CONTRIBUTE TO THE FUTURE OR CONTINUED GROWTH OF  
THE LOCAL ECONOMY IN LLANO COUNTY (N=485)

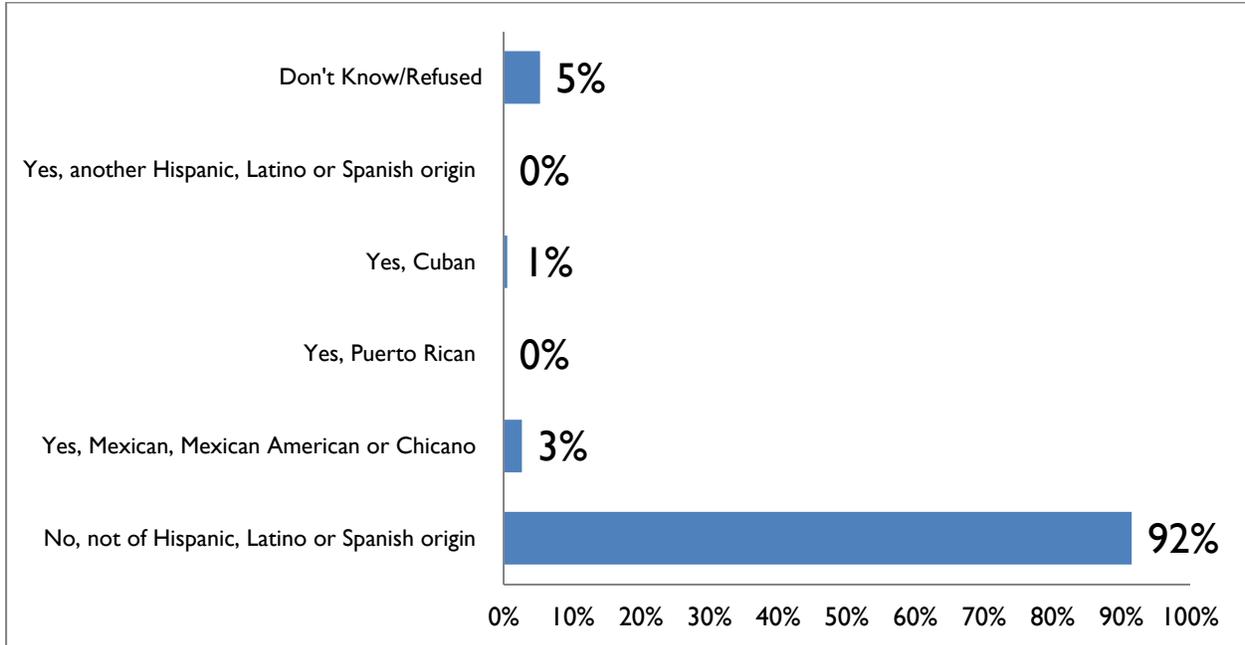
1. **Cost of living (181)**
2. **Recreational/Tourism opportunities (181)**
3. **Proximity to Austin/San Antonio (168)**
4. Historic downtowns (77)
5. Growth of surrounding communities (63)
6. K-12 education system (50)
7. Traffic volume on state highways (46)
8. Image of Llano County (45)
9. Availability of quality jobs (36)
10. Utility infrastructure (electric, water, broadband) (26)
11. Resources to support small business and entrepreneurs (25)
12. Availability of housing options (20)
13. Transportation infrastructure (roads and highways) (19)
14. Availability of retail/restaurant options (17)
15. Business leadership (15)
16. Availability of a skilled workforce (14)

PLEASE RANK THE TOP 3 GREATEST **CHALLENGES** THAT CAN  
CONTRIBUTE TO THE FUTURE OR CONTINUED GROWTH OF  
THE LOCAL ECONOMY IN LLANO COUNTY (N=453)

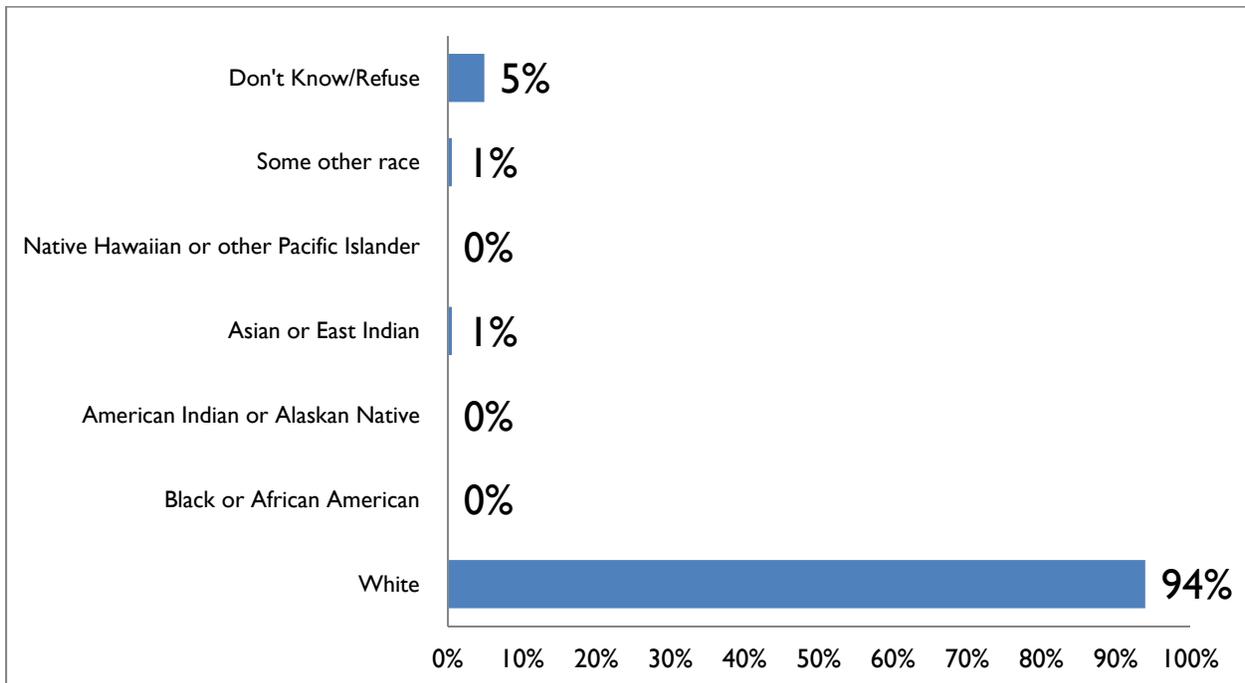
1. **Availability of a skilled workforce (177)**
2. **Availability of quality jobs (165)**
3. **Utility infrastructure (electric, water, broadband) (128)**
4. Availability of housing options (59)
5. Resources to support small business and entrepreneurs (59)
6. Business leadership (51)
7. Availability of retail/restaurant options (46)
8. K-12 education system (45)
9. Traffic volume on state highways (38)
10. Transportation infrastructure (roads and highways) (37)
11. Cost of living (32)
12. Proximity to Austin/San Antonio (22)
13. Image of Llano County (22)
14. Growth of surrounding communities (14)
15. Recreational/Tourism opportunities (12)
16. Historic downtowns (3)

## DEMOGRAPHICS

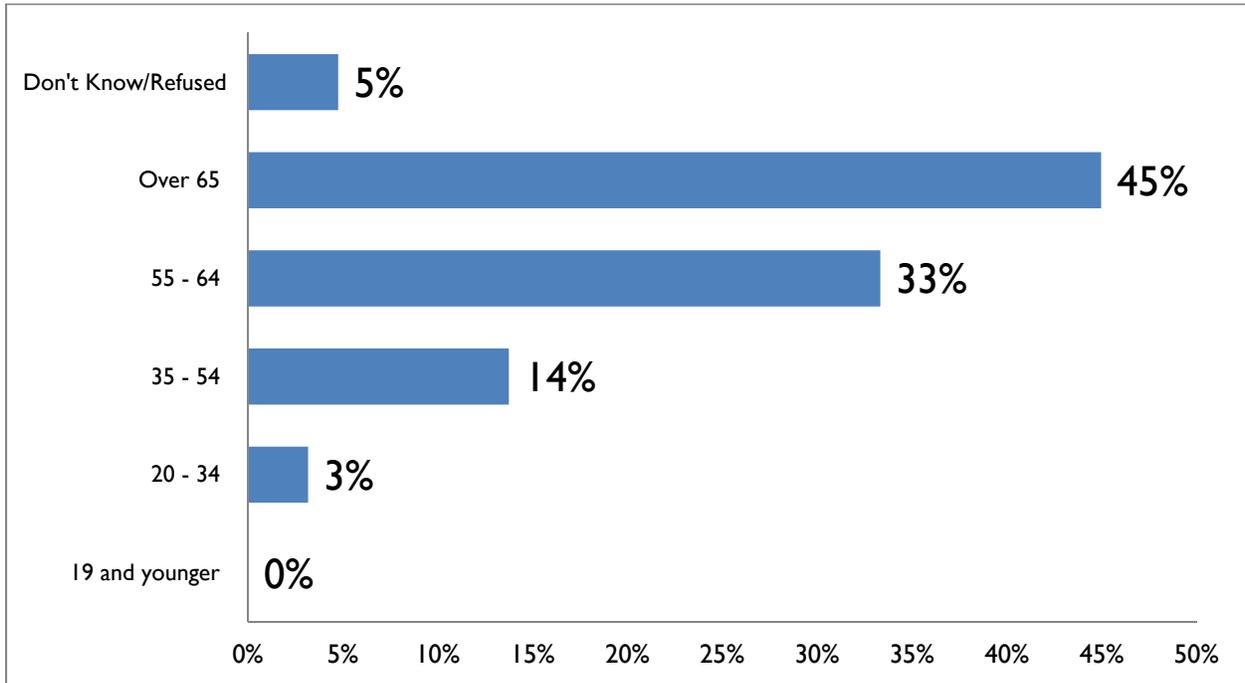
ARE YOU OF HISPANIC, LATINO OR SPANISH ORIGIN (N=189)?



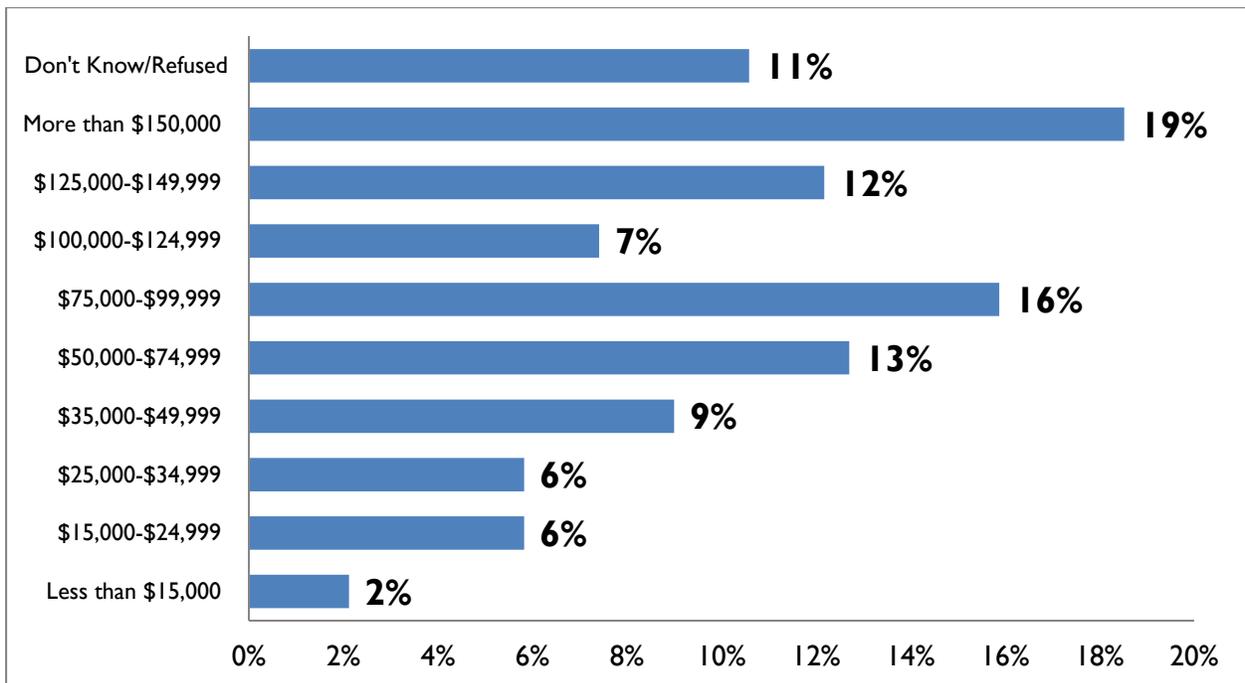
WHICH OF THE FOLLOWING BEST DESCRIBES YOU? (N=183)



## WHAT IS YOUR AGE GROUP? (N=189)



## WHAT WAS THE COMBINED ANNUAL HOUSEHOLD INCOME OF ALL HOUSEHOLD MEMBERS IN 2014? (N=189)





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## **Appendix B—Demographic Control Totals for Llano County Technical Memorandum**



January 9, 2015

Texas Department of Transportation Austin District  
Task 11: Technical Assistance and Support with Travel Demand Modeling; PI: Ipek N. Sener  
*Demographic Control Totals for Llano County Travel Demand Forecast*

## TECHNICAL MEMORANDUM

**TASK REPORT:** 2014 IAC Task 11, Subtask F  
Demographic Control Totals for Llano County Travel Demand Forecast

**DATE:** January 09, 2015

**TO:** Bonnie Lister and Ed Collins  
Texas Department of Transportation Austin District

**FROM:** Patricia L. Ellis  
Texas A&M Transportation Institute

**FOR MORE INFORMATION:**

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## Demographic Control Totals for Llano County Travel Demand Forecast

### Introduction

This report presents population, household, income, and employment trends for Llano County, Texas, for use in developing control totals for demographic inputs for a travel demand model (TDM) and general planning purposes. Data developed for this memorandum are designed to present sufficient information on past, current, and anticipated future trends that forecast year projections of these data elements can be assessed for reasonableness. Control totals are a method used to develop the overall projected totals for population, households, median household income, and employment to control the total numbers that will be allocated to the traffic analysis zones for input into the TDM.

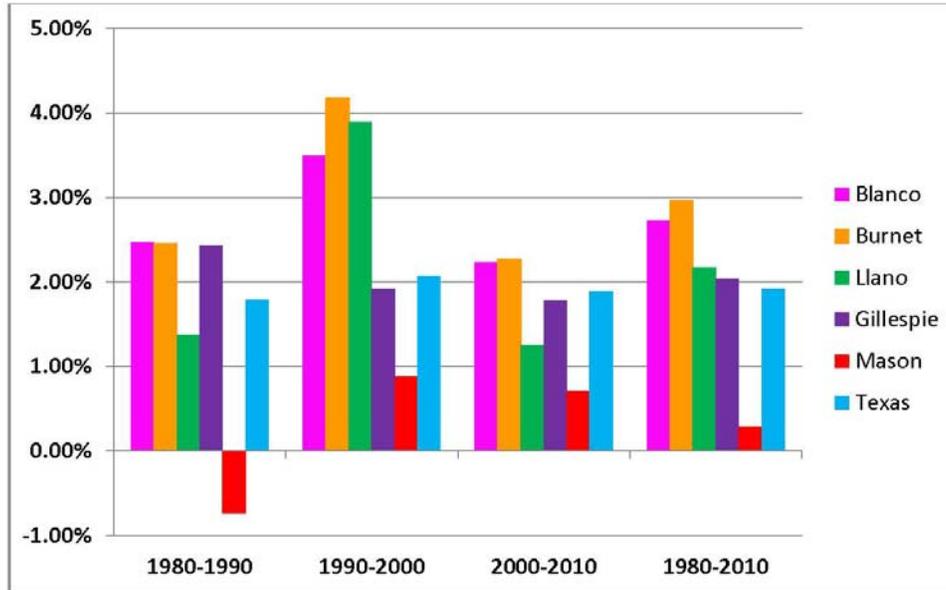
### Analysis of Population Growth Trends and Projections

Population data from the U.S. Census Bureau were obtained for Blanco, Burnet, Llano, Gillespie, and Mason Counties and Texas. These data reflect the official population count for the counties and are useful in the analysis of past and current growth trends for Llano County and the counties adjacent to Llano County within the Texas Department of Transportation (TxDOT) Austin District. Table 1 shows the 1980 to 2010 population for the counties and state and the compound annual average growth in population by decade and for the 30-year period. The growth rates for each period are also shown in Figure 1.

**Table 1. Historic Population and Compound Annual Average Growth by Period for Blanco, Burnet, Llano, Gillespie, and Mason Counties and Texas from 1980 to 2010.**

Area	Population			
	1980	1990	2000	2010
Blanco	4,681	5,972	8,418	10,497
Burnet	17,803	22,677	34,147	42,750
Llano	10,144	11,631	17,044	19,301
Gillespie	13,532	17,204	20,814	24,837
Mason	3,683	3,423	3,738	4,012
Texas	14,229,191	16,986,510	20,851,820	25,145,561
Area	Compound Annual Average Growth by Period			
	1980–1990	1990–2000	2000–2010	1980–2010
Blanco	2.47%	3.49%	2.23%	2.73%
Burnet	2.45%	4.18%	2.27%	2.96%
Llano	1.38%	3.90%	1.25%	2.17%
Gillespie	2.43%	1.92%	1.78%	2.04%
Mason	-0.73%	0.88%	0.71%	0.29%
Texas	1.79%	2.07%	1.89%	1.92%

Source: U.S. Census Bureau and Texas A&M Transportation Institute



Source: U.S. Census Bureau and Texas A&M Transportation Institute

**Figure 1. Compound Annual Average Population Growth for Blanco, Burnet, Llano, Gillespie, and Mason Counties and Texas from 1980 to 2010.**

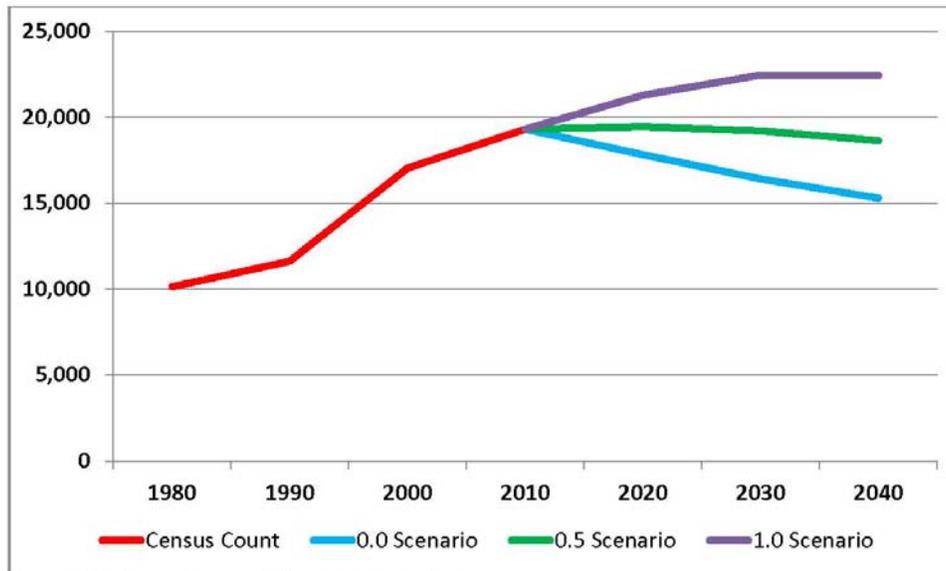
For each of the past three decades, population in Llano County has been increasing at a compound average annual rate of between about 1.5 and 4.0 percent per year. Llano County’s rate of growth has, for each decade and the 30-year period, been less than that for Blanco and Burnet Counties. The rate of growth in Llano County compared to that in Gillespie County and the state has varied by decade, but did slightly exceed the growth of Gillespie County and the state over the 30-year period. Mason County has experienced significantly slower growth than each surrounding county and the state.

Population projections were obtained from the Texas State Data Center (TSDC) for Llano County for three migration scenarios. The 0.0 migration scenario represents the projected natural increase in population (births and deaths) with zero in or out net migration. The 0.5 migration scenario represents population growth at one half the 2000 to 2010 migration rate, and the 1.0 scenario represents migration equal to that of the 2000 to 2010 period. Table 2 shows the Llano County 2010 population along with the 2020 to 2040 population projections for each migration scenario. Figure 2 illustrates the projected population under the three migration scenarios relative to the 1980 to 2010 population counts. **The population projections for Llano, Burnet, and Blanco Counties and Texas vary slightly from projections found in previous reports. Previous reports contain projections developed in 2012. TSDC updated its projections in October 2014.**

**Table 2. Llano County Projected Population and Population Change from 2010 to 2040.**

Projection Scenario	2010 Census Population	Projected Population			Change 2010–2040	
		2020	2030	2040	Number	Percent
0.0 Migration	19,301	17,815	16,420	15,302	-3,999	-20.72%
0.5 Migration	19,301	19,471	19,274	18,664	-637	-3.30%
1.0 Migration	19,301	21,417	22,710	22,800	3,499	18.13%

Source: Texas State Data Center and Texas A&M Transportation Institute



Source: U.S. Census Bureau and Texas State Data Center

**Figure 2. Llano County 1980 to 2010 Population and 2020 to 2040 Population Projections for Three Migration Scenarios.**

Projections under the 0.0 migration scenario show a declining population of almost 4,000 persons between 2010 and 2040. This scenario is not recommended but is useful to illustrate the impact that migration plays in future population change. The 0.5 scenario results in a population decrease of 637 persons between 2010 and 2040, a loss of slightly more than 3 percent. Population under the 1.0 migration scenario increases by almost 3,500 persons, representing an 18 percent increase.

For comparison, the 0.5 and 1.0 migration scenario population projections for Blanco, Burnet, Gillespie, and Mason Counties and Texas were obtained from TSDC. Table 3 provides 2010 census and 2040 projected population and numerical change under the 0.5 and 1.0 migration scenarios for each of the counties and the state. Table 4 provides the total percent change and the compound annual average growth rates for the 1980 to 2010 and the 2010 to

2040 30-year periods for the 0.5 and 1.0 migration scenarios for each of the counties and the state. Table 4 also compares the total percent change for the historic 1980 to 2010 population and the 2010 to 2040 projected population for each migration scenario. Under the 0.5 migration scenario, the compound annual average rate of growth and the total percent growth are lower than those experienced during the previous 30-year period for all areas. The 1.0 scenario also indicates a slower rate of growth for all areas except the state, for which the projected 30-year growth is expected to be similar to the previous 30 years.

**Table 3. Projected Population and Numerical Change between 2010 and 2040 for Blanco, Burnet, Llano, Gillespie, and Mason Counties and Texas under the 0.5 and 1.0 Migration Scenarios.**

Area	Population			Numeric Change	
	2010	0.5 Scenario	1.0 Scenario	0.5 Scenario	1.0 Scenario
		2040	2040	2010–2040	2010–2040
Blanco	10,497	12,783	16,943	2,286	6,446
Burnet	42,750	56,501	71,654	13,751	28,904
Llano	19,301	18,664	22,800	-637	3,499
Gillespie	24,837	30,236	38,778	5,399	13,941
Mason	4,012	3,878	4,199	-134	187
Texas	25,145,561	36,550,578	44,955,873	11,405,017	19,810,312

Source: U.S. Census Bureau, Texas State Data Center, and Texas A&M Transportation Institute

**Table 4. Compound Annual Average Population Growth and Total Percent Population Change from 2010 to 2040 for Selected Areas.**

Area	Compound Annual Average Growth			Total Percent Change		
	Historic	Projected 2010–2040		Historic	Projected 2010–2040	
	1980–2010	0.5 Scenario	1.0 Scenario	1980–2010	0.5 Scenario	1.0 Scenario
Blanco	2.73%	0.66%	1.61%	124.25%	21.78%	61.41%
Burnet	2.96%	0.93%	1.74%	140.13%	32.17%	67.61%
Llano	2.17%	-0.11%	0.56%	90.27%	-3.30%	18.13%
Gillespie	2.04%	0.66%	1.50%	83.54%	21.74%	56.13%
Mason	0.29%	-0.11%	0.15%	8.93%	-3.34%	4.66%
Texas	1.92%	1.25%	1.96%	76.72%	45.36%	78.78%

Source: U.S. Census Bureau, Texas State Data Center, and Texas A&M Transportation Institute

*Analysis of Age and Race/Ethnicity Components of Projected Population*

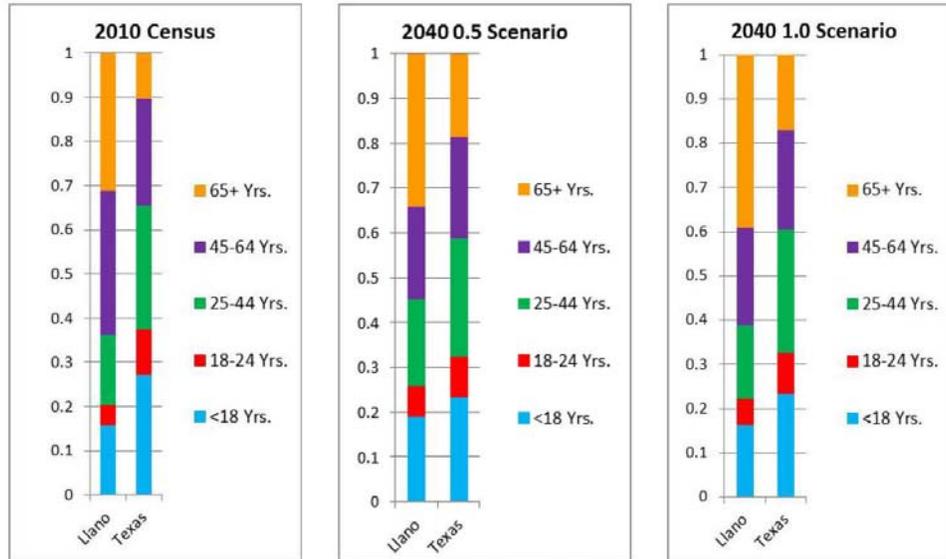
Age and race/ethnicity are good indicators for assessing those population components' influence on projected population change. Table 5 provides the percent population by age cohort for the 2010 census and 2040 projection data for the 0.5 and 1.0 scenarios, and the estimated median age for each of those years for Llano County and Texas. Figure 3 illustrates the projected change in age distribution between 2010 and 2040 for Llano County and Texas under the 0.5 and 1.0 migration scenarios. What is most notable is the high percentage of Llano County population

that is 45+ years of age in 2010 and under each of the projection scenarios. Although that percentage decreases slightly for both the 2040 projection scenarios compared to 2010, it remains significantly larger than that for the state. The current and projected difference in the population age distribution results in vastly different median ages for the county compared to the state. In 2010, the median age of Llano County was 55 years compared to 33.6 years for Texas. Although the 2040 median age in Llano decreases slightly while the state 2040 median age increases slightly in each of the two projected migration scenarios, Llano's median age remains significantly higher than that of the state.

**Table 5. Percentage Population by Age Cohort and Median Age for 2010 and 2040 0.5 and 1.0 Population Projection Scenarios.**

Age Cohort	2010 Census		2040 0.5 Scenario		2040 1.0 Scenario	
	Llano County	Texas	Llano County	Texas	Llano County	Texas
<18 Years	15.94%	27.30%	19.18%	23.40%	16.44%	23.44%
18-24 Years	4.61%	10.23%	6.70%	9.07%	5.88%	9.22%
25-44 Years	15.78%	28.12%	19.28%	26.31%	16.65%	27.92%
45-64 Years	32.57%	23.99%	20.77%	22.70%	22.08%	22.55%
65+ Years	31.10%	10.35%	34.08%	18.52%	38.95%	16.87%
Median Age	55.0	33.6	49.4	37.7	54.5	36.8

Source: U.S. Census Bureau, Texas State Data Center, and Texas A&M Transportation Institute



Source: U.S. Census Bureau, Texas State Data Center, and Texas A&M Transportation Institute

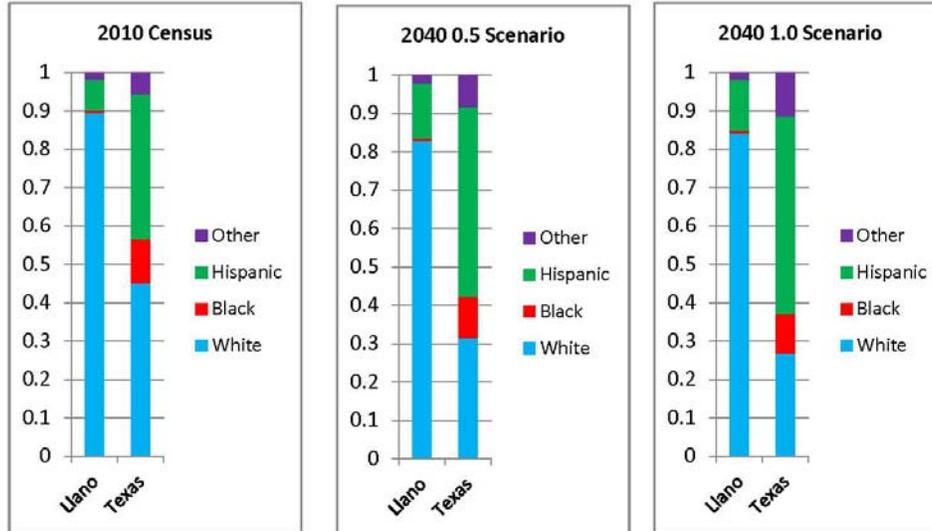
**Figure 3. Projected Change in Age from 2010 to 2040 for Llano County and Texas for the 0.5 and 1.0 Migration Scenarios.**

The number and percentage of population by race/ethnicity for Llano County and Texas from the 2010 census and the 2040 0.5 and 1.0 migration scenarios are provided in Table 6. The Llano County and state percent population by race ethnicity for 2010 and the two 2040 migration scenarios are graphed in Figure 4. The race/ethnicity of the population in Llano County is considerably different from that of the state. In 2010, Llano County's population was approximately 90 percent white (89.6 percent), almost double that of the state (45.3 percent). Under both population projection scenarios, the white population will remain the majority (80+ percent) within the county while falling to around 30 percent of the state's population. The percent of population that is Hispanic in Llano County is anticipated to increase from approximately 8 percent in 2010 to around 14 percent in 2040. That growth is significantly lower than the anticipated growth in the state's Hispanic population, which is expected to increase from 37 percent to approximately 50 percent of the total population.

**Table 6. Number and Percent Population by Race/Ethnicity for 2010 and the 2040 Population Projections for the 0.5 and 1.0 Migration Scenarios for Llano County and Texas.**

Race/Ethnicity	Number			Percent		
	2010 Census	2040 0.5 Scenario	2040 1.0 Scenario	2010 Census	2040 0.5 Scenario	2040 1.0 Scenario
<b>Llano County</b>						
White	17,303	15,324	19,124	89.65%	82.10%	83.88%
Black	102	128	125	0.53%	0.69%	0.55%
Hispanic	1,542	2,707	3,082	7.99%	14.50%	13.52%
Other	354	505	469	1.83%	2.71%	2.05%
Total	19,301	18,664	22,800			
<b>Texas</b>						
White	11,397,345	11,593,192	12,143,611	45.33%	31.72%	27.01%
Black	2,886,825	3,876,818	4,599,540	11.48%	10.61%	10.23%
Hispanic	9,460,921	18,095,584	23,156,947	37.62%	49.51%	51.51%
Other	1,400,470	2,984,984	5,055,775	5.57%	8.16%	11.25%
Total	25,145,561	36,550,578	44,955,873			

Source: U.S. Census Bureau, Texas State Data Center, and Texas A&M Transportation Institute



Source: Texas State Data Center and Texas A&M Transportation Institute

**Figure 4. Percent Population by Race/Ethnicity for 2010 and the 2040 Population Projections for the 0.5 and 1.0 Migration Scenarios for Llano County and Texas.**

In summary, population projections under both the 0.5 and 1.0 migration scenarios indicate that Llano County’s 2040 population will remain older and largely White. These two factors impact the county’s population projections in that there is less anticipated growth in the age cohorts associated with normal childbearing age and less growth in the Hispanic population, which generally has higher fertility rates than whites. Over the 30-year projection period, these two trends, coupled with migration rates similar to that experienced between 2000 and 2010, translate into slowing or declining population growth.

*Other Considerations*

In addition to the above analyses, the projected availability of water was taken into consideration relative to the TSDC population projections. The Lower Colorado River Authority 2011 Region K Water Plan was reviewed to identify any potential problems relative to the projected population growth for Llano County. The 2040 Llano County projected population used to develop the water plan (from Texas Water Development Board) and the projected TSDC 2040 population under the 0.5 and 1.0 scenarios are compared in Table 7, along with the projected water demand based on the water plan population projection and the estimated water supply and demand. The 2040 projected population used in the water plan is slightly greater than the projected population under both migration scenarios. Based on the 2011 Region K Water Plan, the water supply appears to be sufficient to support either of the TSDC population projections.

**Table 7. 2040 Water Plan and TSDC Population Projections Relative to the 2040 Water Plan Estimated Water Demand and Supply.**

Water Plan and TSD Population Projections	2040
Water Plan Population	23,932
TSDC 0.5 Population	18,664
TSDC 1.0 Population	22,800
Water Demand (Acre-Foot/Year)	23,479
Water Supply (Acre-Foot/Year)	33,046

Source: 2011 Region K Water Plan by the Lower Colorado Regional Water Planning Group, Vol. 1, July 2010, and Texas State Data Center

**Suggested Population Control Total**

Review and analysis of the TSDC population projections for Llano County indicate that both the 0.5 and the 1.0 migration projections are reasonable. Population growth over the 2010 to 2040 30-year period under both migration scenarios reflects a much slower growth rate than that which occurred over the past 30 years. As is the case in many rural Texas counties, the amount of population change in Llano County will largely depend on net migration. This is illustrated by the declining population under the 0.0 and 0.5 scenarios and supported by the projected age and race/ethnicity projections for the county. Although there is considerable growth anticipated for the state and for several of the counties within the Austin District (particularly Hays, Travis, and Williamson Counties), Llano County is more remote and separated from these high-growth areas. That separation generally translates into slower growth because access to the areas of high job creation is reduced. Rural counties throughout the state are experiencing slow or declining growth as the population growth becomes more concentrated in urban areas. The 2013 population estimate for Llano County is 19,444, which, depending on how migration occurs, is on track for either the 0.5 or the 1.0 scenario projections. Given the inherent uncertainties attached to most variables used to calculate population projections, the potential for change in local area policies and economic conditions, and the strong growth in the Austin/San Antonio areas, the projected population for Llano County under the TSDC 1.0 migration scenario appears to be a more reasonable projection of potential growth at this time. Any long-term planning effort requires consistent review of projections to account for recent changes that impact those projections.

Table 8 provides the suggested population control totals in 10-year increments from 2010 to 2040 based on the TSDC 1.0 migration scenario.

**Table 8. Llano County Suggested Population Control Totals from 2010 to 2040.**

Area	Population Control Totals			
	2010	2020	2030	2040
Llano County	19,301	21,417	22,710	22,800

Source: Texas State Data Center

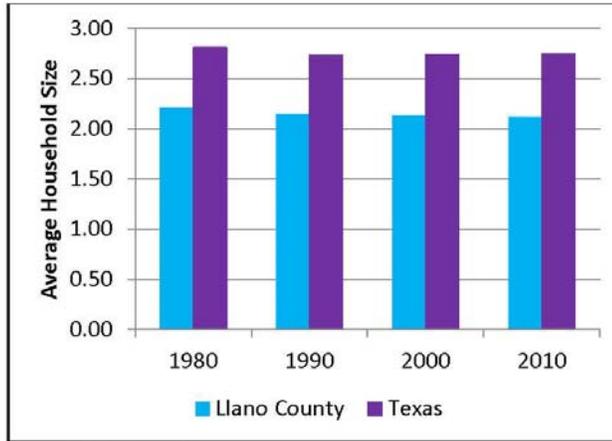
### Analysis of Trends in Household Size and Number of Households

Data on average household size and number of households were obtained from the U.S. Census for Llano County and Texas. The historic number of households and average household size for 1980 through 2010 are provided in Table 9. Average household size for the 1980 to 2010 period is graphed in Figure 5. The average household size in Llano County and the state has decreased over the past 30 years. However, household size for the state has leveled off, increasing slightly from 2.73 to 2.75 persons per household between 1990 and 2010, while the average number of persons per household in Llano County has continued to decline. Numerous factors affect household size including, but not limited to, age, fertility, marriage/divorce rates, and general economic conditions. The likely reason for the difference in average household size between Llano County and the state is the difference in the age and race/ethnicity of the two populations. As discussed under the “Analysis of Population Growth Trends and Projections” section, the majority of the population of Llano County is Anglo and older compared to Texas’s younger, increasingly Hispanic population. Hispanics have higher fertility rates than Anglos and often have extended families in one household. The increase in the Hispanic population across the state has been a major factor driving the stabilizing/slight increase in average household size.

**Table 9. Number of Households and Average Household Size for Llano County and Texas from 1980 to 2010.**

Area	Number of Households				Percent Change 1980–2010
	1980	1990	2000	2010	
Llano County	4,438	5,292	7,879	9,008	102.97%
Texas	4,934,936	6,070,937	7,393,354	8,922,933	80.81%
Area	Average Household Size				Percent Change 1980–2010
	1980	1990	2000	2010	
Llano County	2.21	2.15	2.13	2.12	-4.07%
Texas	2.81	2.73	2.74	2.75	-2.18%

Source: U.S. Census Bureau and Texas A&M Transportation Institute



Source: U.S. Census Bureau

**Figure 5. Average Household Size for Llano County and Texas from 1980 to 2010.**

TSDC produces county-level projections of the number of households and average household size for each migration scenario. The household projections currently available reflect the 2012 population projections rather than the October 2014 updated population projections used in this report. Additionally, the projections of households prepared by TSDC do not take into consideration the population not in households (the population that lives in group quarters). Since the TSDC current projections for the number of households are based on the previous 2012 population projections, past and projected average household size and estimates of the 2040 group quarters population for Llano County are used to estimate the 2040 number of households.

Historic data on group quarters population and the historic group quarters percentages of total population for Llano County are provided in Table 10. Over the past 30 years, the group quarters population—in total number and as a percentage of total population—has been declining in the county. The majority of the group quarters population has been and continues to be found within nursing homes. A web search conducted in October 2014 identified three nursing homes in Llano County with a total capacity of 324 beds. The other identified group quarters population is in the Llano County jail. According to a call to the Llano County Sheriff’s Office on October 31, 2014, the maximum jail capacity is 54 persons, and there are no current plans to expand the jail capacity. The 2010 census data did not report any population in correctional facilities. And, the 2012 American Community Survey (ACS) five-year estimates only provide a total group quarters population estimate of 204 (±119). (The small sample size of the ACS data does not allow for accurate reporting of the group quarters population.)

**Table 10. Group Quarters Population for Llano County from 1980 to 2010.**

Group Quarters Type	1980	1990	2000	2010
Correctional	0	3	17	0
Nursing Home	246	249	216	178
Non-institutional	77	25	15	6
Total Group Quarters Population	323	277	248	184
Percent of Total Population	3.18%	2.38%	1.46%	0.95%

Source: U.S. Census Bureau, Texas State Data Center, and Texas A&amp;M Transportation Institute

Estimates of the 2040 Llano County group quarters population were developed using 1.5 percent, 1.25 percent, and 1 percent of the total 2040 population. These estimates and the total group quarters capacity are provided in Table 11. (The group quarters capacity equals the current total number of nursing home beds [324] plus the maximum jail capacity [54].) Any of the three estimates result in a group quarters population that can be accommodated by the current capacity.

**Table 11. Group Quarters Population Estimates and Group Quarters Capacity.**

2040 Group Quarters Numbers	Percentage of Total Population		
	1.5 Percent	1.25 Percent	1 Percent
Estimate	342	285	228
Capacity	378	378	378

Source: Texas A&amp;M Transportation Institute

Estimates of the group quarters population for the 2020 to 2040 time period were developed based on the historic group quarters data and the anticipated projected increase in Llano County population over the age of 65. Given the increasing percentage of the county population over age 65 under the 1.0 scenario and no plans to increase the county jail capacity, the 2020 and 2030 group quarters population is estimated to be 1 percent of the population, and the 2040 group quarters estimate is 1.5 percent of the population. The estimated group quarters population for the 30-year period is provided in Table 12.

**Table 12. Estimated Group Quarters Population for Llano County from 2020 to 2040.**

Population and Group Quarters Population	2020	2030	2040
Total Population	21,417	22,710	22,800
Group Quarters Percentage of Total Population	1%	1%	1.5%
Group Quarters Population Estimate	214	227	342

Source: Texas A&amp;M Transportation Institute

Table 13 provides the 2010 number of households and average household size and 2020 to 2040 projections of households and average household size developed for the 2012 1.0 migration scenario population projections for Llano County. The Llano County household projections under the 1.0 migration scenario for the 2012 population projections show a downward trend between 2030 and 2040. This is due in part because the 2012 population projections show a declining population during that decade. (The more recent 2014 population projections indicate

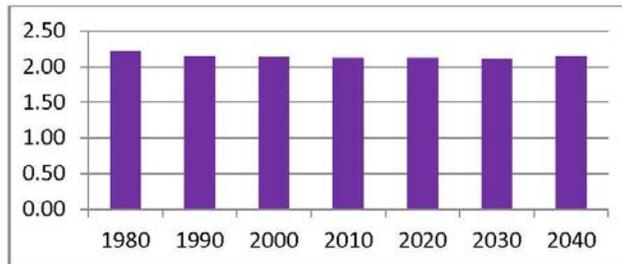
an increase in population.) The slight increase in 2040 projected average household size would also serve to decrease the number of households.

**Table 13. 2010 Census and 1.0 Migration Scenario 2020 to 2040 Projected Households and Average Household Size for Llano County.**

Households and Household Size	2010 Census	Projections		
		2020	2030	2040
Households	9,008	10,050	10,635	10,461
Average Household Size	2.12	2.12	2.11	2.14

Source: Texas State Data Center (Based on the 2012 Population Projections)

As shown in Figure 6, the projected average household size in Llano County is expected to remain low and similar to that of the past 30 years. This is consistent with the current 2040 population projection, which shows the population remaining older and largely Anglo. The slight increase in the average household size between 2010 and 2014 likely reflects the small increase in Hispanic population expected by 2040. The projected average household size for 2020, 2030, and 2040 under the 2012 1.0 scenario is reasonable for use in developing the future estimates of the number of households for Llano County.



Source: U.S. Census Bureau and Texas State Data Center

**Figure 6. Historic and Projected Average Household Size for Llano County for the 1.0 Migration Scenario from 1980 to 2040.**

**Suggested Household Control Totals**

Estimates of the future number of households were prepared based on estimates of the group quarters population and the TSDC projections of average household size to better reflect the number of households expected under the recently revised TSDC population projections. The suggested control totals for households and average household size are provided in Table 14. The slight decrease in the number of households between 2030 and 2040 is the result of slow population growth and the increase in the average household size from 2.11 to 2.14 persons per household.

**Table 14. Suggested Household Control Totals from 2020 to 2040.**

Households and Household Size	2020	2030	2040
Number of Households	10,001	10,665	10,521
Average Household Size	2.12	2.11	2.14

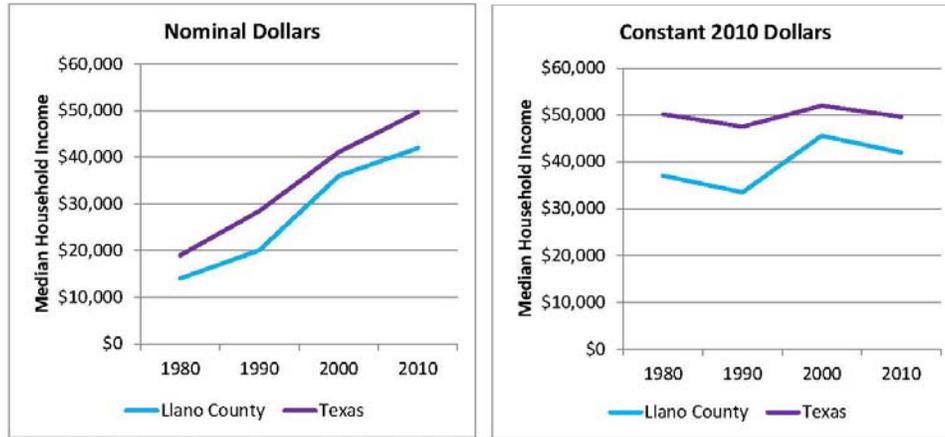
Source: Texas State Data Center and Texas A&amp;M Transportation Institute

**Analysis of Trends in Median Household Income**

Historic median household income in nominal and constant 2010 dollars for Llano County and Texas is provided in Table 15. Median household income in nominal and constant 2010 dollars for Llano County and the state is graphed in Figure 7. The 1980 to 2000 income data are from the decennial census for those years. The decennial median household incomes have been adjusted using the Consumer Price Index for All Urban Consumers (CPI-U) to reflect the census year versus the year the data represent (e.g., the 1980 census data reflect 1979 incomes). The 2010 income data are from the ACS five-year dataset. The data in Table 15 and Figure 7 illustrate how the median household income for Llano County has generally trended in a similar fashion to that of the state in each decade and over the 1980 to 2010 30-year period; however, the median household income for Llano County has remained lower than that of the state.

**Table 15. Historic Median Household Income for Llano County and Texas in Nominal and Constant 2010 Dollars.**

Area	1980	1990	2000	2010
<b>Nominal Dollars</b>				
Llano County	\$14,011	\$20,071	\$36,001	\$41,969
Texas	\$18,963	\$28,476	\$41,269	\$49,646
<b>Constant 2010 Dollars</b>				
Llano County	\$37,079	\$33,486	\$45,588	\$41,969
Texas	\$44,946	\$42,550	\$46,805	\$44,465



Source: U.S. Census Bureau, Bureau of Labor Statistics Consumer Price Index, and Texas A&M Transportation Institute

**Figure 7. Historic Median Household Income in Nominal Dollars and Constant 2010 Dollars for Llano County and Texas for 1980 to 2010.**

TSDC prepares forecasts of median household income based on the projected household formation rates associated with the age/sex and race/ethnicity of the projected population. These income projections are made available on the TxDOT One-Stop Demographic website maintained by TSDC. At this time, the most recent income projections provided on the website were prepared in 2008 and reflect previous projections of population and households based on the 1990 to 2000 migration rates. Thus, they are not consistent with the current population and household projections, which use 2000 to 2010 migration rates. As a result, TSDC-projected median household incomes developed for the 2008 1.0 migration scenario were analyzed for reasonableness and used to develop an estimated range for incomes under the current population and household projections.

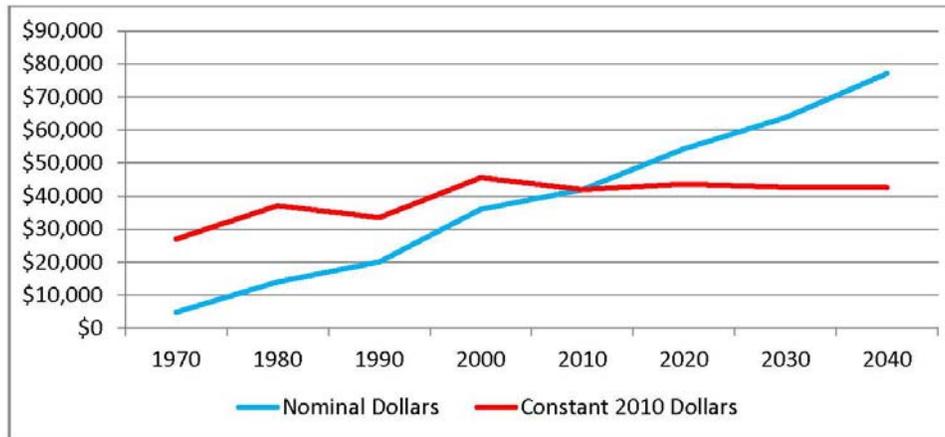
TSDC 2008 median income projections are provided in 1999 dollars. These projections, converted to constant 2010 dollars using the CPI-U and to nominal dollars using the Texas State Comptroller’s CPI-U projections, are provided in Table 16. The income projections show a continued increase in the median household income in nominal dollars and a slight decrease in constant 2010 dollars. This trend is consistent with what is being experienced in many areas across Texas and the United States.

**Table 16. Llano County Projected Median Household Income for the 1.0 Migration Scenario Based on 1990 to 2000 Migration Rates and Previous Population/Household Projections.**

Dollars	2020	2030	2040
Nominal Dollars	\$52,787	\$62,812	\$76,931
Constant 2010 Dollars	\$43,683	\$42,695	\$42,555

Source: Texas State Data Center, Texas State Comptroller Consumer Price Index Forecast, and Texas A&M Transportation Institute

Historic and projected incomes for Llano County in nominal and constant 2010 dollars are graphed in Figure 8 to illustrate how the projected incomes compare to past trends. As the data indicate, the median household income in nominal dollars is expected to continue to increase over the next 30 years, similar to the trend found from 1980 to 2010. However, in constant 2010 dollars, the projected median household income shows little change.



Source: U.S. Census Bureau, Texas State Comptroller, Bureau of Labor Statistics, and Texas A&M Transportation Institute

**Figure 8. Historic and Projected Median Household Income for the 1.0 Migration Scenario for Llano County in Nominal and Constant 2010 Dollars.**

**Suggested Median Household Income Control Totals**

As previously noted, the median household income projections provided by TSDC are not consistent with the current population or household projections. However, analysis of these projections indicates that they appear reasonable based on past and current trends in median household income change across Texas and the United States. Table 17 provides the suggested range of median household incomes for Llano County over the 2020 to 2040 time period.

**Table 17. Suggested 2020 to 2040 Median Household Income Ranges for Llano County in Nominal and Constant 2010 Dollars.**

Dollars	2020		2030		2040	
	Lower	Upper	Lower	Upper	Lower	Upper
Nominal Dollars	\$51,787	\$53,787	\$61,812	\$63,812	\$75,931	\$77,931
Constant 2010 Dollars	\$42,683	\$44,683	\$41,695	\$43,695	\$41,555	\$43,555

Source: Texas State Data Center, Texas State Comptroller Consumer Price Index Forecast, and Texas A&M Transportation Institute

### Analysis of Employment Trends

Employment data from the Texas Workforce Commission (TWC) are used for preparing inputs for TDMs because these data represent the workplace location of the employment, which forms the basis for estimating trip attractions. Employment data from other sources (e.g., the Bureau of Labor Statistics or the U.S. Census) represent the number of residents of an area that are employed, whether or not their place of employment is within that area.

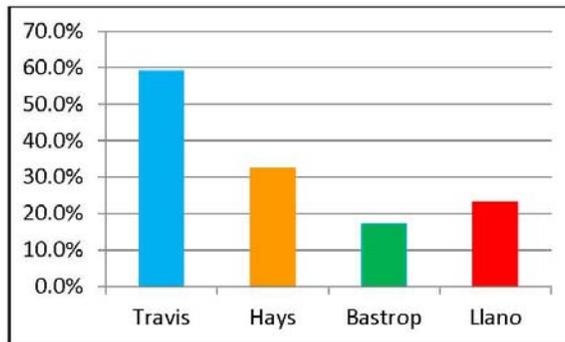
Employment is dependent on numerous factors such as population, labor force, labor force participation, educational attainment, economic conditions, technology changes, and many other factors difficult to predict. But, reasonable estimates of future employment can be made based on population and analysis of past trends.

Llano County employment for 2005, 2010, and 2013 was obtained from TWC. Table 18 provides the total TWC employment, total population, and population-to-employment ratios for the three years of data. The ratio of population to employment varies by area and is contingent on the type and amount of development (urban, suburban, or rural) and the household structure and size. Generally, counties that contain urban employment centers have a higher ratio of population to employment than surrounding suburban and rural counties. Additionally, urban areas that consist of several counties generally have a core county, the county with the highest density of population and employment, and this county has a higher ratio of population to employment than the other counties within the urban area. These core counties have a higher ratio because the greater employment draws employees from surrounding counties where employment is lower. In urban areas with multiple counties, the core county tends to maintain a higher population-to-employment ratio, although over time the other counties will begin to increase their ratio as the population grows and employment in certain sectors (most notably retail, service, and education) increases to support that population. Figure 9 illustrates the concept of different population-to-employment ratios using 2005 available data for Travis, Hays, Bastrop, and Llano Counties.

**Table 18. Total Employment, Total Population, and Population-to-Employment Ratios for Llano County for 2005, 2010, and 2013.**

Employment and Population	2005	2010	2013
Total Employment	4,226	4,129	4,350
Total Population	18,236	19,301	19,444
Employment/Population	0.232	0.214	0.224

Source: U.S. Census Bureau, Texas Employment Commission, and Texas A&M Transportation Institute



Source: U.S. Census Bureau, Texas Employment Commission, and Texas A&M Transportation Institute

**Figure 9. 2005 Population-to-Employment Ratios for Travis, Hays, Bastrop, and Llano Counties.**

It is important to note that the TWC data reflect the number of employees working in business establishments located within Llano County. These employees could live in Llano County or could live elsewhere and commute to Llano County. The Census of Transportation Planning Package (CTPP) Journey-to-Work data illustrate how the TWC employment data differ from that provided by other agencies. Table 19 summarizes the 2006 to 2010 CTPP Journey-to-Work flows for Llano County residents. The data show that more than 7,600 residents are employed, and of those residents, 4,748 work in Llano County. That estimate is close to the 2010 TWC employment number of 4,129. The remainder of employed Llano residents work outside the county, with most working in Burnet and Travis Counties.

**Table 19. 2006 to 2010 Census of Transportation Planning Journey-to-Work Llano County Flow.**

County of Residence	County of Workplace	Number of Employees
Llano	Llano	4,748
Llano	Burnet	1,579
Llano	Travis	614
Llano	Bexar	96
Llano	Williamson	83
Llano	Other	508
	Total	7,628

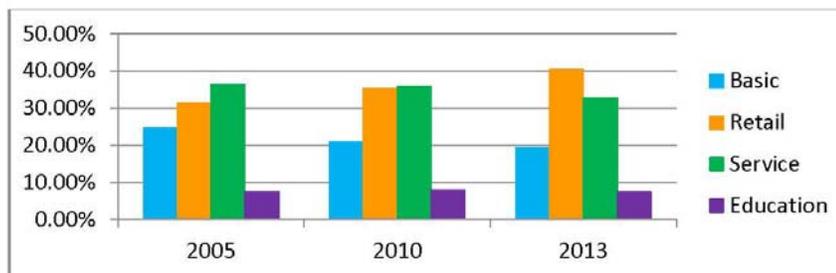
Source: 2006–2010 CTPP Journey-to-Work County Flow Table

Travel demand modeling also requires estimates of employment by type (basic, retail, service, and education). Employment by type (number and percent of total employment) from TWC for Llano County for the years 2005, 2010, and 2013 is provided in Table 20. The percent employment by type is illustrated in Figure 10. As indicated by the data, retail employment represents the largest employment sector in Llano County, accounting for slightly over 40 percent in 2013, up from 31 percent in 2005. Service employment is the next largest sector with almost 33 percent of total employment, followed by basic (19 percent) and education (7.5 percent).

**Table 20. Number and Percent Employment by Type for Llano County for 2005, 2010, and 2013.**

Employment Type	Number			Percent		
	2005	2010	2013	2005	2010	2013
Basic	1,047	862	840	24.76%	20.88%	19.31%
Retail	1,327	1,458	1,755	31.38%	35.31%	40.34%
Service	1,534	1,478	1,428	36.27%	35.80%	32.83%
Education	321	331	327	7.59%	8.02%	7.52%
Total	4,229	4,129	4,350			

Source: Texas Workforce Commission



Source: Texas Workforce Commission

**Figure 10. Percent Employment by Type for Llano County for 2005, 2010, and 2013.**

The distribution of employment by type varies between counties and is dependent on the economic base of an area. Over time, the distribution by type can change as industry, technology, and economic conditions change. For example, over the past 20 to 30 years, many areas have experienced a drop in the percent of basic employment and an increase in the percent of service employment. The downward trend in basic employment is largely due to loss of manufacturing jobs and increases in productivity, while the increase in service employment can generally be attributed to improvements in technology, increased government programs, and generally good economic conditions. It is unusual for retail to account for 40 percent of employment within a county. Generally, the retail sector accounts for between 20 and 25 percent of county employment. The expansion of retail employment in Llano County appears to coincide with the growth of the hunting and leisure (tourism) industries within the county over the past 10 to 15 years and would be supporting those industries as well as local and surrounding county resident needs.

### Suggested Employment Control Totals

Estimates of future employment in Llano County were made based on the suggested population projections from the TSDC 1.0 migration scenario and past, current, and anticipated future employment by type. The suggested employment control totals by type of employment are provided in Table 21. As the data indicate, it is expected that the percentage of employment in the basic sector will continue to decline slightly over the 2010 to 2040 period. Likewise, the percentage of employment in retail is expected to decline but still remain higher than that found in other areas. The percent employment in the service sector is expected to increase to accommodate the increased population, particularly the growing retirement community. Finally, given the modest population growth and relatively constant percentage of school-aged children under this projection scenario, the percentage of employment in education should remain relatively stable.

**Table 21. Base 2010 and Suggested 2020 to 2040 Employment Control Totals by Type of Employment for Llano County.**

Employment Type	2010	2020	2030	2040
<b>Percent Employment by Type</b>				
Basic	20.9%	19.0%	18.6%	18.2%
Retail	35.3%	35.0%	34.5%	34.3%
Service	35.8%	38.5%	39.4%	40.0%
Education	8.0%	7.5%	7.5%	7.5%
<b>Employment by Type</b>				
Basic	862	924	1,014	1,017
Retail	1,458	1,702	1,880	1,916
Service	1,478	1,872	2,147	2,234
Education	331	364	409	419
Total	4,129	4,862	5,450	5,586

Source: Texas Employment Commission and Texas A&M Transportation Institute

## Summary

The suggested control totals for Llano County were developed based on review and analysis of the historic and anticipated trends, available projection data, and review of economic and employment data for the county. The following points summarize the processes and decisions made with regard to developing the control totals:

- Review of the TSDC 0.5 and 1.0 migration population projections along with historic and current population trends suggests that the 1.0 scenario provides the best estimate of future population change at this time.
- Available TSDC projections of the number of households are not consistent with the most recent population projections. As a result, historic and current census data and TSDC projections of average household size (based on population projections prepared in 2012) were used in conjunction with future estimates of the group quarters population to develop estimates of the future number of households for the 30-year period.
- Available TSDC projections of median household income are not consistent with current population and household projections. As a result, the most recent TSDC projections of median household income were used in conjunction with past and recent trends and anticipated population change to estimate a reasonable range for future median household income.
- Estimates of future employment, total and by type, were developed using recent past and current TWC employment data, the 1.0 population projections, and estimates of how the percentage of employment by type might be expected to change over the 30-year period.

Table 22 provides the recommended Llano County population, household, median household income, and employment (total and by type) control totals for the forecast years of 2020, 2030, and 2040.

**Table 22. Recommended Control Totals for Llano County for 2020 to 2040.**

Demographic Data Component	2020	2030	2040
Population	21,417	22,710	22,800
Households	10,001	10,665	10,521
Average Household Size	2.12	2.11	2.14
<b>Median Household Income</b>			
Constant 2010 Dollars	\$43,683	\$42,695	\$42,555
Nominal Dollars	\$52,787	\$62,812	\$76,931
<b>Employment</b>			
Basic	924	1,014	1,017
Retail	1,702	1,880	1,916
Service	1,872	2,147	2,234
Education	364	409	419
Total	4,862	5,450	5,586



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## **Appendix C—Llano County Traffic Trends Technical Memorandum**



October 23,  
2015

Texas Department of Transportation Austin District  
Task 11: Technical Assistance and Support with Travel Demand Modeling; PI: Ipek N. Sener

## TECHNICAL MEMORANDUM

**TASK REPORT:** 2015 IAC Task 11, Subtask I  
Llano County Traffic Trends

**DATE:** October 23, 2015

**TO:** Bonnie Lister  
Texas Department of Transportation Austin District

**FROM:** Richard J. Lee and Ipek N. Sener  
Texas A&M Transportation Institute

**FOR MORE INFORMATION:**

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## 1. Introduction

This technical memorandum estimates current traffic trends and projected traffic growth for Llano County. The document consists of three primary sections. Section 2 provides information about the data sources used for the analysis, while Sections 3 and 4 describe the base year (2010) and forecast year (2040) analysis results, respectively.

The purpose of this study is to document the overall levels of traffic growth over the past decade in Llano County, and forecast future levels of traffic based on population growth and trends in traffic. This will allow planners in the region to determine if and when large scale corridor improvements might be necessary in Llano County. Other rationale for future improvements that were not evaluated as part of this study could include localized traffic congestion at intersections, periodic heavy traffic flows that could be produced by special events, safety improvements, and connectivity plans to ensure adequate mobility of the Llano county population.

## 2. Data Sources

The traffic analysis is based on two primary sources of data:

- Geographic information system (GIS) roadway network.
- Traffic counts.

Generally, regional networks used in travel models consist of facilities functionally classified as an arterial or higher, and a subset of collectors, while local streets are typically excluded. Keeping this in mind, the researchers created a GIS roadway network and traffic analysis zones (TAZs) for Llano County. State highways, farm-to-market roads, and significant county roads were included in the network, as well as some smaller-capacity rural roads to provide adequate network connectivity and coverage. These were further subdivided into shorter links and annotated with general facility attributes (e.g., speed limit, number of lanes, and directionality) that were later ground-truthed through site visits. Roadways in the network were also defined by their functional class, which more broadly classifies roadway facility types<sup>1</sup>. Figure 1a presents a map of the final Llano County network by the assigned roadway functional class (collector, minor arterial, and principal arterial).

For the Llano County traffic analysis, 2010 was selected as the base year in order to align with available 2010 Census demographic data. Once the base year was agreed upon, TTI staff collected additional data needed. Saturation and annual traffic counts for 2010 were obtained from the Texas Department of

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<sup>1</sup> Roadway functional classification is an ordinal designation given to each roadway link within a network. TTI staff started with an examination of the classification system designated in the 2010 TxDOT Roadway Inventory, and also used aerial imagery for validation. Then, using the annotated network attributes, including number of lanes, posted speed, directionality, and facility type, TTI staff made adjustments to fit into functional class definitions that are defined in the travel modeling networks. The final roadway functional classification designations were determined based on the context of each link and the function it serves, among other considerations.

Transportation (TxDOT) Transportation Planning and Programming (TPP) Division. The remaining historic annual traffic counts for the period from 2003 to 2009 were obtained from previous work conducted by researchers for the TxDOT Austin District under Task 11 in 2012. For the sake of consistency, data availability and completeness throughout the analysis years, only annual counts (measured in annual average daily traffic [AADT] volumes) were used in this analysis. Saturation counts, which measure annual daily traffic (ADT) and are conducted only once in every five years, provide traffic data on county roads not included in the annual counts TxDOT conducts on state roads. Saturation counts were only available for the year 2010 and not included in the analysis. Given the relatively low volumes found on these county roads (only 7 out of 35 had an AADT over 150), their absence is not expected to have a significant impact on findings. The count site locations are displayed in Figures 1a and 1b.



Figure 1a. Llano County Network with Count Site Locations

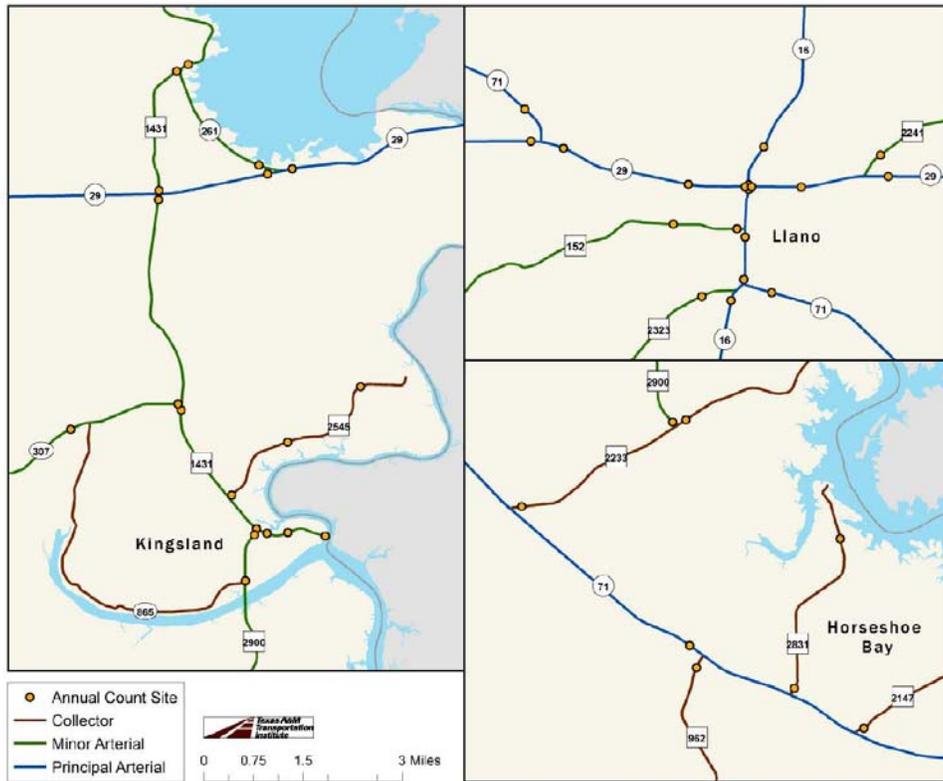


Figure 1b. Kingsland, Llano, and Horseshoe Bay Annual Count Sites.

### 3. Base Year (2010) Analysis Results

Table 1 presents the traffic count data for 2003–2010, as well as the change in AADT between 2003 and 2010.

Table 1. AADT between 2003 and 2010 in Llano County.

Site ID	Roadway Name	Location	AADT across Years								Percent Change (2003–2010)	
			2003	2004	2005	2006	2007	2008	2009	2010		
H 50	FM 1659	In Valley Spring	N/A	60	N/A	N/A						
H 44	RM 152	Southeast of Castell	120	120	110	120	110	80	140	110	-8.3%	
H 33	RM 962	South of SH 71	600	670	710	720	740	700	640	720	20.0%	
H 39	RM 965	West of SH 16	100	150	160	120	140	160	170	230	130.0%	
H 17	RM 1431	North of SH 29	2300	2400	2450	2300	2500	2500	2100	2300	0.0%	
H 13		West of SH 261	1500	1450	1660	1700	1750	1500	1300	1450	-3.3%	
H 23		West of Highland in Kingsland	12,000	12,500	12,700	14,600	14,500	13,700	12,900	13,500	12.5%	
T 9		East of Polk St. in Kingsland	9100	9800	10,720	12,200	12,600	10,900	10,100	11,200	23.1%	
H 24		East of RM 2900 in Kingsland	10,400	11,500	12,710	13,600	14,000	13,400	12,200	12,700	22.1%	
H 25		At Burnet County Line	9000	9400	10,540	12,100	12,500	10,600	9800	10,800	20.0%	
H 19		South of RM 3404	7200	7000	7500	8100	8300	6800	6500	7400	2.8%	
H 18	South of SH 29	6400	6200	6300	6500	6800	5900	5400	6300	-1.6%		
T 7	RM 152	East of SH 16	4000	3900	4100	4400	4700	5000	4800	4900	22.5%	
H 42		West of Llano	1650	1700	1750	1850	1850	1750	1600	1750	6.1%	
H 43		South of Llano River	290	310	330	320	300	280	290	300	3.4%	
H 34	RM 2147	North of SH 71	2400	2500	2700	2900	3000	3100	2700	3200	33.3%	
H 29	RM 2233	East of RM 29	1600	1700	1710	1950	2000	1900	1550	1650	3.1%	
H 30		West of Deer Dr.	50	50	60	60	70	40	40	80	60.0%	
H 31		North of SH 71	2200	2000	2120	2200	2400	2200	1950	2400	9.1%	
H 5	RM 2241	North of SH 2900	880	720	770	790	780	830	750	770	-12.5%	
H 8		West of LCRA Park	950	710	830	670	710	670	620	690	-27.4%	
H 6		In Bluffton	670	520	590	620	620	580	570	640	-4.5%	
H 7		North of RM 2241	1500	1250	1390	1300	1350	1300	970	1050	-30.0%	

Site ID	Roadway Name	Location	AADT across Years								Percent Change (2003–2010)
			2003	2004	2005	2006	2007	2008	2009	2010	
H 40	RM 2323	East of CR 113	160	110	160	180	190	200	170	180	12.5%
H 41		West of Old Six Mile Rd. in Llano	830	730	780	780	810	1000	880	920	10.8%
H 20	RM 2545	East of RM 1431	2900	3200	3410	3600	3700	3600	3600	3300	13.8%
H 22		East of Azalea St. in Kingsland	560	560	550	610	620	630	520	630	12.5%
H 21		East of Granite Cove Rd. in Kingsland	2400	2300	2400	2500	2400	2600	2000	2200	-8.3%
H 45	RM 2768	South of SH 29	110	180	150	160	180	120	160	170	54.5%
H 33B	RM 2831	North of Horseshoe Bay Resort	580	630	610	800	830	580	630	680	17.2%
H 33A		North of SH 71	1200	1250	1460	1750	1750	1600	1450	1400	16.7%
H 28	RM 2900	North of RM 2233	2600	2800	2830	3500	3200	2900	2500	2900	11.5%
H 27		South of Hiawatha Trl. in Kingsland	4400	4600	5090	5900	6600	6400	4600	4700	6.8%
H 26		South of RM 1431	6600	7500	8470	8500	8700	8300	8100	8100	22.7%
H 9	RM 3014	West of LCRA Park	1550	1350	1450	1350	1400	1450	1250	1350	-12.9%
H 19B	RM 3404	West of River Oaks Dr. in Kingsland	820	650	800	780	790	750	880	890	8.5%
H 19A		East of Industrial Dr. in Kingsland	1350	1300	1360	1500	1450	1400	1350	1450	7.4%
H 37	SH 16	South of Llano	1800	1800	1900	2300	2000	2500	3300	2700	50.0%
T 3		Downtown Llano	10,900	10,200	11,940	11,500	12,100	12,800	11,700	11,200	2.8%
H 38		North of Gillespie County Line	1150	1150	1200	1100	1250	1100	1150	1200	4.3%
T 5A		At Landon Dr. in Llano	5900	5400	5700	6100	6400	7000	6400	6800	15.3%
T 5		North of Luce in Llano	8100	7500	8690	8200	8400	9200	8200	8000	-1.2%
T 1		Downtown Llano	3700	3200	3620	3100	4000	3800	3500	3700	0.0%
H 1		North of Collins St. in Llano	2300	1900	2270	2200	2300	2100	1900	2200	-4.3%
H 2		North of AA 215	1400	1500	1510	1400	1550	1300	1300	1400	0.0%

October 23, 2015 [Texas Department of Transportation Austin District  
Task 11: Technical Assistance and Support with Travel Demand Modeling; Pt. Ipek N. Senel]

Site ID	Roadway Name	Location	AADT across Years								Percent Change (2003-2010)
			2003	2004	2005	2006	2007	2008	2009	2010	
H 12	SH 261	West of Black Rock Park	2500	2600	2700	2700	2700	2400	2100	2300	-8.0%
H 14		North of SH 29	1550	1450	1680	1450	1450	1300	1250	1400	-9.7%
H 10		West of AA 225	1500	950	1340	1200	1250	1250	1150	1250	-16.7%
H 11		North of Cherokee Ter in Kingsland	2100	1850	1950	2100	2100	1950	1700	1900	-9.5%
H 46	SH 29	SH 29 and SH 71	2500	2300	2110	2500	2600	2200	2300	2300	-8.0%
H 16		West of SH 261	4800	5000	4980	5000	5100	4700	3900	4400	-8.3%
H 4		East of RM 2241	3800	4000	4660	4300	4700	4000	3600	N/A	-5.3% <sup>2</sup>
H 3		Between Fargo Ave. and Wells Ave. in Llano	5000	5200	5490	5500	5800	5000	4400	4600	-8.0%
H 51		East of SH 71	4200	4400	4600	4300	4600	4100	4200	4100	-2.4%
H 52		North of Sunset Dr. in Llano	4400	4600	4850	4600	4800	4300	4400	4400	0.0%
T 8		Downtown Llano	8600	9800	10,740	9200	9700	9400	8600	8600	0.0%
T 2		Downtown Llano	6800	7000	7490	7500	7900	7300	6600	6600	-2.9%
H 15		East of SH 261	5400	5800	6120	6000	6100	5500	4700	5200	-3.7%
SP 273		North of Indian Bend Rd. in Llano	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3700	N/A
H 36	SH 71	West of Hickory St. in Llano	3100	2700	3050	2800	3000	2600	2900	3200	3.2%
H 35		North of AA 307	2700	2300	2500	2500	2700	2300	2500	2700	0.0%
H 32		Northwest of Waller Creek	4000	3900	4070	4100	4300	3900	3800	4100	2.5%
H 49		East of Field Creek	1550	1600	1640	1500	1550	1500	1400	1300	-16.1%
H 48		in Valley Spring	2100	1400	1500	1500	1650	1600	1600	1500	-28.6%
H 47		North of SH 29	1800	2200	1930	2000	1950	1850	1800	1800	0.0%

<sup>2</sup> Percent change for 2003-2009.

As can be observed from the table, the rate of traffic growth between 2003 and 2010 was mixed, with higher growth generally located near the cities of Llano, Kingsland, and Horseshoe Bay. Figure 2 presents a scattergram plotting 2003 versus 2010 AADT<sup>3</sup>. In the scattergram, the diagonal line represents no growth, values above the line represent positive growth, and values below the line represent a decline. Specifically, 24 locations experienced a decline in traffic, seven locations were unchanged, 18 had low traffic growth (0.01 – 15 percent), nine medium growth (15.1 – 30 percent), and five demonstrated high growth (over 30 percent).

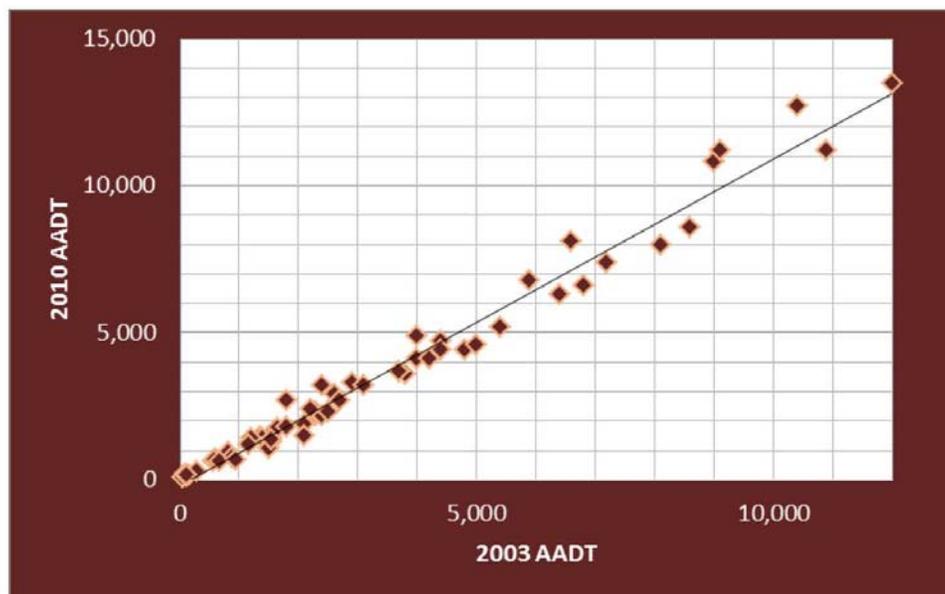


Figure 2. Scattergram of 2003 AADT versus 2010 AADT.

Figure 3 presents the geographic distribution of AADT growth rates between 2003 and 2010, indicating mixed growth patterns on both rural and urban roadways. Count sites that experienced an increase in volume tended to be clustered around the county's largest cities. In particular, AADT increased by 13–23 percent at sites along RM 1431 near Kingsland, and by 17 percent on RM 2831 near Horseshoe Bay.

In contrast, several locations demonstrated a decline in AADT from 2003 to 2010. These sites were primarily located in the northern half of Llano County, especially in the northeast near Lake Buchanan.

<sup>3</sup> Due to a lack of historic count data, sites H 50 and SP 273 are not shown. For site H 4, 2009 count data was used in place of 2010 data (here, and throughout the rest of the report).

Roadways with reduced traffic volumes in 2010 included RM 2241, SH 261, SH 29, and SH 71 northwest of Llano.

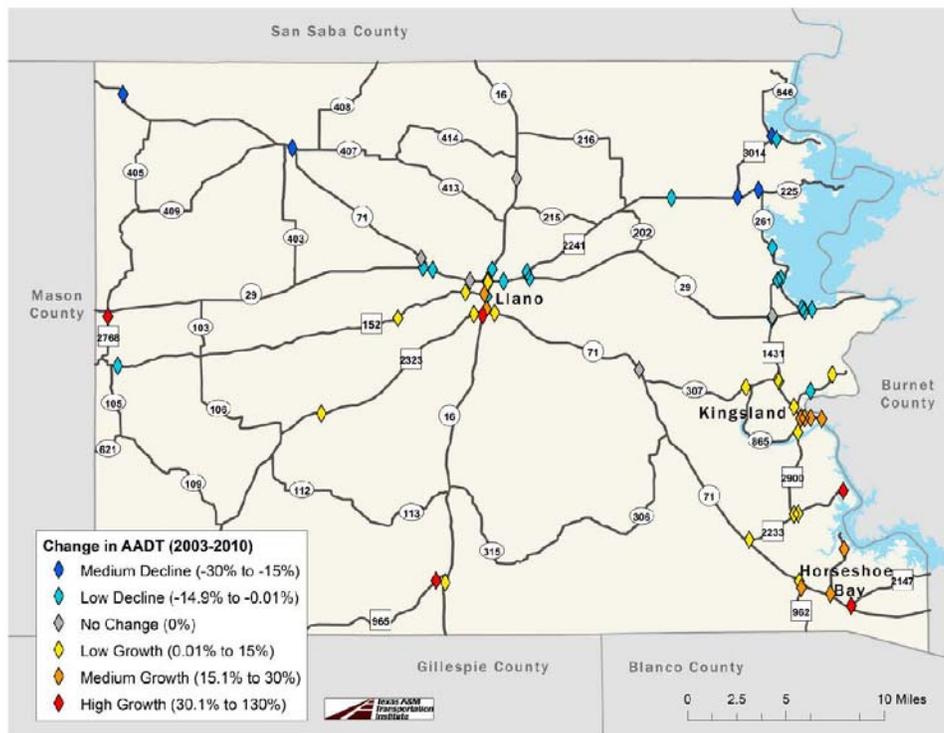


Figure 3. Estimated Traffic Growth in Llano County (between 2003 and 2010).

Finally, roadway capacities were assigned according to a speed-capacity look-up table and compared to 2010 AADT values (or the most recent year available if no 2010 data existed). To compute roadway capacities, the Capital Area Metropolitan Planning Organization (CAMPO) travel demand model speed-capacity look-up table was adapted to a rural setting. To designate area type, an activity density measure was calculated at the TAZ-level based on 2010 population and employment data. The area type classification schema was then adjusted for a rural setting and used to classify links.

Figure 4 presents volume-to-capacity ratios for each count site, where values greater than 1.0 indicate volumes exceeding roadway capacity. At current levels, none of the locations exceed roadway capacity. Site H 25 on RM 1431 in Kingsland has a volume-to-capacity ratio of 0.86, which corresponds to level of service (LOS) E (volume-to-capacity ratio between 0.85 and 1), or undesirable flow. Otherwise, all other count locations have a ratio below 0.7 (LOS A to C), indicating good or tolerable flow as presented in Figure 5.

It is important to note that these volume-to-capacity calculations represent average daily conditions. Specific bottlenecks of traffic can be caused by a rapid overloading of an intersection or other location when there are many cars needing to traverse those locations in a short time period. However, these daily figures give a good picture of where there is significant traffic loading in the county.

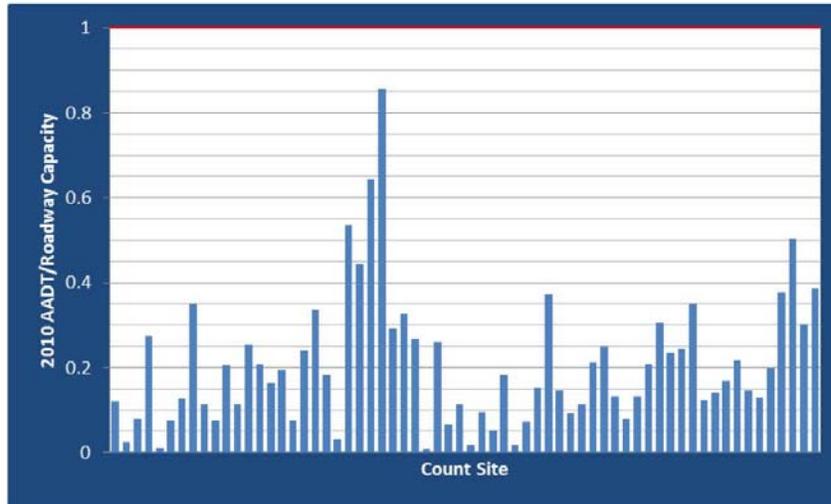


Figure 4. 2010 AADT-to-Roadway-Capacity Ratio.

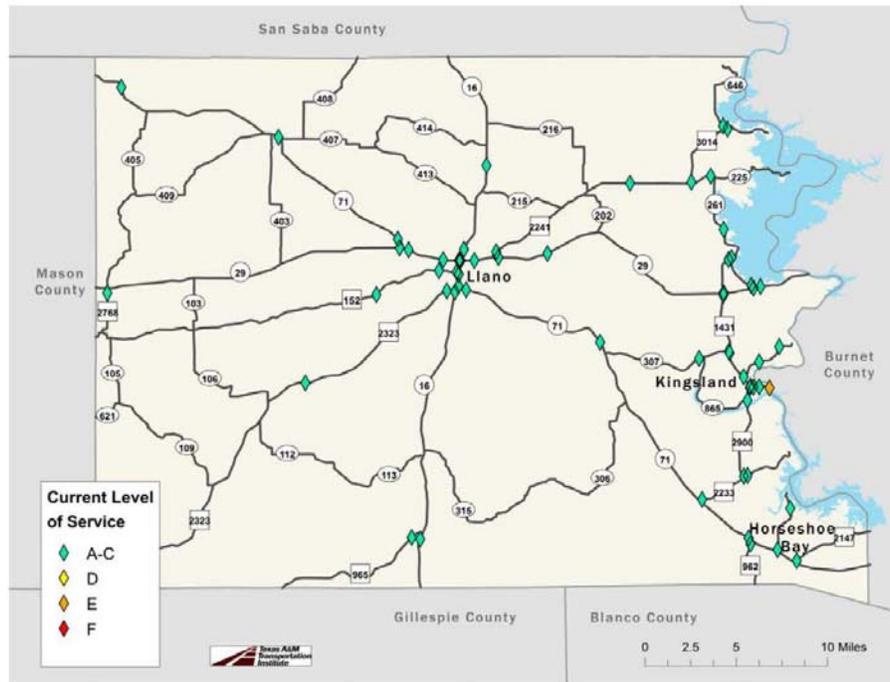


Figure 5. 2010 Levels of Service for Llano County.

#### 4. Forecast Year (2040) Analysis Results

Following the base year traffic growth analysis, further analysis was conducted to evaluate potential future scenarios for the 2040 forecast year. Given the uncertainty associated with long-range traffic projections, three different methodologies were used to develop scenarios:

- Scenario I (Demographics): Forecasted growth factors were developed using 2010 and projected 2040 demographic data at the TAZ-level. Because it is not reasonable to assume that each count site's traffic trends will depend solely on the characteristics of the TAZ to which it belongs and because count sites fall along TAZ boundaries, demographic data for each site were aggregated using all nearby TAZs. This resulted in three sets of growth factors based on projected population, households, and employment for the forecast year, each calculated based on TAZs within 1, 3, and 5 miles for a total of up to nine different projections. For the sake of prudence, the highest of the projections was selected for each site as a worst-case scenario. Employment-based projections were not used in areas with extremely low employment (2010 employment < 100) due to unreliable forecasts.

- Scenario II (Historic Trends): Traffic trends were developed based on historic count data. Annual counts dating back as far as 1990 were used to create linear and exponential trend formulations, resulting in two sets of forecast volumes. Again, the maximum projected volume was selected for each site as a potential worst-case scenario. This scenario may be less likely to occur because it is not reasonable to assume that traffic will continue to grow at historic rates without considering regional demographic trends. However, the scenario is presented to provide additional context.
- Scenario III (TxDOT Statewide Analysis Model): Volumes were estimated using the 2040 scenario from TxDOT's Statewide Analysis Model (SAM). Demographic and employment data are used as inputs into the SAM, a four-step travel demand model. Because the SAM model does not cover the entire Llano County network, 2040 volumes were unable to be assigned to 13 of the count locations.

Table 2 provides a summary of past (2003, 2006), current (2010), and forecast year (2040) volumes for each site. Figures 6–8 additionally present projected volume-to-capacity ratios for Scenarios I, II, and III, respectively. Furthermore, Figures 9–11 present maps of projected LOS for each scenario.

Under Scenario I, traffic volumes are expected to increase at every count location. Based on historic trends, Scenario II projected increased traffic volume at 89 percent of locations, while Scenario III is somewhat more conservative with traffic projected to increase at 67 percent of locations. Kingsland and Llano roadways are projected to experience the greatest congestion-related strain by 2040 in all three scenarios. Scenarios I and II predicted significantly higher volumes along RM 1431 in Kingsland, with LOS ranging from D to F. Scenario I also projected that site SP 273 on SH 29 east of Llano will exceed capacity by 2040, resulting in LOS F (as noted before, historic count data was not available to develop a Scenario II projection for this site), although it is important to keep in mind that this is based on the worst-case projection, which did not take into account employment in nearby Llano TAZs. The seven other projections developed for this site under Scenario I all predicted LOS A-C. Scenario III only predicted three sites will reach LOS D. Among the count locations where projections were available, all other Scenario III sites had a projected LOS of A-C. Scenario II additionally indicated LOS F along roadways in Horseshoe Bay, though in general, this scenario resulted in several unrealistically high forecasts which assumed exponential growth based on historical rates that are unlikely to continue.

Overall, Scenarios I and III indicated that the major highways in the county, SH 71, SH 16, and SH 29, will see much of the traffic growth in the coming years. Scenario II predicts declines along much of SH 29 and SH 71, but given that scenario's previously described limitations, Scenarios I and III are likely more instructive for planning purposes. Scenario I, in particular, considers expected demographic growth in its projections while providing more comprehensive network coverage than Scenario III projections. Based on these projections and analysis of traffic trends, most roadways do not show an immediate or forecast traffic growth that would cause significant traffic congestion. However, traffic should be monitored for impacts from localized land development, especially near the select sites that have been identified. Other factors impacting roadway investments should also be considered, such as safety, occasional

October 23,  
2015

Texas Department of Transportation Austin District

Task 11: Technical Assistance and Support with Travel Demand Modeling; PI: Ipek N. Sener

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traffic-producing events, increased heavy truck traffic during economic up-turns, and connectivity to ensure good mobility for the county.

Table 2. Current and Projected Traffic Volumes in Llano County.

Site ID	Roadway Name	Location	AADT						Percent Change					
			2003	2006	2010	2040			2003-2006	2006-2010	2010-2040			
						Scenario I	Scenario II	Scenario III			Scenario I	Scenario II	Scenario III	
H 50	FM 1659	In Valley Spring	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
H 44	RM 152	Southeast of Castell	120	120	110	131	191	339	0.0%	-8.3%	19.4%	74.0%	208.0%	
H 33	RM 962	South of SH 71	600	720	720	1125	2312	1992	20.0%	0.0%	56.2%	221.0%	176.7%	
H 39	RM 965	West of SH 16	100	120	230	513	439	263	20.0%	91.7%	123.1%	91.0%	14.1%	
H 13	RM 1431	West of SH 261	1500	1700	1450	3204	2404	751	13.3%	-14.7%	121.0%	65.8%	-48.2%	
H 17		North of SH 29	2300	2300	2300	5049	5760	751	0.0%	0.0%	119.5%	150.4%	-67.4%	
H 18		South of SH 29	6400	6500	6300	13,830	10,244	6711	1.6%	-3.1%	119.5%	62.6%	6.5%	
H 19		South of RM 3404	7200	8100	7400	13,308	16,462	9808	12.5%	-8.6%	79.8%	122.5%	32.5%	
H 23		West of Highland in Kingsland	12,000	14,600	13500	24,545	30,045	10,854	21.7%	-7.5%	81.8%	122.6%	-19.6%	
H 24		East of RM 2900 in Kingsland	10,400	13,600	12700	23,091	32,313	N/A	30.8%	-6.6%	81.8%	154.4%	N/A	
H 25		At Burnet County Line	9000	12,100	10800	19,636	33,744	10,513	34.4%	-10.7%	81.8%	212.4%	-2.7%	
T 9	East of Polk St. in Kingsland	9100	12,200	11200	20,364	29,526	10,513	34.1%	-8.2%	81.8%	163.6%	-6.1%		
H 42	RM 152	West of Llano	1650	1850	1750	2614	12,556	87	12.1%	-5.4%	49.4%	617.5%	-95.0%	
H 43		South of Llano River	290	320	300	555	244	167	10.3%	-6.3%	84.9%	-18.5%	-44.5%	
T 7		East of SH 16	4000	4400	4900	7320	5934	87	10.0%	11.4%	49.4%	21.1%	-98.2%	

Site ID	Roadway Name	Location	AADT						Percent Change					
			2003	2006	2010	2040			2003-2006	2006-2010	2010-2040			
						Scenario I	Scenario II	Scenario III			Scenario I	Scenario II	Scenario III	
H 34	RM 2147	North of SH 71	2400	2900	3200	4557	8145	3049	20.8%	10.3%	42.4%	154.5%	-4.7%	
H 29	RM 2233	East of RM 29	1600	1950	1650	4058	4350	2218	21.9%	-15.4%	145.9%	163.6%	34.4%	
H 30		West of Deer Dr.	50	60	80	181	1620	N/A	20.0%	33.3%	126.8%	1924.7%	N/A	
H 31		North of SH 71	2200	2200	2400	6357	11,131	2218	0.0%	9.1%	164.9%	363.8%	-7.6%	
H 5	RM 2241	North of SH 29	880	790	770	1658	628	2167	-10.2%	-2.5%	115.4%	-18.5%	181.4%	
H 6		In Bluffton	670	620	640	1801	601	2062	-7.5%	3.2%	181.3%	-6.1%	222.2%	
H 7		North of RM 2241	1500	1300	1050	2240	961	2717	-13.3%	-19.2%	113.4%	-8.5%	158.8%	
H 8		West of LCRA Park	950	670	690	743	437	N/A	-29.5%	3.0%	7.7%	-36.7%	N/A	
H 40	RM 2323	East of CR 113	160	180	180	305	115	615	12.5%	0.0%	69.7%	-36.1%	241.8%	
H 41		West of Old Six Mile Rd. in Llano	830	780	920	1369	2278	615	-6.0%	17.9%	48.8%	147.7%	-33.1%	
H 20	RM 2545	East of RM 1431	2900	3600	3300	6180	6875	N/A	24.1%	-8.3%	87.3%	108.3%	N/A	
H 21		East of Granite Cove Rd. in Kingsland	2400	2500	2200	4120	5285	N/A	4.2%	-12.0%	87.3%	140.2%	N/A	
H 22		East of Azalea St. in Kingsland	560	610	630	1162	1208	N/A	8.9%	3.3%	84.4%	91.8%	N/A	
H 45	RM 2768	South of SH 29	110	160	170	202	174	194	45.5%	6.3%	18.6%	2.1%	14.3%	
H 33A	RM 2831	North of SH 71	1200	1750	1400	3666	11,139	N/A	45.8%	-20.0%	161.9%	695.7%	N/A	
H 33B		North of Horseshoe Bay Resort	580	800	680	1655	1035	N/A	37.9%	-15.0%	143.4%	52.3%	N/A	

Llano County Traffic Trends

October 23, 2015 | Texas Department of Transportation Austin District  
Task 11: Technical Assistance and Support with Travel Demand Modeling | Pl. (pak. N. Seren)

Site ID	Roadway Name	Location	AADT						Percent Change				
			2003	2006	2010	2040			2003-2006	2006-2010	2010-2040		
						Scenario I	Scenario II	Scenario III			Scenario I	Scenario II	Scenario III
H 19A	RM 2900	East of Industrial Dr. in Kingland	1350	1500	1450	2608	6797	3139	11.1%	-3.3%	79.8%	368.8%	116.5%
H 19B		West of River Oaks Dr. in Kingland	820	780	890	1680	5773	3139	-4.9%	14.1%	88.7%	548.7%	252.7%
H 26		South of RM 1431	6600	8500	8100	14727	20011	10513	28.8%	-4.7%	81.8%	147.0%	29.8%
H 27		South of Hiawatha Trl. in Kingland	4400	5900	4700	8545	16,966	2218	34.1%	-20.3%	81.8%	261.0%	-52.8%
H 28		North of RM 2233	2600	3500	2900	7131	11,359	N/A	34.6%	-17.1%	145.9%	291.7%	N/A
H 9	RM 3014	West of LCRA Park	1550	1350	1350	1454	1363	N/A	-12.9%	0.0%	7.7%	1.0%	N/A
H 1	SH 16	North of Collins St. in Llano	2300	2200	2200	3406	4631	2284	-4.3%	0.0%	54.8%	110.5%	3.8%
H 2		North of AA 215	1400	1400	1400	2286	2140	2326	0.0%	0.0%	63.3%	52.8%	66.1%
H 37		South of Llano	1800	2300	2700	4017	9059	5044	27.8%	17.4%	48.8%	235.5%	86.8%
H 38		North of Gillespie County Line	1150	1100	1200	2678	1634	3507	-4.3%	9.1%	123.1%	36.1%	192.2%
T 1		Downtown Llano	3700	3100	3700	5527	3473	2284	-16.2%	19.4%	49.4%	-6.1%	-38.3%
T 3		Downtown Llano	10,900	11,500	11,200	16,731	17,210	13,274	5.5%	-2.6%	49.4%	53.7%	18.5%
T 5		North of Luce in Llano	8100	8200	8000	11,951	11,095	13,214	1.2%	-2.4%	49.4%	38.7%	65.2%
T 5A		At Landon Dr. in Llano	5900	6100	6800	10,116	15,082	13,214	3.4%	11.5%	48.8%	121.8%	94.3%
H 10	SH 261	West of AA 225	1500	1200	1250	2667	2193	1388	-20.0%	4.2%	113.4%	75.4%	11.0%
H 11		North of Cherokee Ter in Kingland	2100	2100	1900	4475	5000	1181	0.0%	-9.5%	135.5%	163.1%	-37.8%
H 12		West of Black Rock Park	2500	2700	2300	5082	4668	1181	8.0%	-14.8%	121.0%	102.9%	-48.7%
H 14		North of SH 29	1550	1450	1400	3073	2250	432	-6.5%	-3.4%	119.5%	60.7%	-69.1%

Llano County Traffic Trends

October 23, 2015 | Texas Department of Transportation Austin District | Task 11: Technical Assistance and Support with Travel Demand Modeling | Pl. (pk. N. Ser.)

Site ID	Roadway Name	Location	AADT						Percent Change					
			2003	2006	2010	2040			2003-2006	2006-2010	2010-2040			
						Scenario I	Scenario II	Scenario III			Scenario I	Scenario II	Scenario III	
H 15	SH 29	East of SH 261	5400	6000	5200	11,415	11,826	7327	11.1%	-13.3%	119.5%	127.4%	40.9%	
H 16		West of SH 261	4800	5000	4400	9659	11,344	8445	4.2%	-12.0%	119.5%	157.8%	91.9%	
H 3		Between Fargo Ave. and Wells Ave. in Llano	5000	5500	4600	6953	7805	10,948	10.0%	-16.4%	51.2%	69.7%	138.0%	
H 4		East of RM 2241	3800	4300	N/A	7753	8642	N/A	13.2%	N/A	115.4%	140.1%	N/A	
H 46		SH 29 and SH 71	2500	2500	2300	3391	6296	3845	0.0%	-8.0%	47.5%	173.7%	67.2%	
H 51		East of SH 71	4200	4300	4100	6099	8529	6940	2.4%	-4.7%	48.8%	108.0%	69.3%	
H 52		North of Sunset Dr. in Llano	4400	4600	4400	6573	9082	6940	4.5%	-4.3%	49.4%	106.4%	57.7%	
SP 273		North of Indian Bend Rd. in Llano	N/A	N/A	3700	10,882	N/A	7852	N/A	N/A	194.1%	N/A	112.2%	
T 2		Downtown Llano	6800	7500	6600	9859	10,105	10,948	10.3%	-12.0%	49.4%	53.1%	65.9%	
T 8		Downtown Llano	8600	9200	8600	12,847	18,346	6940	7.0%	-6.5%	49.4%	113.3%	-19.3%	
H 32	SH 71	Northwest of Waller Creek	4000	4100	4100	6406	14,443	N/A	2.5%	0.0%	56.2%	252.3%	N/A	
H 35		North of AA 307	2700	2500	2700	8258	6023	7397	-7.4%	8.0%	205.8%	123.1%	174.0%	
H 36		West of Hickory St. in Llano	3100	2800	3200	4760	6974	7397	-9.7%	14.3%	48.8%	117.9%	131.1%	
H 47		North of SH 29	1800	2000	1800	2654	2518	3095	11.1%	-10.0%	47.5%	39.9%	71.9%	
H 48		In Valley Spring	2100	1500	1500	1959	1784	3819	-28.6%	0.0%	30.6%	18.9%	154.6%	
H 49		East of Field Creek	1550	1500	1300	1580	1779	3819	-3.2%	-13.3%	21.6%	36.8%	193.8%	

Llano County Traffic Trends

October 23, 2015 | Texas Department of Transportation Austin District  
Task 11: Technical Assistance and Support with Travel Demand Modeling. PI: [pak, N, Sener]

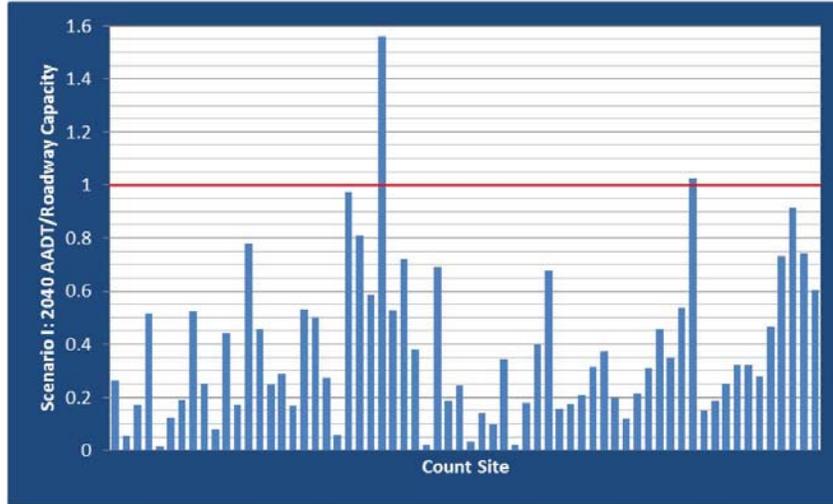


Figure 6. 2040 Scenario I Projected Volume-to-Roadway-Capacity Ratio.

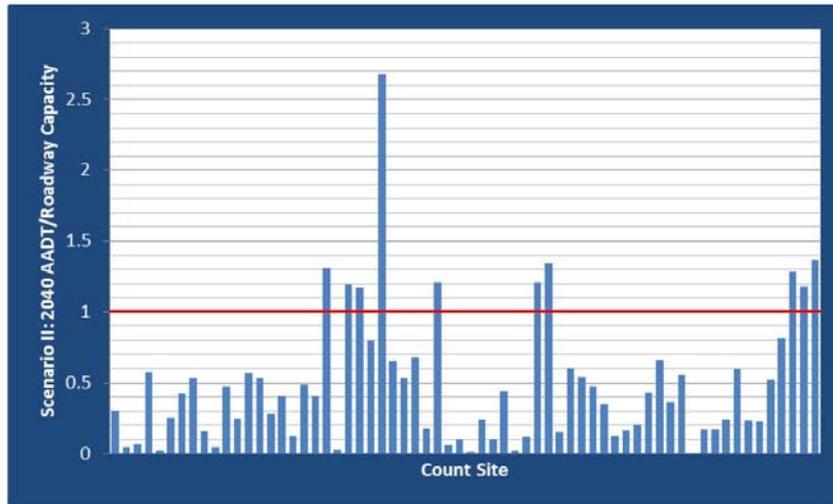


Figure 7. 2040 Scenario II Projected Volume-to-Roadway-Capacity Ratio.

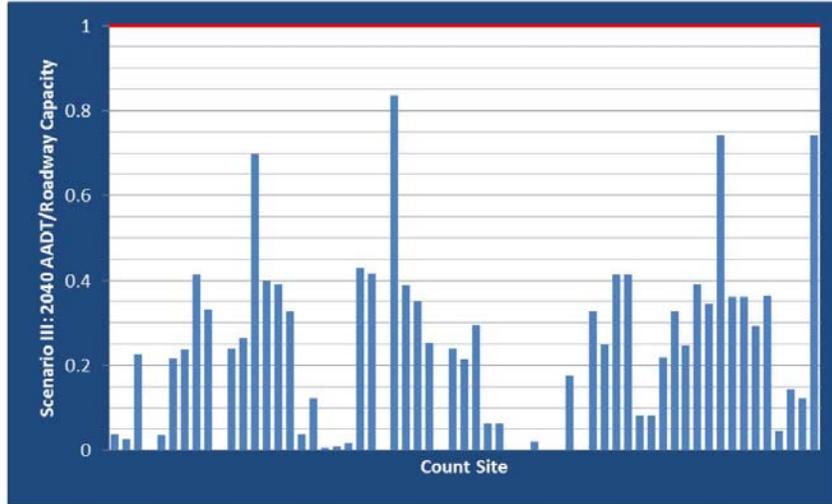


Figure 8. 2040 Scenario III Projected Volume-to-Roadway-Capacity Ratio<sup>4</sup>.



Figure 9. Scenario I Projected Levels of Service for Llano County.

<sup>4</sup> Due to the constraints of the SAM model, only 52 of the 65 count locations are represented.



Figure 10. Scenario II Projected Levels of Service for Llano County.

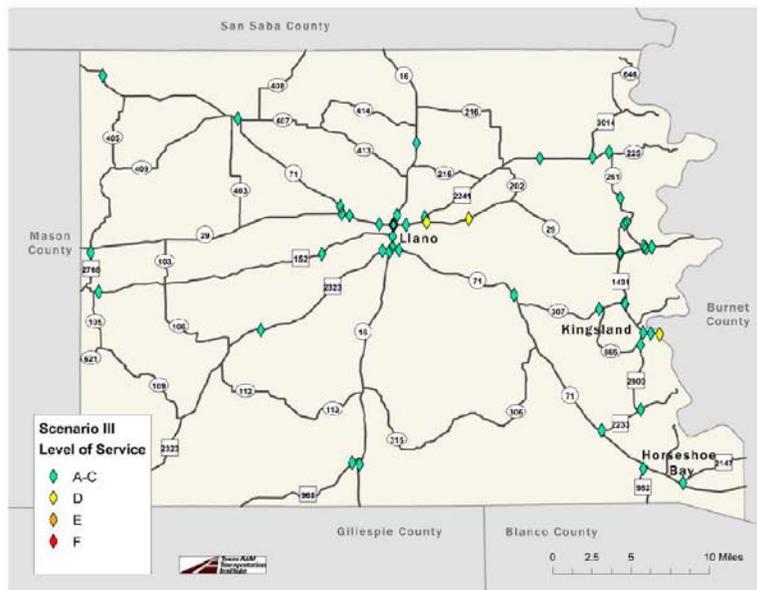


Figure 11. Scenario III Projected Levels of Service for the Llano County Network.