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16. Abstract

The mobility challenges facing rural communities concern transportation officials at all levels of government. Today, the rapid growth of many urban and suburban communities extends to the areas once known as rural, altering traffic patterns and changing local and regional economies. Historically, rural mobility received less attention from the federal government compared to urban mobility issues. However, federal legislation like ISTEA and TEA-21 recognized rural transportation issues as critical components to the overall mobility of a region. A cornerstone of TEA-21 is the requirement that rural mobility interests be a part of the statewide planning processes. This guidebook presents strategies and resources for the successful development and implementation of rural transportation projects. This reference will assist metropolitan planning organization (MPO) planning practitioners, Texas Department of Transportation (TxDOT) engineers, administrators, and transportation planning partners to address specific rural transportation needs.

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RURAL TRANSPORTATION PLANNING GUIDEBOOK

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1.0 RATIONALE AND OBJECTIVE

The mobility challenges facing rural communities have concerned transportation officials since the 1920s. Today, the rapid growth of many urban and suburban communities extends to the areas once known as rural, altering traffic patterns and changing local and regional economies. Historically, rural mobility received less attention from the federal government compared to urban mobility issues. However, federal legislation like the Intermodal Surface Transportation Act of 1991 (ISTEA) and the Transportation Equity Act for the 21st Century (TEA-21) recognized rural transportation issues as critical components to the overall mobility of a region. A cornerstone of TEA-21 is the requirement that rural mobility interests be a part of the statewide planning processes.

The two most popular methods for rural inclusion have been the "bottom up" and the "top down" approaches. The bottom up approach develops the transportation plan based on the identification of needs from the community perspective. In contrast, the top down strategy uses regional and state perspectives to identify needs and drive the planning processes.

The objective of this guidebook is the presentation of tools and strategies for the successful development and implementation of rural transportation projects using the bottom up and the top down approaches. This guidebook will assist metropolitan planning organization (MPO) planning practitioners, Texas Department of Transportation (TxDOT) engineers, administrators, and transportation planning partners to address their specific transportation needs.

The emphasis areas in this guidebook were obtained from surveys of county officials and rural planners. The following represents the areas covered in this guidebook:

2.0 Introduction to Rural Transportation Planning,
3.0 Rural Demographic and Economic Considerations,
4.0 Rural Demographic and Economic Issues and Trends,
5.0 The Development of the Rural Transportation Plan,
6.0 Rural Environmental Considerations,
7.0 Rural Transit Services, and
8.0 Border Areas.

2.0 INTRODUCTION TO RURAL TRANSPORTATION PLANNING

2.1 What Is Rural Transportation Planning?

Rural transportation planning consists of any or all activities involving the efficient movement of people, goods, and activities in an area classified as "rural." There are many factors that should be considered in developing and executing rural transportation projects, such as public involvement, environmental assessments, and the identification of how projects contribute to the overall strategic objectives for a given area.

2.2 Federal Transportation Legislation

ISTEA and its successor, TEA-21, established the legal basis for transportation planning and environmental preservation. TEA-21 requires that the integration of certain aspects of rural transportation planning be considered before inclusion in the statewide transportation improvement plan (TIP). These aspects include the following:

- inclusion of local rural officials and regional development councils in the planning process;
- development of comprehensive transportation plans that contribute to the economic growth and reflect the changing needs of a region;
- submission of an environmental impact analysis;
- a proactive public involvement process providing complete information, timely public notice, and full public access to key decisions; and
- early and continuing public involvement in the development of an intermodal transportation system. (For more information on TEA-21, see the TxDOT *Project Development Policy and Practice Manual*.)

It is customary for the transportation legislation to undergo reauthorization by Congress upon expiration of the existing act. A priority for transportation officials is to stay apprised of the status of federal legislation governing the planning process.

2.3 How Is Rural Defined?

There are many terms used in rural transportation planning, and often different entities use terms specific to their individual function. The following terms and definitions are those usually encountered in rural transportation planning.

The U.S. Department of Transportation (USDOT) acknowledges that there are many definitions of what actually constitutes "rural." Still, they define rural based on two principle uses:

- highway functional classification where rural is considered anything outside of an area with a population of 5000 and

- transportation planning purposes where rural is considered to be all areas outside of metropolitan areas consisting of a population of 50,000 or greater.

The following are the three general forms of "rural" used by the USDOT, followed by Census Bureau terms and definitions.

2.3.1 Basic Rural Area

Basic rural areas are dispersed counties or regions with few or no major population centers of 5000 or more. They are mainly characterized by agricultural- and natural resource–based economies, stable or declining populations, and "farm-to-market" localized transportation patterns.

The fundamental issues facing *basic rural areas* are:

- Declining populations in many areas have reduced transportation funding for maintenance and preservation of the expansive system of roads and bridges.

- Funding new and/or upgraded roads outside the federal-aid system to support large-scale agricultural operations and tourist attractions is difficult.

- Rail branch line abandonment following rail mergers has reduced freight rail service.

- The public transit–dependent segment of the population is small, and it is costly to service this segment.

The transportation planning needs in *basic rural areas* can be characterized as having less necessity for forecasting than other rural areas. These areas are generally most interested in preservation of existing transportation facilities and stimulating economic growth. Therefore, planning approaches for these areas should emphasize strategies that address these goals. *Basic rural areas* will typically have the least staff and least trained planning personnel to work with compared to other types of rural areas.

2.3.2 Developed Rural Area

Developed rural areas are fundamentally dispersed counties or regions with one or more population centers of 5000 or more. Economies in these areas tend to be mixed industrial and service based in the cities, and agricultural and natural resource based in the rural areas. Populations tend to be stable or growing, and transportation more diverse (commuting intercity travel/freight and other purposes).

The fundamental issues facing *developed rural areas* are:

- An effective regional system needs to be maintained to enable access to regional service centers and to farm-to-market or ranch-to-market transportation.

- Funding is difficult to obtain for capacity improvements to roads off the federal-aid system, even where traffic growth warrants improvements.

- Public transportation choices are often unavailable.

Planning needs in *developed rural areas* can be characterized as having an increased necessity for forecasting compared to *basic rural areas*. These areas are generally most interested in maintaining an effective regional system and funding capacity improvements where traffic growth warrants them. *Developed rural areas* may be able to draw on staff resources and trained planning personnel from area cities and counties, and also the state departments of transportation (DOTs).

2.3.3 Urban Boundary Rural Area

Counties or regions that border metropolitan areas and are highly developed are considered *urban boundary rural areas*. Economic growth, population growth, and transportation are tied to the urban center. Many of these areas have experienced high levels of growth in recent years.

The fundamental issues facing *urban boundary rural areas* are:

- Areas must address the issue of supporting economic growth and development or attempting to limit growth to preserve the rural character of the area. In reality this usually involves a balanced approach between the two objectives.

- Traffic growth in many areas is making it difficult to keep up with maintenance and preservation on roads and bridges on and off the federal-aid system.

- Funding is difficult for capacity improvements to roads where traffic growth warrants improvements, especially for those roads outside the federal-aid system.

- Environmental concerns are increasing as "sprawl" pushes outward from urban areas.

- There is often a lack of funding for providing adequate public transportation choices to accommodate travel demand growth or job access.

The transportation planning needs in *urban boundary rural areas* can be characterized as having high necessity for planning, forecasting, and growth management. These areas are generally most interested in balancing economic growth and development with preservation of rural character. Traffic growth and its impact on maintenance and preservation of facilities are of key importance in *urban boundary rural areas*, hence the importance of forecasting. Growth management is often an issue in areas experiencing the environmental impacts of urban sprawl. *Urban boundary rural areas* will typically have access to more and better-trained staff than other rural areas.

2.3.4 Metropolitan Area

A *metropolitan area* contains a large population nucleus and adjacent communities, which have a high degree of economic and social integration with that nucleus.

Each *metropolitan area* must contain a minimum population of 50,000, or a U.S. Census Bureau–defined urbanized area and a total metropolitan area of at least 100,000 people (75,000 people in New England).

2.3.5 Central City

In each metropolitan statistical area and consolidated metropolitan statistical area, the largest place is designated as a *central city* under the official standards. A few primary metropolitan statistical areas do not have *central cities*. The largest *central city* and, in some cases, up to two additional *central cities* are included in the title of the metropolitan area.

2.3.6 Consolidated and Primary Metropolitan Statistical Area (CMSA and PMSA)

When an area qualifies as a metropolitan area and has more than one million people, two or more *primary metropolitan statistical areas (PMSAs)* may be defined within it. Each *PMSA* consists of a large urbanized county or cluster of counties (cities and towns in New England) that demonstrate very strong internal economic and social links, in addition to close ties to other portions of the larger area. When *PMSAs* are established, the larger metropolitan area of which they are component parts is designated a *consolidated metropolitan statistical area (CMSA)*. *CMSAs* and *PMSAs* are established only where local governments favor such designations for a large metropolitan area.

2.3.7 Metropolitan Statistical Area (MSA)

Metropolitan statistical areas (MSAs) are metropolitan areas that are not closely associated with other metropolitan areas. These areas typically are surrounded by nonmetropolitan counties (county subdivisions in New England).

2.3.8 Urban and Rural Areas

The U.S. Census Bureau classifies urban as all territory, population, and housing units located within an urbanized area (UA) or an urban cluster (UC). It delineates UA and UC boundaries to encompass densely settled territory, which consists of:

- core census block groups or blocks that have a population density of at least 1000 people per square mile at the time;
- surrounding census blocks that have an overall density of at least 500 people per square mile at the time; and
- possibly, under certain conditions, less densely settled territory.

A portion of an incorporated place is classified as rural if it has been defined as an extended place; the urban portion(s) is(are) located within the UA or UC. A census-designated place (CDP) may be located partly within and partly outside of the UA or the UC with which it is associated; such CDPs will contain both an urban and a rural part.

Rural consists of all territory, population, and housing units located outside of UAs and UCs. It contains both place and nonplace territory. Geographic entities, such as census tracts, counties, metropolitan areas, and the area outside metropolitan areas, often contain both urban and rural territory, population, and housing units.

Specifically, the U.S. Census Bureau defines "rural" as "all territories, populations, and housing units in urbanized areas and in places of 2500 or more persons outside urbanized areas."

2.4 Transportation Tools, Mechanisms, and Strategies

There are several tools, mechanisms, and strategies used to successfully develop and implement rural transportation projects. The following are examples from state DOTs throughout the country. Additional information about these and other tools, mechanisms, and strategies can be found in the accompanying research report (Rural Research Summary Report 2430-1).

- Each council of government develops a five-year TIP in coordination with a technical advisory committee and the state transportation planners. Arizona is an example of a state that has focused on rural planning as part of the TIP process.

- Regional transportation planning agencies in California conduct public meetings to gather input on transportation needs for inclusion in their regional plan. Some planning agencies have a two-tier process for high- and low-priority projects.

- The Florida Department of Transportation (FDOT) is highly decentralized, with seven districts (not including a district specifically for turnpikes) where the central office is mostly policy and program oriented. Local jurisdictions hold public hearings to identify transportation needs, prioritize projects, and develop comprehensive plans. Regional planning councils approve all local plans and make recommendations to the FDOT district offices.

- In Michigan, the Transportation Service Center staff, county road engineers, city managers, and township officials identify and coordinate local transportation needs. There is also a rural task force that evaluates transportation projects.

- Each transportation district in New York gathers input on transportation needs and projects at public meetings. These meetings are coordinated through the transportation district, regional planning and development boards, and other rural stakeholders.

For more information on defining "rural," see the following:

- http://www.fhwa.dot.gov//////planning/rural/planningfortrans/2ourrts.html#IIAwir
- http://www.nal.usda.gov/ric/faqs/ruralfaq.htm
- http://www.rupri.org/policyres/
- http://landview.census.gov/geo/www/ua/ua_2k.html

For more information on transportation tools, see the following:

- http://www.sustainable.doe.gov/transprt/trantool.shtml
- http://199.79.179.78/ruraltransport/toolbox/
- http://www.slid.org/cgi-bin/ruralindex.html

3.0 RURAL DEMOGRAPHIC AND ECONOMIC CONSIDERATIONS

There are many factors that influence rural transportation in Texas and throughout the country. Factors include changes in social and demographic trends, agriculture, employment, the strength of local economies, and politically sensitive items such as welfare reform.

The demand for transportation is known as a "derived demand." This demand is derived from economic activity that is the result of peoples' requirements to earn a living, enjoy leisure activities, and consume goods and services. The production, supply, and distribution of goods and services create the demand for freight movements. Thus, the social, demographic, and economic factors that create the demand for transportation will also determine the type of transportation system that will be necessary in the future. This means that these factors must be considered when developing rural transportation plans. Some of the major social, demographic, and economic trends that will affect rural transportation demand and, therefore, future rural transportation system needs are presented below.

3.1 Agricultural Changes

Many rural economies were built on a foundation of agriculture, mining, and forest products. These "basic" industries are heavily dependent on a network of highways, railroads, and intermodal transfer facilities for exporting their products. They will continue to be major users of the existing transportation system. Preserving the existing network of highways, branch lines, and mainlines will be important for these industries.

There have been profound changes in the agricultural sector of rural economies. This has resulted in higher productivity, the use of larger and heavier machinery, and the consolidation of many activities. The industry has sought to realize economies of scale that have a large impact on transportation demands. For example, livestock production is changing and moving toward larger operations that seek to maximize economies of scale. Some of these operations, such as hog pounds in the Midwest, are tremendous in size and have changed the typical "farm-to-market" requirements for rural transportation. Instead, these operations can create significant heavy truck traffic on rural roads, and they tend to locate where rail service is also available, making them intermodal facilities.

3.2 Industrial and Employment Changes

One major economic change creating new and different demands on the rural transportation system is the growth of the service sector. Private service industries such as health care, recreational activities, legal services, and business/financial services are among the fastest growing sectors in many rural communities in America.

Much of this growth is due to an aging and more affluent population, growth in health-related services, a growing demand for business support services, and, most importantly, growth in tourism and recreation. Although the service industry is diverse, we can generalize and say that service industries generate relatively large numbers of trips. New service industries are more likely to use package delivery services, air transportation, and electronic media to support their day-to-day business activities.

Tourism and recreation are generating considerable new travel demands nationally, and this growth is expected to continue over the next decade. The growth in tourism and recreational travel can also be linked to an aging and more affluent population. Of particular concern to rural transportation planners are key attractions, such as national or state parks, lakes, ski areas, etc., that generate high seasonal traffic. In these areas, special management strategies may become necessary for dealing with tourism-related travel demands.

3.3 Regional Population and Demographic Changes

Many rural communities in America have experienced population declines in the past decade. This is especially true for midsize rural communities in the 3000 to 7000 population range. Some of the trends in these communities include:

- *Migration to urban centers.* The United States has seen significant growth taking place in urban centers, and this growth is expected to continue for the foreseeable future, driven by strong economic conditions and corresponding employment opportunities.

- *Services shifted to large centers.* Many midsize communities have lost local services such as shopping and entertainment to larger centers that can support large stores and large theater complexes.

- *People driving longer distances.* The trend toward location of services in larger centers has meant that people in midsize rural communities have to drive more. This has led many to move to larger centers where services are readily accessible.

Many midsize rural communities have experienced an aging population since it is mostly younger people moving to urban centers to take advantage of employment opportunities. Declining rural population has led to a situation where many of these areas would welcome growth and economic development. These areas are generally supportive of transportation improvement projects, which potentially help foster area economic growth.

Some rural areas experience growth because of the perceived quality of life issues associated with living outside of nearby urban centers. Improvements in telecommunications are a factor in this growth, allowing people to locate away from urban areas while still conducting business with them. Indications are that this lifestyle choice could become more popular in the future.

For more information on demographic trends, see the following:

- www.nal.usda.gov/ric/richs/stats.html

- www.rupri.org/policyres

- www.landview.census.gov

- www.sbaonline.sba.gov/advo/stats

4.0 RURAL DEMOGRAPHIC AND ECONOMIC ISSUES AND TRENDS

4.1 Economic Development Issues

The need to maintain linkages between rural and urban areas is very important to the economy, public health and safety, and social structure of the country. Activities such as building new roads, widening existing roads, putting in new interchanges, or constructing bridges can result in various benefits for rural areas. These benefits include improved access to services and jobs for rural residents, better access to customers for businesses, and reduced transportation costs. Other potential benefits include reductions in travel time for motorists, lower vehicle operating costs, safety and environmental gains, and cost savings for local consumers as goods and services become more competitively priced. If an improved transportation network leads to growth for an area's economic base, it may also bring higher wages for workers and greater net income for owners of local businesses.

Another important economic development issue for many parts of rural America is supporting tourism. The rural transportation system plays a central role in each state's tourism industry, connecting visitors to urban areas and to key attractions, including state and national parks. Tourism and the service industry are becoming increasingly important to many rural areas—and this trend is forecast to continue in the future. This is especially true for areas that have parks, attractions, and natural scenic environments. Also, "value-added" tourism, such as outfitting, hunting and fishing tours, and "eco-tourism," are becoming increasingly popular. These types of activities generate significant local economic benefits.

Some areas that are experiencing urban sprawl spillover are not in favor of transportation improvements because they want to control growth and maintain the rural character of the area. Meanwhile, a great number of communities that have lost population due to migration to urban centers promote transportation improvements and the corresponding economic development benefits. Along with the local economic benefits of transportation improvements, it is important to keep in mind the interregional and international trade benefits that can occur through the network effects of the improvement.

Investing in transportation sometimes entails development risks. Road construction projects or highway improvements may actually harm some areas if new investment diverts activity from an existing corridor within the region. Some areas may also be harmed if transportation system development results in "sprawl" in some previously undeveloped rural areas. Because transportation projects often include a variety of unknown or unexpected costs, underdeveloped regions that lack adequate financial resources should be cautious of cost overruns.

4.2 Welfare Reform

Providing transportation options for low-income citizens is important for the success of welfare reform in rural areas. Rural areas face many unique challenges in meeting the work requirements under the welfare legislation passed in 1996. Unlike urban areas, there are often fewer jobs available in rural areas, and there may be greater distance between job sites. Many individuals have to drive "into town" or to the closest population center to find employment. Low population size and low population density can make it difficult to provide services locally, such as job

training, child care, and skills classes that are essential to making the transition from welfare to work. Transportation to these services will also be critical for successfully transitioning individuals away from public assistance. Many states are implementing a variety of programs to help welfare recipients get transportation to work. These include alternatives such as ride sharing and public transportation vouchers.

4.3 Local Rural Comparisons

The figures in Section 4.6 were taken from the Texas State Data Center and illustrate the significant historical changes that occurred between metropolitan and nonmetropolitan regions. Figure 1 shows that growth in areas adjacent to metropolitan areas reflects fewer international immigrants than rural areas not adjacent to metropolitan areas. The percentages of Hispanics and blacks increased in nonmetropolitan communities compared to metropolitan communities (Figure 2). Median household income and poverty follow anticipated patterns with nonmetropolitan areas showing a higher percentage of persons with lower incomes and in poverty for all races (Figure 3). Also, Figures 4 and 5 demonstrate that the variance between incomes—with higher incomes in metropolitan areas—holds regardless of whether it is viewed from a per person, household, or family perspective.

4.4 Factors Impacting Growth

The peripheral growth of metropolitan areas contributed significantly to the growth of surrounding nonmetropolitan areas. Recent economic trends also contributed to this renewed rural growth. The recessions of the early 1980s had a more severe impact and lasted longer in nonmetropolitan areas. And, the farm crisis of the 1980s hurt many agricultural counties, resulting in widespread out-migration. However, rural employment began to recover in the late 1980s and continued in the 1990s although rural employment growth has been slower than that in metropolitan areas. The rural growth reduced the economic attraction of cities somewhat, particularly to rural young people.

The increasing integration of rural communities into the national and international system has also contributed to nonmetropolitan growth. Recent improvements in the transportation and communications infrastructure facilitate interaction between urban and rural areas, thereby diminishing the effect of distance. As a result, firms and families located in nonmetropolitan areas now enjoy many of the economic, social, and environmental advantages traditionally associated with rural living while retaining easy access to metropolitan areas. Concern about urban problems such as crime, pollution, and poor quality schools may have also discouraged rural residents from moving to cities and attracted urban residents to rural areas. Recent survey data suggest that many residents of the nation's largest cities would rather live in smaller places, whereas a substantial majority of rural residents are happy where they are.

4.5 National Rural Trends

Nationally, nonmetropolitan areas have experienced two important and distinct population trends since 1990. The first trend involved a distinct shift in population from metropolitan to rural

areas, and, secondly, this trend tapered off toward the end of the 1990s, with a number of nonmetropolitan counties reverting to out-migration and population loss.[1]

All told, the nonmetropolitan population grew by 3.9 million, or 7.6 percent, from April 1990 to July 1999, compared with an increase of just 1.3 million, or 2.7 percent, during the entire 1980s. All of the upward change in trend is the product of migration because the annual rates of natural increase—the margin of births over deaths—slumped by a third in nonmetropolitan counties during the 1990s. Net migration, however, shifted from an average annual out-movement of 269,000 in the 1980s to an average in-movement of 242,000 in the 1990s.

The demographic rebound affected most rural and small-town sections of the country and almost every type of county. In some counties, it took the form of dramatic reversals from earlier loss to substantial gain; in others, it simply occurred as a reduced degree of loss. Its causes are not fully understood in every instance, but several factors are evident. The first half of the 1990s saw an improved nonmetropolitan economic picture compared with that in metropolitan areas, as measured by both employment growth and unemployment levels.

Further, sprawl of population from metropolitan centers to adjacent nonmetropolitan counties is visible on the ground and also reflected in the statistics, in a process of incipient suburbanization. Officials of rural areas reported growth from the arrival of people moving to smaller-scale places for non-economic, quality-of-life reasons. Along with the rejection of large-scale urban life, the growth of recreation activity and second homes also played a role. Some of these newcomers were conventionally retired, but more seemed to be of working age with families or to be retired early from a career but still economically active.

As noted earlier, the pace of rural and small-town growth lessened steadily after its peak from July 1994 to July 1995. During that time, the nonmetropolitan population grew by 1.0 percent. In steady annual decreases thereafter, the rate fell to 0.5 percent between 1998 and 1999. Metropolitan growth in the same time period rose somewhat from 0.9 percent to 1.0 percent. The nonmetropolitan downturn corresponded with a drop in nonmetropolitan employment growth and a boom in the metropolitan economy. All types of nonmetropolitan counties were affected by the reduction in population growth, except for commuter counties—that is, those in which 40 percent or more of resident workers commuted to another county for work in 1990. Rosenbloom described the need for a revised view of rural areas given the changes in the economic and social fabric[2]. These changes especially impact planning and providing public transit service for these areas. A summary of the article's key points are in Appendix B.

4.6 Rural Demographics Summary

This research suggests that a selective decentralization of the American population is occurring. During the 1990s, nonmetropolitan areas gained migrants in exchanges with metropolitan areas,

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[1] Calvin L. Beale. "Nonmetropolitan Population Growth Recedes in a Time of Unprecedented Economic Prosperity," *Rural Conditions and Trends*. (Socioeconomic Conditions Economic Research Services, US Department of Agriculture, December 2000) Vol. 11, No. 2: 27.

[2] Sandra Rosenbloom,"The Need for New Paradigms in Rural Transit Service: Facing Societal Challenges," <http://www.ctaa.org/images/rosenbloom.pdf> (28 September 2003).

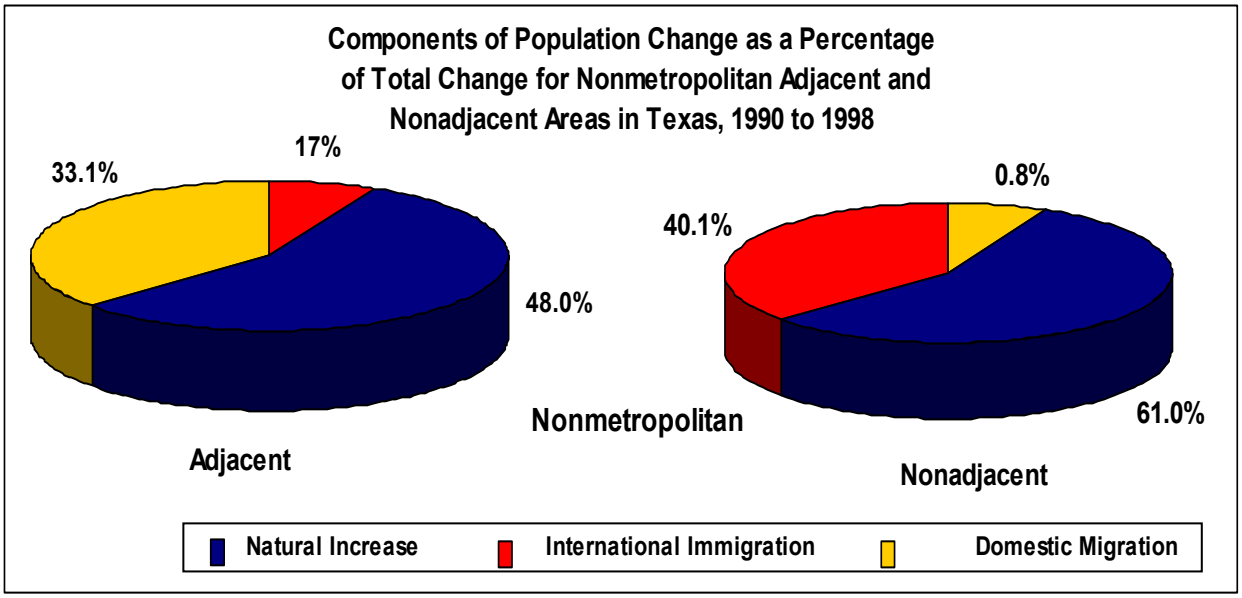
just as they did during the 1970s. Population gains have been most common in recreational and retirement areas, beyond the metropolitan periphery and in diversifying manufacturing, commuting, and service counties. However, the decentralization is likely to continue to be selective. Parts of nonmetropolitan America will continue to lose more population because they remain inexorably linked to extractive industries that continue to shed jobs and consolidate. Future nonmetropolitan demographic trends are likely to be more cyclical than in the past. In fact, there is some evidence that the rural rebound slowed after 1995. Diminished rural fertility and age structure shifts have reduced the contribution of natural increase to nonmetropolitan growth. Future growth in such areas is increasingly dependent on migration. As the integration of nonmetropolitan areas into the national economy continues, migration trends are likely to become increasingly sensitive to national and global economic, political, and social forces.

Renewed rural population growth has significant implications for the environment and for rural people and institutions. Many of the areas attracting large numbers of migrants contain environmentally sensitive areas. For instance, population growth increases population density along a forest's edge, puts additional pressure on riparian and wetland areas, increases utilization of recreational facilities, and complicates forest management and fire suppression.

For many rural communities that have coped with a declining population for years, managing an influx of people and businesses represents a serious challenge. More people require more services and an expanded infrastructure, both significant expenses for local governments. And, new people mean new ideas and ways of doing things; this creates both opportunities and challenges to the established lifestyle of the community. Finally, much of the recent discussion of "sprawl" focuses on its implication for urban and suburban communities. Yet, given the recent growth in rural areas, any serious discussion of sprawl abatement or smart growth must recognize nonmetropolitan areas as viable partners in the policy-making process.

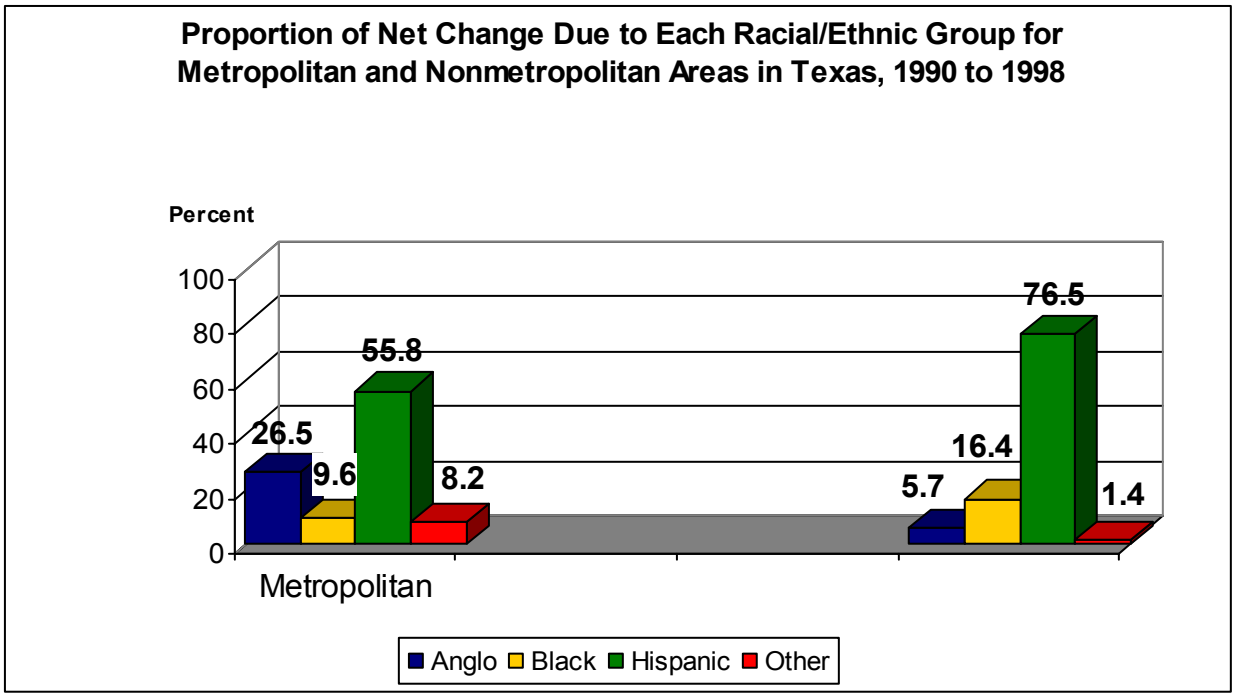
For more information on rural economic considerations, see the following:

- http://www.luc.edu/depts/sociology/johnson/research.html
- http://txsdc.tamu.edu/
- http://www.census.gov/
- www.welfareinfo.org/transita.html
- www.ctaa.org/ntrc/ntap/pubs/ib/istea-ib.html
- www.fta.dot.gov/library/program/ruralstat/html
- www.nado.org/rtoc/transpdf.pdf



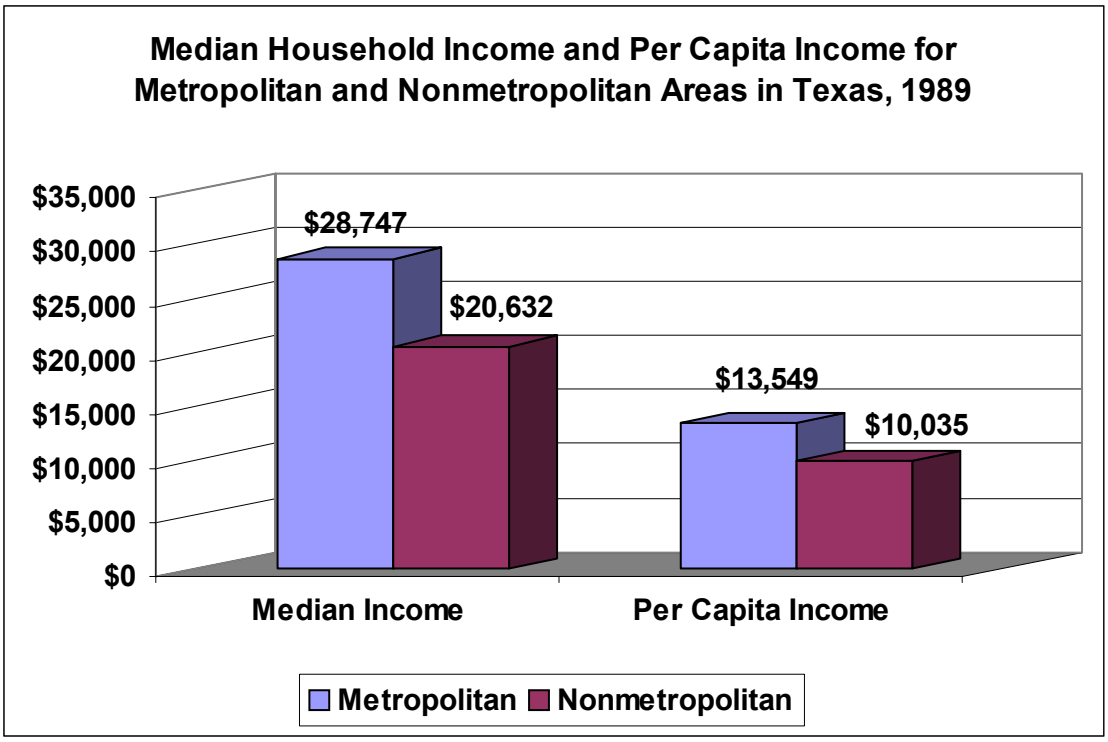
Source: http://agprogram.tamu.edu/programs/agprog21/Slides/Murdock/sld014.htm

Figure 1 Components of Population Change as a Percentage of Total Change for Nonmetropolitan Adjacent and Nonadjacent Areas in Texas from 1990 to 1998.



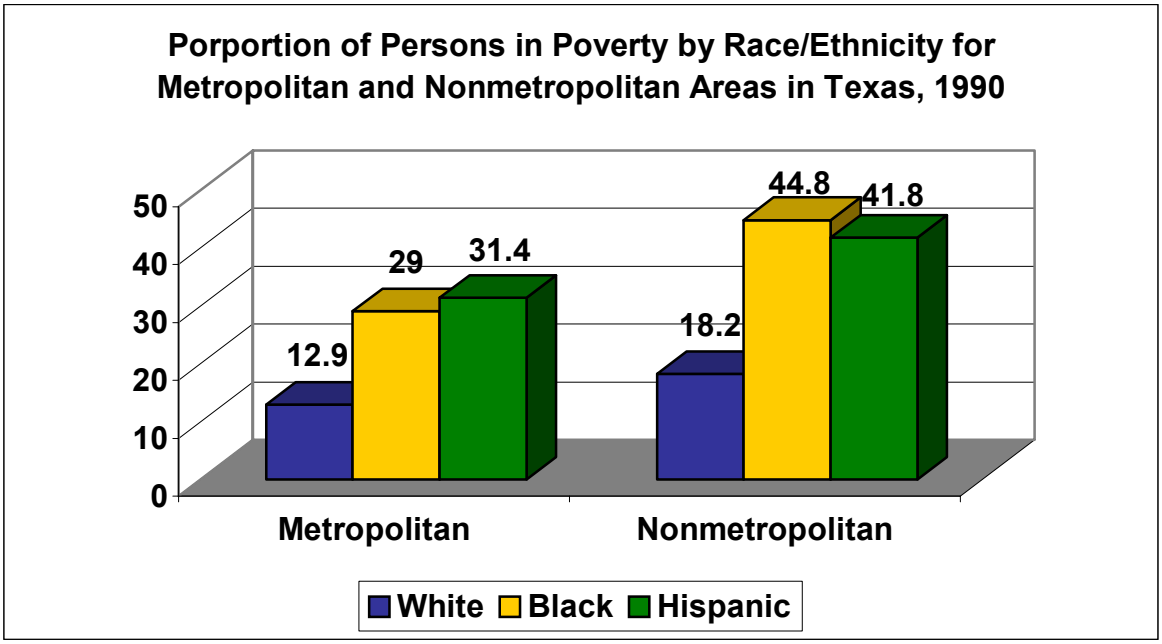
Source: http://agprogram.tamu.edu/programs/agprog21/Slides/Murdock/sld021.htm

Figure 2 Proportion of Net Change Due to Each Racial/Ethnic Group for Metropolitan and Nonmetropolitan Areas in Texas from 1990 to 1998.



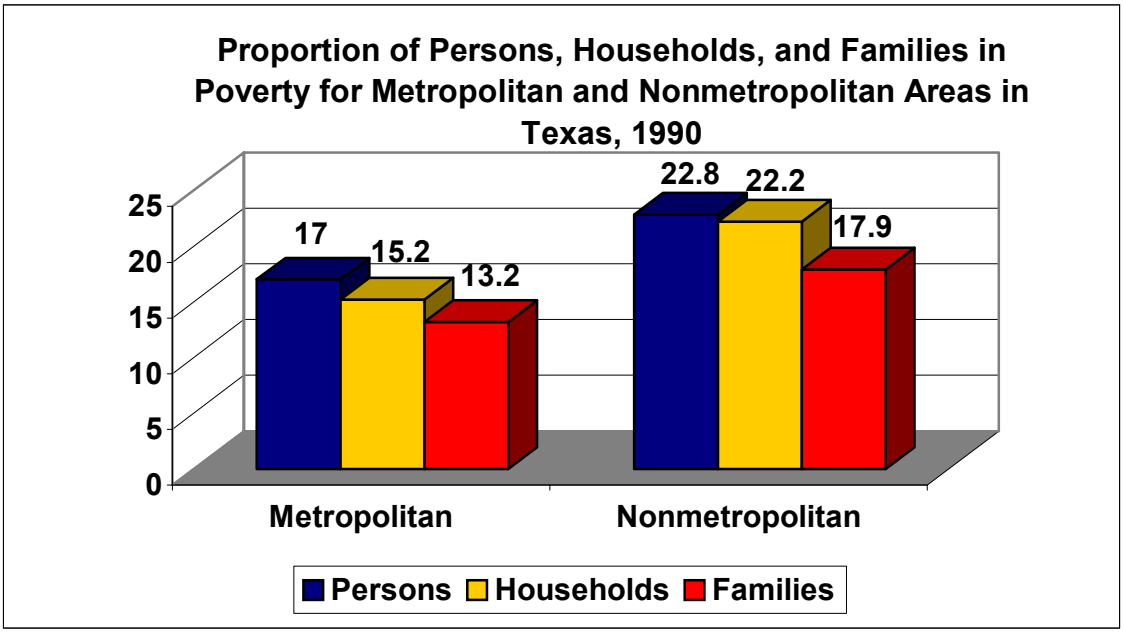
Source: http://agprogram.tamu.edu/programs/agprog21/Slides/Murdock/sld022.htm

Figure 3 Median Household Income and Per Capita Income for Metropolitan and Nonmetropolitan Areas in Texas in 1989.



Source: http://agprogram.tamu.edu/programs/agprog21/Slides/Murdock/sld023.htm

Figure 4 Proportion of Persons in Poverty by Race/Ethnicity for Metropolitan and Nonmetropolitan Areas in Texas in 1990.



Source: http://agprogram.tamu.edu/programs/agprog21/Slides/Murdock/sld024.htm

Figure 5 Proportion of Persons, Households, and Families in Poverty for Metropolitan and Nonmetropolitan Areas in Texas in 1990.

5.0 THE DEVELOPMENT OF THE RURAL TRANSPORTATION PLAN

The development of the rural transportation plan is a vital component in the rural transportation matrix. The following provides the steps necessary for completing the transportation plan.

1. **Establish a planning committee.** The first step in the development of a new or updated rural transportation plan is to create a planning committee. This committee will be involved in the project from the first day to the last. As such, the leaders of this committee need to be stable and committed to the process, ensuring that the vision and goals of the plan are consistent throughout the planning process. The members of the committee should consist primarily of people within TxDOT responsible for transportation planning as well as interested citizen representatives from the area.

2. **Develop the parts of the plan—the vision, goals, external/internal assessment, and strategies.** Identify the vision and goals of the rural transportation plan, considering all the aspects and elements to be included in the process, such as road improvements, improvements in air quality, increases in standards of living, and the economic development of the region. In the section on external/internal assessment, the factors that affect the planning process but are not directly under the control of the committee are analyzed. This should include an analysis of strengths and weaknesses.

   In defining the vision for the rural area in question, the planning committee should work with local stakeholders and refine the vision and goals through public input. The goals should be specific for the future, including determination of the planning horizon (short term and long term), the type of plan to create (policy, project oriented, or a combination of both), and expected strategies for achieving the vision and goals.

3. **Provide for initial public participation.** Public participation is critical throughout the entire planning, development, and implementation phases of the rural transportation plan. Once the committee has been formed and the vision and goals have been determined, it is vital that the committee verify that they are acting in the best interests of the public for whom they work. Through early feedback from the public, the committee will be able to better shape and refine the overall planning process.

   Public participation can be obtained in many ways, including public opinion polls, public hearings/meetings, newsletters/brochures, citizen-member committee workshops, and radio/TV/newspaper media.

   An advisory council can also be formed that includes a contingent of interested citizens and/or elected officials unaffiliated with the actual development of the transportation plan. The council's sole purpose would be to collect public feedback and communicate this to the planning committee.

4. **Update the vision and goals of the plan.** Once the initial draft of the rural transportation plan has been presented to the public for feedback and the responses recorded and analyzed, the planning committee should consider any constructive feedback and alter the vision and goals accordingly.

5. **Determine the current situation and needs.** Once the vision, goals, and strategies have been finalized with the help of public input, the planning committee needs to evaluate the current situation in the region, identifying specific needs. This requires the compilation of relevant data and the determination and analysis of the efficiency of the current road system. Methods that could be used to collect these data include analysis of current rural road and bridge conditions, traffic counts, freight/goods movement, road safety issues, population levels, land use levels compared to current capacity, and economic/socioeconomic data.

   An environmental analysis should also be done at this time consistent with the environmental issues discussed previously in this guidebook. This step is extremely important to the overall success of the transportation plan to ensure compatibility of the roadway improvement with environment sensitivities.

6. **Obtain more public involvement.** Once the current rural traffic situation has been determined, additional public feedback is required. The public should be informed about the results of the previous step. Get their feedback to determine the overall accuracy of the assessment made by the planning committee. Public participation can be obtained using the methods previously discussed in Step 3.

7. **Determine future demand and trends.** This step is one of the most significant in the entire planning process in that estimation of future travel demand for transportation facilities is critical to informed planning decisions. In some cases, the MPO or state DOT district for that rural area may have travel projections available. These organizations should be sought and contacted as an initial step. If travel projections do not exist or have not been recently updated, alternate strategies might be used. One such strategy is the straight-line projection method. This method is based on determination of the trend in population rates and land use development rates based on past levels. Then, application of the increase or decrease per year is applied in the same proportions for future years, as observed in past years. A second method is comparative demand, which relies on analogies. Areas with similar population and land use characteristics are expected to exhibit similar travel behavior responses.

8. **Rank potential plans without regard to funding.** At this point, specific rural transportation projects can be considered for inclusion in the transportation plan. If the committee's plan is intended to be entirely policy oriented, this step would include the establishment of guidelines for future project acceptance on a case-by-case basis. If, however, the transportation plan includes specific projects, then this step should include the consideration of all potential projects and should include a ranking of projects in terms of need and safety.

   Some ranking criteria to consider for inclusion in this planning step include public support, congestion level (current and future), congestion reduction, safety, environment, cost-effectiveness, design standard conformity, preservation of transportation system, economic development impact, and inter/multimodal considerations.

9. **Seek public involvement.** Now that projects have been identified and ranked based on needs, public feedback is again sought to ensure that the determinations of the committee adequately reflect the overall opinions and needs of the public. The committee may need to get additional feedback from the public on some of the most important proposed projects to help them finalize the rankings of these projects.

10. **Develop the financially constrained plan.** Once the prioritization is completed based solely on needs, then estimated costs and available funding are considered to determine the cutoff point for financially feasible projects to be included in the final rural transportation plan. It is suggested that the actual list of projects be somewhat longer than the cutoff in case additional funding arises or projects are completed under budget.

    This step requires an aggregate assessment of the total social, environmental, energy, and economic impact of the constrained project list on the region, as well as an assessment of the list's consistency with the vision and goals of the rural transportation plan.

11. **Ensure regional transportation consistent with state and federal requirements.** In order to actually receive state and federal funds for projects, the rural transportation plan must follow all of the rules and regulations set forth by the state and the federal government for transportation plans.

12. **Get the rural transportation plan adopted.** Go through the required process to get the rural transportation plan approved.

13. **Monitor and re-evaluate the plan.** Once the rural transportation plan has been adopted and is being implemented, it needs to be periodically evaluated for updates and changes (every one to five years).

6.0 RURAL ENVIRONMENTAL CONSIDERATIONS

6.1 Environmental Planning Processes

Transportation decisions impact the environmental quality negatively and/or positively. Transportation elements should enhance the positive impacts and minimize negative impacts. It is important to consider the natural environment (e.g., air, water, land) and the built environment (e.g., aesthetics, existing residential and commercial areas). When evaluating the potential impacts on the environment, ask the following questions:

- What (if any) will be the regional impacts?
- What actions help to avoid, minimize, or mitigate the impact?
- What (if any) will be the regional impacts (local, adjacent property)?
- What actions can be taken to avoid, minimize, and/or mitigate any negative impacts?

The National Environmental Policy Act (NEPA) of 1969 (42 U.S.C. 4332, as amended) directs all federal agencies to assess the environmental impacts of proposed major federal actions. This assessment requires the detailed documentation of the possible environmental impacts of the major proposed action, the local short-term uses of the environment, the enhancement of the long-term productivity, and any irreversible and irretrievable commitments of resources.

This process of developing a detailed environmental impact analysis ensures that the public is aware of any impacts before decisions are made and actions are taken. NEPA requires government agencies to use an interdisciplinary approach in planning and decision making for actions that impact the environment. An assessment of environmental impacts on the human environment is required, and evaluation of alternatives and mitigation must be considered where feasible. The Council on Environmental Quality (CEQ) developed regulations for the environmental impact assessment process and documentation.

The transportation planning process involves looking at projects to see how they might impact the community, the natural environment, and our health and welfare. Before any project can move forward to construction, TxDOT, the Federal Highway Administration (FHWA), and/or the Federal Transit Administration (FTA) may need to address and comply with more than 40 laws related to safety and the environment. The following is a list of federal and state laws, rules, and executive orders that protect the human and natural environment and may affect project development:

- Endangered Species Act of 1973 as amended (15 USC 1531–1543);
- Migratory Bird Treaty Act (16 USC 703–712);
- Fish and Wildlife Coordination Act of 1958 (16 USC 661–666[C]);
- Farmland Protection Policy Act (FPPA);

- Coastal Barrier Resources Act (CBRA);
- Texas Coastal Management Program (TCMP);
- Rivers and Harbors Act of 1899;
- Federal Water Pollution Control Act/Clean Water Act (CWA) of 1972;
- National Pollutant Discharge Elimination Control System (NPDES) of 1990;
- National Flood Insurance Act (NFIA) of 1968;
- Executive Order 11988;
- Executive Memorandum of April 26, 1994;
- Section 404 Regulatory Program;
- Texas Antiquities Code;
- National Historic Preservation Act of 1966;
- U.S. Department of Transportation Act of 1966 Section 4(f);
- Transportation Equity Act for the 21st Century (TEA-21);
- Title VI of the Civil Rights Act of 1964;
- Uniform Relocation Assistance and Real Properties Acquisitions Act (URARPAA);
- Executive Order 12898—Environmental Justice;
- Native American Graves Protection and Repatriation Act (NAGPRA);
- Executive Order 13007 (EO 13007)—"Indian Sacred Sites";
- Air Quality—Clean Air Act (CAA) (42 USC 7401–7626);
- Resource Conservation and Recovery Act;
- Comprehensive Environmental Response, Compensation Liability Act; and
- Texas Water Code.

For projects in rural settings, pay particular attention to community impacts. Community impacts require analysis of the social and economic resources in a community and how they are affected by the project. (See FHWA's "Community Impact Assessment: A Quick Reference for Transportation," FHWA-PD-96-036.)

The community impact assessment may include considering land use changes, economic and business effects, mobility and access issues, public safety, displacements, and other transportation modes. Be sure to include the positive community effects a project may have and encourage public involvement and participation.

6.2 Incorporating the Principles of Environmental Justice

Environmental justice requires that all transportation decisions that might impact groups that are traditionally underrepresented in planning and programming initiatives be taken into consideration during the planning stage.

Planners must avoid making disproportionately high and adverse impacts on any one person or group. As the FHWA notes, environmental justice contributes to:

- better transportation decisions that meet the needs of all people;
- transportation facility designs that fit more harmoniously into communities;
- improved public involvement processes and community-based partnerships;
- improved needs and impact assessment of minority and low-income populations;
- partnerships with other public and private agencies to achieve a common community vision;
- avoiding disproportionately high and adverse impacts on minority and low-income populations; and
- minimizing and/or mitigating unavoidable impacts by identifying concerns early in the planning process and providing measures to benefit/enhance affected communities and neighborhoods.

6.3 Specific Environmental Issues

This section addresses the many issues that rural transportation planners need to consider in their daily responsibilities.

6.3.1 Aesthetics

A transportation project should reflect the aesthetics of the community, or the appearance and character of an area. In rural areas this can include preserving scenic areas using easements and designing the project to fit into the natural landscaping of the project.

6.3.2 Avoiding the Creation of Barriers

Transportation facilities can create significant barriers within a community. Accepting a greater number of transportation choices concerning the transportation facility can avoid the creation of a barrier. These accommodations may include:

- sidewalks and/or bike paths/lanes as part of the transportation project;
- providing a continuous local street grid across major barriers to serve local motor vehicle traffic, bicyclists, and pedestrians;
- underpasses/overpasses for bicyclists and pedestrians; and
- medians on multilane streets to provided a refuge for pedestrians and bicyclists crossing the road.

6.3.3 Historic Resources

Transportation projects must comply with review and mitigation requirements set forth by the National Historic Preservation Act and the Texas Antiquities Code. Therefore, coordination with the Texas Historical Commission (THC) should begin early if it is suspected the project may involve buildings more than 50 years old.

If buildings, structures, or objects 50 years of age or more are found within the project's area of potential effects, a professional historian may need to determine if the property or objects are eligible for preservation. Contact the TxDOT district environmental coordinator and/or the environmental division to ensure compliance with THC requirements.

6.3.4 Clean Water Act (CWA) Section 404

Many highway capacity improvements involve bridge reconstruction. Nearly all bridge reconstruction or expansion will require permitting under Section 404 of the CWA. Be sure to start coordination with the TxDOT environmental coordinator in your district early for this and other permits.

6.3.5 23 Code of Federal Regulations (CFR) 771

The USDOT environmental regulations are in 23 CFR 771. These regulations are the basis for surface transportation projects. In general, 23 CFR 771 requires:

- documentation to demonstrate compliance;
- an evaluation of alternatives, including the "no-build" alternative;
- public involvement; and
- mitigation when necessary.

6.3.6 43 Texas Administrative Code

In order to remain consistent with federal regulations, TxDOT adopted 43 Texas Administrative Code for environmental analysis to mirror USDOT's 23 CFR 771; the code contains additional sections for public transportation, aviation, maintenance operations, the Gulf Intracoastal Waterway, and the Coastal Coordination Council.

6.3.7 Clean Air Act Amendments

The Clean Air Act Amendments of 1990 require that transportation plans, programs, and projects do not violate air quality standards through the use of the conformity process. Historically, the conformity process focused on urban nonattainment areas and their transportation plans. The new eight-hour ozone standard will likely cause many more of the adjacent rural areas to be included in a once-urban nonattainment area and, hence, cause them to join the conformity process.

If your project is located within a nonattainment area, contact your TxDOT or MPO to discuss how these air quality issues may impact your transportation element and overall local project.

Major proposed actions involving substantial new construction with off-site or long-term impacts usually merit a detailed review, done with appropriate public involvement and documented in an environmental document. The level of environmental review and analysis should be determined through joint decision making with the project partners. When planning a project, consult with your TxDOT district environmental coordinator early to determine the appropriate level of environmental analysis.

Early planning and coordination are the keys to successfully navigating the environmental clearance process. This section provides an overview of the basic process elements relating to rural transportation development. The TxDOT district environmental coordinator or the Environmental Division at TxDOT should be involved in coordinating the environmental process. This process involves striking a delicate balance among many different factors, including mobility needs, economic prosperity, health and environmental protection, community and neighborhood preservation, and quality of life for present and future generations.

The environmental clearance process begins with determining the project's scope, funding, purpose, and need, and anticipating environmental issues of concern. In many cases, a preliminary screening checklist will help determine what level of environmental assessment and documentation will be needed. Coordination with the TXDOT Environmental Division and district environmental coordinators will make navigating the process easier.

Rural projects need environmental clearance too. Many environmental requirements apply to projects regardless of their size or funding source. This situation is especially true of projects involving bridges and water crossings, protected habitats or species, and historical resources common to many rural projects.

6.3.8 What Is Environmental Review in the Planning Process?

Environmental analysis should be a continuing, iterative process that occurs throughout the life of a transportation project and should begin as soon as the project is identified for inclusion in the transportation plan.

6.3.9 Why Is Early Environmental Review Needed?

Environmental analysis in the planning process is designed to accomplish several outcomes:

- establish a project's purpose and need,

- identify major environmental issues that may prohibit a project from obtaining environmental clearance, and

- initiate and maintain a dialog with affected community members so that their concerns will be addressed and their needs accommodated in the environmental assessment process.

Documentation of the environmental assessment process is required for nearly all actions. The documents provide a description of the social, economic, and environmental impacts of a project. Each successive document builds upon the previous one and becomes more detailed. The level of environmental analysis and documentation generally increases for larger and more complex projects.

6.3.10 Purpose and Need Statements

One of the most important steps in project planning is preparing a purpose and need (P&N) statement that accurately describes the project or action. This should also be one of the first steps in the planning process. The P&N statement guides the project or action through the process. The P&N statement briefly specifies the underlying purpose and need for a proposed action that planners or TxDOT is proposing. It must clearly demonstrate that a need exists and show how the need will be met based on tangible and quantifiable data.

The P&N statement is used by planners, decision makers, and the public to identify and compare project alternatives against their associated impacts and to ultimately select a preferred alternative. The basic P&N statement requirements are to:

- define the transportation need that the project is intended to address;

- establish the logical project termini and intermediate control points; and

- demonstrate the project has independent utility (i.e., is a usable and reasonable expenditure if no other transportation improvements were made in the area).

6.3.11 Content of Purpose and Need Statements

The P&N statement should include the following elements:

- **The state of the area** describes the history of the area, including identification of stakeholders and the existing transportation system. It states where the proposed action is described in the metropolitan transportation plan (MTP), long-range plan (LRP), TIP, and STIP as applicable, and provides the reason for the project analysis. It also identifies the problem that will be addressed by the action.

- **System linkages** describe how the proposed project links to the transportation system.

- **Capacity** describes the current level of service and the desired capacity and level of service for the proposed facility.

- **Legislation** identifies any federal, state, or local mandates for the action.

- **Social and/or economic development** identifies economic and land use changes that support the need to add capacity (e.g., a new school).

- **Modal relationships** describe how the proposed action will interact, connect, or complement other modes, such as airports, bus, rail, trails, or other transportation service.

- **Safety** describes, if applicable, how the project will improve safety. It uses accident data, if available.

- **Roadway deficiencies** describe existing roadway deficiencies, such as load limits or high maintenance costs, and how the action will improve the deficiencies.

6.4 Project Development Documents

The environmental clearance process may produce documents at various stages of project development (illustrated in Figure 6 and Table 1). These documents are also described below.

- **Categorical exclusions (CE)** are prepared for federal actions that do not have a significant human and natural environmental effect. A categorical exclusion is a document for projects that have minimal social, economic, or environmental impact. These projects typically involve maintenance, improvement, or routine actions and projects that do not significantly affect the environment. CEs constitute the majority of projects or actions encountered in transportation development. However, if the project involves the purchase of additional right-of-way or adding new travel lanes (increased capacity), an environmental assessment may be required.

- **Environmental assessments (EA)** are prepared for federal actions where it is not clearly known how significant the environmental impact might be. If, after preparing an environmental assessment, it is determined that the project's impact is significant, an environmental impact statement (EIS) is then prepared. If not, a finding of "no significant impact" is documented.

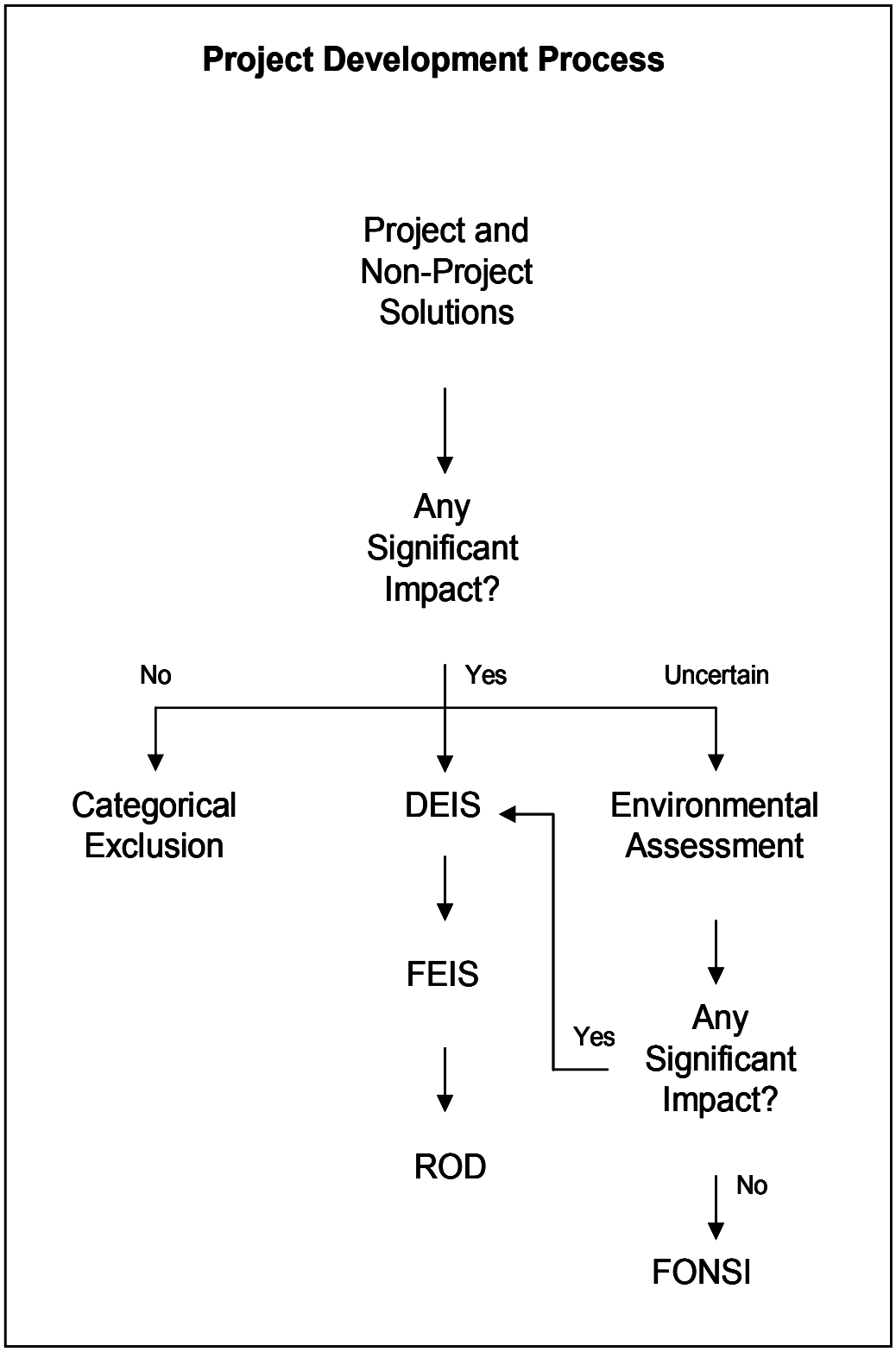
- **Draft EIS (DEIS) and final EIS (FEIS)** are disclosure documents that provide a full description of the proposed project, the existing environment, and analysis of the anticipated beneficial and adverse environmental effects of all reasonable alternatives. Local stakeholders circulate the draft document for comments. Revisions are made and incorporated in the final document.

- **Record of decision (ROD)** is a concise decision document for an environmental impact statement that states the decision (selected alternative or choice), other alternatives considered, and mitigation adopted for the selected alternative or choice.

- **Finding of no significant impact (FONSI)** is a statement indicating that a project was found to have no significant impacts on the quality of the human and natural environment.

For more information on the environmental clearance process, see the following:

- http://www.fhwa.dot.gov/planning/index.htm
- http://www.fhwa.dot.gov/planning/citizen/citizen12.htm
- http://www.dot.state.tx.us/env/default.htm



Source: *Federal Lands Highway Project Development and Design Manual*, FHWA, 1996

Figure 6 Project Development Process.

Action	Authority
Initial project classification	Action Plan Committee
Final project classification	Action Plan Committee
CE	Division Engineer
FONSI	Division Engineer
Draft EIS	FHWA Regional Office
Final EIS	FHWA Regional Office
Section 4(f) Statement	FHWA Regional Office
ROD	

Note:
1. Approval of the CE, FONSI, or ROD constitutes approval of the general highway location and to begin detailed design.
2. Final EIS approval may require prior concurrence of FHWA Headquarters.

Source: Federal Lands Highway Project Development and Design Manual, FHWA, 1996

Table 1 Approval Actions.

7.0 RURAL TRANSIT SERVICES

7.1 Public Transit in Rural Communities

When considering establishing or enhancing rural transit services, planners should consider the location and accessibility of existing transit services for potential users. In order to provide a more convenient and efficient service to the users of the transportation facilities, these services should be identified for applicability to the individual user. The most likely transit services may be classified as one of the following: demand responsive including shared ride taxi services, paratransit services for the elderly and disabled, fixed route, and ride and share A process to examine the effectiveness and the efficiency of connectivity and viability of the transportation system can include a detailed statement of the service goals and assessment status of each mandate. The methodology to evaluate the effectiveness of the current and future programs should include ridership statistics as generated and maintained by the contracted broker or transit district. Efficiency statistics should measure cost per user.

7.1.1 Demand Response

Demand response, also called Dial-a-Ride or door-to-door, is a system that offers point-to-point or door-to-door transportation from one specific location to another. This door-to-door service provides flexibility, ease, and much potential for adapting to the needs of different riders. Demand-response transportation systems usually provide transportation on an advance reservation basis, often requiring payment of fare or donations on a per ride basis.

7.1.2 Fixed Route

Fixed-route, or scheduled-service, providers transport riders along a published route with designated stops where riders can board and be dropped off. Reservations are not necessary because the vehicles stop at predetermined times and locations. Fixed route services usually require payment before boarding the bus. Most communities offer discounts to the elderly.

7.1.3 Ridesharing

Ridesharing programs coordinate people who need rides with volunteer drivers who have space in their automobiles. Typically, this service is scheduled transportation with a specific destination. The destination points can include places of employment, nutrition sites, senior centers, and medical appointments.

7.1.4 Grant Programs

There are funds available for the establishment or the enhancement of rural public transportation services. These grant programs include the following:

1. **Section 5311** provides discretionary grants to local public entities for public transportation in nonurbanized areas (under 50,000 population). Recipients may be state agencies, local public bodies, private nonprofit organizations, and operators of public transportation services. Generally, 15 percent of the allocation must be reserved for

development of intercity bus transportation. The funding ratio is 80 percent federal and 20 percent state/local on most projects.

2. **Section 5310** provides grants or loans for the provision of services to elderly persons and/or persons with disabilities. Eligible recipients include private nonprofit organizations or associations, public bodies that coordinate services for the elderly and/or disabled, or any public body that certifies that nonprofit organizations in the area are not readily available to carry out the services. The match requirement is 80 percent federal maximum and 20 percent local match. These grants are typically used to purchase vans (many of which are lift equipped) and ancillary equipment such as radios.

3. **Section 5303 and 5313** provide planning and research grants to MPOs through TxDOT for transit or highway planning activities. Section 5313 monies are awarded to TxDOT for statewide transit planning and research activities. The match requirement is 80 percent federal and 20 percent state match for both Section 5303 and Section 5313. These funds are administered in concert with the FHWA 112 planning funds through the Transportation Planning and Programming Division.

7.2 Elderly and Disabled Transportation Description

Only 3 percent of seniors' trips are on mass transit, according to the Nationwide Personal Transportation Survey. In the survey of county judges and transportation planners in Texas, more than 90 percent of the respondents ranked elderly and disabled transportation as either "high importance" or "medium importance" as an issue facing rural transportation planning. Planning techniques for the preservation, enhancement, and/or connectivity of a corridor should include providing and/or improving transit service for the elderly and disabled.

When planning for elderly and disabled transportation improvements, the first step is to study the existing access and availability of service. The department's public transportation coordinator, in cooperation with nonprofit transit providers and social service agencies, should be able to identify public transportation needs of these special populations and help update transit service areas or districts. The following information is important in identifying access and availability:

- the number of unduplicated riders,
- the number of one-way trips,
- the number of miles traveled,
- the number of trip denials, and
- the number of hours a vehicle is in use.

For more information on rural public transportation, see the following:

- TxDOT Public Transportation Division
  http://www.dot.state.tx.us/insdtdot/orgchart/ptn/ptn.htm

- Community Transportation Association of America (CTAA) http://www.ctaa.org/
- American Public Transportation Association (APTA) http://www.apta.com/

8.0 BORDER AREAS

8.1 Growth in Border Communities

One challenge associated with rural communities in a few states, including Texas, involves proximity to the border and corridors providing egress from and ingress into Mexico. As the population in Texas continues to expand, border communities should be cognizant of their growth and where that growth takes place within the community. In a number of instances, the transportation challenges involve the principal corridors that pass through those communities. While it would be enticing for local and regional officials to utilize these corridors for local trips, planners should investigate whether local trips would be better served if separated from through-trips. Considerations are as follows:

- determining the mix of traffic (truck versus auto) potentially using the corridor;
- looking for options enabling more direct routing for local trips, avoiding more circuitous routing via principal corridors;
- identifying the existing or proposed local access points to the principal corridor needed to facilitate the ease of flow through the community;
- identifying other corridors available specifically for local traffic; and
- identifying low-cost strategies of disseminating information regarding strategies to ease local mobility (e.g., flyers at local establishments, articles in local news media, public service announcements).

8.2 Transportation Options for Border Communities

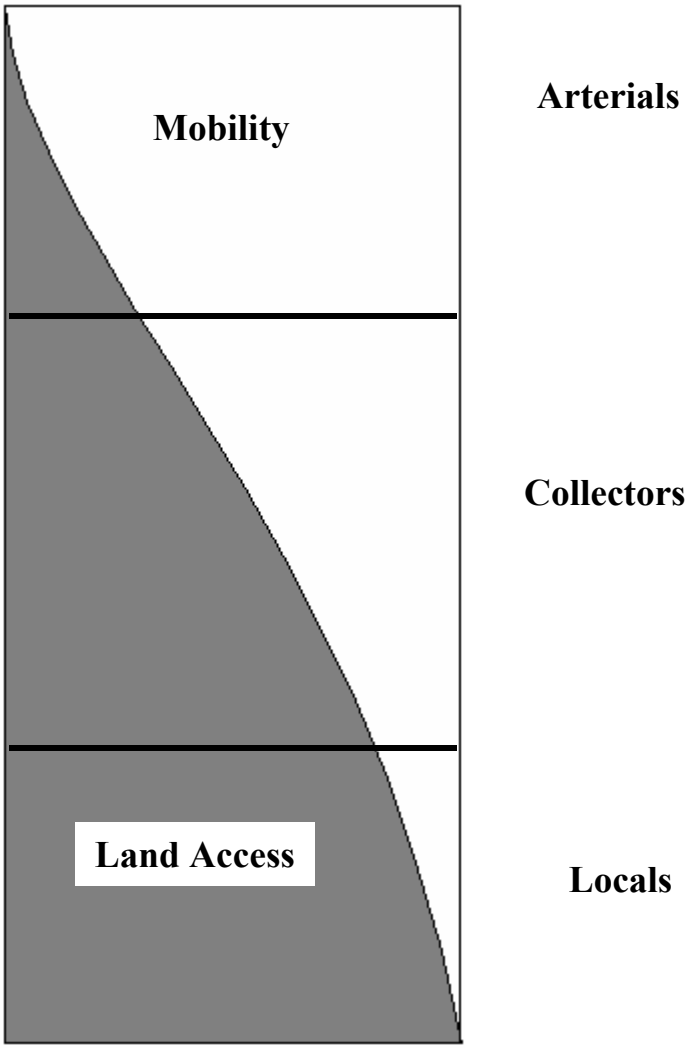
The options for those rural communities that are located on the southern border but *do not* have access to Mexico are basically the same. The principal corridors should be identified, and local officials should try to minimize congestion by enforcing the standard hierarchy of roads. Table 2 and Figure 7 illustrate roadway functional classification.

Rural	Urban
Principal arterials { Freeways; Other	Principal arterials { Interstate freeways; Other freeways/expressways; Other
Minor arterials	Minor arterials
Collectors { Major; Minor	Collector streets
Local roads	Local streets

Source: *Transportation Engineering and Planning*, 1993

Table 2 Roadway Functional Classification.

Because many rural communities have little or no public transit services, facilitating movement between or within rural communities for low-income residents who do not have personal transportation becomes the responsibility of local community groups, regional planning authorities, and TxDOT. An example of this type of border-community public transportation exists with the Los Colinas project coordinated by the Texas Transportation Institute. In 1997, a project began which supplied 15 passenger vans for transportation service from a community center. The project linked residents with medical and shopping needs, as well as other services available from its base at the community center.



Source: *Transportation Engineering and Planning*, 1993

Figure 7 Relationship of Functionally Classified Roadways to Mobility and Land Access.

8.2 Border Crossings

In Texas, specific locations that connect the state, and thus the United States, with Mexico are critical to the social and economic well-being on both sides of the border. Locally, the passage of the North American Free Trade Agreement (NAFTA) has brought attention to the needs of Texas' border communities. In many instances, NAFTA brings the possibility of greater prosperity but also the possibility of greater local disruption because of the increased truck traffic. Along the Texas–Mexico border are growing metropolitan regions. Ciudad Juarez–El Paso is now approaching two million people, McAllen–Reynosa–Rio Bravo exceeds one million, and Nuevo Laredo–Laredo has approximately 500,000 residents. Future projects indicate that these fast-growing communities will continue to grow as trade continues to expand.[3]

A report by the Texas Public Policy Foundation indicates that approximately 80 percent of truck and rail traffic between the United States and Mexico travels through Texas ports of entry.[4] NAFTA has brought at least a 50 percent increase in truck traffic along the Texas border and a doubling of rail traffic. This has brought new prosperity to border communities at the same time as it has imposed burdens. Traffic congestion has increased on highways and at railway crossings. Air pollution has increased, especially in El Paso and Laredo.

The following cities provide pedestrian, truck, and vehicle passage between Mexico and Texas: Brownsville, Del Rio, Eagle Pass, Roma, Rio Grande City, Progresso, Laredo, Harlingen, McAllen/Hidalgo, Pharr, and El Paso. The following data are from 1990 to 2001.

8.2.1 Pedestrian Crossings

There was a 53 percent increase in pedestrian traffic for all border locations originating in Texas going to Mexico. From Mexico into Texas, the pedestrian crossings increased 41 percent. The border location with the greatest pedestrian traffic was El Paso, with nearly 70 million pedestrian crossings from Mexico to Texas and just over 63 million pedestrian crossings originating in Texas.

8.2.2 Vehicle Crossings

Laredo had the greatest number of vehicle crossings from Texas into Mexico, with over 92 million trips. However, from Mexico to Texas, the city of El Paso totaled nearly 90 million trips.

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[3]"The Road Ahead: Innovations for Better Transportation in Texas" <http://www.tppf.org/transit/trans_report/toc.html>(March 26, 2003).

[4] The Texas Public Policy Foundation. January 2003. <www.texaspolicy.com>

The average rate of increase for all border locations from Mexico to Texas, and from Texas to Mexico, was 74 percent and 53 percent, respectively.

8.2.3 Truck Crossings

Laredo was the primary point of entry for truck crossings along the Texas–Mexico border. There were nearly 9 million truck crossings from Texas into Mexico, and over the 11-year time period the average increase was 295 percent. For the truck traffic originating in Mexico, there were 8.7 million crossings, with a total average increase of 209 percent for all border locations.

For more information on border issues, see the following:

- Texas A&M International University's Texas Center for Border Economic and Enterprise Development http://texascenter.tamiu.edu/
- USDOT Bureau of Transportation Statistics

For more information on rural planning, see the following:

- http://www.fhwa.dot.gov/planning/rural/planningfortrans/index.html
- http://www.fhwa.dot.gov//////planning/rural/planningfortrans/appendixc.html
- http://nado.org/rtoc/best_practices/index.html
- http://ntl.bts.gov/ruraltransport/toolbox/index.cfm
- http://www.commuterpage.com/linkstudies.htm

APPENDIX A
RURAL TRANSPORTATION PLAN

Rural Transportation Plan
Any County, USA

Annotated Outline of Contents

The following represents a mock table of contents for a rural transportation final plan report. Descriptions are provided under the major topic headings to show what should be included in each chapter. The annotated contents are intended to guide planners and officials in preparation of the document that presents the background, planning process, and selected transportation options for the community.

Chapter 1. Introduction and Summary

A. Purpose
Improvements to the transportation system are important to sustaining the economic vitality of the region. The county began the process of updating the regional transportation plan on ___ during ___ month last year. Many suggestions have been advanced by citizens and elected officials, and this work will evaluate those suggestions.

B. Public Involvement Process
The plan recognizes the importance of citizens actively participating in the development, evaluation, and selection of transportation alternatives. For that reason a certain number of meetings were held, and these additional outreach activities were designed to ensure opportunity for input into the regional plan.

C. Project Selection Process
A large amount of data are required, including traffic counts, travel projections, environmental assessments, and the citizen input. Population and employment projections contributed to the considerations of appropriate transportation system improvements.

D. Special Issues
The county boasts several lakes and tourist locations that attract large numbers of visitors during the summer and on some holidays. The seasonal nature of travel and the impact on the system are considered in this report.

Chapter 2. Description of the Region

A. Population
Describe the population (past, present, and projections); include tables and graphs.

B. Employment
Describe employment (past, present, and projections); include tables and graphs.

C. Economic Conditions and Considerations
Discuss the economic conditions and considerations.

D. Built and Natural Environment
Present relevant characteristics of the built or natural environment that will affect

development of the transportation plan. For instance, delineate the existing roads and highways, describe transit or vanpool service that operates in the area, and provide information on major areas of activities, such as the central focus of agricultural activities or other important local events.

Chapter 3. Statement of Vision and Goals

Include a positive statement of the desired outcomes for the county once the transportation plan is implemented. An example is as follows:

"The regional transportation plan for the county is designed to support a high-quality lifestyle for its residents, promote economic activity while valuing the natural resources, and facilitate travel within and outside of the region in a safe and cost-efficient manner."

A few examples of goals are shown below:

- Improve the safety of the traveling public and reduce the number of accidents in the county.
- Reduce the travel costs for all residents.
- Increase the offerings of public transportation for all residents but particularly for those residents who do not own automobiles or are elderly and unable to drive.
- Improve the quality of life.
- Support employment and economic development.

Chapter 4. Transportation System Deficiencies

Delineate and describe anything known to be inefficient or ineffective in the system. Examples include high accident-rate locations, bottlenecks that occur at an agricultural warehouse or storage facility, or any problem that a transportation system improvement might alleviate.

Chapter 5. Plan Elements

The purpose of the plan elements is to determine the actions that the county should pursue to meet the needs identified in the transportation deficiencies section, that respond to the goals and objectives, and that match the population and employment trends. These actions may include:

- street repairs, safety, and operational improvements;
- new roads or bridges;
- public transportation;
- freight and goods transportation considerations;
- environmental considerations or mitigation measures; or
- other elements.

Chapter 6. Funding and Financial Components and Implementation

Provide estimates for capital costs, project revenues, and expenditures over the project life. Requirements are that the plan be financially constrained and that it is within the funds projected to be available.

Appendix

Additional information that supports or explains the plan elements is included here.

APPENDIX B
THE NEED FOR NEW PARADIGMS IN RURAL TRANSIT SERVICE

The Need for New Paradigms in Rural Transit Service
Highlights of Article by Sandra Rosenbloom*

- In 1996, 83 million people lived in rural or small urban areas.
- Rural America has taken on additional roles, providing labor for industry, land for urban and suburban expansion, sites for storage of waste and hazardous activities, and natural settings for recreation and enjoyment.
- These changes all have the potential to alter rural travel patterns.
- The Transit Cooperative Research Program (TCRP) of the National Research Council has suggested developing "new paradigms" as opposed to the traditional ways rural and urban operators organize, design, and deliver public services.

Profound Societal Changes

- Massive societal changes occur that may affect rural and urban areas differently.
- Principal changes include major innovations in communications or changes in international markets.
- Also industrial restructuring and changes in labor force composition have occurred.

Changes in Housing and Residential Concentrations

- Prior to 1990, most rural areas experienced continuing population losses as people left in large numbers for urban areas.
- During the first years of the 1990s, there was a remarkable increase in population in rural counties across the entire US.
- These net population changes had six major components including an
  - influx of young commuters,
  - increase in retirees,
  - increase in older persons aging in place,
  - higher concentrations of minorities,
  - changing family structures, and
  - continued suburbanization.
- Rural areas experienced an influx of young commuters and their families.
- An increasing number of retirees are moving to rural areas.

Changing Community Economy Bases

- Rural areas have traditionally depended on farming, fishing, forestry, and/or mining.
- There is a declining role of agricultural and other land-based industries.
- Manufacturing bases have expanded.
- There is growth in service-sector industries such as prisons, Native American gaming, and riverboat gambling.
- These economic trends have also created new and different work trip patterns.

Summary of Major Impacts

The trends and changes described affect the following:

- the organization, location, and concentration of commercial and industrial activities in rural and adjacent metropolitan areas;
- the movement of people in and between rural, small urban, and metropolitan areas;
- the parameters of rural and urban labor catchment areas;
- the ways in which rural and urban households and businesses conduct their activities and interact with one another;
- the ability of rural households and businesses to substitute other activities for travel or transport; and
- the capacity of public/private systems to respond effectively and efficiently to changing rural travel needs and patterns.

New Service Paradigms in Rural Transportation

Five alternative approaches of meeting rural mobility needs are offered:

- serve as community change agents,
- optimize rural resources,
- become early adopters of technology and innovation,
- act as public entrepreneurs, and
- provide state-of-the art service.

*Sandra Rosenbloom,"The Need for New Paradigms in Rural Transit Service: Facing Societal Challenges," <http://www.ctaa.org/images/rosenbloom.pdf > (28 September 2003).