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Technical Report

MOBILITY PLANNING IN MID-SIZE TEXAS CITIES

Prepared for:
STATE DEPARTMENT OF HIGHWAYS
AND PUBLIC TRANSPORTATION

November 1984

CREDITS

This report represents completion of the research conducted by Rice Center through the Joint Center for Urban Mobility Research for the Texas State Department of Highways and Public Transportation under Study Agreement dated 1 October 1983. Principal Rice Center staff who participated in the research include:

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Project staff wish to express their appreciation for the high level of cooperation extended them by staff of the State Department of Highways and Public Transportation, in Austin and in the District Offices for the case study areas. Thanks also are extended to representatives of the local governments and agencies and to private individuals who contributed their time and experience to discuss the transportation issues in their areas.

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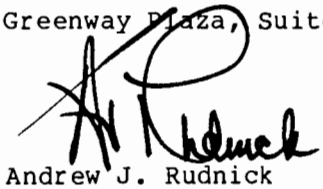

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EXECUTIVE SUMMARY

An examination of regional mobility planning in five of the largest Texas cities was reported in Planning and Financing Urban Mobility in Texas (1983). The large cities were found to have applied regional mobility planning (RMP) with varying degrees of commitment and success. Nevertheless, the RMPs were considered to generate benefits through the process required to prepare them. The key concepts of RMPs were identified as:

- o interagency cooperation at the highest administrative and technical levels
- o recognition of the interdependence of the highway, arterial and transit systems
- o involvement of the private sector
- o use of an agreed upon data base
- o use of a mutually agreed upon definition of adequate mobility and reasonable standards and criteria to assess the need for improvement of transportation facilities
- o determination of improvements based on need, not funding availability
- o assessment of the ability of current funding mechanisms to meet the need for mobility improvements
- o calculation of the cost of not providing adequate mobility.

This report examines the requirements and opportunities of regional mobility planning (defined here to include the various components of mobility planning as well as the overall effort) for mid-sized urban areas within Texas. Cities selected for study were the areas of Amarillo, Beaumont and Port Arthur, Corpus Christi, and El Paso. This study also considers the more general topic of data needed to support regional mobility planning, and gives a brief commentary on key issues involved in developing RMPs that will be useful to the state as well as the local communities. Finally, some strategies are suggested for gaining greater effectiveness of efforts to improve mobility in the case study areas.

Amarillo, with a 1980 population of 149,230 inhabitants, is part of the Texas Panhandle area. The regional Council of Governments includes 20 counties, more counties than any other COG in the state. The city has the lowest population density of the four cases studied and does not have a great perceived need for improved internal mobility. The area's primary concern is with improved intercity connections. Amarillo prides itself on being financially strong and independent from debt service and reliance on federal transportation funds. A "pay as you go" attitude prevails in the community. The county and regional planning commission have expressed strong interest in creative funding approaches and the idea of a regional mobility plan as ways to maintain the area's strong financial position.

Beaumont and Port Arthur, with 1980 populations of 118,102 and 61,251 respectively, comprise the two largest cities in the southeast Texas region. The South East Texas Regional Planning Commission, which includes the three counties of Jefferson, Orange and Hardin, with a total population of 375,497, is the MPO. The Beaumont/Port Arthur area is heavily industrialized, and community transportation needs relate more to safety of transporting hazardous materials than to congestion. Regional mobility planning is perceived in the area as a way to obtain more funds, and as a result, the Chamber of Commerce in Port Arthur has considered sponsoring a regional mobility planning effort.

The City of Corpus Christi, with a 1980 population of 232,134, is the seventh largest in Texas. It is part of the 12-county Coastal Bend Council of Governments. For years, the oil industry and port have supported an expanding industrial base in the area. Recently, conventions and tourism have taken on increased significance. Transportation needs relate to mobility between established areas and developing areas on the far west and southeast edges of the city. One unique area of concern is for waterborne public transit to service developing tourist areas. Corpus Christi has used extensive bond funding to support street improvements. The City favors development of a regional mobility plan and has been creative in seeking public/private partnerships.

El Paso, the fourth largest city in Texas, has a population of 425,259. Across the border is Ciudad Juarez, the fifth largest city in Mexico, with an estimated population of 900,000 (1980) and an annual rate of growth of 10.6%. The two cities comprise the largest bi-national metropolitan area in North America, with an expected population of 2.2 million people in 20 years. The existence of Juarez contributes to El Paso's extraordinary mobility problems. Annual border crossings in 1981 totaled 70 million people and 28 million vehicles. A recent travel forecast incidated a demand for 80 thousand vehicle trips beyond currently available roadway capacity . Interstate 10, a narrow corridor that provides the main access to and through the city, is heavily congested. The City has completed a "mini" regional mobility plan and presented it to the State Department of Highways and Public Transportation.

Overall, regional mobility planning is, at best, in infancy in the five case study cities. Extremes range from nothing attempted in Amarillo to commendable initial efforts in Corpus Christi and El Paso. Traditional transportation planning has not been comprehensive enough, nor does it include all of the players. In particular, the private sector has been excluded. Traditional planning efforts also have been less effective in producing results.

MPO responsibility is the key to regional transportation planning in these medium-sized Texas cities. The agency which carries this designation, because of funding, responsibility and interest, has the data and knowledge of the entire area. Where a single central city is dominant in the region (e.g. El Paso) it fills the MPO role. In regions with multiple foci (Beaumont/Port Arthur/Orange) the COG more logically fills the role. The COG as MPO seems to work well for data collection, but not for obtaining general consensus.

All of the study areas have more concern for improvements based on safety and specific economic/commerce needs rather than on the commuter and travel demand volumes of importance to the larger cities experiencing congestion. As an indicator of the difference between these cities and the larger cities in Texas, one can note the relative scale of transit activities. For example, Port Arthur is planning to buy five vehicles, which will double their fleet size. This may seem insignificant, however, doubling any fleet is a major effort and in scale with their city budget it becomes a weighty decision.

Production of documents and reports is considered a burden in these mid-size areas. Most of the data appear to exist (even if only in someone's head), however, the expense and expertise required to actually commit the information to paper sometimes eludes these communities.

The essence of regional mobility planning is consensus among the various participants about needed mobility improvements. The data required for regional mobility planning can come from a variety of sources:

- Local District Office of the State Department of Highways and Public Transportation (SDHPT)
- Urban Study Office of SDHPT (if there is one)
- Council of Governments (COG)
- Metropolitan Planning Organization (MPO)
- County governments
- City governments
- Transit authority (if there is one)
- Chambers of Commerce

The important issue is agreement among the members of the Regional Mobility Plan technical committee on the data's derivation, relevancy and use. Among the general considerations are:

- that the geographic scope of data presented be consistent (and consistently identified) throughout the plan;

- o that forecasts, such as population and land uses, used in determining transportation requirements be for the same time frame throughout the plan, and that the time frame should be compatible with state transportation planning efforts.
- o that differing levels of detail are appropriate for different time periods within the planning time frame;
- o that the treatment of inflation in historical or projected costs needs to be consistent throughout individual Regional Mobility Plans.

In the final analysis, regional mobility plan may be worthwhile for mid-cities for at least three reasons.

1. The regional mobility plan can follow the scale of the community and its problems. The amount of time and effort required to formulate a Houston or Dallas plan would be cut to a mere fraction to address Amarillo's situation. With some preliminary groundwork, an RMP could be drafted in a one-day seminar setting. The interagency cooperation and greater comprehensiveness of an RMP can bring benefits to a community in both the long and short ranges.

2. There seems to be a lack of attention to long range needs by the local levels of government. This is due to both political and financial reasons, as well as normal procrastination. To the extent that compiling an RMP focuses attention on long range needs and attendant issues of growth, financing and responsibilities, local planning results will be much better, stronger and more consistent.

3. RMP's were encouraged as mechanisms to show that local agencies had their "act together" in order to provide information for SDHPT decisions on statewide financing priorities. Just as the 1962 Act caused consistency in Urban Transportation Studies, submission of RMP's using a reasonably uniform format can provide consistent data statewide for decisions about highway and transit capital funding in a context that is more comprehensive and involves a higher level of cooperation.

Regional mobility planning is most likely to receive high priority in areas that perceive a current mobility crisis. None of the mid-sized urban communities examined in this study really recognized that level of need. Nevertheless, each was considering specific transportation improvements that would benefit from a concerted mobility planning effort -- even Amarillo, where financial resources were not seen to be a great barrier to improvements.

At base, the ability of local areas to more efficiently use their own funds and to expand the funding available to them from both state and federal sources (through use of traditional or innovative strategies) can only be aided by sound planning supported by private as well as public participants. The concept of regional mobility planning incorporates the elements needed in such efforts.

1.0 INTRODUCTION

1.1 BACKGROUND

An examination of regional mobility planning in five of the largest Texas cities was reported in Planning and Financing Urban Mobility in Texas (1983). The large cities were found to have applied regional mobility planning (RMP) with varying degrees of commitment and success. Nevertheless, the RMPs were considered to generate benefits through the process required to prepare them. The key concepts of RMPs were identified as:

- o interagency cooperation at the highest administrative and technical levels
- o recognition of the interdependence of the highway, arterial and transit systems
- o involvement of the private sector business community
- o use of an agreed upon data base
- o use of a mutually agreed upon definition of adequate mobility and reasonable standards and criteria to assess the need for improvement of transportation facilities
- o determination of improvements based on need, not funding availability
- o assessment of the ability of current funding mechanisms to meet the need for mobility improvements
- o calculation of the cost of not providing adequate mobility.

The discussion which follows in this report examines the requirements and opportunities of regional mobility planning for mid-sized urban areas within Texas. Cities within that size range that were selected for study were the areas of Amarillo, Beaumont and Port Arthur, Corpus Christi, and El Paso. A brief description of those areas follows.

1.2 AMARILLO

Amarillo, with a 1980 population of 149,230 inhabitants, is part of the Texas Panhandle area. The regional Council of Governments includes 20 counties, more counties than any other COG in the state. The city has the lowest population density of the four cases studied and does not have a great perceived need for improved internal mobility. The area's primary concern is with improved intercity connections.

The City of Amarillo is designated as the Metropolitan Planning Organization (MPO) and is responsible for carrying out the transportation planning process. The City Manager, along with the Public Works Director, makes most of the road improvement decisions.

The City prides itself on being financially viable and independent from debt service and reliance on federal transportation funds. A "pay as you go" attitude prevails in the community. The county and regional planning commission have expressed strong interest in creative funding approaches and the idea of a regional mobility plan as ways to maintain the area's strong financial position.

1.3 BEAUMONT/PORT ARTHUR

Beaumont and Port Arthur, with 1980 populations of 118,102 and 61,251 respectively, comprise the two largest cities in the South East Texas region. The South East Texas Regional Planning Commission, which includes the three counties of Jefferson, Orange and Hardin, with a total population of 375,497, is the MPO. The cities of Beaumont and Port Arthur appear to be "rival" cities, with relatively little coordination in transportation planning between them.

The Beaumont/Port Arthur area is heavily industrialized, and community transportation needs relate more to safety of transporting hazardous materials than to congestion. Regional mobility planning is perceived in the area as a way to obtain more funds, and as a result, the Chamber of Commerce in Port Arthur has considered sponsoring a regional mobility planning effort.

1.4 CORPUS CHRISTI

The City of Corpus Christi, with a 1980 population of 232,134 inhabitants, is the seventh largest in Texas. For years, the oil industry and port have supported an expanding industrial base. Recently, tourism and conventions have taken on increased significance and have helped offset a continued slackening of the oil industry. It is a growing community with strong development interests. The far west and southeast edges of the city have been identified as the prime growth areas.

Corpus Christi is part of the Coastal Bend Council of Governments which is comprised of 12 counties. The City is the MPO responsible for planning. Transportation needs relate to mobility in support of established and developing residential areas. One unique area of concern is for waterborne public transit to service developing tourist areas. Corpus Christi has used extensive bond funding to support street improvements. The City favors development of a regional mobility plan and has been creative in seeking public/private partnerships.

1.5 EL PASO

El Paso, the fourth largest city in Texas, has a population of 425,259. The 1980 Census reported an annual growth rate of 3.2% between 1970 and 1980. It is expected that by the year 2000, the population will reach 700,000. Across the border is Ciudad Juarez, the fifth largest city in Mexico, with an estimated population of 900,000 (1980) and an annual rate of growth of 10.6%. It is expected that by the year 2000, Juarez will have over 1.5 million inhabitants. The two cities comprise the largest bi-national metropolitan area in North America, with an expected population of 2.2 million people in 20 years.

The existence of Juarez contributes to El Paso's extraordinary mobility problems. Annual border crossings in 1981 totaled 70 million people and 28 million vehicles. A travel forecast prepared by local and state authorities shows a demand for 80 thousand vehicle trips beyond currently available roadway capacity (El Paso Transportation Needs, 1982). Interstate 10, a narrow corridor that provides the main access to and through the city, is heavily congested.

The regional council of governments covers a six county area. There are no other cities of significant size in the region, and the City Planning Office, as the MPO, coordinates overall transportation planning. The City has completed a regional mobility plan and presented it to the State Department of Highways and Public Transportation.

1.6 REPORT ORGANIZATION

Chapter 2 deals with the current status of regional mobility planning (defined here to include the various components of mobility planning as well as the overall effort) in the mid-size cities. Chapter 3 examines documented highway needs and resources for the case study areas, and that is followed by a review of transit needs and resources in Chapter 4. Chapter 5 considers the more general topic of data needed to support regional mobility planning, and gives a brief commentary on key issues involved in developing RMPs that will be useful to the state as well as the local communities. Finally, Chapter 6 summarizes the current status of regional mobility planning and provides some strategies for gaining greater effectiveness from mobility planning efforts.

2.0 REGIONAL MOBILITY PLANNING IN MID-SIZE TEXAS CITIES

2.1 BACKGROUND OF REGIONAL MOBILITY PLANNING

The report Planning and Financing Urban Mobility in Texas credits Houston with originating the concept of regional mobility planning:

> The regional mobility planning process was developed in Houston as an alternative to traditional transportation planning methods which were perceived as being unable to lead to solutions to the city's mobility crisis. Not unlike traditional comprehensive transportation planning, regional mobility planning seeks to quantify the overall needs of an area's transportation network, recognizing the interdependency of the freeway, arterial and transit systems, and to evaluate the trade-offs among and between them. However, regional mobility planning also is structured to promote the concerted action needed to achieve improvements.

In the study cited above, an analysis was conducted of regional mobility plans in Austin, Dallas, Fort Worth, Houston, and San Antonio. Varying levels of conformance to the key aspects of this enhanced form of transportation planning were found in these larger Texas cities. These variances were found to exist both because the needs in each city were different and because there were no established guidelines for regional mobility planning. In addition, cities other than Houston were requested to complete their plans in a short time frame which did not permit as thorough a process as Houston had carried out. The other cities had less urgency and considered the process to be externally required rather than internally motivated.

A recent analysis by the Texas Transportation Institute (TTI) found the level of mobility crisis in Dallas to be 7 years behind Houston, San Antonio 8 years behind, and 12 years behind in Fort Worth. Thus, while the problems in cities other than Houston currently are less severe, without action on their mobility situation could in time equal Houston's.

In this report the status of and needs for regional mobility planning in the mid-size Texas cities of Amarillo, Beaumont and Port Arthur, Corpus Christi, and El Paso are examined. Table 2.1 shows the 1980 population of each of these cities and their SMSA's in comparison with the larger Texas cities included in

the previous study. The cities in the current study group are smaller, leading, on the surface, to the expected conclusion that the problems will be less severe, less widespread and will cost less to remedy. That will not, however, diminish the potential need for comprehensive transportation analysis, planning and needs assessment in the sense of the traditional 3C process, an enhanced RMP process, or some other suitable application of the key principles identified in the first chapter.

Table 2.1
1980 Population of Selected Texas Cities

City	City Population	SMSA Population
Houston	1,594,086	3,099,942
Dallas	904,078	2,930,530
Fort Worth	385,164	2,930,530
San Antonio	786,023	1,071,952
Austin	345,496	536,674
El Paso	425,259	479,899*
Corpus Christi	231,999	326,228
Amarillo	149,230	173,699
Beaumont	118,102	375,497
Port Arthur	61,251	375,497

*plus 900,000 in Cuidad Juarez

Source: Texas Almanac.

2.2 OVERVIEW OF MOBILITY PLANNING PARTICIPANTS

As many as eight different types of participants and providers of mobility plans, facilities, and improvements in a given urban area have been identified: the Metropolitan Planning Organization (MPO), central city, suburban cities, counties, State Department of Highways and Public Transportation (SDHPT), councils of governments (COGs), transit agency, and the private sector (developers, chambers of commerce, etc.). Furthermore, roles and responsibilities can overlap or several responsibilities can be combined under a single agency. In theory, any of these groups can take the lead role in regional mobility planning, depending upon traditional local roles, politics, past performance and aggressiveness of local leaders.

The following discussion, summarized in Table 2.2, examines the current responsibilities of the involved agencies in the five case study cities.

Central City. In all five areas, the central cities are responsible for their own city street construction and maintenance. They generally require that developers of residential subdivisions construct local streets as part of the project and then turn them over to the city for operations and maintenance.

Also, each of these cities own and operate the local bus system. Amarillo, Corpus Christi, and El Paso have the MPO responsibilities residing with the city, under either the city planning or traffic department. In the Beaumont/Port Arthur area, the MPO responsibility has been given to the South East Texas Regional Planning Commission. This is primarily because of the increased coordination required with two principle cities and multiple other cities existing within the same urbanized area. In the other regions the central city is dominant. Along with the MPO responsibilities go the data generation and consensus building efforts in all four regions.

Suburban Cities. In Amarillo and El Paso there are no active suburban cities. The central cities and the counties are the dominant factors. In Corpus Christi, the cities of Portland and Robstown are active participants in the regional transportation process. Internally, however, they are only involved with their own city streets. In the Beaumont/Port Arthur area, Nederland, Port Neches, and Groves are located between Beaumont and Port Arthur. They are involved in the regional process through the MPO. Individually they are responsible for their own city streets.

Counties. County governments in Texas have broad authority to provide mobility improvements. Roads and bridges are their public works mainstay. These facilities can be built with their own county tax funds, state revenues from license sales which are given to counties, allocations from the farm-to-market road fund, general obligation bonds and, in coastal counties, toll facilities with revenue bonds. Some counties have assessment authority for road improvements. Counties also may establish special road and bridge districts to facilitate financing and construction of certain improvements.

Amarillo extends into two counties. Potter County takes only a minor role in maintaining a small number of roads and bridges outside of Amarillo. County Commissioners cut back their road fund this year to buy land for a new courthouse. Randall County is growing rapidly and county officials are increasing

Table 2.2
Current Agency Roles

AGENCY	URBANIZED REGION			
	AMARILLO	BEAUMONT/PORT ARTHUR	CORPUS CHRISTI	El PASO
Central City	City streets Transit MPO Data	City streets Transit City streets Transit	City streets Transit MPO Data	City streets Transit MPO Data
Surburban Cities	None	Port Neches - city streets Groves - city streets Nederland - city streets	Robstown - city streets Portland - city streets	None
County	POTTER Maintain minor roads Minor bridges RANDALL Increasing involvement Growth area Need new funding	JEFFERSON Bridge replacement	NUECES Maintenance Commissioners' projects	EL PASO Maintenance Paving County roads
SDHPT Districts	State, Federal Roads - Planning, Design, Construction - "Regional Transportation Studies" - Data - Transit Capital (local match) AUTS / JORTS / CCUTS / EPUTS			
COG	PRPC Not involved, but wants to be	SETRPC MPO Data Plan Modeling	CBCOG Not involved	WTCOG Not involved
MPO	City	SETRPC	City	City
Transit	City	City City	City (MTA eligible)	City (MTA eligible)
Private Sector	C of C Economic development aspects, selected projects, external connections	C of C Street and Highway Committee, help set priorities, 5-point improvement program C of C Highway Committee, Safety Needs, Public Relations, Intercity rivalries uncoordinated efforts, Park Central, list of priorities	C of C Pushed MTA bill thru legislature, willing to lead RMP efforts	C of C New director, not leadership role thus far.

their involvement in road planning and construction. The needs are developing fast enough that officials are considering new funding mechanisms to keep up with the demand.

Beaumont and Port Arthur are located in Jefferson County. The county has not had a history of funding support for roadway improvements for at least seven years. The county is active in the area of bridge replacement with a budget of approximately $350,000 per year. Officials are seeking designation of many county roads as farm-to-market roads to relieve the strain on their declining revenue caused by petrochemical plant closings.

In Nueces County, the main emphasis is maintaining certain roads outside of Corpus Christi. The county hasn't had a bond issue in several years and there are no plans to do so any time in the near future. Planning is limited to each Commissioner deciding how to spend the precinct's share of the county's farm-to-market allocation.

The El Paso County government seems to be more active than any of the other case study counties in road planning and construction. Because of rapid development east of the city, there are several corridors which are in need of improvement. The county sees no one else able to do the job effectively. They have sold bonds to pay for right-of-way for the Trans Mountain Highway (Loop 375), northwest of El Paso. The county does its own construction and has an annual schedule of paving. El Paso County appears to be more involved in the overall regional planning process than other counties examined, and officials are attempting to extend the major thoroughfare plan out into the county.

In general, counties have had little involvement in transportation planning, thoroughfare plans and funding improvements. This is partly because of the limited funds available to them. Also, in smaller cities, the city itself contains the major portion of development, leaving little for the county to service. Finally, the larger urban counties (see the report Planning and Financing Urban Mobility in Texas) maintain a range of services, including transportation improvements, while the smaller counties provide fewer services in general and tend to stay out of transportation except in limited ways. Most county input to overall transportation planning is through their ex officio membership in regional steering committees and policy advisory committees.

SDHPT Districts. Each of the four areas involved in this study are the focal points of an SDHPT district. Each of these district offices has the responsibility for planning, designing, constructing and maintaining the state system within their district. In many cases, with their strong mandate and

directives from Austin, the district offices have been able to maintain an independent posture within the local community. Often, SDHPT's planning initiatives were the first for small areas. Only in later years have the councils of governments, the cities themselves and even the private sector become active planning participants.

During the early 1960's, in response to the Federal Aid Highway Act of 1962, each urbanized area in Texas conducted an urban or regional transportation study. The four case study areas participated and reports were published as the studies were completed. The Amarillo Urban Transportation Study (1965), the Jefferson/Orange Regional Transportation Study, (1963), the Corpus Christi Urban Transportation Study, (1964) and the El Paso Urban Transportation Study (1969) form the basis for all subsequent transportation planning in their respective cities.

These studies focused on ten categories: economic factors, population, land use, existing facilities, travel patterns (assisted by origin/destination studies and computer modeling), terminal and transfer facilities, traffic control, local zoning and other regulations, financial resources, and community values. Because of the cost of these studies they have not, for the most part, been reproduced. Various elements have been updated over the years, however. In Corpus Christi, the City has had the most aggressive role in recent years. In Beaumont/Port Arthur the South East Texas Regional Planning Commission has taken the major leadership role. Only in Amarillo and El Paso do the SDHPT District offices continue to lead as in the past. However, in El Paso, the City, as the MPO, plays a strong role also.

Councils of Governments. These state authorized organizations consisting of local officials are legislatively mandated as funding conduits, planning coordinators and regional reviewers (through the A-95 review or equivalent process). Beyond these functions, COG roles vary widely from region to region. In Amarillo, Corpus Christi and El Paso there is almost no involvement by the COG in mobility planning. They don't even have transportation staff members. On the other hand, the South East Texas Regional Planning Commission in the Beaumont/Port Arthur area is very active, as the MPO, in data gathering and analysis, in plan development, and in modeling. This is largely because with two counties and numerous small cities involved in the region, it is easier for an independent agency to take the planning lead.

Metropolitan Planning Organizations. The MPO (Metropolitan Planning Organization for Multi-Modal Transportation Planning) designation is required by federal law and is assigned by the Governor. Since the mid 1970's, this designation has been

settled on the agency with continuing responsibility for the coordination of regional transportation planning. The MPO is the recipient of Section 112 highway planning funds and Section 8 transit planning funds. In Amarillo, Corpus Christi and El Paso, the MPO is the city. This vests extra power and more detailed involvement in areawide mobility planning in these city governments than would otherwise be the case. In the Beaumont/Port Arthur area, this responsibility is taken by the South East Texas Regional Planning Commission.

Transit Operators. In all five of the cities with transit operations, the system is owned by the city. Two of the cities, Corpus Christi and El Paso are eligible under state law to establish a Metropolitan Transit Authority. Thus far, neither has acted to form such an authority. El Paso has had one referendum on the issue, which was defeated. Until authorities are formed, the transit operations are just one of many services which the cities coordinate, and only serve to reinforce their strong positions in mobility planning. Their current roles are explained in the central city section above.

Private Sector. In the larger Texas cities, it has often been the private sector (usually through a Chamber of Commerce) which has taken the lead in developing a regional mobility plan for the area. In the five cities studied there are a variety of responses from the private sector. In no area has the private sector exhibited the level of leadership shown by the Houston Chamber of Commerce through two rounds of regional mobility planning.

In Amarillo the private sector is concerned primarily with the economic development aspects of transportation. Local businesses are trying to get ranching and farming products to and from regional and national markets. Projects which represent the elimination of bottlenecks to this commercial traffic, therefore, are of extreme interest. Intracity mobility is generally good, and thus is not of great concern to them.

In Beaumont, the street and highway committee of the Chamber of Commerce has been very active in the development of a Five Point Highway Improvement Program. Priority highway routes have been identified through community meetings and joint discussions with the District Office. While there are no current plans to develop a regional mobility plan, the Chamber would be highly supportive of one.

Port Arthur's Chamber of Commerce also is very active. The Chamber's highway committee (transit is viewed as a minor issue) was established because it was felt an advocate for area highways was needed. The committee's role is largely one of public relations, primarily with the SDHPT Commissioners. Safety related problems are more at issue in Port Arthur than

are "congestion" problems per se. The Chamber's current role is mainly as advisor to the SDHPT district office and the city. However, they have had virtually no involvement in JORTS, since active participation of the private sector in the 3-C process has never been formalized. Intercity rivalries with Beaumont have hampered some mobility progress in the area because of the different needs of the two cities (e.g. Spur 380 vs. Rainbow Bridge). The SETRPC acts as a good neutral buffer, but regional consensus on mobility projects is difficult to attain. On occasion, the efforts of the Beaumont and Port Arthur Chambers have been counterproductive. Each has its own list of priorities which, not surprisingly, may not be supportive or compatible.

In Corpus Christi, the Chamber of Commerce was very active in supporting the Metropolitan Transit Authority (MTA) bill through the state legislature, and in the effort to create an MTA for Corpus Christi. The Chamber supports a comprehensive regional mobility plan for the area. Current leadership is willing to act as a catalyst or take a leading role in a multi-agency effort.

In El Paso, the Chamber of Commerce is at a transitional point, and its future role has not been determined. Traditionally the Chamber has had minimal involvement in transportation and mobility matters.

2.3 STATUS OF MOBILITY PLANNING

None of the five cities in the four regions studied has a regional mobility plan approaching the plans prepared by the large Texas cities. There are several reasons for this. The entire regional mobility planning concept is new and was first applied to the largest cities -- the ones with the most serious congestion problems. These cities have been clamoring for an ever increasing share of scarce transportation funds. New ways to determine local priorities and examine them statewide basis, thus, have become necessary. During the last year, state funding has been so uncertain that the SDHPT Commissioners have been more concerned with obtaining new funds than in fostering competition for the existing scarce resources. Thus, after the first RMP was developed in Houston and the other large Texas cities were encouraged to follow suit, there has been little emphasis and need to encourage the next tier of smaller cities to develop similar plans. Now that financing has become more secure through the efforts of the June 1984 special legislative session, attention will again turn to ways in which local priorities can be identified, organized and compared to support resource allocation decisions.

This leads to the question of current planning in these five cities. Table 2.3 provides a summary of regional mobility planning, existing highway planning, and existing transit planning in all five cities. The purpose of this table is to illustrate what has been done in each city (two cities claim a rudimentary form of RMP), how it conforms to the developing norms for RMP's, and if not an RMP, how well existing planning efforts are substituting.

The first part of Table 2.3 compares the established elements for RMP's for each of these five cities. The comparison is incomplete in that two cities (Corpus Christi and El Paso) have preliminary versions of RMP's while three cities (Amarillo, Beaumont and Port Arthur) have not attempted to put a mobility plan together. Even where no plan exists, some of the RMP categories, however, can be compared using other available planning data.

In the absence of RMP's, Table 2.3 also shows comparisons of more traditional elements of highway and transit planning which define the status of mobility planning in more general and traditional terms.

Amarillo. No regional mobility plan exists for the Amarillo area, and no thought has been given to preparing one. Even if it were to be required, local respondents think it would be relatively easy to prepare one. The worthy projects are limited in number and scope. Highway planning is proceeding along the normal SDHPT district procedures. The AUTS monitors data and updates plans periodically. The 20 year plan is being updated in light of new funding availability. There is, however, little coordination among the mobility-providing agencies and none besides the SDHPT has any formal long-range plans beyond the UPWP and the TIP. In addition, the COG currently does not pursue a role in comprehensive planning.

Beaumont. No mobility plan has been prepared. There is a five point highway improvement program which has been put together by the Chamber of Commerce. The Beaumont plan has some inconsistencies with the items proposed by Port Arthur. JORTS and SETRPC have prepared extensive data bases and analyses, however their efforts have not comprehensively included the city, county and transit plans. They also have not been able to resolve the conflicting goals of Beaumont and Port Arthur. There is some interest in producing a mobility plan because of the perception that it will assist in channeling state and federal highway money to the area.

Port Arthur. As with Beaumont, the Chamber of Commerce has prepared a list of priorities based on obvious problem areas. The general opinion is that JORTS is sufficient but the

Table 2.3
Status of Mobility Planning

	AMARILLO (149,230/173,699)*	BEAUMONT (118,102/375,497)*	PORT ARTHUR (61,251/375,497)*	CORPUS CHRISTI (231,999/326,288)*	EL PASO (425,259/479,899/ 1,325,000**
REGIONAL MOBILITY PLANNING					
RMP Exists	No	C of C 5-Point List	C of C List	"Mini-Plan"	Yes
Produced by	---	C of C	C of C	City	City
Consensus	---	No	No	CC, Nueces, Robstown	City/County
Participants	---	City, C of C, SDHPT	C of C	CC, Nueces, Robstown	EP, County, SDHPT, Transit
Presented to Commission	No	Yes, but not coordinated between cities		Yes	Yes
Subregional Plans	No	No	No	No	No
Private Sector	C of C interested in linkages	C of C have their own lists		C of C involved	C of C involved
Data Base	City w/agency Committee***	"Gut feel"	"Worthy projects are known"	City/MPO	City/MPO, County, SDHPT
Need Criteria	---	---	---	Yes	Yes
Funding Ability	---	---	---	No	No
Cost of Inaction	---	---	---	No	No
Transit Treatment	None	None	None	None	Included
Focus/Goal	---	Construction of add 17 improvements		Items to 20 Year Plan	SDHPT Funding
Phases	---	---	---	No	Yes
Cost of Improvements	---	---	---	$178M	$558M
Status of RMP	No plans	Some interest	No Interest	RMP in UPWP	No plans

Table 2.3 (Continued)
Status of Mobility Planning

	AMARILLO (149,230/173,699)*	BEAUMONT (118,102/375,497)*	PORT ARTHUR (61,251/375,497)*	CORPUS CHRISTI (231,999/326,288)*	EL PASO (425,259/479,899/ 1,325,000**
HIGHWAY PLANNING					
Regional Trans. Plan	AUTS	JORTS	JORTS	CCUTP	EPUTS (2000 Plan in Works)
Transit Included	No	No	No	Yes	Yes
20 Year Plan (SDHPT)	Yes	Yes	Yes	Yes	Yes
Highway OPD	Updating	Updating	Updating	Updating	Updating
City Long Range Plan	No	No	73'Thoroughfare Plan	No	Part of 2000 Plan Update
City Short Range Plan	5-Year Plan in works	1980 Bonds through 1987	No	1977, 1982, Bond programs	No
County Long Range Plan	Potter-No Randall-No	No	No	No	No
County Short Range Plan	Potter-No Randall-No	No	No	No	No
TRANSIT PLANNING					
Ownership	City	City	City	City****	City****
Management	City	City Coach Lines	ATC	City	City
Short Range Plan	5 Year in works	TIP	No	5 Year in Works	TIP
Long Range Plan	No	No	No	Authority	Authority
Fleet Size	31	25	10	52	139
Peak Fleet	14	14	7	31	73
ROLE OF COG	None but wants change	Major Responsibility/	MPO	None	None
ROLE OF C OF C/ Private Sector	Highway/Commerce Links None in AUTS	Local Priority Setting None in JORTS	Local Priority Setting None in JORTS	Active Lobbying Want RMP	New Leaders/Minor

NOTES:

* Population (City/SMSA)
** Population (City/SMSA/SMSA plus Juarez)
*** Relates to General Transportation Planning
**** Transit Authority Election Pending
\- Not applicable

problems listed under Beaumont and the large number of "no's" on Table 2.3 indicate that there is much in the way of coordination and consensus building which has yet to be done. Officials at the state level may have difficulty in reconciling the priorities of this region.

Corpus Christi. A "Mini-Plan" exists. It was created by compiling from all agencies a summary of requests to the SDHPT. However, it has some gaps. Transit was not included. Responsibility of the city and county are not detailed. Even the name indicates that those who authored the plan recognized its shortcomings. In recognition of the need for a more comprehensive approach, funds for a full RMP have been included in the 1984 UPWP for the region. This may be the first area to have the initial plan so formally designated. At this point there has been no action to proceed on this element.

El Paso. The largest city of this group also has done the most toward developing a RMP. While the El Paso plan may be characterized as a mini-plan similar to Corpus Christi's, it does include more agencies and greater depth of information. It, as with most RMP's, has SDHPT funding as a primary goal and was presented to the commission as a multi-media show. It includes transit and had private sector participation, but it lacks a comprehensive financial analysis, designated responsibilities for all agencies and long range programs for the city and county.

2.4 CONCLUSIONS

Overall, regional mobility planning is, at best, in infancy in the five case study cities. Extremes range from nothing attempted in Amarillo to commendable initial efforts in Corpus Christi and El Paso. Traditional transportation planning is an alternative, but it has not been comprehensive enough, nor does it include all of the players. In particular, the private sector is excluded. Traditional planning efforts also have been lesseffective in producing results.

MPO responsibility is the key to regional transportation planning in these medium-sized Texas cities. The agency which carries this designation, because of funding, responsibility and interest, has the data and knowledge of the entire area. Where a single central city is dominant in the region (e.g. El Paso) it fills the MPO role. In regions with multiple foci (Beaumont/Port Arthur/Orange) the COG more logically fills the role. The COG as MPO seems to work well for data collection, but not for obtaining general consensus.

All of the study areas have more concern for improvements based on safety and specific economic/commerce needs rather than on

the commuter and travel demand volumes of importance to the larger cities experiencing congestion.

As an indicator of the difference between these cities and the larger cities in Texas, one can note the relative scale of transit activities. For example, Port Arthur is planning to buy five vehicles, which will double their fleet size. This may seem insignificant, however, doubling any fleet is a major effort and in scale with their city budget it becomes a weighty decision.

Production of documents and reports is considered a burden in these mid-size areas. Most of the data appear to exist (even if only in someone's head), however, the expense and expertise required to actually commit the information to paper sometimes eludes these communities.

In the final analysis, can a regional mobility plan be worthwhile for cities of this size and relative simplicity of problems? The answer is yes for at least three reasons.

1. The regional mobility plan can follow the scale of the community and its problems. The amount of time and effort required to formulate a Houston or Dallas plan would be cut to a mere fraction to address Amarillo's situation. With some preliminary groundwork, an RMP could be drafted in a one-day seminar setting. The interagency cooperation and greater comprehensiveness of an RMP can bring benefits to a community in both the long and short ranges.

2. There seems to be a lack of attention to long range needs by the local levels of government. This is due to both political and financial reasons, as well as normal procrastination. To the extent that compiling an RMP focuses attention on long range needs and attendant issues of growth, financing and responsibilities, local planning results will be much better, stronger and more consistent.

3. RMP's were encouraged as mechanisms to show that local agencies had their "act together" in order to provide information for SDHPT decisions on statewide financing priorities. Just as the 1962 Act caused consistency in Urban Transportation Studies, submission of RMP's using a reasonably uniform format can provide consistent data statewide for decisions about highway and transit capital funding in a context that is more comprehensive and involves a higher level of cooperation.

3.0 HIGHWAY NEEDS AND RESOURCES

3.1 BACKGROUND ON CASE STUDY AREAS

Amarillo. Amarillo has the lowest population density of the case study areas. The City is in healthy financial condition and does not perceive a need for improved internal mobility. The percentage of carpool users has more than doubled in the last 10 years, and ridesharing appears to be a good area to promote further.

The City of Amarillo is designated as the Metropolitan Planning Organization (MPO) and is responsible for the transportation planning process. The City Manager, along with the Public Works Director, makes most road building decisions. The 1984 Annual Element of the Transportation Improvement Program (TIP) contains highway improvement projects that amount to $18.5 million.

Beaumont and Port Arthur. The Beaumont/Port Arthur area is heavily industrialized, and community transportation needs relate more to safety of transporting hazardous materials than to congestion. Regional mobility planning is perceived in the area as a way to obtain more funds, and as a result, the Chamber of Commerce in Port Arthur has considered sponsoring a regional mobility planning effort. Beaumont has a current bond program for making street improvements. The last Port Arthur bond program was in 1975. The South East Texas Regional Planning Commission is the MPO. The South East Region, which includes Beaumont and Port Arthur, has proposed $175 million in expenditures during Fiscal Year 1984.

Corpus Christi. Corpus Christi is part of the Coastal Bend Council of Governments which is comprised of 12 counties. The City is the MPO responsible for planning. Significant transportation needs include improvement of grade crossings, signalization and crosstown mobility. The construction of the crosstown expressway and the outer loop are expected to be significant catalysts for development. The 1984 TIP contains $54 million worth of proposed highway improvements.

The City has used extensive bond funding through 1977 and 1982 bond programs to support street improvements. Corpus Christi favors development of a Regional Mobility Plan and has been creative in exploring public/private partnerships.

El Paso. The existence of Ciudad Juarez across the border in Mexico makes El Paso's mobility problems unique among the study

areas. Annual border crossings in 1981 totaled 70 million people and 28 million vehicles. A travel forecast prepared by local and state authorities shows a demand for 80 thousand vehicle trips more than the available roadway capacity (El Paso Transportation Needs, 1982). Interstate 10 provides the main access to the city, through a narrow corridor that is very congested. The 1984 TIP proposes $138 million in highway improvements.

The West Texas Council of Governments covers a six county area with no significant size cities other than El Paso in the region. The City Planning Office is the MPO and coordinates overall transportation planning. The City has completed a Regional Mobility Plan. The plan's 20-year program anticipates $490 million in expenditures for highways, about double what is in the current state program. Local officials, however, indicate that the area receives its fair share of state highway money.

3.2 HIGHWAY NEEDS

Given the limited information in the four cases studied, one may conclude that transportation needs, as well as the planning approaches followed by mid-sized urban areas in Texas are quite different than those of the larger cities. Three of the cities studied appear to have more concern and need for improvements based on safety and economic (commercial) issues than the commuter and travel volume demand needs of the larger cities. Only El Paso has an identified mobility problem, exacerbated by the massive growth of Juarez.

In three of the four cases the dominant city in the region has the MPO designation and the responsibility for transportation planning. Only in the case of the South East Texas Regional Planning Commission, in the area of Beaumont and Port Arthur, is the COG designated as the MPO. In the other cases the COG covers large rural areas and has no real transportation planning responsibility. Counties also seem to have little involvement in transportation planning.

El Paso is the only case study city that has developed a mobility plan. Two other cities, Corpus Christi and Beaumont, expressed support for a mobility plan. This was especially the case with the Chambers of Commerce in those areas.

One common problem that characterizes these mid-size cities is limited availability of data. Given the absence of Regional Mobility Plans, traditional transportation planning documents were examined to estimate the financial need for highway projects in the four cities, data were assembled from the 1984 Annual Element of the Transportation Improvement Program (TIP)

prepared by the respective MPO's. These documents are prepared in cooperation with the SDHPT, the federal agencies, the counties and the regional planning commissions, as part of the ongoing transportation planning process in an effort to coordinate major capital transportation improvements.

Table 3.1 presents the planned expenditures for highway projects for the fiscal year 1984 by funding source, for the four cities studied. It is expected that federal aid programs will provide the majority of the funds, ranging from 65 to 75%. The state is expected to contribute 15 to 20%, with the local government (city and county) absorbing the rest of the cost. The Beaumont/Port Arthur region has planned for the greatest amount of expenditures, while the Amarillo region has proposed the least.

Table 3.1
Proposed Highway Expenditures by Funding Source, FY 1984
(In thousands of dollars)

Funding Source	Amarillo	Beaumont/ Port Arthur	Corpus Christi	El Paso
Federal	$12,202.1 66%	$115,345.6 66%	$40,677.7 74%	N.A.
State	3,434.1 18%	34,925.2 20%	7,779.7 14%	N.A.
Local	2,880.0 15%	25,077.0 14%	6,189.0 11%	$1,386.2 1%
Total	$18,516.3	$175,347.8	$54,646.4	$138,707.0

Source: Transportation Improvement Programs - 1984 Annual Element.

Table 3.2 presents the same highway project expenditures by system (Interstate, U.S. Highway, State Highway, Farm to Market and Local). In the case of El Paso, data are available by type of highway (urban vs. primary). State Highways comprise the largest share of the planned improvements.

Table 3.2
Proposed Highway Expenditures by System, FY 1984
(In thousands of dollars)

Highway System	Amarillo	Beaumont/ Port Arthur	Corpus Christi	El Paso
Interstate	0.0	$ 27,950.0	$16,822.0	$ 49,519.0
U.S. Highway	$ 6,791.2	14,958.0	6,786.0	
				17,335.0*
State Highway	8,397.1	65,588.0	20,792.8	
				35,005.0**
Farm to Market	888.0	34,145.2	402.1	
Local	2,440.0	32,706.8	9,843.5	36,848.0
Total	$18,516.3	$175,347.8	$54,646.4	$138,707.0

*Urban
**Primary

Source: Transportation Improvement Programs - 1984 Annual Element.

3.3 AVAILABLE RESOURCES

In order to evaluate the adequacy of available revenues, historic trends for state highway expenditures were reviewed. Information on actual expenditures was obtained on new construction for highways in each case study area for the past three years. The information was available from the Finance Division of the SDHPT by county (see Table 3.3). The expenditures over the last three years range between $10 and $20 million. Amarillo and El Paso have received lower amounts of funds than Beaumont/Port Arthur and Corpus Christi.

Amarillo's proposed improvements in 1984 exceed the amount of actual expenditures in 1983 by 70%. The Beaumont/Port Arthur region proposal exceeds 1983 expenditures by 800%, Corpus Christi by 300% and El Paso by 1,100%. In Beaumont/Port Arthur, according to the 1983 TIP, planned expenditures totalled $103 million, while only $19 million actually was spent for new construction. While actual and proposed expenditures vary widely from year to year depending on specific projects, actual expenditures have tended to be much lower than proposed expenditures.

This past year, the state highway funding situation has improved substantially, as a result of a successful legislative session. A new law was enacted that doubled the state gasoline tax. It has been estimated that an additional $2.1 billion

will become available over the next three years, or about $700 million per year. Since there is now more money available at the state level to do whatever is relatively reasonable for highway projects, the focus of the funding problem has shifted to the local level. Local support, or willingness to contribute local funds, is now a key factor used by the State Highway Department to rank projects. To date, cities and counties have contributed only a small share of the cost of improvements in their areas. It is important that communities create a stable local funding source that will enable them to meet local share requirements.

Table 3.3
Actual Highway Expenditures on New Construction by System*
(In thousands of Dollars)

Highway System	Amarillo (Potter & Randall)	Beaumont/ Port Arthur (Jefferson & Orange)	Corpus Christi (Nueces)	El Paso (El Paso)
FY 1981				
Interstate	$ 6,178.2	$ 4,520.7	$ 4.8	$ 6,587.8
U.S. Highway	1,372.2	1,505.6	1,052.7	811.3
State Highway	3,707.8	8,548.5	7,014.7	2,083.4
Farm to Market	717.2	1,329.3	2,164.9	861.0
Total	$11,975.4	$15,904.0	$10,237.1	$10,343.5
FY 1982				
Interstate	$ 5,186.5	$ 3,487.7	$ 280.2	$ 4,096.3
U.S. Highway	1,012.5	761.6	430.4	1,662.0
State Highway	3,321.6	5,261.5	15,206.8	4,041.4
Farm to Market	584.4	1,052.5	1,906.3	16.3
Total	$10,104.9	$10,563.1	$17,823.8	$ 9,815.9
FY 1983				
Interstate	$ 7,382.3	$ 8,018.1	$ 2,858.7	$ 5,015.8
U.S. Highway	1,049.6	1,130.3	743.5	856.3
State Highway	2,376.4	8,368.7	9,264.3	4,828.8
Farm to Market	5.1	1,814.4	530.0	908.0
Total	$10,813.4	$19,331.5	$13,396.4	$11,609.0

*Information available by county. Local roads are not included.
Source: SDHPT - Finance Division.

3.4 ALTERNATIVE SOURCES OF FUNDS

Planning and Financing Urban Mobility in Texas recommended a list of innovative techniques by which communities can enhance their funding capabilities. These same tools, for the most part, can be used by the mid-size cities. Authorizing legislation for most of them already exists and many of them have been successfully implemented. They include:

(1) Creation of Special Districts.

(a) Transportation Corporations - The legislation that was authorized in this year's special session allows the creation of transportation corporations which may assist the private sector in donating land to a non-profit entity that would then offer it as right-of-way to the Highway Department. In this way landowners can benefit by taking a tax deduction for the value of the donated property.

(b) Road Utility Districts (RUD's) - This act, which also was enacted in 1984, enables districts, with approval, to issue bonds and collect taxes that would pay for the construction and maintenance of a roadway.

(2) Sales Tax.

In the last session of the legislature, a bill was introduced that would enable cities to seek voter support for a 1/4¢ or 1/2¢ sales tax increase that would go directly to support of both road and transit improvements. Such a bill has a potential to greatly increase local funding capabilities beyond the traditional general revenue sources.

(3) Municipal Assessment.

Local governments have the right to make special assessments for capital improvements. The SDHPT now has the power to assess property owners for the acquisition of right-of-way for highway construction.

(4) Private Sector Contribution.

In many cases developers have contributed cash, land, or services toward highway improvements that would enhance the value of their properties. Private development related measures work best in areas where there is a strong real estate market, the community wants to address growth issues and local authorities have flexibility to negotiate with developers as a condition of project approval.

(5) Toll Financing.

This technique has successfully provided funding of highways and bridges for many years. County toll road authorities, an innovative alternative that has recently gained popularity, may build highways using the proceeds from the sale of bonds backed by tolls collected from users of these facilities. A toll facility must serve high demand corridors and must provide a faster and/or more convenient alternative to a free facility.

The use of most of these techniques is new in Texas and it is premature to assess their effectiveness, or impact on local communities. However, it is important that communities realize that they have a variety of means available to them, beyond the traditional approaches, to satisfy their mobility needs.

4.0 TRANSIT NEEDS AND RESOURCES

4.1 AMARILLO TRANSIT SYSTEM

Background. Located in the Texas Panhandle, Amarillo is the tenth largest city in Texas and has a 1980 estimated population of 155,356. Though not predicted to be a major growth center, Amarillo is well known for its cattle industry and is home of Pan-Tex Industries, a large firm which assembles nuclear weapons for the U.S.

The Amarillo Transit System is owned and operated by the City of Amarillo. It is the only intra-city bus system operating in the largely rural Panhandle region. In operation since 1966, Amarillo Transit currently runs 14 buses during peak hours. They provide no park-and-ride service. At one time, the system provided charter services for Pan-Tex Industries which contributed a large portion of their revenue. Because of the terms of their federal grant, they have had to cut back on this service, but still provide charters by special arrangements.

The city has been fortunate to be on very firm financial footing. As a result, the city is able to accomplish most of its capital improvements through its general fund and with little debt service. The city has no outstanding bonds, except for major water projects and relies very little on federal subsidies.

There is multi-agency agreement on most transportation priorities in the area and transit is not considered a high priority. As a result little planning for transit has been done in the past. However, staffers feel that more planning should be done and are hopeful that the new city management will be willing to re-examine the isue of transit planning and studies. One route analysis study was done in 1976, but was not presented or received very well. Most of the recommended improvements were not carried out, although reportedly some of them inadvertently have been achieved over the last seven years. Generally, only short range planning is done (1 to 2 years usually, 3 to 5 years occasionally). This process has worked well over the years but may be changing because for the first time, city departments have been requested to prepare goals and objectives and a five year capital improvement program.

Historic Analysis. Based on available information, public transportation in Amarillo has an extremely low productivity level from both financial and operating perspectives. Historic data on public transportation in Amarillo have been difficult to obtain although city officials have been very cooperative.

Operating expense increased 30% from the FY 79/80 period through the FY 82/83 period. Operating revenues have increased at an even greater rate of 45% growing from $138,263 in FY 79/80 to $200,956 in FY 82/83. However, Amarillo's operating revenue to expense ratio, currently around 15%, is one of the lowest in the state. Operating revenue was enhanced with an increase in the base adult fare in 1982 from $.40 to $.45.

Total passengers have increased from 486,525 in FY 80/81 to 628,016 in FY 82/83. Service miles operated have remained relatively constant, around 740,000 annually. Both revenue per mile data and passenger per mile data indicate that Amarillo's Transit operates at a low productivity level. Amarillo's low productivity is due in part to very long commute patterns, low density, and relatively few transit dependents.

Table 4.1
Amarillo Transit System
Financial Profile

FY	Operating Expense*	Operating Revenue	Deficit	Revenue/ Expense Ratio	Average Fare
79/80	$1,049,384	$138,263	$ 911,121	.13	.32
80/81	1,314,939	155,688	1,159,251	.12	.32
81/82	1,380,351	181,054	1,199,297	.13	.32
82/83	1,307,600	200,956	1,106,644	.15	.32
83/84	N/A	N/A	N/A	N/A	N/A

*includes depreciation

Table 4.2
Amarillo Transit System
Productivity Profile

FY	Passengers*	Service Miles	Cost/ Mile	Revenue /Mile	Passenger /Mile
79/80	N/A	745,233	$1.41	.19	N/A
80/81	486,525	740,163	1.78	.21	.66
81/82	565,793	758,974	1.82	.24	.75
82/83	628,016	721,460	1.81	.28	.87
83/84	N/A	N/A	N/A	N/A	N/A

*Based upon on-board survey conducted 6/22/83 resulting in an average fare calculation of $.32 per passenger for FY 80/81 to present.

Future Prospects. Area officials forsee no growth in the Amarillo Transit System is foreseen at this time. There is very little interest in the concept of a transit dedicated sales tax or transit authority. The general feeling is that transit is a service, but not necessarily on the same level of importance as other city services.

Amarillo's current Transportation Improvement Program totals around $20,500,000. Of this amount, approximately $1.3 million is being requested from UMTA for the purchase of six bus shelters and eight buses.

4.2 BEAUMONT/PORT ARTHUR

Background. The southeast Texas area surrounding Beaumont and Port Arthur consists of several smaller cities and major industries including petrochemical, ship building, oil and oil related activities. Plants and refineries are located all over the region. Thus, individuals are commuting to and from a widely diversified set of origins and destinations. That and the heavy truck traffic transporting local products requires a good transportation system to maintain mobility.

Though the heavy industrial base has contributed significantly to the economic health of the region (75% of the taxes are paid by the refineries), it also has created the two main areas of concern affecting transportation. Because of the large amount of hazardous chemicals and materials being transported throughout the area, upgrading and maintaining the roadway systems to an adequate level of safety is an ongoing activity. Also, the crisscrossing of the area with railroad tracks presents a major traffic problem for commuters.

Vanpools and carpools are provided by some of the oil companies, but generally ridesharing is not widespread. There are efforts to promote this concept with the help of the State Department of Highways and Public Transportation's District office. This office also has been instrumental in the construction of park-and-pool lots (13 lots in the region). These lots are designed to provide paved parking facilities in areas where commuters park their individual vehicles and pool occupants in a single vehicle.

Though Beaumont and Port Arthur share many characteristics in regard to location, industry, and community problems, each has it's own unique areas of concern and each city operates a transit system. Thus, transit system profiles have been prepared for each city.

Beaumont Municipal Transit. The City of Beaumont has owned the transit system since 1974, but the service is privately operated through City Coach Lines. The transit system currently has 25 buses, of which 14 are used during peak hours. Three vehicles are devoted to elderly and handicap service. A relatively new maintenance facility has contributed greatly to the smooth operation of the system. In addition, the 1983 TIP is oriented primarily to passenger support facilities (shelters and signs) with the exception of a planned central transfer facility that is estimated to cost $1,500,000.

Historic Analysis. The Beaumont Transit System is a city owned, privately managed system which is administered through the City's Urban Transportation Department. The five year financial history of the system is one of a steadily increasing operating expense (60% rise since FY 79/80) and steadily increasing deficits (67% rise since FY 79/80). However, operating revenue has also risen steadily since the FY 79/80 period (by 50%). The system recovers approximately 30% of operating costs from the fare box.

The amount of expense covered by operating revenues has averaged about 34% during the last five years. The average fare per passenger of $.23 received in FY 79/80 has increased to $.34 projected for the 83/84 period.

The Beaumont Transit System has increased the number of annual service miles operated from 585,483 in the FY 79/80 period to 698,000 projected for the FY 83/84 period; an increase of 19%. However, transit patronage has not kept pace with service increases. From an annual passenger level of 1,409,785 in FY 79/80, passengers increased to 1,630,630 in the FY 80/81 period, only to drop off to 1,427,000 annual passengers projected for the current FY period. This 12.5% loss of patronage since the 80/81 period is similar to losses experienced by many transit systems in Texas, and concurrent with the subsiding of gasoline price increases.

As expected, the operating cost per service mile has increased from $1.59 in the 79/80 period to a projected $2.15 per service mile in the 83/84 operating period; an increase of 35%. The corresponding decrease in patronage has resulted in loss of productivity. While Beaumont's transit revenue per service mile has increased from 56 cents in FY 79/80 to 70 cents in FY 83/84, passengers per operating mile have decreased by 15% during the same time period.

Beaumont Municipal Transit System is currently experiencing passenger losses in spite of increasing service miles. Fare increases in FY 80/81 of $.10 for standard adult fare, $.05 for student fare, and $.05 for transfers have helped revenue

Table 4.3
Beaumont Municipal Transit
Financial Profile

FY	Operating Expense	Operating Revenue	Deficit	Revenue/ Expense Ratio	Average Fare
79/80	$ 930,816	$ 328,061	$ 602,755	.35	$ .23
80/81	1,162,277	368,577	793,700	.32	.23
81/82	1,270,171	481,833	788,338	.38	.31
82/83	1,461,060	444,656	1,016,404	.30	.30
83/84*	1,498,300	490,700	1,007,600	.33	.34

*projected

Table 4.4
Beaumont Municipal Transit
Productivity Profile

FY	Passengers	Service Miles	Cost /Mile	Revenue /Mile	Passenger /Mile
79/80	1,409,785	585,483	$ 1.59	$ .56	2.41
80/81	1,630,630	653,568	1.78	.56	2.49
81/82	1,549,576	648,702	1.96	.74	2.39
82/83	1,492,886	647,506	2.26	.69	2.31
83/84*	1,427,000	698,000	2.15	.70	2.04

*projected

to keep pace with operating cost increases. However, the recent loss of patronage is a condition which must be reversed if transit productivity is to be enhanced.

Future Prospects. Beaumont's capital transit improvement program for the next five years calls for improved passenger amenities at its on-street central transfer point site, a transit facility to provide improved transfers and services, the purchase of major vehicle parts for the current fleet, service vehicle replacement, and nine vehicles to replace part of the present fleet.

Estimated expenditures for these improvements total approximately $3.3 million. Of this amount, approximately $2.5 million is being requested from UMTA Section 9 funds.

Current deficits are shared equally by the City and UMTA. The FY 83/84 estimates are $495,000 in UMTA Section 9 funding and $495,000 from City general funds to support operations. The FY 84/85 estimates an $532,500 in funding from UMTA and an equal amount from the City.

The City would like to create an independent source of financial assistance to relieve the municipal budget of transit's continual and increasing operating deficit. The enactment of legislation similar to that introduced by Senator Uribe in the last legislative session could prove beneficial to Beaumont and other cities of similar size. Uribe's bill (Senate Bill 12) would allow cities with a population of 50,000 or more to create a mass transit department funded from a local sales tax of 1/4 of 1% to 1%, if approved by the voters of that area.

Port Arthur Transit System. The City of Port Arthur began public transit service in 1961 through a private company, American Transit Corporation (ATC). ATC was forced to cease transit operations in May, 1970, citing an impending transit strike and rising deficits.

In late 1972, a group of local citizens initiated limited transit service in Port Arthur, and City Council granted the group, "Revelation Resurrection, Inc.", a non-exclusive privilege to operate a fixed-route system. Initial service was operated on a 26 mile loop using one 17 passenger bus. Operating deficits were covered by voluntary citizen and business contributions. Transit operations ceased in 1975 due to rising deficits.

In May, 1979 the City of Port Arthur began transit operations once again as a municipal system. The transit system has been managed by ATC since its initiation in 1979. All transit workers are city employees except the general manager, who is an employee of the management company.

The Port Arthur Transit System currently operates 10 vehicles over 6 routes. Five of these buses were recently purchased with UMTA Section 5 funds. Demographic characteristics of Port Arthur ridership evidence a high degree of transit dependency.

Current improvement plans include a new downtown transfer facility, possible expansion of charter services with the additional buses, and renovation of the existing transit office and maintenance building.

Historic Analysis. Port Arthur Transit System's financial performance for the four year period FY 79/80 to FY 82/83 indicates a 59% increase in operating expenses and 56% increase in operating revenue. Port Arthur's current fare structure, adopted February, 1982, requires an adult base fare of $.50,

increased by $.10. Operating revenue and average fare per passenger have been enhanced by the 1982 fare increase.

Port Arthur's requirement for operating subsidies has increased from $343,720 in FY 79/80 to $547,265 in FY 82/83, a 60% increase. Revenue collected per expense dollar paid remains extremely low at 16%.

Financial projections for FY 83/84 which include the addition of the two new transit routes indicate operating expense of $880,418 and revenues of $139,600 which will increase the operating deficit to $740,818.

Port Arthur projects substantial passenger increases in FY 83/84 due in large part to the addition of two additional transit routes. FY 79/80 passengers totalled 253,081. Passengers for FY 81/82 increased to 257,905, but declined to 242,643 in FY 82/83. However, projections for FY 83/84 indicate a 33% increase over the preceding year. Service miles also are expected to increase by 26% over last year.

Operating cost has increased from $2.07 per mile in FY 79/80 to a projected $3.51 per mile in FY 83/84, a 70% increase in the 5 year reporting period. Revenue per mile has increased 65% during the same reporting period; and passengers per mile has stayed relatively constant at about 1.29.

Port Arthur Transit System's financial and productivity performance have remained relatively constant during the past five years. Passenger and fare increases have served to maintain constant factors of revenue/expense and passengers per mile. However, operating expense and deficits will continue to rise relative to revenues unless system productivity is improved or fares are substantially increased.

Table 4.5
Port Arthur Transit System
Financial Profile

FY	Operating Expense	Operating* Revenue	Deficit	Revenue/ Expense Ratio	Average Fare
79/80	$ 409,848	$ 67,128	$ 342,720	.16	$ .27
80/81	505,829	94,201	411,628	.19	.36
81/82	695,114	106,282	588,832	.15	.41
82/83	652,120	104,855	547,265	.16	.43
83/84**	880,418**	139,600**	740,818	.16	.43

*does not include charters
**projected; assumes 2 new routes added (based on budget increase: 31.5% revenue, 25% expense)

Table 4.6
Port Arthur Transit System
Productivity Profile

FY	Passengers*	Service Miles*	Cost /Mile	Revenue /Mile	Passenger /Mile
79/80	253,081	198,113	$ 2.07	$ .34	1.28
80/81	262,837	198,472	2.55	.47	1.32
81/82	257,905	198,416	3.50	.54	1.30
82/83	242,643	198,020	3.29	.53	1.23
83/84**	322,575	250,485	3.51	.56	1.29

*does not include charters or transfers
**projected; new routes added.

Future Prospects. Port Arthur plans to continue modest transit system expansion within budgetary limits. City subsidy from the general fund has increased from $68,505 in FY 79/80 to a projected $370,000 for the FY 83/84 period.

City officials are interested in legislation which would supplement current general funds devoted to support transit which, in turn, would allow significant service expansion. Otherwise, Port Arthur foresees only modest transit improvement for the future.

4.3 CORPUS CHRISTI TRANSIT SYSTEM

Background. The City of Corpus Christi currently operates 35 buses on 11 transit routes which require approximately $2 million of public subsidy. The Corpus Christi Transit System operates as a division of the city government through a General Manager-system employees are non-union city employees.

City support for transit is evidenced through bond elections in 1972 and 1977 which authorized the sale of $173,176 and $176,824 to provide the local match for over $4.5 million in federal capital assistance projects. Future projects include the construction of a new administration and maintenance facility estimated to cost $2 million, refurbishing and upgrading of the current bus fleet, and a new management/information system. The maintenance facility could ultimately support system expansion to 100 transit vehicles. Other capital improvements include the acquisition of vans for elderly and handicapped service, replacement of transit service equipment, and construction of a downtown transit terminal at an estimated cost of approximately $1.5 million.

The Corpus area is growing rapidly through an agressive annexation policy, and increased business/commerce activity. The Chamber of Commerce is working closely with the City on mobility improvements which can support existing and future growth. The private sector sponsors two downtown parking shuttles, free to employees, to transport workers from low cost parking lots to office buildings.

A special emphasis area for transit development is waterborne transit between Corpus and the developing resort areas on Padre Island.

Historic Analysis. Corpus Christi has experienced a steady decline in passenger service miles during the last few years, from 1,511,423 miles during the FY 80/81 period to 1,432,500 miles projected for the FY 83/84 period. A fare increase in August of 1981 raising the adult base fare from $.35 to $.50 has resulted in a significant revenue per operating mile increase from the FY 81 through FY 83 period. However, revenue per mile projections show a decrease for the 83/84 fiscal year period.

Operating expense has increased 40% from $2.7 million in FY 79/80 to a projected $3.8 million for the 83/84 fiscal period. Operating revenues during this same time period have increased only by 20%. The result has been a steady decrease in operating revenue to expense ratios from 58% in FY 79/80 to a projected 48% in FY 83/84. However, it should be noted that Corpus Christi still maintains one of the most cost effective operating profiles of any transit system in the state.

The reduction of service miles in FY 83/84 is anticipated to substantially increase passengers per mile from 1.08 last year to 1.31 projected for the current fiscal year.

Table 4.7
Corpus Christi Transit System
Financial Profile

FY	Operating Expense	Operating* Revenue	Deficit	Revenue/ Expense Ratio	Average Fare
79/80	$2,718,242	$1,583,515	$1,134,727	.58	$ .78
80/81	3,398,534	1,761,044	1,637,490	.52	.84
81/82	3,717,009	1,913,877	1,803,132	.51	1.02
82/83	3,787,373	1,887,095	1,900,278	.50	1.28
83/84**	3,820,499	1,851,000	1,969,499	.48	.98

*excludes General Fund and UMTA assistance
**projected

Table 4.8
Corpus Christi Transit System
Productivity Profile

FY	Passengers	Service Miles	Cost /Mile	Revenue /Mile	Passenger /Mile
79/80	2,033,800	1,485,000	$ 1.83	$1.07	1.37
80/81	2,108,509	1,511,423	2.25	1.17	1.40
81/82	1,879,073	1,486,941	2.50	1.29	1.26
82/83	1,469,259	1,363,397	2.78	1.38	1.08
83/84*	1,880,800	1,432,500	2.67	1.29	1.31

*projected

Future Prospects. Corpus Christi is experiencing a condition which is similar to many smaller transit systems in Texas. As the operating cost burden increases and competes with other municipal requirements, there is continued pressure to reduce marketing, reduce cost, and increase fares. As a result, system performance, ridership, and financial conditions suffer. Nevertheless, the City's support for transit from the General Fund has increased from $152,000 in FY 78 to a projected $1 million plus in the current fiscal year.

The City of Corpus Christi has recently established an Interim Transit Authority Board which is examining the feasibility of an independent tax supported authority to relieve the City of the financial burden of transit system operation and to provide the greater Corpus Christi urbanized area a strong local base for significantly expanded public transit service. Creation of the Interim Transit Authority Board and the consideration of an independent tax supported authority evidences a clear concern that future and significant transit service expansion in Corpus Christi will require local funding well beyond the capability of current City resources.

Corpus Christi has much to gain through increasing local transit funding capability. With a current population of approximately 240,000, Corpus is the only urbanized area in the State of Texas which can utilize unobligated allocated UMTA Section 9 and 9A funding available to smaller urbanized areas between 50,000 and 200,000 population.

4.4 EL PASO - SUN CITY AREA TRANSIT SYSTEM

Background. The City of El Paso and the surrounding community provide a unique setting in which to consider public transportation and its role in providing a vital public service. El Paso has a significant population of transit

dependent individuals. The proximity of Cuidad Juarez in Mexico, with its approximate one million population, the presence of air pollution problems, and a narrow travel corridor compound the problems of mobility and create the potential for significant increases in public transit patronage. The need for public transit service is also underscored by the rapid growth of the El Paso/Juarez area:

El Paso	1970-1980	34% increase in population
Juarez	1970-1980	137% increase in population.

The existing Sun City Area Transit System (SCAT) operates through the Department of Planning and Transit which reports directly to the Mayor. The system is City owned and operated by non-union civil servants. Areas of responsibility for the transit operation extend well beyond the norm. Sun City Area Transit is responsible for bus operation; licensing of any vehicles for hire including taxis, buses, rental cars; issuing vehicle permits, vehicle inspections; and International Toll Bridge operation between El Paso and Juarez. These activities have accrued substantial additional revenue to the City of approximately $1 million. Charter bus services add an additional $250,000.

An effort to create an independent transit authority failed in November, 1981. However, the City of El Paso is again considering the creation of an "interim" Transit Authority Board to assess the need for a comprehensive approach to help expand transit capability and provide a stable, consistent, and growing funding base. A one-cent increase in the sales tax to support transit would currently yield approximately $16 million in annual revenue.

Sun City Area Transit has accomplished considerable upgrading of its transit system through substantial use of available federal and state support. The current SCAT fleet of approximately 150 buses provides peak hour service requiring approximately 80 vehicles. SCAT's experience with air conditioning problems and substantial charter activity requires a significant spare vehicle ratio. UMTA has awarded grants to SCAT in excess of $22 million during the FY 79-83 period, for upgrade of administrative and maintenance facilities, security systems, equipment, and management information systems.

One of the most successful SCAT projects is a "buspool" program which is a subscription service paid as an employer's route guarantee for a skip stop express. In addition, SCAT operates two park-and-ride routes from four shopping center lots, carrying 25 to 100 passengers daily.

Capital facility improvement projections for the next 15 years include the need for $12 million in facility improvements and $55 million in transit fleet improvements as reflected in the

current 20 year plan. Transit facility improvements include a $4 million downtown transit terminal, an additional maintenance facility, and smaller intercept transit terminals. Projected equipment acquisitions include 100 new large buses, 50 smaller buses, and 160 vans. The Transit Improvement Program has prioritized transit needs for the period FY 1984-1988 using primarily UMTA Sections 9A and 9 funding.

Historic Analysis. Information has been gathered for the period of FY 78/79 through FY 82/83 regarding the financial performance of El Paso's Sun City Area Transit System. Operating expense has nearly doubled during the five year analysis period, moving from $4.4 million to $8.2 million, an 86% increase. Operating revenue has experienced only a modest increase of 16% during the same time period, increasing from $2.8 million in FY 78/79 to $3.3 million in FY 82/83.

The result of significant increases in operating expense and modest increases in operating revenue has been an increase of over 200% in transit system deficits during the five year reporting period. Annual expenses exceeded $1.5 million in FY 78/79 and have now moved to the $5 million range.

This negative trend in financial performance has reduced the percent covered by operating revenues from 64% in FY 78/79 to 40% in the FY 82/83 period. Nevertheless, El Paso's operating revenue/expense performance exceeds many similar sized systems in the state. One factor helping to maintain modest operating revenue increases is a transit fare increase which occurred in January, 1984, increasing the basic adult fare to $.50.

Sun City Area Transit productivity performance during the last five years has experienced a slight decline. This factor coupled with significant increases in operating expense has resulted in a 98% increase in operating cost per mile; moving from $1.07 in FY 78/79 to $2.12 during FY 82/83. Operating revenue per mile has also increased from $.69 during FY 78/79 to $.85 during FY 82/83; an increase of $.23 per operating mile during the five year period. The number of passengers per mile in FY 78/79 were 1.95 and are currently around 1.87. However, passengers per mile in FY 81/82 were 2.5 per mile. Accordingly, this indicator has dropped 25% in just one year. Similarly, total passengers on fixed route operation has dropped from a high of 9.4 million in FY 80/81 to 7.3 million currently, a reduction of 22%.

According to the McDonald Transit Study, Sun City's passenger per mile productivity leads comparable transit systems in Texas by approximately 28%.

In addition, Sun City supplements transit operating revenues with bridge revenues derived from the International Bridge linking El Paso with Juarez. Bridge revenues have increased almost 100% from $483,013 in FY 78/79 to $876,898 in FY 82/83.

Table 4.9
Sun City Area Transit System
Financial Profile

FY	Operating Expense	Operating Revenue*	Deficit	Revenue/ Expense Ratio	Average Fare
78/79	$4,399,099	$2,835,536	$1,563,563	.64	$ .35
79/80	6,099,283	2,958,396	3,140,887	.49	.32
80/81	6,892,826	3,092,581	3,800,245	.45	.33
81/82	7,984,062	3,486,897	4,497,165	.44	.38
82/83	8,222,964	3,278,453	4,944,511	.40	.45

*fixed route only (fares)

Table 4.10
Sun City Area Transit System
Productivity Profile

FY	Passengers*	Service Miles	Cost /Mile	Revenue /Mile	Passenger / Mile
78/79	8,031,882	4,124,972	$ 1.07	$.69	1.95
79/80	9,125,761	4,163,934	1.46	.71	2.19
80/81	9,397,652	4,095,470	1.68	.76	2.29
81/82	9,114,841	3,644,720	2.19	.96	2.50
82/83	7,260,072	3,877,043	2.12	.85	1.87

*fixed route only

Future Prospects. The El Paso area has considerable potential to expand its transit service and patronage base. Modern transit facilities and equipment provide the ability to expand service at a rapid pace. However, operating cost needs which currently compete with other municipal requirements will continue to limit the potential of transit until a further commitment is made by public officials.

The public's confidence in SCAT and the current city administration will be crucial issues in the upcoming consideration of a permanent transit authority. City officials, county officials, and business leadership seem convinced that more local funding will be required to support future expansion of transit services.

4.5 COMPARATIVE ANALYSIS

Comparative analysis of transit system financial and productivity indicators for the five transit systems which are the subject of this research reveals a wide variation of performance.

Revenue/Expense Ratio: The amount of passenger revenues available to offset each dollar of operating expense ranges from an extremely low 14% in Amarillo to a relatively high 42% in the city of El Paso which is equivalent to national transit industry experience of 42% coverage ratio. Beaumont and Port Arthur are deriving revenue to cover 32% and 16% respectively; and Corpus Christi 35%.

Average Fare: The average fare derived per passenger ranges from 32 cents in Amarillo and Beaumont to 64 cents in Corpus Christi. Port Arthur and El Paso average 43 cents and 42 cents respectively.

Cost Per Mile: Amarillo Transit System demonstrated the lowest cost per mile of the five transit systems which were reviewed at $1.82. Port Arthur exhibited the highest cost per mile at $3.40, (one of the reasons that Port Arthur's revenue to expense ratio is extremely low at 16%). Beaumont, Corpus Christi, and El Paso all average around $2.20 per operating mile.

Revenue Per Mile: The range of revenue derived per operating mile was extremely low in Amarillo, at $.26 per mile, the lowest productivity of any system. El Paso at $.91 per mile was the highest. Beaumont, Port Arthur, and Corpus Christi ranged from $.55 to $.75 revenue per operating mile.

Passenger Per Mile: If productivity is measured in passengers per mile, then Beaumont and El Paso lead the five systems reviewed with 2.18 and 2.19 passengers per mile respectively. Amarillo evidenced the lowest productivity at .81 per mile. While Port Arthur and Corpus Christi averaged 1.26 and 1.20 respectively.

Table 4.11
Comparative Analysis
Financial/Productivity Profile*

Transit System	Revenue to Expense Ratio	Average Fare	Cost Per Mile	Revenue Per Mile	Passengers Per Mile
Amarillo	.14	$ .32	$ 1.82	$ .26	.81
Beaumont	.32	.32	2.20	.70	2.18
Port Arthur	.16	.43	3.40	.55	1.26
Corpus Christi	.35	.64	2.19	.76	1.20
El Paso	.42	.42	2.15	.91	2.19

*Average results during last two reporting years.

4.6 FEDERAL/STATE FUNDING AVAILABILITY

Funding available through the Urban Mass Transportation Act of 1964, as amended, and the State Public Transportation Trust Fund is allocated to urban areas in Texas for support of public transportation improvement. Corpus Christi and El Paso representing urban areas of 200,000 population or greater receive specific allocations of Section 5, 9, and 9A funding through UMTA which can assist in supporting 80% of the capital development cost of improvements. Current funding availability for Corpus and El Paso, not yet obligated, is as follows:

El Paso

Section 5:	$2,880,121(*)
Section 9:	2,434,971
Section 9A:	1,289,320
Total:	$6,604,412

(*) $256,518 of this amount representing 1981 Tier IV Section 5 funding is due to lapse September 30, 1984.

Corpus Christi

Section 5:	$ 829,986
Section 9:	1,214,375
Section 9A:	674,000
Total:	$2,718,361

Amarillo, Beaumont, and Port Arthur, representing urbanized areas of 200,000 or less may participate in UMTA statewide allocations of funding through the Section 5, 9, and 9A programs. Current statewide availability of unobligated funding is as follows:

Section 5:	$35,678,219(**)
Section 9:	18,071,795
Section 9A:	5,300,000
Total:	$59,050,014

(**) $9,028,479 of available 1981 Tier I, II, and IV Section 5 funding is due to lapse September 30, 1984.

5.0 DATA REQUIREMENTS FOR REGIONAL MOBILITY PLANNING

5.1 INTRODUCTION

The purpose of this chapter is to identify the data required to substantiate the need for mobility improvement and increase the effectiveness of regional mobility planning. The intention is not to standardize the regional mobility planning process but to introduce greater consistency in terms of data presentation for regional mobility plans statewide.

Previous research by Rice Center's Joint Center for Urban Mobility Research analyzed the mobility planning efforts of five cities in Texas. Four of these cities had made their first attempts to prepare Regional Mobility Plans in 1982. The State Department of Highways and Public Transportation (SDHPT) recognized these planning efforts as making a significant contribution to the understanding of mobility needs in urban areas in Texas. However, the quality and scope of the Regional Mobility Plans varied considerably, making comparison and evaluation of the plans difficult.

There is a need for comparability in some aspects of regional mobility planning to improve the reliability and usefulness of the plans. Consistent planning time frames throughout the state would aid SDHPT in quantifying the need for transportation funds in the urban areas of the state. In 1982, Houston stated its need over a 15 year period; Fort Worth, San Antonio and Dallas planned for the year 2000.

It is suggested here that Regional Mobility Plans consider resource needs in four areas: highway maintenance and rehabilitation, highway construction, transit operating requirements, and transit capital requirements. Of those plans examined in first year study, only Fort Worth's Regional Mobility Plan considered transit operating requirements. The Dallas Plan did not consider transit needs. Only Houston considered highway maintenance and rehabilitation; the other plans discussed only capital needs.

The most significant problem regarding previous regional mobility planning is the lack of data supporting the stated needs and the lack of documentation of the methods and assumptions used to generate data presented. Data considered to be essential for the planning process are discussed below. The methods by which the data are derived are not discussed except to say that there is a need for consensus on data requirements and procedures paramount to regional mobility planning. Professionals in the public and private sectors must

agree on the validity and reliability of the data being used. Regional Mobility Plans should be as clear as possible about the sources of data used and methods by which base data and projections are generated.

5.2 GENERAL DATA ISSUES

The essence of regional mobility planning is consensus among the various participants about needed mobility improvements. The data required for regional mobility planning can come from a variety of sources. The important issue is agreement among the members of the Regional Mobility Plan technical committee on the data's derivation, relevancy and use. In most instances, each of the agencies or organizations involved in regional mobility planning maintains its own data base for its own purposes. These existing resources can be tapped for regional mobility planning efforts.

Typically, the agencies and organizations involved in regional mobility planning include:

- Local District Office of the State Department of Highways and Public Transportation (SDHPT)
- Urban Study Office of SDHPT (if there is one)
- Council of Governments (COG)
- Metropolitan Planning Organization (MPO)
- County governments
- City governments
- Transit authority (if there is one)
- Chambers of Commerce

The most apparent difference stemming from the various data sources is that data gathered, projected and used by each agency is suited to its own particular geographic scope. The county government collects data within different boundaries than the city government. The State Highway Department uses districts which include a number of counties or, in Dallas/Fort Worth and Houston, special study areas approximating the urbanized area. A transit authority often has boundaries which do not coincide with either the city or county boundaries.

One of the first steps in preparing a Regional Mobility Plan is to determine the appropriate geographic planning area. In some locales this geographic area may include more than one county and more than one city depending upon the patterns of urban development and the boundaries perceived to be most appropriate. What is extremely important is that the geographic scope of data presented be consistent (and consistently identified) throughout the plan. This may involve

some adjustment of readily available data. Again, there must be consensus on the process and resulting numbers.

Another aspect of consistency in planning data is the time frame, particularly for forecasts. Not only should all forecasts, such as population and land uses, used in determining transportation requirements be for the same time period throughout the plan, but the time period should be compatible with state transportation planning efforts. SDHPT maintains a 20-year plan of improvements with which local Regional Mobility Plans should coincide for maximum effectiveness. Regional Mobility Plans also should include intermediate time periods (1-5 years, 6-10 years, and 11-20 years), segments which can be used in developing priorities for projects within the 20-year time frame. Differing levels of detail would be appropriate within those intermediate time periods. The 1-5 year planning period would include specific projects needed, whereas the 10-20 year planning period would include an estimation of the region's needs based on expected growth, not necessarily identified as specific projects.

Regional mobility planning deals with the financial needs associated with physical transportation improvements. Historical cost data as well as cost projections must consider the impact of inflation. Past trends in cost per lane-mile, for instance, cannot be extrapolated without consideration of inflation. Similarly, costs projected over 20 years should consider the effect of potential price changes on those trends. While general inflation sometimes can be ignored in projections, changes in relative costs and thus differences in impacts on costs and revenues may have important consequences. Recent Regional Mobility Plans have presented cost projections in constant, uninflated dollars and historical cost data as actual expenditures unadjusted for inflation.

The treatment of inflation is another case where the data need to be presented in a consistent manner throughout individual Regional Mobility Plans, and also on a statewide basis. This would result in Regional Mobility Plans which are comparable so that SDHPT can develop state aggregates.

In highway planning, inflation in construction prices is the most critical factor. In transit planning, labor and equipment prices are more important. The methodical application of agreed upon indexes (such as the construction price index or the consumer price index) would improve the presentation and assessment of historical data. Available procedures and models need to be explored for this consideration.

5.3 BASIC DATA NEEDS

There are direct measures and less direct indicators which can be used to quantify the need for transportation improvements. Population and land use are good examples of indicators which strongly suggest transportation facilities needs in an area. On the other hand, travel demand is a direct measure of the need for transportation facilities.

Population and Land Use. Realistic population and land use projections are essential to transportation planning. It is important to know not only what the total regional population will be, but also where within the region population growth is likely to occur. Complex models using land availability, land use and employment forecasts can generate population forecasts for small geographic areas, typically at the census tract level.

Population forecasts must be realistic and reflect the most reasonable expectations of land use and employment characteristics. As with all forecasting, controversy over the results is likely since population projections have such a dramatic impact on all aspects of planning. This is an especially important area in which a consensus must be reached.

For the purposes of regional mobility planning, it is particularly important that private sector interests and government agencies reach agreement about realistic development potential. The location and density of expected residential and commercial development have major impacts on mobility.

Travel Demand. The demand for travel as measured in trips per day, (automobile or transit), is a direct measure of the need for transportation facilities. Mathematical modeling typically is used to determine trip generation rates, trip distribution patterns and the assignment of trip volumes to existing or proposed transportation facilities.

On a less specific basis, vehicle miles traveled (VMT) is used as a measure of travel within a certain area. It reflects traffic growth that may or may not be associated with population growth. An increase in vehicles per household, for instance, would result in more travel without an increase in population. A set of mobility standards and freeway VMT, in comparison with lane-miles of freeway over time, indicates the ability of transportation facilities to keep up with travel demand.

5.4 DATA NEEDS MATRIX

The data matrix developed here (see Table 5.1) identifies data items needed for each component of regional mobility planning. Each cell of the matrix is discussed in subsequent sections of this chapter. An important distinction must be made between ideal data requirements and the identification of data items likely to be available in the urban areas of Texas. This report will concentrate on data which are likely to be available and are suitable for regional mobility planning, however, the data available under optimal conditions will be discussed when relevant.

Components of Regional Mobility Planning. Regional mobility planning includes the following components:

1) assessment of transportation improvement needs,
2) forecasting of costs for those needs,
3) forecasting of the ability of available resources to cover the costs,
4) forecasting of costs associated with not implementing the transportation improvements required.

Categories of Transportation Need. Transportation needs can be divided into four categories:

1) highway maintenance and rehabilitation requirements,
2) highway construction requirements,
3) transit operating requirements,
4) transit capital requirements.

In the following sections, the data to support each of the components of regional mobility planning are examined individually as they relate to each transportation need category.

The cost of not implementing transportation improvements is not included in the data needs matrix because such as assessment really applies to the entire Regional Mobility Plan and not to the four individual transportation needs categories above. Data needs for this component of regional mobility planning are discussed at the end of this chapter.

5.5 HIGHWAY MAINTENANCE AND REHABILITATION

Need Assessment. The need for highway maintenance and rehabilitation is normally expressed as an annual program level rather than as a list of projects to be completed. Each government level (city, county and state) sets the dollar

Table 5.1
Data Needs Matrix

RMP Area	Needs Assessment	Cost Forecast	Resource Forecast
Highway Maintenance & Rehabilitation	lane-miles under city jurisdiction lane-miles under county jurisdiction lane-miles under state jurisdiction	City: maintenance expense maintenance expense/ lane mile County: maintenance expense maintenance expense/ lane-mile State: maintenance expense maintenance expense/ lane-mile	revenue by source
Highway Construction	lane-miles arterial lane-miles freeway number of bridges number of freeway interchanges number of grade separations number of park & pool spaces square miles of right-of-way	$/lane mile arterial $/lane mile freeway $/bridge $/freeway interchange $/grade separation $/park and pool space $/sq. mile right-of-way	revenue by source
Transit Operating Requirements	revenue-miles passengers service area population passengers/rev-mile passengers/service area population	operating expense operating expense/ revenue-mile	total revenue available for operations operating revenue local participation federal participation operating revenue/ total revenue local participation/ total revenue federal participation/total revenue operating revenue/ operating expense
Transit Capital Requirements	Active fleet size additional vehicles average age of fleet additions rev. miles/bus miles of at-grade HOV miles of elevated HOV P & R spaces track miles of rail facility improvements square mile of right-of-way	cost/vehicle cost/mile at-grade HOV cost/mile elevated HOV cost/space P & R cost/rail track-mile	revenue by source

amount necessary (need) or available (resources) for annual maintenance and rehabilitation of the roadways for which it is responsible. For the purposes of regional mobility planning, the need for maintenance and rehabilitation can be expressed in relation to the number of roadway lane-miles under the jurisdiction of each government for each planning period. Regional Mobility Plans should include the following information:

1. lane-miles under city jurisdiction
   a. actual annual totals for past 10 years to show growth in system size.
   b. projections for each year in the planning periods to indicate increases in system size (increases as specified by need for new construction).

2. lane-miles under county jurisdiction
   a. actual annual totals for past 10 years to show growth in system size.
   b. projections for each year in the planning periods to indicate increases in system size.

3. lane-miles under state jurisdiction
   a. actual annual totals for past 10 years to show growth in system size.
   b. projections for each year in the planning periods to indicate increases in system size.

Cost Forecast. The ratio of maintenance expense to the size of the roadway system can be used to assess over time the adequacy of forecasted maintenance expenses. For instance, if a locality has spent $10 million per year maintaining 1,400 lane-miles of roadway, or $7,000/lane-mile, (and this is perceived to be an adequate level of maintenance), forecasts can use the same relationship. However, if this spending pattern produced unsatisfactory results, the ratio of maintenance expense to lane-miles can be adjusted appropriately. This process assumes that the ratio of new roads not requiring maintenance to old roads requiring substantial maintenance remains the same across time. Again, if this is not substantially the case, adjustments should be made.

Regional Mobility Plans should include the following information for each jurisdiction (city, county and state):

1. maintenance expense (including rehabilitation)
   a. actual annual totals for past 10 years.

b. projections for each year in the planning periods and totals for each planning period derived from projected lane-miles and projected maintenance expense/lane-mile.

2. maintenance expense/lane-mile
   a. actual annual ratios for past 10 years. (This is not cost per mile of maintenance work but total maintenance expense spread over the entire system.)
   b. projections for each year in the planning period indicating expected changes in maintenance costs or level of need for maintenance.

Resource Forecast. The extrapolation of past trends in funding is the most common (and under usual circumstances perhaps justifiable) technique for forecasting revenues and revenues by source. When factors can be identified that will change historic trends, however, adjustments should be made and documented. The following information should be included in RMP's:

1. Revenues by source
   a. actual annual totals for past 10-20 years
   b. projected annual totals based on continuation of past trends
2. Identification of factors that may change funding source trends

5.6 HIGHWAY CONSTRUCTION

Needs Assessment. The need for highway construction can be expressed either in terms of specific projects or as more general needs, such as the number of lane-miles required in an area, without specifically stating which roadways need to be built. More specifically identified needs likely would be presented in the earlier planning periods. The ten to twenty year period might include less specific needs to meet new growth.

There are a number of reasons for new highway construction. Factors to be considered include, for example:

1) congestion;
2) economic development (regional and localized);
3) safety (accidents, railroad crossings, hazardous materials);
4) population growth;
5) disaster evacuation;
6) roadway continuity;
7) environmental protection.

Table 5.2
Summary of RMP Data Needs
Highway Maintenance and Rehabilitation

Data	Actual: Past 10 Years*	Year by Year Projection	Total for Planning Periods	Unit of Measure
Needs Assessment				
1. lane-miles under city jurisdiction	X	X		lane-miles
2. lane-miles under county jurisdiction	X	X		lane-miles
3. lane-miles under state jurisdiction	X	X		lane-miles
Cost Forecast				
1. maintenance expense by city, county & state	X	X	X	$
2. maintenance expense/lane -mile for city, county and state	X	X		$/lane-mile
Resource Forecast				
1. total revenue by source	X	X	X	$
2. list of influential factors		X	X	$/list

*20 years for revenue analysis, if available.

No single base of data exists to indicate the need for improvements based on all the above criteria. Regional Mobility Plans need to be as specific as possible about why improvements are needed.

Congestion is one of the easiest of these criteria to quantify. Both Houston and Dallas successfully used standards for acceptable levels of congestion to justify the need for additional lane-miles on highway facilities. Projects included in the Regional Mobility Plan had projected or existing traffic volumes exceeding 15,000 vehicles per day per lane on freeways, and 5,000 vehicles per day per lane on arterial streets and roads.

Highway construction needs measurements fall into the following categories:

1) arterial lane miles;
2) freeway lane miles;
3) number of bridges;
4) number of freeway interchanges;
5) number of grade separations;
6) number of park and pool spaces;
7) square miles of right-of-way.

An important note is to state the needs with respect to overall mobility requirements and without reference to the specific government agency responsible for the improvement. Previous Regional Mobility Plans vary in their approach to this issue.

Cost Forecast. Unit costs should be determined for each highway construction category listed above to help estimate costs for each planning period. Actual costs over time are needed for comparison. The following information should be carefully and closely estimated:

1) cost/arterial lane mile
2) cost/freeway lane mile
3) cost/bridge
4) cost/freeway interchange
5) cost/grade separation
6) cost/park and pool space
7) cost/square mile of right-of-way

Resource Forecast. Historic data by source of funding provides a basis for projecting future funds from traditional sources. Since the availability of funding varies by type of construction improvement, revenues should be projected to the extent possible by the type (or group of types) as well as source.

Table 5.3
Summary of RMP Data Needs
Highway Construction

Data	Actual: Past 10 Years	Projection for Planning Period	Unit
1. arterial lane miles		X	lane miles
2. freeway lane miles		X	lane miles
3. no. of bridges		X	bridges
4. no. of freeway interchanges		X	interchanges
5. no. of grade separations		X	grade separations
6. no. of park and pool spaces		X	spaces
7. sq. miles of right-of-way		X	sq. miles
Cost Forecast			
1. $/arterial lane mile		X	$
2. $/freeway lane mile	X	X	$
3. $/bridge	X	X	$
4. $/freeway interchange	X	X	$
5. $/grade separation	X	X	$
6. $/park and pool spaces	X	X	$
7. $/sq. miles of right-of-way	X	X	$
Resource Forecast			
1. Revenue by source for:			
arterials	X	X	$
freeways	X	X	$
bridges	X	X	$
freeway inter-changes	X	X	$
grade separations	X	X	$
park & pool spaces	X	X	$
right-of-way	X	X	$
2. Total revenue by source	X	X	$

Thus, information would be provided for:

1) revenue for arterials by source;
2) revenue for freeways by source;
3) revenue for bridges by source;
4) revenue for freeway interchanges by source;
5) revenue for grade separations by source;
6) revenue for park and pool spaces by source;
7) revenue for right-of-way by source.

An estimate can then be prepared of total revenue by source by year and for the planning period.

5.7 TRANSIT OPERATING REQUIREMENTS

Needs Assessment. Forecasts of transit operating need can be based on two factors: the projected number of revenue-miles of service to be offered during each planning period, and the cost of operating those revenue-miles. Information on a calendar year basis rather than a fiscal year basis is preferred. Data for bus operations should be presented separately from rail operations data. Items that should be included are:

1. revenue-miles
   a. actual annual counts for past ten years to show trends in service offered.
   b. projections for each year in the planning periods to illustrate trends in service, and totals for each planning period to be used to derive cost projections.

2. passengers
   a. actual annual counts for past ten years to show trends in ridership.
   b. projections for each year in the planning periods to demonstrate expected changes in ridership.

3. service area population
   a. annual estimates for past ten years to show trends in size of market area.
   b. projections for each year in the planning periods to show expected changes in size of market area.

4. passengers/revenue-mile
   a. actual ratio for past ten years to indicate trends in operating performance.
   b. projections for each year in the planning periods to indicate expected changes in operating performance.

5. passengers/service area population
   a. actual ratio for past ten years to indicate trends in ridership as it relates to the potential market. (This does not represent the percent of the population using transit since passenger counts reflect the number of transit trips not the number of individual transit users.)
   b. projections for each year in the planning periods to show expected changes in transit ridership with respect to service area size.

Cost Forecast. Projections of operating expense per revenue-mile applied to the projected revenue-miles of service in each planning period will provide total operating expense projections for each planning period. Again, rail and bus operating costs should be examined separately. A Regional Mobility Plan should include the following data:

1. operating expense
   a. actual annual expenses for the past ten years to show trends in the total operating cost of the system.
   b. projections for each year in the planning periods and totals for each planning period as derived from projected revenue-miles and operating expense per revenue-mile.

2. operating expense/revenue-mile
   a. actual ratios for past ten years to indicate trends in operating costs.
   b. projections for each year in the planning periods to show expected changes in operating costs.

Resource Forecast. Resources available for transit operations should be identified by source. Each locality will have different funding mechanisms. Forecasts for each funding source must include relevant back-up data and documentation of all assumptions. At a minimum, Regional Mobility Plans should include the information listed below.

1. total revenue available for operations (except revenue earmarked for capital expenses)
   a. actual annual amounts for past ten years to show trends in total operating funds available.
   b. projections for each year in the planning periods and totals for each planning period.

2. operating revenue (including fare box receipts, advertising and charter revenue)
   a. actual annual amounts for past ten years to show trends in revenue collected from operations.

b. projections for each year in the planning periods and totals for each planning period derived from operating expense and operating revenue/operating expense projections.

3. local participation (including general revenue funds, sales tax receipts, etc.)
   a. actual annual amounts by funding source for past ten years to show trends in local participation.
   b. projections for each year in the planning periods and totals for each planning period for each funding source.

4. federal participation
   a. actual annual amounts for past ten years to show trends in federal participation.
   b. projections for each year in the planning periods.

5. operating revenue/total revenue available for operations
   a. actual ratio for past ten years to show trends in percent of total revenue available from operations.
   b. projections for each year in the planning periods and for entire planning periods to show expected changes in the percent of total revenue collected from operations.

6. local participation/total revenue available for operations
   a. actual ratio for past ten years to show trends in percent of total revenue available from local participation.
   b. projections for each year in the planning periods and for entire planning periods to show expected changes in the percent of total revenue derived from local participation.

7. federal participation/total revenue available for operations
   a. actual ratio for past ten years to show trends in percent of total revenue available from local participation.
   b. projections for each year in the planning periods and for entire planning periods to show expected changes in the percent of total revenue derived from federal participation.

8. operating revenue/operating expense
   a. actual ratio for past ten years to indicate trends in the ability of operating revenue to cover operating costs.

Table 5.4
Summary of RMP Data Needs
Transit Operating Requirements

Data	Actual Past 10 Yrs.	Yr. by Yr. Projections	Total for Planning Periods	Unit of Measure
Needs Assessment				
1. revenue-miles	X	X	X	system miles
2. passengers	X	X		passengers
3. service area population	X	X		residents
4. passengers/revenue-mile	X	X		pass./mile
5. passengers/service area population	X	X		pass./capita
Cost Forecast				
1. operating expense	X	X	X	$
2. operating expense/ revenue-mile	X	X		$/mile
Resource Forecast				
1. total revenue available for operations	X	X	X	$
2. operating revenue	X	X	X	$
3. local participation	X	X	X	$
4. federal participation	X	X	X	$
5. operating revenue/ total revenue available for operations	X	X	X	%
6. local participation/ total revenue available for operations	X	X	X	%
7. federal participation/ total revenue available for operations	X	X	X	%
8. operating revenue/ operating expense	X	X		%

b. projections for each year in the planning period to show expected changes in the percent of operating expenses to be covered by operating revenue.

5.8 TRANSIT CAPITAL REQUIREMENTS

Needs Assessment. Transit capital needs include new vehicles (buses, vans, rail cars) needed for service additions or to replace aging vehicles, construction of high occupancy vehicle (HOV) facilities, construction of rail lines, and purchase of right of way.

In conjunction with transit capital needs assessment, the following data should be included in Regional Mobility Plans:

1. active fleet size (bus and rail)
   a. actual annual for past 10 years to show changes.
   b. projections for each year during the planning periods to show expected changes.

2. additional vehicles (bus and rail)
   a. needed for new service in each planning period.
   b. needed to replace vehicles in each planning period.

3. average age of fleet (bus and rail)
   a. actual annual for past 10 years.
   b. projections for each year during the planning periods to support need for replacement vehicles.

4. revenue-miles/vehicle (bus and rail)
   a. actual annual for past 10 years to indicate changes in fleet use.
   b. projections for each year in the planning periods to indicate expected changes in fleet use.

5. miles of HOV
   a. elevated for each planning period.
   b. at-grade for each planning period.

6. number of park and ride spaces

7. track miles of rail

8. facility improvements (itemized for each planning period including computer hardware, maintenance facilities, etc.)

9. square miles of right-of-way

Table 5.5
Summary of RMP Data Needs
Transit Capital Requirements

Data	Actual Past 10 Yrs.	Totals for Yr. to Yr. Projections	Planning Periods	Unit of Measure
Needs Assessment				
1. active fleet size	X	X		vehicles
2. additional vehicles			X	vehicles
3. average age of fleet	X	X		years
4. rev. miles/vehicles	X	X		miles/veh.
5. miles of elevated HOV			X	miles
6. miles of at-grade HOV			X	miles
7. number of p & r spaces			X	spaces
8. track - miles of rail			X	track-miles
9. facility improvements			X	itemized
10. sq. mi. of right-of-way			X	sq. miles
Cost Forecast				
1. cost/vehicle	X	X	X	$/veh.
2. cost/mile elevated HOV	X	X	X	$/mile
3. cost/mile at-grade HOV	X	X	X	$/mile
4. cost/P & R space	X	X	X	$/space
5. cost/rail track mile	X	X	X	$/mile
Resource Forecast				
1. revenue by source for				
vehicles	X	X	X	$
HOV	X	X	X	$
p & r space	X	X	X	$
rail	X	X	X	$
2. total revenue by source	X	X	X	$

Cost Forecast. Transit capital cost forecasts are based on projections of unit costs for the improvement categories. Actual unit costs over the past ten years should be included for comparison. The following data should be included in Regional Mobility Plans and used to estimate total costs for transit capital needs.

1. cost/vehicle (bus and rail)
2. cost/mile elevated HOV
3. cost/mile at-grade HOV
4. cost/park and ride space
5. cost/rail track-mile

Revenue Forecast. Traditional revenue sources for transit capital improvements should be identified by type of improvement when possible. This will aid in estimating the continued availability of revenue for specific projected needs. Information should be presented on revenue by source annually and for the projection periods.

5.9 COST OF NOT IMPLEMENTING THE REGIONAL MOBILITY PLAN

Presentation of information on the cost of not implementing the RMP focuses attention on the decision aspect of planning: choice is the essence of resource allocation. By quantifying (in however rudimentary a fashion) the impact of inaction, the RMP provides a better perspective on the real costs/benefits of transportation improvements.

Actual and estimated data on items that indicate costs incurred because of needed transportation improvements should be presented when possible. Such indicators might include estimates of the delay cost of congestion or estimates of private and public vehicle repair expense attributable to inadequately maintained roadways. The essential point is that thought be given to the value of choices made in preparing and implementing regional mobility plans.

6.0 MANAGEMENT STRATEGIES AND CONCLUSION

6.1 TRANSPORTATION MANAGEMENT STRATEGIES

El Paso, Corpus Christi, Beaumont, Port Arthur and Amarillo

This research on the current status of mobility planning for these case study cities indicates the need for several common strategies to improve local capability to plan and finance transportation improvements. Individual strategies associated with each separate city's current/projected transportation infrastructure requirements are also indicated.

From a transportation planning perspective this research effort indicates the need for local public and private sector interests to achieve consensus on the following ingredients to successful planning:

- Current/projected data
- Methodology to convert data to need
- Minimizing duplication of planning effort
- Interagency cooperation and endorsement
- Priorities for highway/transit needs
- Identification of funding responsibility
- Securing private sector support/commitment
- Identifying cost of immobility

Transportation planning in this view is a means to achieve the objectives of local consensus, project prioritization, and funding commitment to transportation improvement, not simply a statement of current and projected conditions.

To be most effective, each local area must develop the necessary tools to encourage both public and private participation in the planning, development, and implementation of transportation objectives. These tools include legislative initiatives at the federal and state level, as well as local consensus building.

Current funding availability from federal and state financial resources is adequate to support both highway and transit improvement for all case study cities researched. In fact, available funding has been relatively underutilized. As a result, any increase in local public and private resources to address transportation priorities will create significant leverage potential for available federal and state transportation funds. This sets the stage for the management strategies recommended below.

El Paso The El Paso urban area faces several unusual problems in its effort to improve mobility. Its major travel corridor, Interstate 10, is highly constrained due to physical and geographic factors. El Paso's sister community of Juarez (in Mexico) injects a degree of uncertainty in the identification of mobility problems and opportunities; current efforts toward downtown revitalization provide the opportunity for private sector support of downtown mobility needs. The following strategies are a means of achieving transportation improvements in El Paso.

1. Creation of a Metropolitan Transit Authority. Subsequent to the 1981 defeat of a transit referendum, El Paso has been slow to initiate a similar effort toward creation of an independent tax supported regional transit authority. Current ability to capture significant transit ridership is hampered by a constrained general fund budget. However, a well coordinated and comprehensive transportation planning process, coupled with strong private sector support, should provide a sound base for a future effort to create a transit authority. Existing transit facilities and equipment are in excellent condition.

2. El Paso/Juarez Regional Mobility Plan. Projected growth forecasts and the uncertainty of Juarez' future creates the need for international cooperation toward a regional mobility plan which identifies transit and highway priorities, as well as international commitments toward mobility. A state legislative resolution toward this goal might be considered for the upcoming legislative session.

3. Special Benefit Assessment District. Current revitalization of El Paso's downtown and discussion of a downtown Transit Terminal/Mall create the opportunity for a special district which can utilize assessments of increased property values to help defray transit/mall related maintenance and operating costs. Legislation would likely be required to create a Benefit Assessment District to support transit related costs.

Corpus Christi The City of Corpus Christi is experiencing significant growth in commerce and tourism. New marina and beach front facilities as well as hotel and commercial office buildings are under development. In addition, Corpus Christi's recently completed convention facilities are attracting increasing use. Development on Padre Island creates the opportunity for private sector support of waterborne transit. In addition, private landowners have expressed an interest in expansion of the Crosstown expressway to help open up new residential and commercial activity. Specific transportation strategies that might be used are the following:

1. Metropolitan Transit Authority. Transit ridership in Corpus Christi has failed to increase substantially, even in light of favorable economic and demographic conditions.

Corpus Christi recently created an "interim transit board" pursuant to legislation enacted in 1983. The board is examining the option of using up to a one cent increase in the sales tax to support expanded public transportation service, and to relieve current constraints on the city general fund budget. Public transportation should have great potential in Corpus due to regional economic characteristics and a base of lower socio-economic income population which should provide public transit users. As of this date no timetable for a transit referendum has been established.

2. Waterborne Transit. Existing and projected growth on Padre Island provides the opportunity for an effective waterborne transit system (Ferry Boat or Hovercraft). Private sector investment in such a system is appropriate since it would be an enhancement to tourism. Corpus Christi has initiated a planning effort (called CC90) which will study, among many issues, transportation related needs to support tourism.

3. Crosstown Highway Expansion. Expansion of the existing Crosstown Expressway remains a major transportation priority for Corpus Christi's future mobility. The willingness of private property owners to dedicate right-of-way and financial support for the Crosstown expansion is essential to achieving a high cost effectiveness rating for the proposed project.

4. Regional Mobility Planning. Current planning for transportation improvement is fragmented among several city departments. The potential creation of a Regional Transit Authority reinforces the need for a comprehensive approach to total transportation planning. Creation of a regional mobility plan with strong private sector involvement, which prioritizes transportation improvements, would help to consolidate and achieve improvements to meet short term transportation needs.

Beaumont/Port Arthur Both of these cities are struggling to provide financial equity among competing city services. The public transportation systems have limited opportunity to improve without increased local support for both capital and operating assistance. Several opportunities exist to increase the local financial capability of these communities to improve public transportation.

1. Effective Utilization of Local Resources. Certain federal funding obtained through community development, Urban Development Action Grants, and revenue sharing programs, can

qualify to satisfy local share requirements for UMTA and FHWA funding. This strategy should be fully explored as a means of utilizing local cash resources to their maximum extent.

2. Local Option Sales Tax. Legislative pursuit of a local option sales tax to support both highway and transit improvement would help leverage federal and state financial resources available to improve transportation. The local option tax, if available to urban areas of 200,000 population or less, would provide a means of public participation in prioritizing local tax dollars for transportation improvements, and be an added financial resource to smaller communities which would relieve the transportation burden on the general fund budget.

3. Regional Mobility Planning. Both communities share, by geographic proximity, similar mobility requirements. However, limited joint planning effort currently is evident. Accordingly, joint regional mobility planning which includes the cities, county, and private sector would provide a source of local consensus and support for both communities. The Chamber of Commerce might take the lead to achieve joint planning objectives.

4. Assessment Authority. Jefferson County's past and existing participation in roadway development is very limited. Most funding has been earmarked for bridge upgrade and replacement due to heavy truck useage. The county should consider ways in which it can assist with right-of-way acquisition and local financial support for highway infrastructure. Possible financial techniques include: assessment authority, toll roads and bond programs.

Amarillo This community has an agressive pay-as-you-go philosophy. Only limited transportation planning is in evidence. Recently, however, city departments began multi-year planning for infrastructure improvement. No bonding authority currently exists and none is anticipated.

1. Comprehensive Planning. The Council of Governments has not been actively involved in transportation planning for the City of Amarillo. Comprehensive planning needs to be upgraded to insure that any prospective federal or state funding required to support transportation improvements will have a sound planning base. Otherwise, Amarillo's future mobility requirements might not be eligible for federal and state funding until planning requirements have been satisfied.

2. Assessment Authority. Randall County is experiencing significant growth in the commercial and residential areas. County officials have expressed an interest in the right-of-way

assessment authority recently approved by the legislature for Harris County. Extension of this authority for Randall County might be part of the next legislative initiative for this area.

6.2 NEW FINANCING MECHANISMS

The Texas Legislature has passed legislation which encourages active participation of the private sector in the planning and financing of roadway improvements. A summary of these innovative financing mechanisms follows.

Road Utility Districts

This bill (S.B. 33 by John Sharp, D-Victoria) authorized the creation of road utility districts under Art. 3, Section 52 of the Texas Constitution. Road utility districts can be created to finance, construct, acquire, and improve roads and related drainage works. The term "roads" refers only to arterial or main feeder roads.

Under this legislation a district would construct facilities, and then convey them to a local government. The local government (city or county) would assume responsibility for maintaining the roads or other facilities, but the road utility district would still be responsible for paying off the construction debt.

A petition to the Highway Commission requesting creation of a district requires the signature of all landowners within the proposed district. The petition must include:

- a description of proposed facilities to be built, acquired, or improved;
- an estimate of the total financing needed;
- a statement of the value of the property within the district;
- a list of proposed temporary directors to the district; and
- a statement of approval of the preliminary plans for facilities by the governing body of the city of county to which the facilities are to be conveyed.

If all or part of a proposed district is located within a city or its extraterritorial jurisdiction (ETJ), a county could not approve the district unless proposed facilities complied with city standards. The Highway Commission can grant or deny approval of the district's petition after notice and hearing.

The creation of a road utility district must be confirmed by a majority of voters in an election held within the district. Voters would also elect a board of directors. By two-thirds majority, voters could approve the issuance by the district of bonds payable from property taxes. The board would have all powers necessary to finance, acquire, construct, and improve roads and drainage works, and to contract with or enter into agreements with other public and private entities.

The Highway Commission would review facility conveyances and authorize them unless it considered a facility not to be in compliance with the plan, or unless the governmental entity protested. In that case, the Commission could delay the conveyance until the district fully complied with its plan.

A road district can repay its bonds either by levying property taxes or assessing fees, or both. The adoption of a property tax requires two-thirds voter approval, but fees do not require voter approval. Bonds not secured by tax revenues would not require voter approval. A majority of voters could also approve a maintenance tax to pay the operating expenses of the district. After a district has completed and conveyed its facilities according to plan and retired its debt, the Highway Commission would dissolve the district.

Nonprofit Transportation Corporations

This bill (H.B. 125 by Rep. Ed Emmett, R-Kingwood) allows the Texas Highways and Public Transportation Commission to authorize and approve the creation of private, nonprofit corporations to act on its behalf within designated geographic areas. A transportation corporation would have all powers necessary to promote and develop transportation facilities and projects and support related activities. Included among those activities would be:

- receiving land contributions for rights-of-way and cash donations to purchase rights-of-way;
- borrowing money for operating expenses;
- paying from donated funds for administrative staff or legal, public relations, and engineering services;
- performing alignment studies;
- preparing exhibits, reports, and engineering plans; and
- performing other related functions requested by the commission.

A transportation corporation would act as an instrumentality of the state and would not act as the agent or instrumentality of any private interests, even though many private interests might be benefitted. As instrumentalities of the State, they are subject to the Open Meetings Act and the Open Records Act. The Highway Commission could alter or abolish a corporation, its structure, programs, or activities at will, and it would receive any income earned by the corporation. As a nonprofit, charitable entities, transportation corporations are tax-exempt.

Any three or more persons qualified to vote could file a written application to the Commission to form a transportation corporation. The Commission would name a board of directors, and could remove any directors at will. Directors would not receive compensation, but would be reimbursed for actual expenses incurred in the performance of their duties. The corporation could indemnify any director, officer, or former director or officer for expenses and costs incurred for any claim of negligence or misconduct.

6.3 CONCLUSION

Regional mobility planning is most likely to receive high priority in areas that perceive a current mobility crisis. None of the mid-sized urban communities examined in this study really recognized that level of need. Nevertheless, each was considering specific transportation improvements that would benefit from a concerted mobility planning effort -- even Amarillo, where financial resources were not seen to be a great barrier to improvements.

At base, the ability of local areas to more efficiently use their own funds and to expand the funding available to them from both state and federal sources (through use of traditional or innovative strategies) can only be aided by sound planning supported by private as well as public participants. The concept of regional mobility planning incorporates the elements needed in such efforts.

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Kelly, Tom, SDHPT District 24, Planning Engineer, El Paso, November 1983

Kestranek, Tom, ATC, Transit Manager, City of Port Arthur, December 1983

Light, Jack, SDHPT, Design Engineer, Amarillo, December 1983

Lyles, James, Corpus Christi, Director, Chamber of Commerce, November 1983

McGuire, Jerry, Panhandle Regional Planning Commission, Amarillo, Executive Director, December 1983

McKee, Alvie, SDHPT, District Engineer, Amarillo, December 1983

Mims, Ray, SDHPT, Transit Coordinator, Corpus Christi, November 1983

Minor, Bill, SDHPT, Planning Engineer, November 1983

Niskala, Tom, City of Corpus Christi, Transit General Manager, November 1983 and January 1984

O'Rourke, Pat, El Paso County Judge, November 1983

Pelton, Wayne, City of Amarillo, Transit Manager, December 1983

Price, Judith, City of El Paso, MPO Officer, November 1983 and January 1984

Purcell, Charles, Randall County Judge, December 1983

Ramsey, Judy, SDHPT District 24, El Paso, Transportation Planner, November 1983

Rivera, Robert, El Paso County, County Road Engineer, November 1983

Roberts, Art, El Paso Chamber of Commerce, Executive Director, November 1983

Scarbrough, Lyle, SDHPT District 24, El Paso, District Design Engineer, November 1983

Serrano, Tom, West Texas COG, Director of Community & Economic Development, November 1983

Smith, Dryden, City of El Paso, Director of Traffic & Transportation, November 1983

Smith, JD Jr., City of Amarillo, Principal Planner, December 1983

Smith, James A. Jr. Jefferson County Commissioner, Precinct 2, December 1983

Soltero, Juan, City of El Paso, Transit Planner, November 1983 and January 1984

Sowa, Mark, City of Amarillo, Assistant City Manager, December 1983

Stewart, Tom, City of Corpus Christi, Director of Transportation, November 1983

Stroder, Robert, Jefferson County, County Engineer, December 1983

Ternus, Joe, City of Beaumont, Director of Urban Transportation, December 1983 and January 1984

Tesch, Karl, City of El Paso, Public Transportation Administrator, November 1983 and January 1984

Underwood, Vivian, SDHPT District 24, El Paso, Transportation Planning Assistant, November 1983

Utter, Tom, City of Corpus Christi, Assistant City Manager, November 1983

Wenger, Larry, City of Corpus Christi, Planning Director, November 1983
Wilhite, Ross, City of Port Arthur, Planner, December 1983
Williamson, Dale, City of Amarillo, Director of Traffic Enforcement and Community Development Planning, December 1983
Wood, Harry, Port Arthur Chamber of Commerce, Highway Committee Chairman and Port Arthur News Editor, December 1983
Young, Franklin, SDHPT, District Engineer, District 20 Beaumont, December 1983