

4.0 METROPOLITAN TRANSPORTATION PLAN ELEMENTS

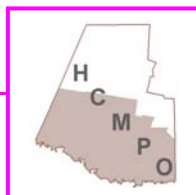
This section of the Metropolitan Plan update is to ensure that the transportation planning efforts of the various governmental entities in Hidalgo County continue to be compatible across all modes of transportation and each other. Each Element of Chapter Four will cover an alternative mode to meet the comprehensive requirements of TEA-21. Element 4.1 is intended to ensure Plan Compatibility among various implementing agencies as well as various modes.

4.1 ENSURE PLAN COMPATIBILITY

As we stated in chapter 1, Transportation planning is a continuous process. In reality, this update is just a snapshot of current trends and directions. In the planning process, it is necessary to have a vision of the goal we are trying to attain. In a true Democracy and a dynamic growing environment such as the Rio Grande Valley, it is important for the Hidalgo County MPO to maintain its database and keep in close contact with its citizen customers. Since visions change over time, it is important to keep current and the Federal Law mandates for this plan to be updated before December 16, 2009.

Before the adoption of this update, we hope to have a new transportation bill. At this point, the bill is unnamed and national transportation policy direction is still to be determined. The new bill will determine our national transportation policy that will in turn affect our metropolitan policies. The adoption of this 2005 to 2030 Metropolitan Plan by the Hidalgo County MPO Policy Committee, along with its amendment procedures, ensures the continuity of the planning process.

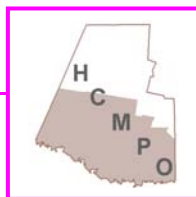
To guide the development of our Transportation System over the next 25 years, this plan contains the policies depicted in table no. 4.1.1 on page 401 - 402. The



policies are designed to maintain consistency among the various modes in the MTP. Since the Hidalgo County MPO **DOES NOT PLAN IN A VACUMM** but in an environment of many partners, this MTP must be compatible with at least six other documents, which are described below.

4.1A ENSURE COMPATIBILITY WITH FY 2006 to FY 2008 TIP

Since the Transportation Improvement Program (TIP) is the implementation tool of this plan, it is critically important that the criteria for ranking projects be compatible. This means the two different selection criteria must be similar enough so that the same goals are met in both plans as was mentioned in section 3.3 on page 89. The TIP criterion is used to select the projects to be implemented from the twenty-year list that makes up the MTP. For example, pavement condition is not part of the MTP selection criteria, but it is part of three-year TIP selection criteria, so the pavement condition makes a difference when selecting between two freight projects from the twenty-year plan into the TIP. Another way we ensure compatibility between the TIP and MTP is our policy on Right-of-way (ROW) issues. Before a project is considered for inclusion in the TIP, it must have at least 75% of the needed ROW acquired. A project then can score between 0 and 15 points depending on what percentage of ROW between 75% and 100% is acquired. (For a more detailed discussion on how ROW preservation is handled please refer to section 4.2 on page 102.) Any projects currently in the FY 2004 to FY 2006 TIP are given an MTP score or an automatic 100 points. We, as a community, will be selecting the FY 2006 – FY 2008 projects in April of 2005. In the spring of 2007, we will select FY 2008 – FY2010 projects from this MTP and the FY 2010 through FY 2012 projects in spring of 2009. Federal Law requires that the region reexamine its priorities every five years in the Metropolitan Transportation Plan (MTP), and as a result, the first year to be impacted by the update of this MTP will be 2013.

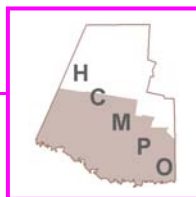


4.1B ENSURE COMPATIBILITY WITH FY 2005 – 2015 UTP

Another document the Hidalgo County Metropolitan Area Transportation Plan Update must be compatible with is called the “Unified Transportation Plan” (UTP), assembled by the Texas Department of Transportation (TxDOT). The current UTP is for Fiscal Years 2005 to 2015. As those dates indicate, it is TxDOT’s ten-year plan for developing projects that will compete statewide for Texas National Highway System Funds. Since those projects are on the National Highway System (NHS), they are the Metropolitan area’s most important arterials. There is little argument that expressway US 83 and US 281 are the backbone of the region’s transportation network. Most Districts in TXDOT spend Interstate Maintenance Funds, also referred to as Category 1, in the UTP. The Pharr District selects Projects in 11 of 12 categories in cooperation with the MPO. Surface Transportation Projects or Category 7 projects are not in the UTP. Since the MTP has 25 years worth of Projects and the UTP only has 10, we assume everything in the UTP is included in the MTP. This meets the Federal Law that the UTP and MTP are compatible.

4.1C ENSURE COMPATIBILITY WITH THE HIDALGO COUNTY THOROUGHFARE PLAN

In 1996, the Hidalgo County MPO adopted the County Thoroughfare Plan (CTP) to establish uniform design standards for roadways throughout the county. The CTP was last amended in 2003 and is also used to preserve continuity of the thoroughfares when they cross over jurisdictional boundaries. This document is used to set the standard Right- Of- Way (ROW) needed to enforce our ROW Policy. The Policy is 75% of the parcels acquired for whatever the designated ROW for the particular Functional type depicted. This Plan is an important right of Way preservation tool only.



Another component of the CTP is the local government land use plans. We rely on the Technical Committee members to ensure compatibility between the land use plans and the CTP.

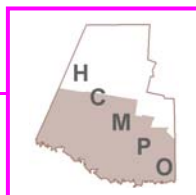
4.1D ENSURE COMPATIBILITY WITH TX DOT STATE PLAN

The state transportation plan, like most large statewide plans, is a policy driven plan. Governor Rick Perry drew a Trans-Texas Corridor System as part of this plan. The State of Texas has committed funding to the Border regions in unprecedented amounts of funding since the passage of NAFTA in 1994. This is the direct result of Texas's policy to concentrate on Border Infrastructure. Other statewide policies in this plan are toll projects as revenue generating projects and limiting new frontage roads. By Coordinating very closely with TxDOT-Austin, we are able to maintain compatibility with the state transportation plan. By staff participation in various studies that are funded out of the state plan, the MPO is able to ensure the Valley's interests are heard. It is important to remember that Texas is a big state with any interests, and we may not always get our way, but it is important to maintain a presence in the state capitol of Austin.

4.1E ENSURE COMPATIBILITY WITH TMMP

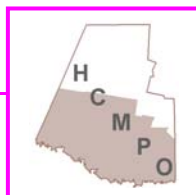
The Texas Metropolitan Mobility Plan (TMMP) is intended to be a framework for addressing unmet transportation needs in metropolitan areas. The TMMP requires the eight transportation management areas (TMAs) in Texas to develop a comprehensive, locally developed, visionary, realistic, and financially unconstrained plan to reduce Congestion and improve mobility.

Many of the goals of a MTP and the TMMP are related in that they are both long-range documents that seek to address transportation need (it be in a financially constrained (MTP) or unconstrained environment (TMMP)). They are also complementary in that:



- The TMMP can serve as an analysis tool for the MTP. The TMMP allows for a quantitative analysis of transportation need beyond the limitations of financial constraint. The “all or nothing” analysis allows the MPO not only show additional unmet need that a fiscally constrained plan would not show; it also allows the MPO to show the benefits of addressing those unmet needs. The benefits could be, but not exclusive of, improved mobility, an improved congestion index number, increased economic development opportunities, improved air quality, and improved quality of life.
- The TMMP can serve as a means to simulate public dialogue on the direction of an MTP and its policies, goals, and strategies. The TMMP provides this opportunity by serving as a quasi-visioning tool. The “all or nothing” scenario will reveal network deficiencies that may need to be addressed. This is a starting point for elected officials and public to discuss what strategies make sense in a given corridor, given expected population and land use changes. It can be another way to show the public that an MTP is not written in stone, and that their input can make a difference in how transportation strategies for a particular corridor are developed over time.
- The TMMP can also be a tool to assist in the development of goals, objectives and strategies in the MTP. The “all or nothing” scenario will reveal deficiencies, and it can also serve as a starting point for exploring what options might work in a given corridor.

The needs-based plan is essentially an analytical subset of the traditional long-range transportation planning process. The TMMP is new in that it allows MPOs to examine transportation needs beyond the fiscal constraint barrier. The inclusion of



the TMMP concepts and goals in the long range planning process is a quantum step forward for Texas MPOs. The TMMP will allow Texas MPOs to examine unmet needs for the first time and perhaps will allow us to get ahead of the game instead of always running to catch up.

4.1 F ENSURE COMPATIBILITY WITH OTHER REGIONAL PLANS

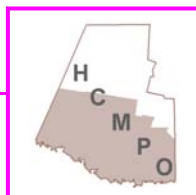
There are other regional transportation plans out there produced by various players. One unique feature of the Pharr District of TxDOT is that it contains Three MPOs and Three Council of Governments within its Boundaries. Besides an informal network among the three MPO directors, official coordination responsibility among the three MTPs lies with TxDOT district staff. There have been occasions when all three MPOs will work together. An Example of this was the Expressway 83 MIS and the Regional ITS Architecture. As the population of the valley continues to grow closer, cooperation among the transportation planning partners will become necessary. Fortunately, there is an institutional framework in place when it is needed.

4.2 ROADWAY ELEMENT - Metropolitan Transportation Plan Elements

This section of the Metropolitan Plan update is to ensure that the transportation planning efforts of the various governmental entities in Hidalgo County continue to be compatible across all modes and each other. Each Element of Chapter Four will cover an alternative mode to meet the comprehensive requirements of TEA-21. Element 4.2 is intended to meet the historically dominant mode of transportation in the USA, the private auto.

4.2A INTRODUCTION

Since the TEA21 legislation, it became apparent that the US's official fascination with autos was coming to an end or it lessen its stranglehold on the public. Funding



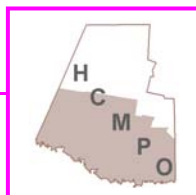
sources are now more than ever being awarded to non-automobile solutions for mobility. Since September 11, 2001, the single occupant vehicle is the least favored mode in terms of funding. It is now quite clear that there will be no new bill passed before the election of 2004. In light of those two events, MPO staff will base its plans on this, and the trend of increasing cost of constructing and maintaining our roadways to our customer's travel demand.

Additional factors considered while developing the recommended roadway networks include the impact of transportation planning on land use, environment and neighborhoods, fiscal constraint, air quality issues, and connectivity within and between the Valley metropolitan areas including connectivity with Mexico. It was determined that right-of-way preservation and standardization or traffic engineering are key components to transportation plans in the Valley. The County Thoroughfare Plan (figure 3.4b.1) should be used as a guide to preserving ROW throughout the county. Please refer to Section 4.2F on page 111 for more on ROW preservation.

Also considered, were projects contained in the MPO's *Transportation Improvement Program (TIP)*, the *State of Texas's Ten YEAR Unified Transportation (UTP)*. *Projects from this document* are selected by TxDOT and please refer to section 4.1B for further information.

4.2B ACCESS MANAGEMENT

Access control plans are essential for future congestion management. Most congested roadways in the Hidalgo County Metropolitan area do not have additional Rights-of-Way reserved for future capacity.



Access management is a rather difficult alternative to implement, since it involves removing a publicly subsidized benefit that private citizens and businesses enjoy. Hidalgo County has implemented a ROW preservation program through the County Thoroughfare Plan discussed in Section 4.2F on page 111. This is accomplished through mandatory dedication. However, the most we are able to preserve through this process is enough ROW for a 4 lane divided arterial. Hidalgo County is rapidly growing beyond this amount of roadway capacity.

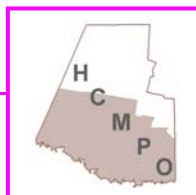
In 2004, Hidalgo County MPO is researching ways to squeeze extra capacity out our arterials since adding additional lanes will be soon cost prohibitive. One of the proposed alternatives is integrating access management into the CMS.

Additional capacity at the intersection is less expensive than additional lanes. This is why we have added access management criteria to our project selection for the TIP. These improvements generally come in the form of dedicated left and right turn bays. These bays allow storage of left turns, and relatively uninterrupted flow of right turns. These measures can improve the intersection capacity by ten to fifteen percent.

4.2C FUNCTIONAL CLASSIFICATION

The Roadway Element of the Metropolitan Area Transportation Plan for Hidalgo County is based on a system of functionally classified roadways. These classifications are intended to reflect the role or function of each roadway within the overall thoroughfare system.

The functional classifications describe each roadway's role and reflect a set of characteristics common to all roadways within each classification. Functions range



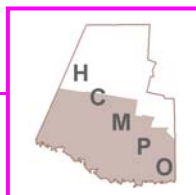
from providing mobility for through traffic and major traffic flows to providing access to specific properties. Characteristics unique to each classification include degree of continuity, general capacity, and traffic control characteristics.

Design standards describe the generalized characteristics of each functional classification. These characteristics are necessary to ensure that roadways will serve their intended functions without resulting in diversion of traffic to or from these facilities. Maintaining these characteristics allows the roadways to operate as intended, with maximum efficiency and safety.

Functional classifications for roadways are needed to provide an underlying basis for determining the following:

- Design degree of continuity
- Level of capacity
- Strategies for traffic control
- Design speed
- Geometric characteristics
- Other design characteristics
- Access Management Policies
- Development criteria (setback ordinances, etc.)

As the figure 4.2c.1 below indicates all roadways serve both functions, access and through movement, they either emphasized as serving one function more or less than the other. When the importance of one function increases, the other function must decrease and vice versa. For example, Freeways perform the function of moving large traffic volumes at high speeds, and Arterials serve both through movement and access to retail and employment centers. On the lower end of the spectrum, the local streets have high property access functions and very low carrying capacity.



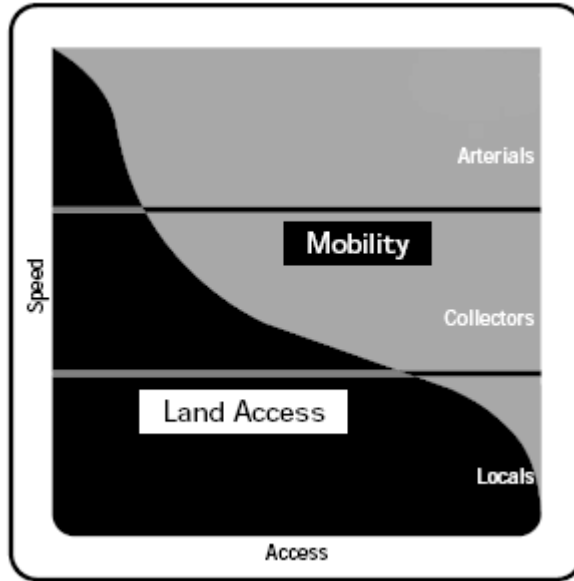
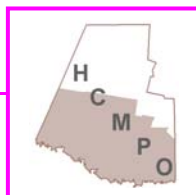


Figure 4.2c.1 – Access vs. Mobility

In order to function properly, streets must not only be designed to provide adequately for the desired function, but must also appear to be appropriate for the role. Arterial streets typically have four or more lanes, medians, turn lanes at intersections, wider ROW, higher design speeds, which gives them priority at intersections with lower class streets. Local streets have one or two lanes with low design speeds and restricted ROW, which tends to limit through movement. The functional classification system provides a basis for applying these characteristics to the roadway system.

This MTP strives to improve the movement function of the higher-level facilities while maintaining the access function of the lower level facilities. The following list describes levels of street classifications contained within this Plan or within the greater State Improvement Program (STIP) of which it is a part:

Freeways- Through their fully grade-separated design, freeways have high carrying capacities and limited access. Access is provided at interchanges



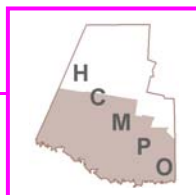
and at ramps, which connect to frontage roads. The frontage roads serve the access-to-property function. Access points are limited to major facility crossings.

Expressway(High Speed Arterial)- Expressways are high capacity roadways with a predominately through movement function. Intersections are at-grade and are usually limited to major arterials. There is little or no access to adjacent developments or local streets. Left turns are usually prohibited. Street crossing between intersections are accomplished by grade-separated crossovers, which do not interchange with the expressway.

Principal Divided Arterials- These arterials usually serve a little more through movement than property access. They are high capacity roadways that connect with lower level arterials and collector streets to the regional roadway system (freeways and expressways). Their intersections are usually only with higher capacity cross streets. They have a median that prevents left turn movements except at intersection. Their spacing is usually 1 to 3 miles.

Principal Undivided Arterials- These facilities are very similar in carrying capacity, spacing, and function to the Divided Arterials, but do not have a median. Therefore, they do not restrict left turning movements into adjacent properties. Lack of sufficient ROW and/or long-standing property access right is usually why they have been designed this way. Many have a continuous center left turn lane or left turn bays at intersections. As was explained in section 4.2B these facilities have 10 to 15 % less capacity than Divided Arterials.

Minor Arterials-Minor Arterials have a higher property access function and a lesser through movement function than Principal Arterials. Typically, full



access (left and right turns) to adjacent properties is permitted. Spacing is usually about one mile.

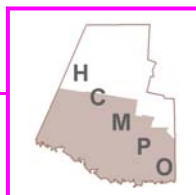
Collector Streets- Collector streets connect the local street system to the arterial street system, hence they “collect” traffic. Spacing is usually one mile or less.

Local Streets- Local streets have the highest property access function and form the base element of the street system. Local streets access residential areas, are usually no more than 0.5 miles in length, intersect with other local streets to create a gridlock “block” system, and are connected to the arterial street system by collectors.

One important funding consideration is the Federal Aid Functional classification. In order to qualify for federal funds, a street must be classified as a collector or above. The Hidalgo County MPO Federal Aide Functional Class is depicted in Figure 4.2c.2.

4.2D PAVEMENT MANAGEMENT SYSTEM

In ISTEA of 1991, the Federal Government required all MPOs to develop a Pavement Management System. In TEA21 of 1998, the Federal Government dropped the requirement for a Pavement Management System (PMS), but still required MPOs to plan for the *Preservation of existing transportation facilities and where practical, ways to meet transportation needs by using existing transportation facilities more efficiently.*



No one is sure of what the new transportation bill of 2005 will require, but in the post, 9/11/01 world of heightened security preserving our transportation system is a big priority.

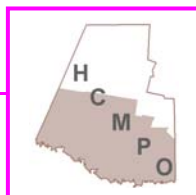
What is certain that someone will have to be monitoring our roadway conditions and scheduling some sort of maintenance schedule? As dictated by federal law, the Hidalgo County has been addressing system preservation through the implementation of the PMS. Through the use of the PMS, the MPO more effectively evaluates projects for selection into the TIP and pavement rehabilitation is more efficiently implemented.

Introduction of PMS

Since 1996, the Hidalgo County MPO has had a fully operational Pavement Management System. Fortunately, the capability has not been needed, but the system can show the impact a disaster such as a hurricane or terrorist activity would have on our normal rehabilitation budget and maintenance schedule. In this update, we dropped the input of our PMS for MTP project selection. Pavement condition score is still part of the TIP project selection process and still can be a valuable database to maintain. The Hidalgo County MPO still has the flexibility to get more involved in operations if Congress decides it wants the MPO to do so.

Definition of Pavement Management System

The Federal Highway Administration's definition of a Pavement Management System (PMS), *"Pavement Management System (PMS) means a systematic process that provides information on roadway system conditions and alternative strategies to promote facility rehabilitation and enhance the mobility of persons, goods, and freight. A PMS includes methods to monitor and evaluate performance, identify alternative actions, assess and implement cost-effective actions, and evaluate the effectiveness of implemented actions."*



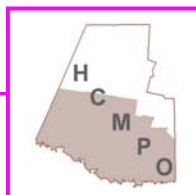
Our PMS is a combination of measures that monitor, forecast, and analyze system conditions. The System is a continuing, cooperative, and coordinated effort to consider and implement actions to maintain system wide quality in the Hidalgo County MPO area.

The PMS is a part of the MPO's larger role in transportation planning. The PMS' recommendations should be incorporated in future Metropolitan Area Transportation Plans (MTP) and Transportation Improvement Programs (TIP). The Pavement Management elements contained in this are:

- Identification of substandard roadways
- Identification of agency responsibility
- Identification of roadway condition measures
- Continuous monitoring process
- Development of an evaluation process that accounts for transportation facility use changes

Identification of Substandard Roadways

The Hidalgo County MPO's Pavement Management System used software called ICON that was developed by the Braun Intertec Corporation. During the late 1990's Braun spun off a Subsidiary Company to develop and service ICON called the Good Pointe Corporation. The core of ICON is a database where a pavement inventory and maintenance records are kept. The deterioration curves were developed by ICON by periodic visual inspection of pavement conditions. The severity, type, and amount of pavement cracking measured the stress a pavement was under. By tracking the pavement history and load factors, ICON calculates a Pavement Condition Index (PCI) score of 0 to 100 with 100 being a brand new pavement. Depending on the agency responsible a standard minimum PCI is set.



Pavement Performance Standards

The State of Texas has set a PCI of 65 as the minimum acceptable standard for pavement conditions on the on-system roads. The cities and county of the MPO have agreed to accept pavement PCI as low as 55. When projects are selected, the TIP points are awarded for certain percentage of those standards from 0 to 15 depending on how substandard the pavement is.

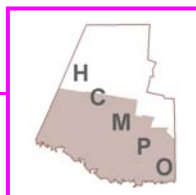
By tracking various inputs such as truck traffic, Average Daily Traffic (ADT), maintenance done, and land use changes, MPO staff is able to “AGE” the pavement depending the various budget policies. ICON then can optimize our maintenance schedule to get the best use of our resources, and it can also judge the impact of a disaster on the backlog of rehab projects on the budget.

4.2 E PRIORITY CORRIDORS

In the 1999 MTP, we had a goal of using a corridor approach to selecting projects. In this 2004 Update, it was decided that we did not need to prioritize the corridor because the cost effectiveness already did that for us. In order to select the highest priority corridor, three analytical tests were devised in the 1999 MTP. In 2004, the MPO Technical Committee decided that redundancy was not needed.

4.2 F RIGHT OF WAY PRESERVATION

The acquisition of Right of Way (ROW) has been a major limiting factor in the process of adding needed capacity. It is agreed that ease of ROW should have no weight in considering long-range projects. However, the process of acquiring ROW is time consuming and is best completed far in advance of the project selection



process. In many cases in the past, not all of the parcels have been acquired and the project schedules were delayed.

In order to prevent any delays, the MPO has used a two-pronged approach to expedite the construction of MPO projects. The first step was to adopt a County Thoroughfare Plan in 1996. This Plan was the first step in requiring uniform ROW standards for the same class of roadway. The plan has been amended several times since and the latest map is depicted in Figure 3.4b.1 after page 95. The last time the Thoroughfare Plan was officially amended was in December 2003.

The second step was on December 16, 1999 when the Hidalgo County MPO adopted the MTP. In that Document the MPO adopted **Policy 4.2E, “Implement a Policy requiring a minimum acquisition of 75% of necessary ROW before a project can be included into the TIP.”** It means no matter how well a project scores, how much it is needed, how cost effective it might be, or if it meets any other TIP criteria, if the project does not have at least 75% of the necessary parcels acquired, it does not go into the TIP. In the 2004 to 2006, the MPO took this one step further in ranking projects for the TIP in Category 7. In the MPO’s TIP criteria, a project receives 0 points for the minimum 75% acquired. If a project already has 100% of the ROW acquired, it receives a maximum of 15 points in the TIP project selection process. There is a table developed for ranges 76% to 80%, 81% to 90%, and so on.

