



Chapter 4

Project Evaluation

Preparation of a Metropolitan Transportation Plan for the Laredo MPO area requires a detailed understanding of the study area's growth potential and traffic flow characteristics. Based on community objectives and future transportation needs, an evaluation is needed to analyze alternative transportation networks. In addition to traffic service, factors such as maximum utilization of the existing transportation system, community acceptance, and conformance with community goals were all considered in evaluating transportation plan alternatives.

PROJECT SELECTION CRITERIA

Project selection criteria was developed by the MPO and used to assist in determining the short term, long-range and unfunded needs sections of the plan for state-sponsored projects. Local projects for the City of Laredo and Webb County were also reviewed.

The MPO Technical Advisory Committee reviewed and modified the project selection criteria at its regular meeting in September 2004. The MPO Policy Committee formally approved the project selection criteria on September 9, 2004. The project selection criteria include the following six categories:

1. **Demonstrated Need** – Does the project documentation clearly demonstrate existing or future need for this project? Does the project significantly improve LOS along the facility or adjacent facilities?
 - Demonstrated Need is evaluated based on an improvement in Level-of-Service (LOS) on existing or parallel facility.

Current Congestion (existing or parallel facility)

<u>Criteria</u>	<u>Points</u>
LOS A	0
LOS B	25
LOS C	50
LOS D	75
LOS E/F	100

Future Congestion (existing or parallel facility)

<u>Criteria</u>	<u>Points</u>
LOS A	0
LOS B	25
LOS C	50
LOS D	75
LOS E/F	100

2. **Cost Reasonableness** - Does the proposed cost for the project seem reasonable when compared to comparable projects undertaken in the City, County or Region? Are the cost estimates in line with TxDOT or County estimates for similar projects?



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- Cost Reasonableness is evaluated using the cost of project divided by the future VMT multiplied by the project length (Cost per Vehicle Mile). For new construction the 2030 VMT will be used.

<u>Criteria</u>	<u>Points</u>
\$0-\$75	75
\$75-\$125	50
\$125-\$500	25
>\$500	0

- Modal Impacts** - Does this project help or assist bicycle mobility? Does the project improve accessibility or safety for bicyclists? Does this project improve mobility or access for pedestrians? Is pedestrian safety enhanced with this project? Does this project assist with transit access?

- Modal Impacts are evaluated by assigning points to projects that provide bicycle, pedestrian, transit, airport, and/or rail access.

<u>Criteria</u>	<u>Points</u>
Bicycle Access	20
Sidewalks	20
Transit Access	20
Airport Access	20
Rail Access	20

- Environmental/Socioeconomic Impacts** - Does this project impact the community's environment positively, or is there the potential for negative environmental impacts? Does the project have community support, and is it a priority for the community?

- Environmental/Socioeconomic Impacts are evaluated by assigning points to projects based on the need for wetland mitigation and/or acquisition of additional Right-of-way.

<u>Criteria</u>	<u>Points</u>
Negative	-10
Positive	10
Public Acceptance	20

ROW Cost as a Percent of Total Implementation Cost:

<u>Criteria</u>	<u>Points</u>
0% of total cost	25
1-25% of total cost	20
26-50% of total cost	15
51-75% of total cost	10
76-100% of total cost	0



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5. **Project Readiness** - Is this project likely to be implemented within this 3-year TIP period? Has sufficient engineering work occurred on this project to ensure timely implementation? Has the right-of-way for the project been secured?

- Project Readiness is evaluated by assigning points to projects based on the likelihood of implementation and on what stage the project is at in the planning and development process.

<u>Criteria</u>	<u>Points</u>
ROW Purchased	10
PE Completed	10
Plans Completed	10

6. **Special Circumstances** – Additional factors considered important to the project which include safety, economic impacts, and system continuity and connectivity. **Safety** - Will implementation of the project improve safety for vehicles, bicyclists or pedestrians? Will accidents be reduced with this project? Does this project reduce the likelihood of accidents or remove unsafe driving/biking/walking conditions? **Economic Impacts** – Does the project support economic development and international trade in the community? **System Continuity and Connectivity** - Does the project provide for connecting sections of an existing or planned street that are presently discontinuous?

- **Special Circumstances** are evaluated by assigning points for safety, economic impacts, and system continuity and connectivity.

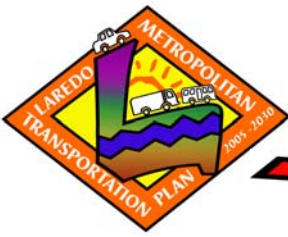
<u>Criteria</u>	<u>Points</u>
Safety	30
Economic Impacts	15
System Continuity	15

Each of these criteria, as well as the results of the analysis, are discussed in the following sections.

TRANSPORTATION IMPROVEMENT NEEDS

The first step in identifying projects to be included in the MTP is projecting traffic demands and needs. Using TxDOT's travel demand model for the Laredo MPO Boundary, projected capacity deficiencies were identified along the existing roadway system. Projected future deficiencies were determined by conducting a capacity/level-of-service analysis of the roadway system.

Roadway capacity is defined as the maximum number of vehicles that can be accommodated on a roadway facility during a particular time period under prevailing roadway, traffic, and control conditions. Roadway capacity is determined by several contributing factors, including the functional class of the roadway, type and intensity of adjacent development, and the number of



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travel lanes. Other contributing factors of roadway capacity include intersection spacing, efficiency of signalized intersections, traffic composition, traffic controls and regulations.

An important result of a capacity analysis is the determination of level-of-service. Level-of-Service (LOS) is a qualitative measure of operating conditions at a location and is directly related to the volume-to-capacity ratio along roadways. LOS is given a letter designation ranging from A to F (free flow to heavily congested), with LOS D considered in most urban areas as the limit of acceptable operation. For example, LOS can be related to the grading scale of a report card: A – Excellent, B – Good, C – Average, D – Acceptable, E – Needs improvement, and F – Failing. LOS criteria used to evaluate projected future traffic deficiencies were identified previously in Chapter 2.

In determining the transportation improvement needs for the Laredo MPO area, a base network of the existing roadway system operational in 2003 was developed. All added capacity and regionally significant roadway projects completed by the end of 2003 were added to the updated base network. Plus, a model assignment was conducted to determine the traffic volume and LOS distributions throughout the MPO study area.

The base 2003 network was then utilized to establish a “No-Build” network, where traffic loadings based on year 2020 and 2030 demographic data were projected onto the existing 2003 network. These 2020 and 2030 “No-Build” alternatives analyzed how future traffic volumes were distributed on the existing network if no transportation improvements were implemented during that time period. The 2020 and 2030 No-Build networks also provided a baseline for comparisons between networks with project implementation and the no-build network.

Projected future year 2020 and 2030 daily traffic volume assignments and LOS on the No Build networks are shown in **Figure 4-1** and **Figure 4-2**, respectively. The traffic volume and LOS distributions for each network are based on trip assignments that are described as part of the travel model forecasting process in Chapter 3: Travel Demand Modeling and Demographics. The trip assignments utilize data inputs provided by the Laredo MPO that are originally based on demographic data for the 2030 forecast years.

If no roadway improvement projects are implemented over the course of the next 25 years, most major roadway corridors within the MPO boundary are projected to operate at unacceptable LOS conditions by year 2030, as illustrated in Figure 4-2. The majority of the roadways in Laredo deteriorate to unacceptable LOS, including US 83, Saunders (US 59), Guadalupe, Chihuahua, and IH 35. Clearly, a need for transportation improvements throughout the Laredo MPO area has been identified.

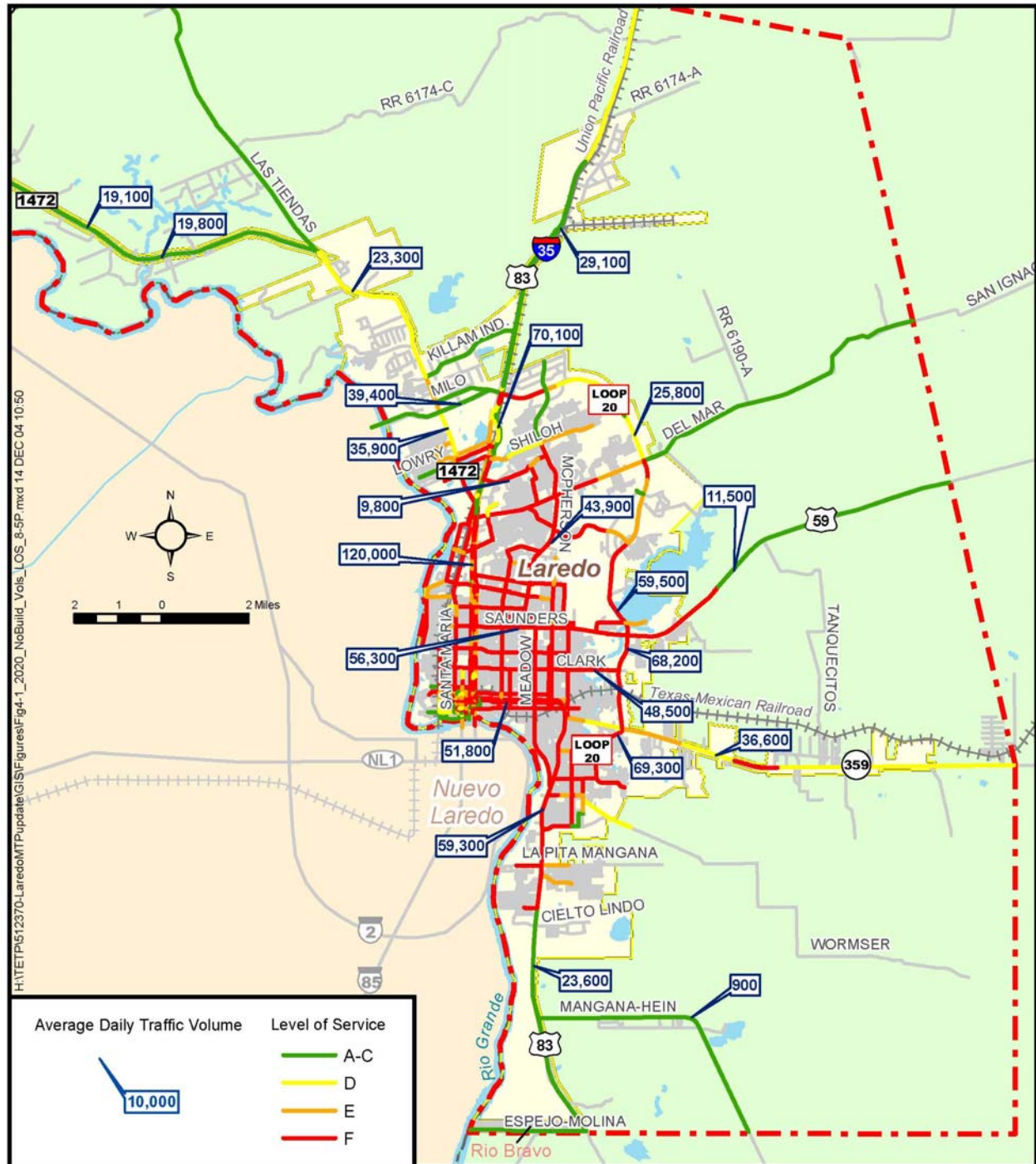
ALTERNATIVE IMPROVEMENTS

With the analysis of the existing and no build networks complete, the next step was evaluate numerous additional projects for inclusion in the MTP update. As per the Laredo MPO Public Involvement Process, a project nomination form was published in the newspaper in early



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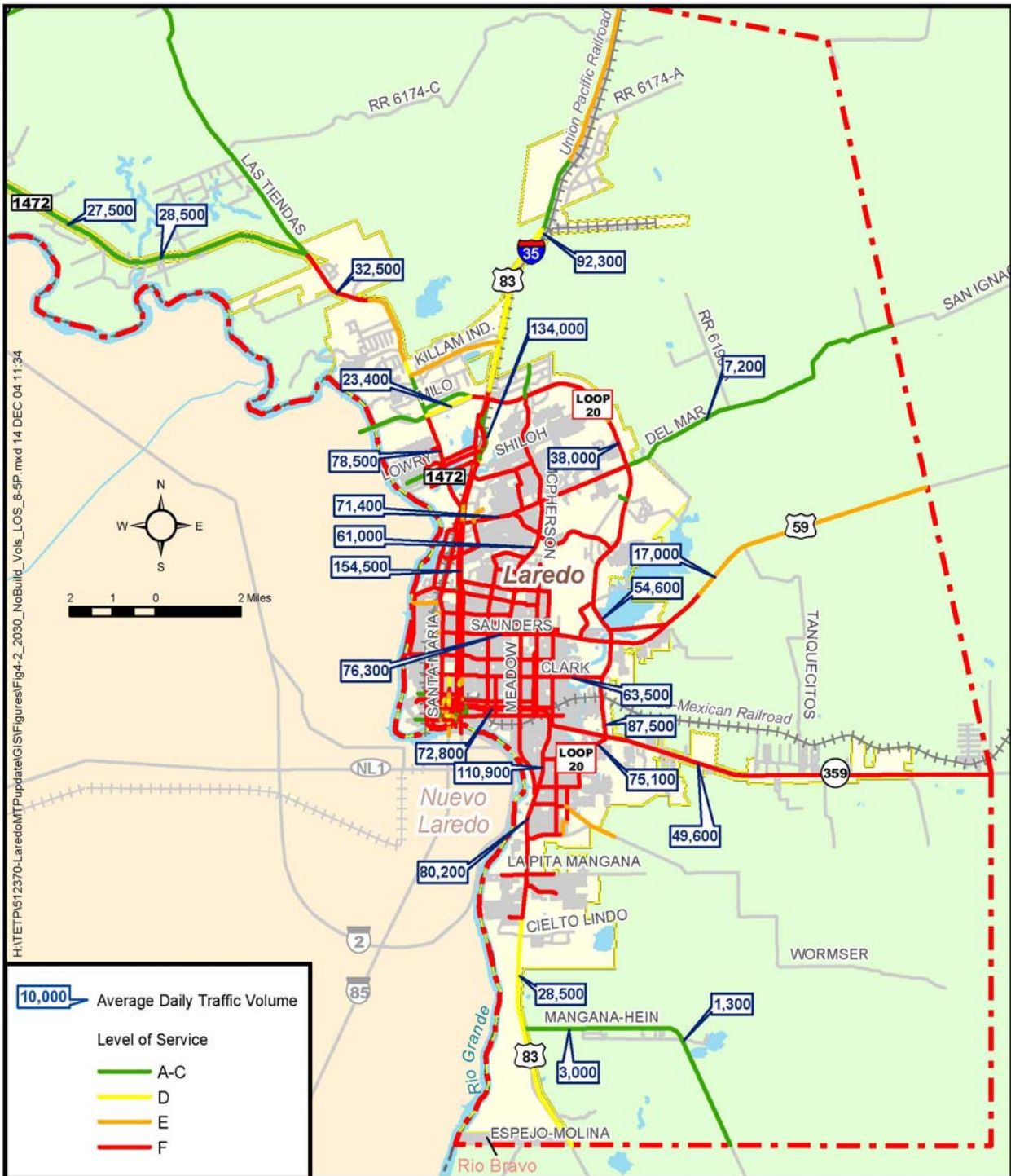
Figure 4-1 Year 2020 Traffic Volumes and LOS on No Build Network





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Figure 4-2 Year 2030 Traffic Volumes and LOS on No Build Network





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September 2004 to invite the public to nominate projects for inclusion in the MTP. The published nomination form is shown in **Figure 4-3**. In addition, the Laredo MPO Policy Committee, Laredo MPO Technical Committee, TxDOT staff, City of Laredo staff, and El Metro provided input in nominating projects for potential inclusion into the MTP. Projects from the Transportation Improvement Program (TIP), Unified Transportation Program (UTP), and the City of Laredo's Capital Improvement Program (CIP) were all reviewed to develop a complete list of potential projects. Approximately 85 projects were identified for evaluation.

EVALUATION OF ALTERNATIVES

The project selection criteria approved by the MPO Policy Committee, as discussed previously in this chapter, were used to evaluate the alternative transportation improvements for inclusion into the Laredo MTP Update. The project selection criteria were grouped into six categories, including Demonstrated Need, Cost Reasonableness, Modal Impacts, Environmental/Social Impacts, Project Readiness, and Special Circumstances.

DEMONSTRATED NEED - The Demonstrated Need category included an analysis existing traffic volumes, existing level-of-service, future traffic volumes, and future level-of-service. The resulting LOS analyses would help to determine which road projects provide a better benefit to surrounding traffic flow conditions. The more effective projects will eventually help to develop a fully integrated and continuous transportation system to serve the future population of the Laredo MPO area.

Using existing year 2003 traffic assignments and future traffic assignments for 2030 no build network, a project matrix was developed to include all evaluated transportation improvement alternatives. The matrix contained several attributes of each project, including the project length and cost, the assigned volumes from the model analysis, and the corresponding LOS value for the project. The volume and LOS data were typically based on the highest assigned values within the limits of the project and for both the existing and future no-build conditions. For new location facilities, traffic volume and LOS data for parallel facilities were used, as the new location facilities would provide a traffic operations benefit to the parallel facilities.

The resulting project matrix is included in **Appendix B**. The change in traffic conditions between the existing and no-build networks helped to rate the need for implementing a particular transportation improvement. Nearly half of the projects were rated with LOS F conditions for both the existing and future time periods and received the maximum score of 200 points for the Demonstrated Need criteria. Another 13 projects received 175 points with LOS E conditions in the existing time period and LOS F in the future time period.

COST REASONABLENESS - Cost estimates for the projects discussed in this chapter are based on averages for current roadway construction and are intended for planning purposes only. These order-of-magnitude construction cost estimates will be refined as the projects are staged through the Transportation Improvement Program (TIP) for implementation. The majority of the cost estimates used in this analysis were provided by the Texas Department of



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Figure 4-3: Project Nomination Form



Laredo Metropolitan Transportation Plan Update Project Nomination Form

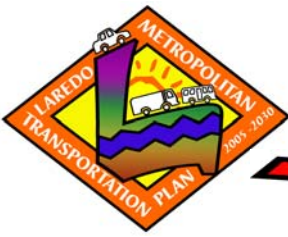
The Laredo Urban Transportation Study is in the process of updating their Metropolitan Transportation Plan (MTP). The MTP is a long range transportation plan that will guide transportation improvements in the region over the next 25 years. The Metropolitan Planning Organization is accepting nominations for proposed transportation projects of regional significance to be considered in the plan. Proposed projects may include highway, aviation, transit and bicycle and pedestrian improvements.

Project Name _____

Limits _____

Description _____

Please mail or fax forms to
Gabriel Del Bosque
MPO Coordinator
Laredo MPO
P.O. Box 579
Laredo, Texas 78042-0579
Fax: (956) 794-1624
Email: gdelbosque@ci.laredo.tx.us



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Transportation, City of Laredo, or Webb County for projects in the TIP, UTP, or CIP. Additional order-of-magnitude cost estimates for other nominated projects were developed by WSA using an analysis of fiscal 1995-97 average road construction costs from the Texas Comptroller of Public Accounts and TxDOT for types of various roadway construction adjusted to year 2004 value. All estimated costs are in terms of year 2004 cost values and are to be used only for the purposes of comparing the relative cost of a project against other projects. The construction cost estimates for recommended improvements are summarized in the project matrix in Appendix A.

Cost reasonableness was calculated by determining the cost per vehicle-mile traveled and using it as a cost-benefit comparison value to compare potential alternatives against each other. Projects with a lower cost per VMT value were assumed to provide more benefits to the public at a lower implementation cost. Cost per VMT values ranged from about \$3 per VMT to over \$1,600 per VMT. Most projects had cost per VMT values between \$20 and \$150. The lowest cost per VMT projects (less than \$5 per VMT) were access management projects, which are relatively low cost projects which provide travel benefits. The project matrix included in Appendix A identifies cost per VMT values for each project.

MODAL IMPACTS - Each project was also reviewed for potential modal impacts. Modal impacts included whether or not a nominated project included bicycle, pedestrian, transit, rail, or airport access improvements. Most nominated projects did not include bicycle facilities, while most of the arterial street projects within the City of Laredo city limits do include sidewalks. However, even though most roadway projects do not include bicycle facilities, bicycle only projects do receive separate transportation enhancement funding, as discussed in Chapter 6. Projects located along Loop 20 received 20 points, as improvements to Loop 20 would provide improved access to the Laredo International Airport.

ENVIRONMENTAL/SOCIAL IMPACTS - Environmental/Social impacts included public acceptance of the project, positive or negative environmental impacts, and ROW Cost as a percent of total cost. All nominated projects were perceived to have public support, as the projects were nominated by public citizens or agency representatives, with the exception of a few projects such as the Outer Loop, Loop 20, and FM 1472 raised median projects. These three projects, while they do have some support from citizens, they also have some opposition, so they did not receive points for public support. During the 45 day public comment period, citizens were provided the opportunity to again voice their acceptance of nominated projects.

In addition, projects were given points depending upon the amount of additional right-of-way (ROW) that will be required to implement a project. The purchase of right-of-way typically impacts adjacent businesses or residences, so less amount of additional right-of-way needed to implement a project received higher scores than projects requiring a larger percentage of ROW. Twenty-eight of the evaluated projects do not include any additional right-of-way to implement, so they received a full 25 points. For the remaining evaluated projects, ROW cost as a percent of total construction cost ranged from two percent to 70 percent.



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PROJECT READINESS – Projects received additional points depending on the stage in the implementation process and how quickly they could be implemented. Projects already included in the MPO's three year Transportation Improvement Program (TIP) typically received between 20 and 30 points, as these projects have completed the preliminary engineering process and design plans are complete. In addition, some of the TIP projects have already acquired all of the needed right-of-way to complete the project. Other project not in the TIP typically received between 0 and 20 points, depending upon their stage in the process.

SPECIAL CIRCUMSTANCES – Projects also received additional points if they had special circumstances that provided additional public benefit. Some projects, such as the railroad and intersection grade separation projects, as well as the raised median projects, received an additional 30 points for safety. In addition, major new location projects, such as the Outer Loop and Cuatro Vientos, received an additional 15 points for system continuity, as they provide important roadway connections through some of the undeveloped portions of Laredo and provide relief to parallel corridors such as US 83.

EVALUATION SUMMARY

All nominated transportation projects went through a selection process based on the project evaluation criteria and the data documented in Appendix A. Each project was placed in either a short-term or long-term financially constrained time period or a financially unconstrained time period based on this data and the project funding levels during those time periods. Chapter 5 discusses the financial plan and level of available funding, while Chapter 6 identifies the selected projects as part of the recommended project listing for the Laredo MTP update.

ENVIRONMENTAL JUSTICE CONSIDERATIONS

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations, requires "federal agencies to achieve environmental justice by identifying and addressing disproportionately high and adverse human health and environmental effects, including the interrelated social and economic effects of their programs, policies, and activities on minority populations and low income populations in the United States" (FHWA Actions to Address Environmental Justice in Minority Populations and Low-Income Populations).

In accordance with federal and state requirements, individuals who fall into identified environmental justice and Title VI population groups within the study area are identified in this section for consideration in the evaluation of transportation improvement options. Population groups identified in this section include minority and low income groups.

As discussed in Chapter 1, throughout the development of the plan, several public involvement activities were undertaken to allow all groups the opportunity to participate in the plan and provide input. These activities included the publication of the nomination form in the local newspaper 90 days prior to the adoption of the plan and televised meetings on the local public access network. All MPO meetings were advertised in both Spanish and English.



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Minority Populations

This section involves assessing the minority population within the study area. Minority populations are defined in accordance with Executive Order 12898, U.S. Department of Transportation's (DOT) Order DOT 5610.2 and Federal Highway Administration's DOT Order 6640.23 Actions to Address Environmental Justice in Minority Populations and Low-income Populations. Minority is defined as:

- Black (having origins in any of the black racial groups of Africa);
- Hispanic (of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race);
- Asian American (having origins in any of the original peoples of the Far East, Southeast Asia, the Indian subcontinent, or the Pacific Islands); or
- American Indian and Alaskan Native (having origins in any of the original people of North America and who maintains cultural identification through tribal affiliation or community recognition).

Table 4-1 displays race, Hispanic Origin and minority populations for the City of Laredo and Webb County. As shown, 94 percent of Webb County is of Hispanic Origin.

Table 4-1
Race, Hispanic & Minority Population, 2000
Laredo Metropolitan Transportation Plan Update

	Webb County	City of Laredo
Total:	193,117	176,576
Not Hispanic or Latino:	11,047	10,360
White alone	9,508	8,891
Black or African American alone	294	276
American Indian and Alaska Native alone	144	122
Asian alone	783	773
Native Hawaiian and Other Pacific Islander alone	16	15
Some other race alone	22	22
Two or more races	280	261
Hispanic or Latino:	182,070	166,216
White alone	149,162	136,376
Black or African American alone	419	376
American Indian and Alaska Native alone	768	662
Asian alone	50	47
Native Hawaiian and Other Pacific Islander alone	32	32
Some other race alone	27,008	24,589
Two or more races	4,631	4,134
Total Minority Population	183,609	167,685



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Source: U.S. Census Bureau, 2000

Low Income Population

Low-Income is defined as a person whose household income (or in the case of a community or group, whose median household income) is at or below the U.S. Department of Health and Human Services poverty guidelines. The 2004 Health and Human Services poverty guideline for a family of 4 is \$18,850. Data sources used in identifying low-income populations in the Laredo area includes available information from the U.S. Census Bureau. The median household income for Webb County and the City of Laredo in 1999 was \$28,100 and \$29,108 respectively.

Table 4-2 identifies persons whose income in 1999 was below poverty level. As shown, 30 percent of Webb County's population was living below poverty level.

Table 4-2
Persons Living Below Poverty Level, 2000
Laredo Metropolitan Transportation Plan Update

	Total Population (for which poverty status is determined)	Below Poverty Level	
		Persons	Percent
City of Laredo	174,070	51,493	31%
Webb County	190,359	59,339	30%

Table 4-3 displays the number of households with an income less than \$20,000, based on the 2000 Census. As shown thirty five percent of households in the county have an income less than \$20,000.

Table 4-3
Number of Households with Income Less than \$20,000, 2000
Laredo Metropolitan Transportation Plan Update

	Total Households	Households with an income less than \$20,000	Percent
City of Laredo	46,908	16,437	36%
Webb County	50,647	18,397	35%