Evaluation of the Transportation System 13

A. Measures of Effectiveness

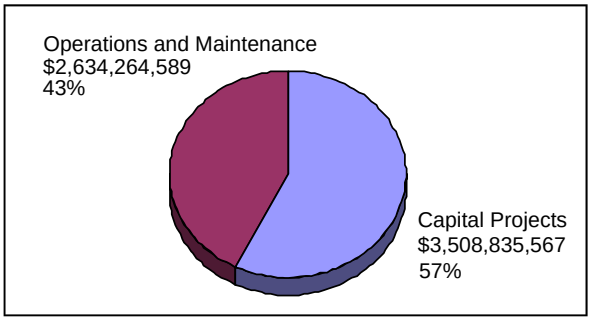
This section evaluates how well this MTP meets the goals and objectives as presented in Chapter 4. It does this by testing the preferred alternative against performance measures designed to compare the outcome to each goal. Data for this section has been culled from appropriate sections within the document.

1. Maintain and Preserve the Existing Transportation Infrastructure

Dedicated Funding

Total public expenditures for the 2030 MTP exceeds $6.153 billion, supported by almost $6.286 billion in revenues from public sources. Together, operations and maintenance funds exceeding $2.6 billion and over $900 million of the capital expenditures results in funding dedicated to system preservation of more than $3.5 billion. Figure 13-1 shows a breakdown of 2030 MTP expenditures.

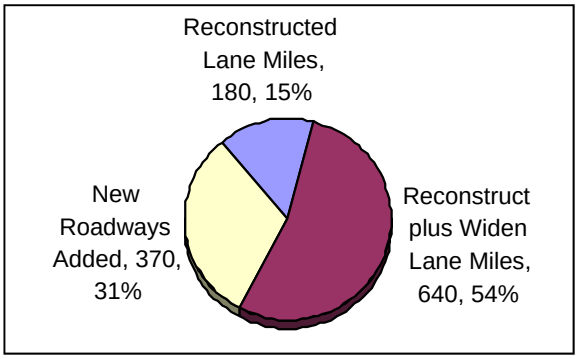
Figure 13-1 ▶ Public Funds for Capital Projects and O&M, 2006-2030



Reconstruction

A total of 1190 lane miles is affected by this MTP: new lanes, reduced lanes, and reconstruction of lanes. Of this amount, 180 are reconstruction work only; 640 are part of lane addition or reduction projects; and 370 are part of new roadway projects. Figure 13-2 represents the distribution of the type of work being done in lane miles for the entire roadway network.

Figure 13-2 ▶ Type of Projects in the MTP by Lane Miles Affected



Lane Miles per Capita

The ratio of lane miles per capita is expected to decrease in the 2030 MTP timeframe, 2004-2030 from a level of 4.5 lane miles per 1,000 people to a level of 4.0 lane miles per 1,000 people. This is a continuation of the trend observed in the 2025 MTP whereby the rate of growth in programmed lane miles over the life of the MTP, although accompanied by growth in population, will be at a slower rate than that of population growth. Another way to view this relationship between population growth and road construction is that for every 377 people additional people in the AMPA, approximately one lane mile of roadway will be added to the system.

Public Transit Investment

A region's commitment to the existing transportation system is also illustrated by its level of investment in public transportation systems. For the entire period covered by this MTP, approximately 13% ($445,354,299) of the total, estimated capital expenditures is allocated to public transportation and approximately 44% ($1,160,253,674) of the total, estimated operations and maintenance expenditures are allocated to public transportation. These figures only include public funds spent on bus and commuter rail transportation. They do not include public funds planned for airport improvements and aviation travel, operations of human service agencies' transportation, or specialized transit services (i.e. public school, UNM shuttles, etc.). Also, these figures do not include funds spent by private companies/agencies (i.e. Amtrak, airlines, intercity bus companies) for improvements they provide.)

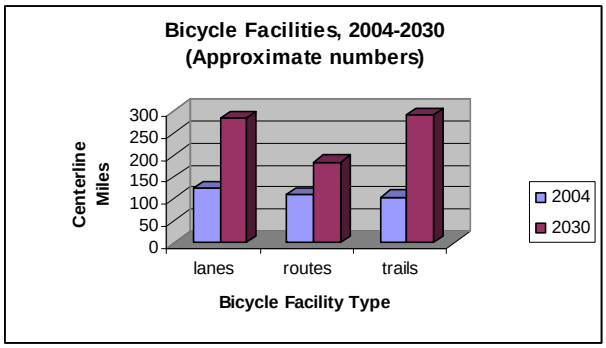
Major improvements in public transportation over the past few years have been:

- Implementation of Bus Rapid Transit (BRT), known as Rapid Ride
- Implementation of commuter rail service, known as the NM Rail Runner Express
- Implementation of bus-commuter rail shuttles and transfers
- Completion of Stage II of the Alvarado Transportation Center (ATC) providing a central, intermodal transportation terminal

This MTP notes continued improvements in public transportation:

- Planned expansion of Rapid Ride service
- Proposed ATC Stage III for the renovation of some of the historic, older buildings and improving Amtrak facilities,
- Finalization of implementing of Stage I of the Rail Runner with the opening of the remaining stations
- Proposed Montaño Rail Runner station
- construction and implementation of Stage II which will expand the Rail Runner to Santa Fe
- Proposed route expansions and transit facilities improvements by ABQ Ride and Los Lunas Transit and the proposed Santa Ana Pueblo Transit service

Figure 13-3 ▶ Centerline Miles of Bicycle Facilities, by Facility Type



In addition, several regional transit services will be connecting into and partially serving the metro area: Sandoval Easy Express, New Mexico Park & Ride expansion into Torrance County, and Shâa'srk'a Transit's proposed shuttle.

Bikeway/Pedestrian Investments

Bicycle — The AMPA's bikeway network in 2004 consisted of approximately 124.2 centerline miles of bike lanes, 104.8 miles of trails and paths, and 109.5 miles of bike routes. The number of centerline miles of such facilities is expected to increase by the year 2030. Approximately 285.7 miles of bike lanes, 185.2 of bike routes, and 293.2 miles of trails and paths have been proposed to exist by the year 2030 (Figure 13-3).

Safety, connectivity, mode competitiveness, and maintenance still continue to be challenges in years to come. In addressing such issues, the region have identified studies, projects, and programs (education and promotion) to better understand the challenges and proposed comprehensive solutions to the regional problems.

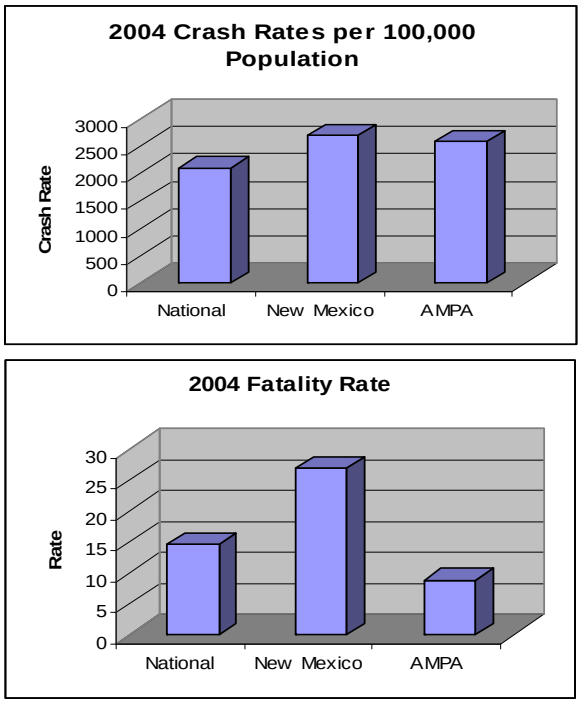
Pedestrian — Pedestrian planning is becoming more visible in the Albuquerque Metropolitan Area. Pedestrian safety is a major concern in the area given the fact that New Mexico pedestrian fatality rate (fatalities per 100,000 people) is one of the top five in the nation. ADA, connectivity, access to destination, and health (lack of physical activity) are concerns

identified by regional stakeholder related to pedestrians.

MRCOG as the MPO has been working to integrate pedestrian planning and programming into the regional transportation planning process. This integration has taken place through actions such as:

- Development of analytical tools and methodologies to help in regional pedestrian planning. The development of the "Pedestrian Composite Index"
- Training opportunities designed to improve understanding of pedestrian needs and concerns (safety, accessibility, ADA, etc)
- Developing and enhancing pedestrian crash database for the region
- Creation of the Walking and Bicycling Advisory Group (WABAG) for regional coordination between regional stakeholders (public and private sectors come together to address pedestrian and bicycling issues)
- Consideration of a small pedestrian only grant program

Figure 13-4 ▶ AMPA Crash Rates and Fatality Rates



- Proposed pedestrian dedicated funding in the MTP and TIP
- Cooperation and coordination with the recently created New Mexico Safe Route to School program

These steps will help in the future to bring pedestrian regional planning to a more comprehensive approach to regional transportation planning and programming.

2. Provide the Safest Travel Possible for All Modes

Safety, Auto, Bike, and Pedestrian

The overall goal established in the New Mexico Comprehensive Transportation Safety Plan is to reduce the state fatality rate by 20 percent by the year 2010. This is a goal that the AMPA can work on achieving as part of a regional safety strategy. There are multi-agency and jurisdictional efforts in the AMPA region with the goal of developing safety strategies in which the participation of the MPO is important. Some of these initiatives relate to areas of safety education, training, engineering, and enforcement initiative.

Bernalillo County led the state in total crashes as well as crash rates for the past 10 years.
The 2004 New Mexico crash rate reported at 2695 was above the national rate of 2105 while AMPA crash rate of 2583 was reported to be below the state crash rate.

It is very important that safety consideration become a priority in plans and all transportation projects. Safety issues to be considered in the long range transportation plan include but are not limited to:

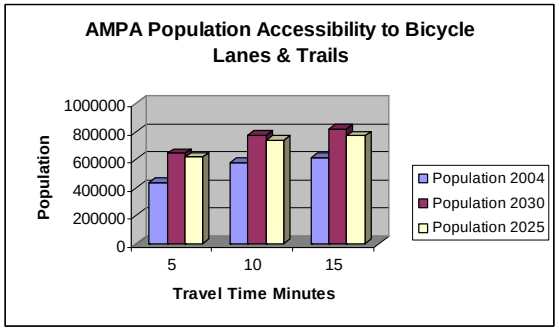
- Identification of regional safety needs and local "hot spot" problems
- Coordinated and collaborated efforts with regional stakeholders working on safety
- Multi-agency coordination and communication on safety issues
- Improve safety related methodologies and tools for assessing and predicting potential safety impacts

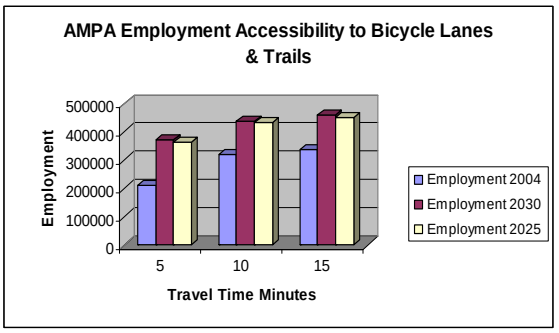
- Disseminating real-time incident information to users
- Implementing design factors in new infrastructure that enhances the safety and extends the life of structures, minimizing construction zone periods
- Improving connectivity of the transportation system, across and between modes, for people and goods at model transfer points, bikeways that share and cross roadways, intersections with crosswalks, and railroad crossings
- Implement ITS technologies on transit and emergency vehicles
- Exploring and identifying financial resources to fund safety projects and programs

Future strategies:

- Identifying regional safety needs and local "hot spot" problems
- Coordinated and collaborated efforts with regional stakeholders working on safety
- A continuous multi-agency coordination and communication on safety
- Improving safety related methodologies and tools for assessing and predicting potential safety impacts
- Disseminating real-time incident information to motorists;
- Implementing design factors in new infrastructure that enhance the safety and extend the life of structures, minimizing construction zone periods
- Improving connectivity of the transportation system, across and between modes, for people and goods at modal transfer points, bikeways that share and cross the roadways, intersections with crosswalks, and railroad crossings
- Improving the accessibility and safety of transit stops and transfer points, and implementing ITS technologies on transit and emergency vehicles
- Exploring and identifying financial resources to fund safety projects and programs
- Developing and implementing short term strategies that enhance the safety for all users of the transportation system
- Ensuring cooperation and coordination among all agencies in incident management and emergency situations

Figure 13-5 ▶ AMPA Population/ Employment Accessibility to Bicycle Lanes and Trails





- Creating policies and designing practices that are consistent with an efficient and safe intermodal transportation network
- Developing an information system for crash data by compiling, consolidating, analyzing , and accessing;
- Establishing a long term vision that enhances the safety of all AMPA residents

3. Provide Choices in Access and Mobility for People and Goods

Mode Share

Data from the American Community Survey: 2005 Transportation Profile included in the US Census Transportation Planning Package contains summary information for travel characteristics for communities within the AMPA. From this information, mode share information was extracted which provides a snapshot for the region.

- Drive Alone: 77.4%
- Shared Ride: 13.5%
- Transit: 1.4%

- Work at Home: 3.7%
- All Other Means (walk, bike, motorcycle, and taxi): 4%

Transit, bicycle, and pedestrian market analyses conducted in the 2030 MTP show extensive opportunities for commuters to move away from the "Drive Alone" category to other non-"SOV" modes. Such projects include the Rail Runner Commuter Rail, ABQ Ride Rapid Ride expansions, the Regional Transit District, and expanded bikeway and pedestrian facilities.

Accessibility of Bikeways/Pedestrian Facilities

A preliminary TRAM analysis was performed to evaluate the level of accessibility to bicycle lanes and trails for the 2004 year (base year) and the 2030 year. The analysis is based on travel time contours of five, ten and fifteen minutes. Population and employment data was used to determine the potential market associated with those facilities. In addition, the analysis was related to the estimates from the 2025 MTP preferred scenario.

Figure 13-5 shows that the 2030 estimated population and employment accessible to bicycle lanes and trails will increase. The trend is for all travel time intervals as the population and employment increases.

Intermodal Integration

An integrated multi-modal system is necessary to achieve the most efficient use of the transportation infrastructure and is addressed in more detail in Chapter 6.

The metro area has been implementing and is planning intermodal integration in the following major areas:

- The Alvarado Transportation Center
- Park and Ride lots
- Transit/Bike/Pedestrian Interfaces

The completion of the Alvarado Transportation Center (ATC) provides a central, downtown terminal and transfer point for metropolitan transit buses, intercity buses, Amtrak, Rail Runner, UNM shuttles, New Mexico Park & Ride buses, taxis, and pedestrians and bicycles. From the ATC bus service connects to the Albuquerque International Sunport Further improvements to the ATC are planned.

Several park and rides lots are located throughout the metro area providing transit connections for suburban and rural commuters. Most Rail Runner stations also have park and ride facilities. New park and ride facilities are planned and/or under construction. Bus service connecting to Rail Runner stations has been implemented with new service and/or route revisions planned as stations are opened. One new shuttle service will connect Albuquerque International Sunport with the Bernalillo County/Int'l Sunport Rail Runner station.

Many transit routes serve areas conducive to pedestrian-transit travel. These routes often have high transit ridership. Continued route expansion and expansion of the Rapid Ride service will further enhance pedestrian-transit travel. Bicycle-transit travel is accommodated with ABQ Ride transit buses being equipped with bus racks and Rail Runner trains accommodating bicycles. Chapter 6 includes recommendations for improving bicycle, pedestrian and transit connections.

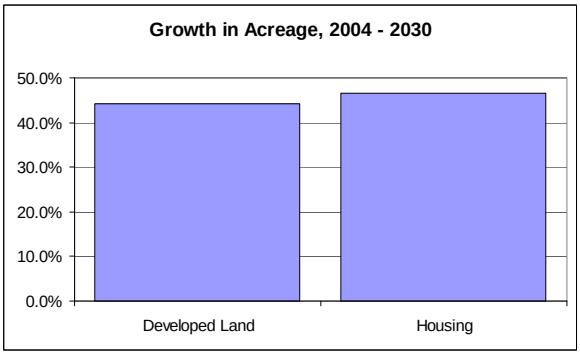
4. Manage the Existing Systems to Maximize our Return on Investments

Intelligent Transportation Systems (ITS)

A major purpose of ITS is to enhance and coordinate the collection and dissemination of roadway and traveler information such as congestion levels, travel times, incident reporting, weather, etc, among agencies and private entities and to promote the sharing and dissemination of this information to the traveling public. Analysis included in the ITS Implementation Plan has shown that the deployment of ITS in the Albuquerque area now could provide approximately $100 million in benefits to travelers in the near term. Longer term investment is anticipated to yield even more benefit.

Although ITS strategies are relatively new within the AMPA, benefits have already been noted by the

Figure 13-6 ▶ Anticipated Growth in Developed Land and Housing



NMDOT as clearance times for accidents along the urban interstates have been reduced with the deployment of the Freeway Courtesy Patrol. Additionally, a fully integrated ITS system is in the works as member agencies implement local traffic operations management capabilities and the NMDOT implements it's centralized Traffic Operations Center to assist with the coordination of travel information collection and dissemination to all users on the system. Transmitting traffic data from a centralized location for coordinated dispatch to the traveling public, emergency service providers, and other agencies responsible for the efficient operations of the roadway system.

Current ITS programming included in the TIP is over $35 million, whereby the amount of ITS programming over the life of the MTP amounts to over $116 million.

Managed Lanes

Managed Lanes were looked at specifically in this MTP. A preliminary analysis of the Paseo del Norte Corridor was conducted in support of future consideration of the deployment of a managed lane/ HOV scenario. Preliminary results indicate that there is strong potential for travel time savings across this corridor with a managed lanes/HOV alternative. Travel times that are competitive, and in many cases better than SOV travel are possible with the right investment. In addition, the results showed that there is further benefit to be realized with additional deployment of HOV/Managed strategies AMPA-wide.

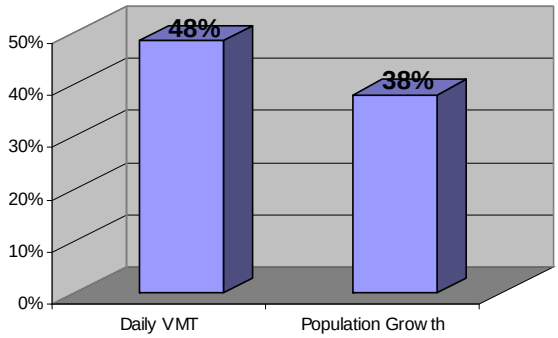
TDM

Transportation Demand Management (TDM) projects intend to reduce the number of car trips and to encourage the use of transit, bicycling, and car-pooling to increase the efficiency of all movement on the transportation system. The majority of TDM projects included in the 2030 MTP involve park and

Table 13-1 ▶ Anticipated Jobs-Housing Ratios by Sub Area Within the AMPA

Municipality	2004 Jobs to Housing Ratio	2030 Jobs to Housing Ratio
City of Albuquerque	1.31	1.34
Northeast	1.57	1.72
Southeast	1.25	1.09
Northwest	1.02	0.91
Southwest	0.61	0.66
West of Rio Grande	0.55	0.79
East of Rio Grande	1.56	1.60
Village of Los Ranchos de Albuquerque	0.73	0.73
Village of Tijeras	1.36	2.35
Town of Bernalillo	0.99	0.93
Village of Corrales	0.40	0.42
City of Rio Rancho	0.65	0.59
Village of Los Lunas	1.64	1.03
AMPA	1.29	1.22

Figure 13-7 ▶ Projected Growth of Daily VMT and AMPA Population, 2004-2030



ride facilities resulting in increased vehicle occupancy rates, programs intended to increase bike usage, and transit incentives to increase transit ridership. The 2030 MTP has programmed over $15 million in the TIP alone for TDM.

5. Provide Transportation that Supports Local Land Use Planning, Community Goals, and the Economy

Land consumption

MRCOG land use projections are guided by local land use policies and density standards. Community goals are also considered, however unless they have been translated into specific policies regarding growth community desires do not necessarily prohibit or ensure development. For example, a community may express a desire to see a mix of low impact uses on bordering vacant parcels, but unless sector plans and zoning codes reflect those desires future development may not coincide with the community's goals.

The region is expected to gain an additional 52,000 acres of development on parcels that are now considered vacant, rangeland, or agricultural lands. Approximately 80% of newly developed land is anticipated to be dedicated to housing growth.

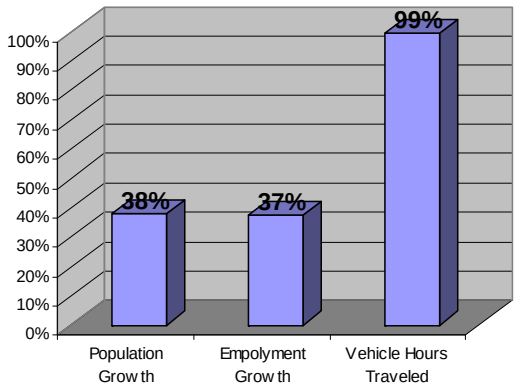
Figure 13-6 shows that the growth in developed acres is anticipated to be outpaced by the increase in housing. Therefore, development in 2030 is anticipated to be slightly denser than in 2004.

Job-Housing Ratio

The job-housing ratio is an indicator of travel distances, the higher the ratio the more likely workers live in close proximity to jobs. Conversely, a low ratio indicates that people most likely have longer commutes. The assumption is that given a choice, workers with flexible employment will choose to work closer to their homes. Land use and economic policies can help foster shorter commutes by encouraging jobs in communities where a commuting labor force exists.

Table 13-1 shows projected job-housing ratios in comparison to the present. In Los Lunas in 2004 the ratio is the highest in the region with 1.6 jobs per housing unit. This is because of some notable job growth in the early part of the decade including a large cabinet manufacturer. This ratio is projected to decline in the future as the increase in new housing units is anticipated to outpace future job growth. Conversely, the City of Albuquerque shows an increase in the job-housing ratio, suggesting that Albuquerque will continue growing as the economic hub of the region. Meanwhile, residential growth will become more widely dispersed throughout the region. The result is a declining job-housing ratio in the AMPA and the likelihood of increasing commuting times and congestion costs.

Figure 13-8 ▶ AMPA Growth in VHT, Employment, and Population



VMT and Population Growth

Moderating increases in overall vehicle smiles of travel (VMT) is another means of moving towards a more livable social and physical environment. Increases in VMT typically occur as a result of roadway network expansion; however, increases in VMT can also occur as a result of more trips and/or longer trips. Over the life of this plan, Daily system wide VMT is expected to increase by 48%, while Daily VMT per capita is expected to increase by approximately 8% from today's modeled rate of 25.0 to 27.0 in 2030. During this same timeframe, population is expected to grow by 38% from 692,040 in 2004 to 954,905 in 2030 (see Figure 13-7).

Trip Length

Trip lengths are often times associated with the types of urban development. Mixed use development and higher jobs/housing ratios have a tendency to reduce the need to travel longer distances and thus reduce trips lengths. However, general increases in population expected by 2030 will likely offset any benefits of the increased number of mixed use developments in the AMPA. The average trip length for all trip purposes in projected to increase by over 4% between 2004 and 2030, from 7.1 miles to 7.4 miles. This could be seen as an improvement over the 2025 MTP, which showed an increase of 16 percent, from 6.8 to 7.9 miles.

System Preservation

The importance of maintaining the condition of the transportation system is not lost with this plan. The percentage of funding dedicated to System Preservation is approximately 43%.

Improving Opportunities

- Expanded road to the Double Eagle II with rebuilt interchange at I 40
- I-40 near Uptown
- Coors/I 40 Interchange
- Paseo del Norte/I 40 Interchange
- Unser Blvd continuous north/south facility
- Paseo del Volcan
- Mesa del Sol
- Commuter Rail and expanded transit connections
- Increased efficiency of roadway system through ITS
- Access to major employment centers
- Freight and commercial goods access and mobility
- Enhancements to Bus Rapid Transit
- Bike and pedestrian enhancements

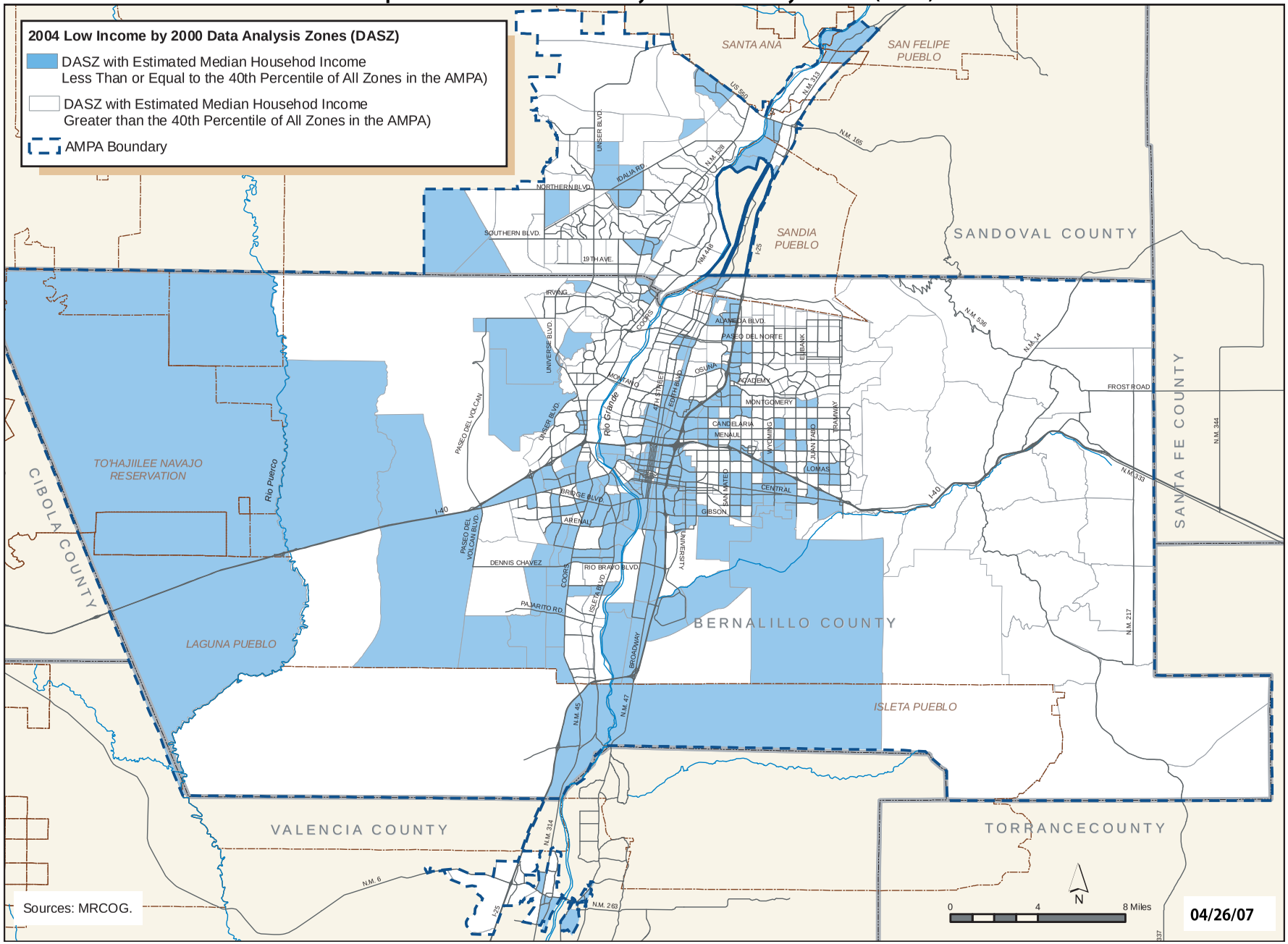
Travel Time

Travel times are another good measure of a region's mobility and how the transportation system for the user/commuter. With the increases in both population and jobs, it is not surprising that travel times are anticipated to increase over time. Figure XIII-8 shows growth in daily vehicle hours of travel compared with population and job growth.

In the AMPA, population is anticipated to grown by 38%, and employment is anticipated to grow by 37%. Concurrently, the total number of daily vehicle hours traveled (VHT) is expected to increase by 99% within the 2030 timeframe. For SOV travelers, this means that the average amount of time spent in their automobile per day is projected to increase from 34 minutes per day to 50 minutes per day by 2030.

The increase in auto travel time in Figure 13-8 is dramatic when compared to other growth rates. This is due the fact that population and job growth increase the demands on the region's transportation system, especially during the peak hours where travel demand is highest. The result is increased congestion leading to increased time spent in traffic. These increases in travel time have a direct effect on transportation related expenses. The strategies deployed in the MTP to address congestion (ITS/Expanded Transit/TDM and Roadway Improvements) are aimed at managing this situation and ensuring that the transportation system in 2030 will still support a viable regional economy.

Map 13-1 ► 2004 Low Income by 2000 Data Analysis Zone (DASZ)



B. Environmental Justice

1. Introduction

In 1994, Executive Order 12898 mandated Federal agencies to incorporate environmental justice analysis in their policies, programs, and activities. Based on the framework of Title VI of the Civil rights Act of 1964, which ensures nondiscrimination in federal programs, environmental justice specifically addresses how low-income and minority populations are affected by the action of the federal government. The FHWA/FTA Joint Planning Regulation implementing ISTEA requires the planning process to be consistent with Title VI (23 CFR 450 and 49 CFR 613). In October, 1999 the FHWA/FTA issue a memorandum (TOA-1/ HEPH-1) to provide guidance in implementing Title VI requirements in metropolitan and statewide planning.

Three main principles are at the core of the environmental justice considerations:

1. To avoid, minimize or mitigate disproportional high and adverse human health and environmental effects, including social and economic effects, on minority populations and low-income populations
2. To ensure the full and fair participation by all potentially affected communities in the transportation decision-making process
3. To prevent the denial of, reduction in, or significant delay in the receipt of benefits by minority and low-income populations

The environmental justice analysis for the 2030 MTP has been done at two levels. The first level consists of a technical component characterized by the geographic identification in the AMPA of minority and low income population groups, and the evaluation of the relationship between these population groups and transportation projects. The second level is based on the public involvement efforts to capture the opinion and concerns of the general public and other community groups in the AMPA regarding transportation.

MRCOG's Geographic Information System (GIS) capabilities were utilized for the EJ technical analysis. Spatial and demographic data from the 2000 Census were used for the analysis. Two scenarios have been considered for the analysis. The year 2004 is considered the base year and the year 2030 will be the end year.

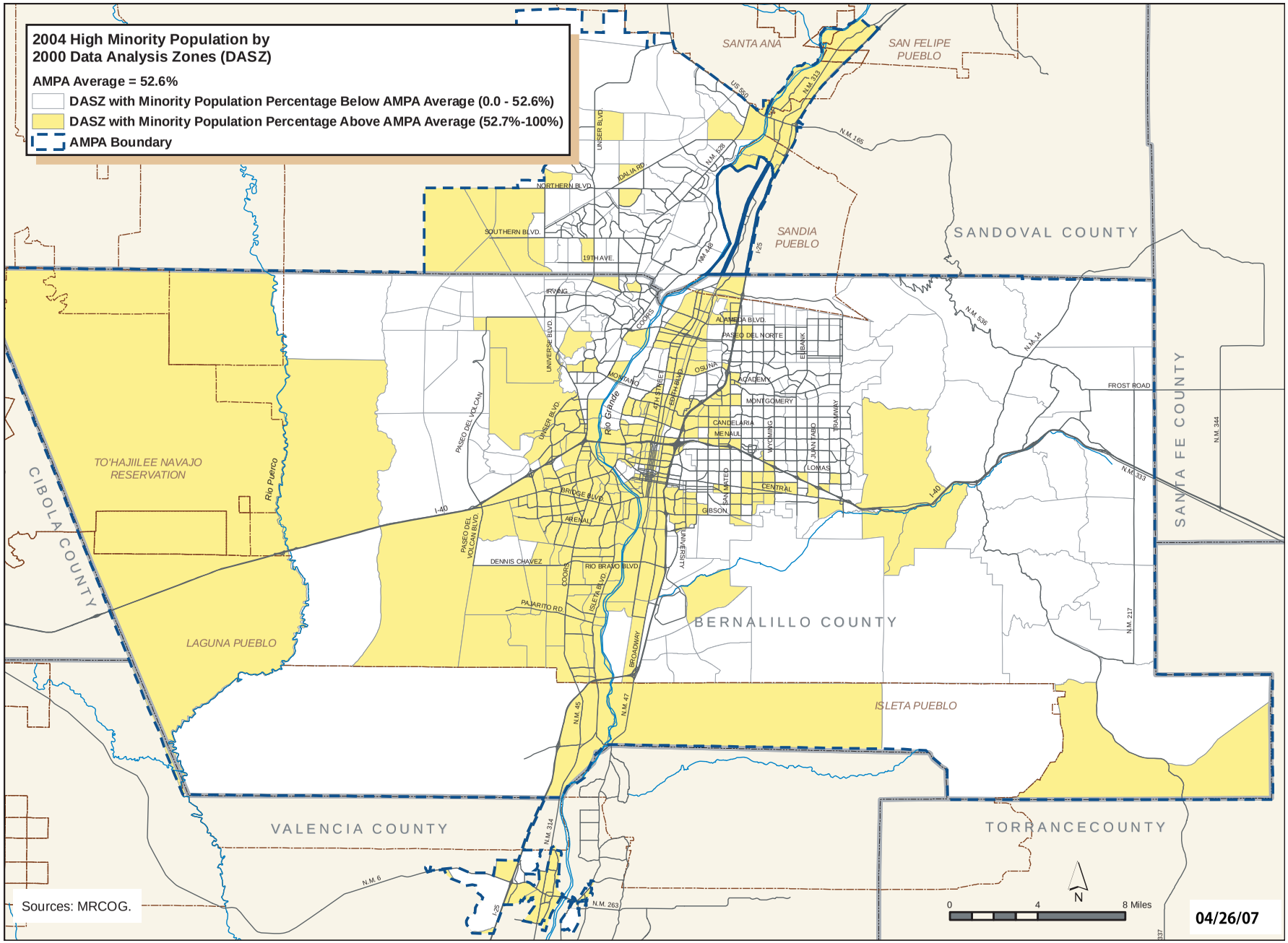
Table 13-2 ▶ AMPA 2000 Census Counts for Race and Hispanic Origin by Age

Year	Total	White Under 16	White 16-64	White 65 & Over	Hispanic Under 16	Hispanic 16 - 64	Hispanic 65 & Over	Other Races Under 16	Other Races 16 - 64	Other Races 65 & Over
2000	634,118	53,302	209,267	49,576	75,657	167,020	19,256	16,133	40,214	3,693
2004	691,758	55,214	220,362	52,649	82,438	191,380	22,768	17,840	44,804	4,303
2030	2030 Forecast will be produced after MTP adoption									

Table 13-3 ▶ AMPA Estimated Change 2000 – 2004

Year	Total	White Under 16	White 16-64	White 65 & Over	Hispanic Under 16	Hispanic 16 - 64	Hispanic 65 & Over	Other Races Under 16	Other Races 16 - 64	Other Races 65 & Over
2000	-	-	-	-	-	-	-	-	-	-
2004	57640	1912	11095	3073	6781	24360	3512	1707	4590	610
2030	2030 Forecast will be produced after MTP adoption									

Map 13-2 ▶ 2004 High Minority Population by 2000 Data Analysis Zone (DASZ)



2. Methodology for Estimating Population by Race and Hispanic Origin and Income

Data Analysis Subzone (DASZ) estimates were generated to allow for Environmental Justice analysis. The variables required were:

- White alone non-Hispanic age 16 and under
- White alone non-Hispanic age 16-64
- White alone non-Hispanic age 65 and over
- Hispanic origin, any race age 16 and under
- Hispanic origin, any race age 16-64
- Hispanic origin, any race age 65 and over
- Other races non-Hispanic age 16 and under
- Other races non-Hispanic age 16-64
- Other races non-Hispanic age 65 and over
- Income classification by Quintile for DASZs

Estimates were based on the previously generated 2004 Socioeconomic Estimates for DASZs by MRCOG. The change in race and Hispanic composition of the zones was based on U.S. Bureau of Census county estimates for 2004. Revisions to the income classifications were based on the valuations of new residential building permits collected by MRCOG.

Race and Hispanic origin are two separate questions on the Census questionnaire, so any race can combine with an identification of either Hispanic or non-Hispanic. Racial and Hispanic identification are entirely defined by the person completing the Census questionnaire; therefore, this data should be considered as self-identification. There are no definitions supplied to the respondents. Since non-White combined with persons of Hispanic origin is typically defined as minority, a category of White non-Hispanic is reported which would be the non-minority category. In this area, the largest "minority" is that of Hispanic origin; therefore, this group is reported as Hispanic origin regardless of race. All other "minority" persons are combined in the category "Other races non-Hispanic".

Income classifications were based on 2000 Census data for median household income. A median income was estimated for each DASZ using 2000 Census Standard File 3 block group sample data and 2000 Census Transportation Planning Package (CTPP) traffic analysis zone data. DASZs within the transportation modeling area (an area which includes the Albuquerque Metropolitan Planning Area and adjacent zones in the Albuquerque commuter shed) were categorized by quintiles. Each zone with occupied housing units was categorized from 1 (lowest income) to 5 (highest income). Zones without occupied housing units were coded '0'. These 2000 income classifications were updated to 2004 with the following methodology.

Map 13-1 shows the 2004 Low Income information by data analysis zone for the AMPA. Two categories were created for the analysis. The first category includes DASZ with estimated median household income of less than or equal to the 40th percentile of all zones in the AMPA. The second category shows the estimated median household income greater than the 40th percentile of all zones in the AMPA. The geographic distribution of the first category in the region is somewhat even. It is important to caution that the size of the colored area does not represent a major concentration of people.

Table 13-2 presents the 2000 county distribution of age by race and Hispanic origin from the 2000 Census. The 2004 Census estimates are presented in the second line of Table 13-2. The estimated change from 2000 to 2004 is provided in Table 13-3.

The Census Bureau estimates were adjusted to the MRCOG estimates for 2004. The MRCOG and the University of New Mexico Bureau of Business and Economic Research (BBER) independently made estimates for July 1, 2004. The MRCOG and BBER estimates were extremely close and somewhat higher than the Census estimates for counties. Since the MRCOG estimates were close to the BBER estimates, MRCOG adjusted its estimates to match the BBER estimates for counties. It is noted that neither the Census Bureau nor BBER prepared estimates for geographies below county or municipal levels.

Map 13-3 ► 2004 Minority and Low Income Population by 2000 Data Analysis Zone (DASZ)

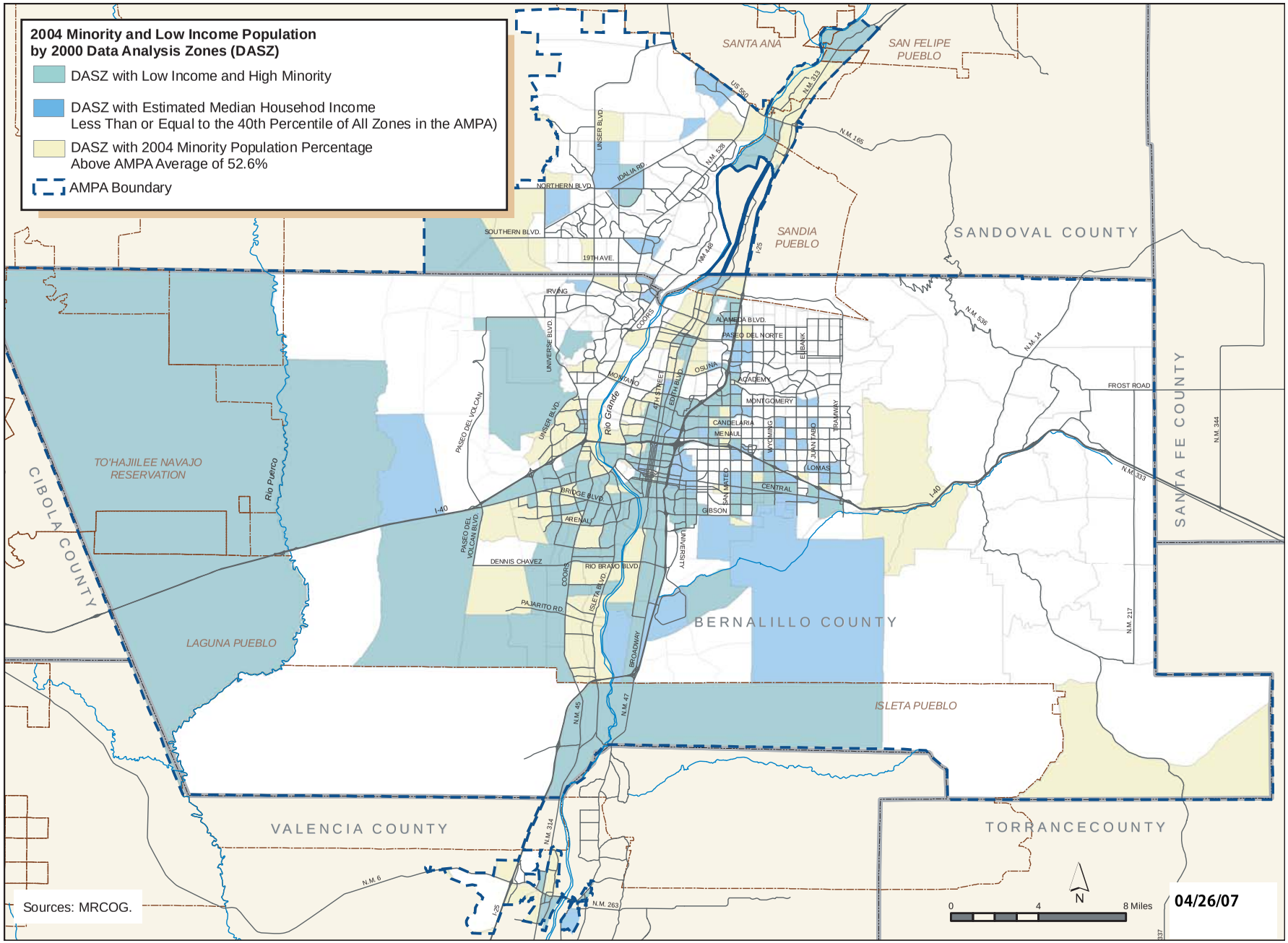


Table 13-4 ▶ Mode of Transportation to Work by Race and Hispanic Origin

Bernalillo County	White alone	American Indian alone	Asian alone	Other alone	White alone, not Hispanic	Hispanic or Latino
Total	213,632	12,430	6,053	41,783	139,323	120,792
Drove alone	79.2%	65.8%	64.4%	74.7%	80.2%	76.3%
Carpooled	11.6%	20.9%	24.8%	18.8%	9.2%	17.3%
Public transportation	1.3%	3.4%	0.0%	1.6%	1.4%	1.3%
Walked	1.9%	3.4%	4.5%	0.7%	2.0%	1.3%
Other	2.2%	2.9%	3.3%	0.5%	2.2%	1.5%
Worked at home	3.8%	3.6%	3.0%	3.6%	5.0%	2.2%

** Other does not include Black or Pacific Islander, which are not shown due to lack of cases. All categories include Hispanic and non Hispanic respondents unless specifically noted. "Alone" refers to respondents who self-identified with one race only.*

MRCOG estimates are at the DASZ level and sum to match the BBER county estimates for the counties within the MRCOG region. The portion of southern Santa Fe County that lies in the MRCOG region was estimated by MRCOG. The reasonability of the MRCOG forecast for southern Santa Fe County was attained by comparison with an independent set of 2003 estimates for Santa Fe County and sub-regions of the county that was produced by a contractor. One of the regions in the 2003 Santa Fe County estimates was similar to the MRCOG southern Santa Fe County area.

The data was first adjusted for age. School enrollment data from the various districts was used to assist in the adjustment of age data to MRCOG county totals. Following the age adjustment, the data was adjusted for race and Hispanic categories based on the Census estimate for the proportionate change in each cell in the table of race/Hispanic by age by county. After applying the appropriate proportions, the data was balanced to the MRCOG county estimates.

Map 13-2 shows the geographic distribution of high minority population in the AMPA. The AMPA average minority population is 52.6% which is to be considered the reference point for defining high minority population areas. Data analysis zones with a minority population percentage above the AMPA average (52.7% and above) are considered areas that concentrate high minority populations.

In estimating the DASZ data, an assumption was made that in the four years from 2000 to 2004, most DASZs would not have changed greatly in ethnic and age characteristics. For DASZs that had experienced considerable growth, an assumption was made that the characteristics of the new growth would be similar to the characteristics of the 2000 tract data which contained the respective DASZs. Similarly, for DASZs

Table 13-5 ▶ Travel Time to Work by English and Spanish Speaking Ability

Bernalillo County	Average Travel Time
Speak only English	20.8
Speak Spanish:	22.3
Speak English "very well"	20.5
Speak English less than "very well"	25.8
Speak other languages:	19.0
Speak English "very well"	19.2
Speak English less than "very well"	18.5

Table 13-6 ▶ Mode of Transportation to Work by Income

Bernalillo County	Median earnings in the past 12 months	Below the poverty level
Total:	$ 27,668	7.0%
Drove alone	$ 30,049	5.6%
Carpooled	$ 21,659	9.3%
Public transportation	$ 18,412	18.6%
Walked	$ 16,461	20.6%
Other	$ 25,536	18.7%
Worked at home	$ 23,652	9.2%

Table 13-7 ▶ Mode of Transportation to Work by Age

Bernalillo County	All Workers 16 and over	16 to 19 years	65 years and over
Total:	284,949	12,802	10,034
Drove alone	77.4%	72.0%	81.7%
Carpooled	13.5%	20.8%	3.7%
Public Transportation	1.4%	0.0%	1.2%
Walked	2.0%	3.7%	1.0%
Other	2.0%	3.0%	0.6%
Worked at home	3.7%	0.5%	11.8%

that had fewer than 30 households in 2000, the 2000 proportions were reviewed prior to calculating 2004 data. 2000 proportions (carried forward or assigned) for each ethnic/age category for each DASZ were applied to the respective 2004 DASZ population data. The DASZ data was balanced to county totals. The resulting DASZ distribution was reviewed for DASZs that may have been unusual such as the zones affected by moving and consolidating the Bernalillo County jail facilities. High growth zones were reviewed for reasonability.

Income categories were updated to 2004 by use of the valuation data provided on the 2000 to 2004 building permit data. This was previously accomplished during the 2004 estimation process as this variable is part of the standard MRCOG socioeconomic estimation data set.

Map 13-3 identifies the geographic distribution of high minority and low income populations by data analysis zones in the AMPA. This map is a combination of the previous two maps. The map shows concentrations of high minority and low income populations along the Broadway, Edith, 2nd, and 4th streets as well areas in Albuquerque downtown, the South Valley (Coors Blvd., Arenal, Rio Bravo, and Atrisco areas). Small communities such as the town of Bernalillo, Los Lunas, and Algodones also concentrate target population areas.

3. Issues from the 2025 MTP

- Approximately 3% of the minority population resides within a five minute walk to premium transit. This percentage is expected to increase to 4.3 in 2025. a 15 minute walk captures 19.3% of the minority population in 2025, up from 14% today.
- 64.5% of the AMPA's minority population resides within a 5 minute bike ride to a bike trail/path or lane. This percentage is projected to increase to 70.7 by 2025.
- Approximately 80 percent of the low income population is located within a 10 minute bike ride to a premium bicycle facility in 2000. This percentage will increase to 90.9 by 2025.
- More than 80 percent of the population under 16 is within a premium bicycle facility by a 10 minute bike ride in 2000 and 2025.
- Approximately 7.6 percent of this same age group resides within a 10 minute walk to a premium transit bus stop. This percentage is expected to increase to 12.3 percent by 2025. A 15 minute walk currently provides access to 12.6 percent of people under 16. This is expected to increase to 20 percent by 2025.
- Currently, only 8.6 percent of people 65 and over reside within a 10 minute walk of premium transit. This percentage is expected to increase to 14.9 percent by 2025. A similar analysis shows that 23.6 of this age group is expected to live a 15 minute walk from a premium transit facility by the year 2025, currently, this percentage is 13.7.

The Sandia Mountains

Final socioeconomic forecasts for 2030 are unavailable until adoption of the 2030 MTP. Once the MTP is adopted and a final socioeconomic dataset is created from the approved MTP road network, an environmental justice dataset will be created that includes race, ethnicity, and age forecasts. At that time this section will be updated.

4. Environmental Justice Statistics

The 2005 American Community Survey from the US Census Bureau provides recent transportation statistics for Bernalillo County. Since Bernalillo County represents 87% of the AMPA population, this information can be used as a reasonable proxy for the AMPA. This data provided below pertains to travel patterns by race and Hispanic or Latino Origin, ability to speak English, income and poverty, and age.

As seen in Table 13-4, Asians, American Indians, and those identifying themselves as Hispanic or Latino are more likely than whites to carpool to work. American Indians were nearly twice as likely as whites and Hispanic/Latinos to use public transportation to get to their workplace.

Travel times to work (Table 13-5) were very close by race, with whites averaging 20.1 minutes and Hispanic and Latinos averaging 21.4 minutes. However, travel times reflected that language spoken at home and ability to speak English profoundly affects how long of a commute one has. Spanish speakers who speak English "less than very well" average 25.8 minute commutes, while Spanish speakers who speak English "very well" have considerably shorter commutes (20.5 minutes).

Means of transportation to work varies greatly by income. Commuters who drive alone have incomes that are considerably higher than those who carpool or use other modes of transportation to work (Table 13-6). And while only 1.4% of all residents use public transportation to get to work, 18.6% of workers with incomes below the poverty level rely on such services for their commute.

NM 536 in the East Mountains

Table 13-7 highlights how transportation needs might vary by age. It compares the mode split of all commuters to that of the youth (16-19 years) and older residents (65 years and over). Notable findings include a high percentage of youth carpooling to work, and almost 4% walking to work. Among older workers, a larger share than the general population drive alone and a significant percentage work at home.

C. Environmental Mitigation

Metropolitan and statewide transportation plans must include a discussion of types of potential environmental mitigation activities, to be developed in consultation with Federal, State and Tribal wildlife, land management, and regulatory agencies.

Through interagency consultation with the U. S. Bureau of Land Management, the U. S. Forest Service, the New Mexico Game and Fish Department, and the New Mexico State Historic Preservation Office, these issues were identified:

- State endangered species critical habitat
- From a wildlife perspective, there is the importance of connection between Sandia and Manzano mountains Overpasses over I-40 for wildlife migration may be the best strategy for habitat connectivity between the two mountain ranges. Four-feet median barriers and reflectors are too high for wildlife to cross roadways.
- Roadways, such as Paseo del Volcan, near or along the Shooting Range Park in western Bernalillo

County may adversely impact open spaces and recreational opportunities at the park

- Surveyed archaeological sites are in relatively high density along the Rio Puerco and west mesa areas of the AMPA. There may be many more as-yet undiscovered archaeological sites and artifacts in undisturbed or undeveloped areas. Close consultation with traditional communities and Native-American Pueblos, Tribes and Nations will occur to determine tribal concerns and decide on the appropriate course of action regarding transportation projects.

1. New Mexico Department of Game and Fish

The New Mexico Department of Game and Fish coordinated with the MPO for the development of this MTP. The Department will continue to work with the MPO and MRCOG to minimize the adverse impacts of expanding human developments and travel corridors on the continued persistence of wildlife populations and important wildlife habitats within the AMPA, which includes all of Bernalillo County, the City of Rio Rancho and Town of Bernalillo and up the Rio Grande River to San Felipe Pueblo.

The 2006 Comprehensive Wildlife Conservation Strategy for New Mexico (CWCS) identifies habitat loss and fragmentation from human developments such as highways as a major factor threatening the continued persistence of Species of Greatest Conservation Need and key habitat types in New Mexico. Loss of habitat connectivity isolates wildlife populations and makes them more vulnerable to stochastic events such as wildfire and disease, and can further weaken population viability from genetic bottlenecks and inbreeding depression.

Research has shown that as roads are upgraded to accommodate greater traffic volume, the rate of successful wildlife crossings decreases significantly. Wildlife populations that are isolated within "sky islands" of habitat such as the Sandia Mountains, in the heart of the AMPA and surrounded by development, can "blink out" or disappear over the long term if no habitat connectivity is maintained to other populations such as in the Manzano Mountains. Maintaining or reestablishing habitat connectivity between the Sandia and Manzano Mountains, which allows for gene flow by the emigration and immigration of individual animals between populations, can keep populations in the Sandia Mountains viable. In fact, Tijeras Canyon has been identified and prioritized as one of the most important ecological wildlife linkages at the continental scale, in an effort to connect wildlife habitats from Mexico to Canada.

As the Plan is developed and implemented, another issue to be considered with regard to increasing human development and conflicts with wildlife in certain areas of the AMPA is the potential for large game animal/vehicle collisions, which are a danger to motorists and wildlife. Nationwide, approximately 29,000 human injuries and 211 fatalities occur annually from wildlife/vehicle collisions. An analysis of the large game animal/vehicle accident report data for New Mexico indicates between 700 and 900 of these incidents are reported annually throughout New Mexico. Since many of these accidents go unreported, the actual number of these incidents is much higher. The nationwide annual cost of lost property values of these accidents is approximately $1 billion, with average costs of $7,890 dollars for collisions with deer and $17,100 for elk. The areas within the AMPA particularly vulnerable to these types of accidents are Tijeras Canyon and the East Mountain area.

In 2003 the New Mexico State Legislature passed House Joint Memorial 3, which was signed by Governor Richardson, and directs the Department and NMDOT to work together to reduce the potential for wildlife/vehicle collisions in New Mexico. As a result, the Department and NMDOT have initiated a wildlife/vehicle collision mitigation project for I-40 and NM 333 (Old Route 66) in Tijeras Canyon, Bernalillo County, within the AMPA.

Based in part on large game animal/vehicle collision accident report data and the need for continued habitat connectivity between the Sandia and Manzano Mountains, approximately four miles of wildlife-proof fencing is being constructed along I-40 in Tijeras

Canyon (from the western Carnuel exit to the Village of Tijeras) to keep animals off of the freeway. Wildlife will be forced to use three large underpasses and multiple culverts beneath I-40.
Two Animal Detection Systems (ADSs) are being installed on NM 333 at two key locations; Dead-man's Curve and the paved underpass that leads to the Carlito Springs Bernalillo County Open Space property just west of the Village of Tijeras. These ADSs will warn motorists of impending wildlife crossings in these areas, allowing wildlife to safely cross. Ten escape ramps will allow any wildlife caught on I-40 inside the fencing to escape. These mitigation measures have been designed with careful review of the best scientific information available from technologies used in surrounding states, the U.S. and Europe.

These mitigation measures will be monitored long-term by the Department and NMDOT to determine their effectiveness at reducing wildlife/vehicle collisions in Tijeras Canyon, and depending on the results, additional measures may need to be taken as identified in the Tijeras Canyon Wildlife Safe Passage Feasibility Study, Bernalillo County, New Mexico (NMDOT 2006).

2. Recommendations from the New Mexico Department of Game and Fish

New highway construction, such as a loop around Albuquerque or around the north end of the Sandia Mountains, and existing highway upgrades and reconstruction, should analyze the need for safe wildlife passage across or under these highways, which would also provide habitat connectivity and enhanced motorist safety. Analyses should include the potential need for enlarged culverts for species such as mule deer and black bears. Actual recommended dimensions for culverts readily used by key species are becoming more readily available as structures are installed and monitored for wildlife use in other areas of the western U.S.

The 2006 SAFTEA-LU Transportation Bill, Section 1401.148(a)(3)(B) makes the addition or retrofitting of structures or other measures to eliminate or reduce accidents involving vehicles and wildlife eligible for federal funding under the Highway Safety Improvement Program. Transportation Enhancement monies are apparently also available for these types of uses. Therefore, the Department requests that MRCOG consider the Department as a potential partner to take advantage of these funding opportunities should conditions warrant.

D. Financial Analysis

The Metropolitan Transportation Plan for a metropolitan area is required to be fiscally constrained, meaning that the MTP must include "sufficient financial information for demonstrating that projects in the MTP can be implemented using committed, available, or reasonably available revenue sources, with reasonable assurance that the federally supported transportation system is being adequately operated and maintained."

The 2025 MTP, adopted in May 2003, included approximately $3.42 billion in estimated revenues balanced with about $3.39 billion in estimated expenditures. In June 2004 the 2025 MTP was amended to include additional funding that resulted from passage of the Governor Richardson Investment Partnership (GRIP) legislation. The GRIP allowed the NMDOT to sell bonds amounting to $1.6 billion statewide. The 2025 MTP amendment added about $600 million to the AMPA and accelerated the development and implementation of numerous projects sponsored by the NMDOT from the out-years of the MTP.

The federal revenues identified in the 2025 MTP were based on funding made available through the Transportation Equity Act for the 21st Century (TEA-21), which expired in 2003. For the 2030 MTP, the

Table 13-8 ▶ Privately Funded Capital Projects

Total Privately Funded Capital Projects	$711,575,245

Table 13-9 ▶ Financial Reconciliation

Total Anticipated Revenues	$6,285,896,606
Total Anticipated Expenditures	$6,153,500,156
Difference	$132,396,450
Percent Difference	2.11%

Table 13-10 ▶ Revenues from Public Sources

Federal	
Federal Highway Administration	$2,027,912,502
Federal Transit Administration	$371,321,866
Total Federal Funds	$2,399,234,368
State	
Total State Funds	$689,273,254
Local	
Total Local Funds	$3,197,388,984
TOTAL REVENUES	$6,285,896,606

Table 13-11 ▶ Expenditure Summary

Expenditure	Total	Percent of Total
Capital Projects	$3,508,835,567	57.0%
Operations and Maintenance	$2,634,264,589	42.8%
Studies	$10,400,000	0.2%
TOTAL	$6,153,500,156	100.0%

federal revenues are based on the Safe, Accountable, Flexible, Efficient, Transportation Equity Act: A Legacy for Users (SAFETEA-LU) authorization which was signed into law in August 2005. Although the SAFETEA-LU legislation authorized an unprecedented amount of funding for transportation between 2005 and 2009, several issues have become apparent in the development of the 2030 MTP:

- National foreign policy, especially with regard to the Iraq war, and domestic priorities dealing with the aftermath of the 2005 hurricane season have resulted in fewer federal funds available to program to projects than initially anticipated. Further, the uncertainty with regard to Congressional budgeting that existed prior to passage of SAFTETEA-LU still exists, as evidenced by the number of Continuing Resolutions issued by Congress.
- Rising costs of fuel, asphalt, concrete, steel, and other construction materials have increased the overall cost of implementing transportation projects.
- Many transportation professionals are expecting that by 2009 or 2010 the Highway Trust Fund, which provides federal transportation funding, will

Figure 13-9 ▶ Operations and Maintenance Expenditures by Type

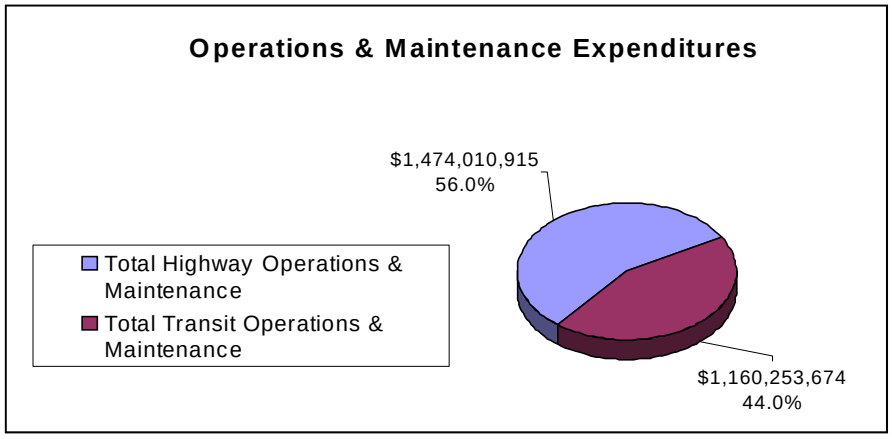


Table 13-12 ▶ Capital Expenditures by Project Type

Project Type	Total	Percent of Total
Bicycle/Pedestrian	$242,946,526	6.9%
Capacity	$1,743,344,532	49.7%
Highway & Bridge Preservation	$901,105,737	25.7%
ITS/TSM	$116,551,291	3.3%
Miscellaneous	$43,860,570	1.3%
Safety	$7,750,750	0.2%
TDM	$7,921,862	0.2%
Transit	$445,354,299	12.7%
TOTAL	$3,508,835,567	100.0%

Figure 13-10 ▶ Capital Expenditures by Project Type

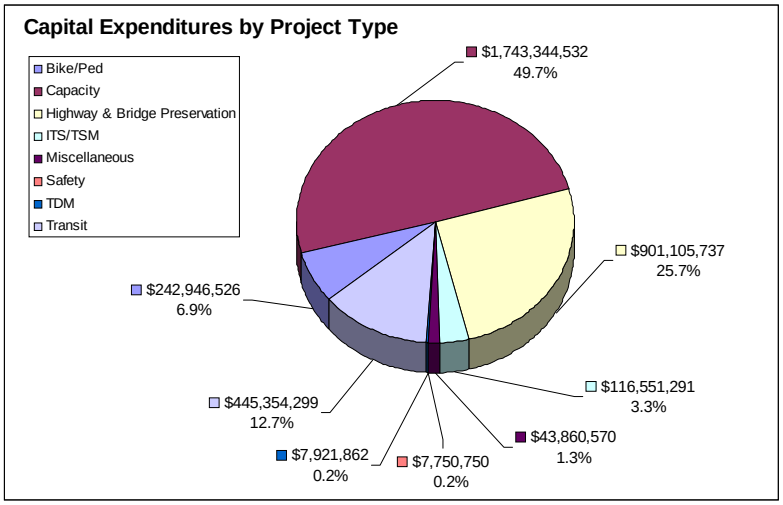


Table 13-13 ▶ Capital Expenditures by Lead Agency

Lead Agency	Total	Percent of Total
City of Albuquerque	$700,614,122	20.0%
City of Rio Rancho	$244,189,294	7.0%
County of Bernalillo	$174,820,253	5.2%
County of Sandoval	$5,449,411	0.2%
Mid-Region Transit	$292,603	0.0%
MRCOG	$148,687,948	4.2%
MRCOG/NMDOT	$83,420,000	2.4%
NMDOT	$2,057,391,495	58.6%
Pueblo of Laguna	$2,545,000	0.1%
Pueblo of Sandia	$9,645,435	0.3%
Pueblo of Santa Ana	$2,453,009	0.1%
Town of Bernalillo	$8,866,139	0.3%
Unified *	$4,212,500	0.1%
Village of Corrales	$1,990,000	0.1%
Village of Los Lunas	$43,572,107	1.2%
Village of Los	$20,686,250	0.6%
TOTAL	$3,508,835,567	100.0%

not have sufficient funds to cover amounts authorized by law for spending on highway and transit programs.

- At the state level, there is a substantial amount of the available federal funding that is being used to repay the GRIP bonds. The bond repayment is made from the overall federal-aid program prior to the funds being distributed throughout the state.

- It is likely that the future scarcity of federal and state funding, coupled with rising costs and increased needs will require that the region explore alternative funding methods that could include additional taxes, bonding, public-private partnerships, implementation of toll facilities, or other innovative financing methods.

While these issues create uncertainty with regard to financial planning for the 2030 MTP, we believe that the financial assumptions outlined below are reasonable and provide a basis from which we can plan a transportation system that serves the needs of the region in 2030. Tables 13-8 thru 13-13 and Figures 13-9 thru 13-11 summarize various aspcts of the 2030 MTP financial plan.

Financial Assumptions for the 2030 MTP

General

- Demonstration of fiscal constraint is required for both the MTP and the TIP. Fiscal constraint is most evident in the TIP which is programmed to levels agreed upon by all participants in the metropolitan transportation planning process.
- Estimates of funding by category are not required for the MTP.
- Growth rates (inflation factors) were developed by consensus with MPO member agencies, the State Department of Transportation, and the major transit provider. The same factors have been applied to both revenues and expenditures, where appropriate.
- GRIP Bond repayment will be with federal dollars. The 2030 MTP financial plan does not identify funding for GRIP Bond Repayment because the debt service is being applied to the statewide

federal-aid program prior to distribution of formula funds to Districts and MPOs.

Revenues

- **Federal Funds**
  Federal funds estimates are developed through coordination between the MPO, the NMDOT, and the City of Albuquerque Transit Department.
  FHWA funds
  ⇒All funding estimates based on SAFETEA-LU authorization and anticipated appropriations.
  ⇒Estimates for formula funds are from targets provided by the NMDOT Programs Division to District 3 for the period from FY 2006 through FY 2009. Targets for this period are estimates of obligation limitation, not authorized or appropriated funds.
  ⇒Estimates for HPP based on projects and funding amounts identified in SAFETEA-LU for the period from FY 2006 through FY 2009. Future HPP funding is estimated as the annual average of the total amount for the authorization period and is assumed to be constant after the SAFETEA-LU authorization expires.
  ⇒Coordination between MPO member agencies and the NMDOT resulted in agreement to use a 2% annual growth rate for increases in formula funds after FY 2009.
  FTA funds
  ⇒Estimates for FTA funds provided by City of Albuquerque Transit Department
  ⇒Growth rates assumed based on historical growth in FTA grant funding
- **State Funds**
  ⇒State funding is estimated as the amount of money estimated to be required to match the federal funding under NMDOT programming control and state-funded maintenance.
  ⇒Funding provided through the GRIP program is included for the period between 2006 and 2008 (GRIP funding is only expected to be available through 2008).
- **Local Funding**
  ⇒ Local agency funding information is provided by each member agency.
  ⇒ Funding estimates include money needed for maintenance of existing transportation systems, match requirements for available federal funding, and capital improvements funded entirely by local agencies.
  ⇒ Revenues dedicated to operations and maintenance (O&M) of the existing system and some revenues for capital improvements have been subjected to a 2% annual growth rate, as agreed to by the individual member agency.
  ⇒ City of Albuquerque ¼ cent tax for transportation will continue after 2010.

Expenditures

- **Project costs** developed through engineering estimates or environmental are used in lieu of unit costs and apply mostly to projects included in the TIP. Costs for projects programmed in the 2006-2011 TIP and the 2008-2013 TIP are estimated through appropriate procedures applied by the sponsoring agency.
- **Unit costs** are used for projects that do not have estimates from engineering estimates or environmental documents and apply mostly to projects outside the TIP program years.
  Unit costs derived through cooperative agreement with major implementing agency members of the MPO. An annual growth rate of 2% for a 20-year period has been applied to account for the time value of money for projects to be implemented in future years
  ⇒ All unit costs are fully burdened.
  ⇒ Right-of-way costs are estimated separately from implementation costs.
  ⇒ Roadway unit costs
    - Lane-mile unit cost is same for new construction and for reconstruction with/without additional lanes.
  ⇒ Bicycle facilities unit costs

- ♦ Only hard-surfaced improvements are included
- ♦ Off-road bicycle facilities assume a 10-foot cross-section
- ♦ Cost estimate for on-road bike lanes is for one side of the road. The estimate is doubled for bike lanes on both sides.

⇒ Transit

- ♦ Estimates of transit expenditures are coordinated with the City of Albuquerque Transit Department (ABQ Ride), Los Lunas Transit, Sandoval County Transit, and Rio Transit.

⇒ Landscaping unit costs are typical for facilities on the state system

Unit costs have been estimated separately for those corridor studies known at the time of the MTP development.

- **Costs for some Intelligent Transportation System (ITS) activities**, Transportation Demand Management (TDM) strategies, intersection improvements, rehabilitation and maintenance, and other system-wide or categorical improvements are estimated through coordination with implementing agencies.
- **Operations and maintenance costs** were estimated for current year (2006) through coordination with implementing agencies and 2% annual growth rates applied through the MTP horizon year.

Private Sector Funding

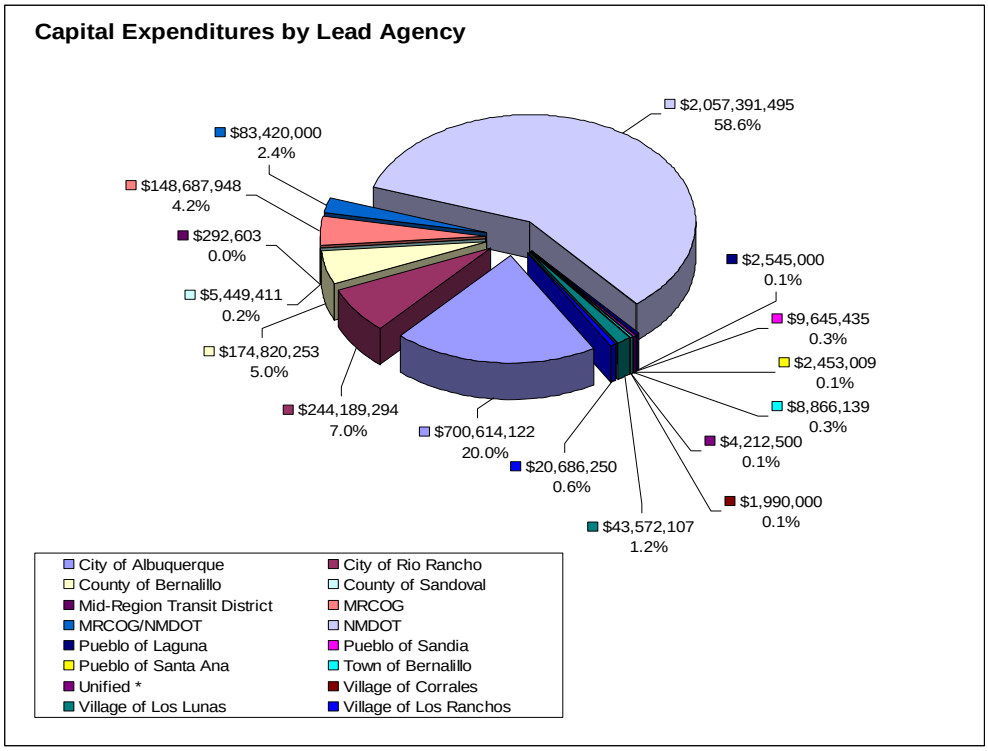
- Because the timing privately-built infrastructure is subject to market forces and is outside the control of local governments, projects identified as being funded with private sources are not considered part of the fiscally constrained MTP. These projects are identified separately and included in the 2030 model network and considered part of the 2030 Long Range Transportation System.
- Private sector expenditures are estimated using appropriate unit costs.
- Revenues are estimated to equal expenditures.

Conclusions

It should be noted that the revenue and expenditure figures presented here are estimates for planning purposes. While the estimates reflect a "surplus" of funds representing slightly larger than two percent of the total plan amount, the variability inherent in the numbers and the process used to derive the numbers could just as easily have resulted in a "deficit" of similar magnitude. Under these circumstances, prudent planning would caution against any efforts to absorb the surplus by adding projects or to eliminate projects due to a deficit.

With all planning efforts of the magnitude of the 2030 MTP, the inclusion or exclusion of specific projects or programs is not determined so much by the planning issues as much as by the financial realities and every reasonable attempt has been made to achieve a balance. The financial assumptions and analyses noted above indicate that the 2030 Metropolitan Transportation Plan meets the fiscal constraint requirements outlined in current federal planning regulations.

Figure 13-11 ▶ Capital Expenditures by Lead Agency



E. Air Quality

Air quality continues to play a major role in metropolitan planning. The MPO ensures that emissions from transportation investments will not cause new violations or affect the area's attainment of air quality standards. This is true for pollutants that have been problems for the metro area in the past, such as Carbon Monoxide in Bernalillo County, and for pollutants that may be above healthy limits in the future, such as dust and smog.

Transportation Conformity with Air Quality Plans

Air quality is an important transportation-related issue, especially for health and economic development purposes. The federal Clean Air Act Amendments (CAAA) of 1990 require that federally funded transportation plans, programs and projects in non-attainment or maintenance areas conform to the State Implementation Plans (SIP) for air quality. Bernalillo County is designated as a limited maintenance area for Carbon Monoxide (CO). As part of the development of the MTP, the MPO coordinated transportation planning with the SIP for air quality with the City of Albuquerque Environmental Health Department and other federal, state and local agencies.

The Bernalillo County Maintenance Area

Bernalillo County was redesignated to attainment status for carbon monoxide in 1996. After attaining air quality standards, an area is required to commit to and implement a twenty-year maintenance plan in two ten-year parts. Bernalillo County began its second ten-year maintenance period on August 22, 2005, and is now implementing what is referred to as a "Limited Maintenance Plan" (LMP). To qualify for limited maintenance plan status, an area must show that the air quality be at levels less than 85% of the relevant National Ambient Air Quality Standards (NAAQS). Bernalillo County qualifies for this standard and has therefore received local, state and federal appprovals of its Limited Maintenance Plan.

Transportation plans, programs, and projects must still demonstrate conformity with Limited Maintenance Plans. Under the previous maintenance plan, the MPO

was required to demonstrate that mobile source emissions would not violate the carbon monoxide budgets established in the SIP. This required rigorous analysis of transportation networks and resulting travel to model anticipated vehicle emissions on a regional basis. The total emissions were then compared to the budgets, and if less than the budget, part of transportation conformity was achieved. Other conformity requirements included appropriate consultation, planning and public involvement activities necessary under federal planning rules, and decisions by the air quality technical committtee on which "regionally significant" projects to include in air quality analysis.

An important change occurred as of August 22, 2005 in transportation conformity. Since the Limited Maintenance Plan does not contain emissions budgets, it is not possible to compare emissions from specific federal plans or projects to an upper emissions limit. For the maintenance period of a LMP, in this case 2005-2016, emissions are not capped. The U. S. Environmental Protection Agency (EPA) believes that it is unreasonable to expect that so much growth will occur in an area during a maintenance period as to cause a violation of the air quality standards. Recall that to qualify to undertake a LMP, an area must start with a demonstration that the air quality levels are less than 85% of the standard.

The fact that regional emissions analysis is no longer required brings about two significant changes with respect to the interagency consultation process. The MPO will not have to perform an air quality emissions analysis to demonstrate that emissions produced by projects in the MTP are less than the air quality budgets for CO. An LMP is based on monitored emission levels rather than modeling.

In lieu of the prior regional emissions modeling to determine conformity, the MPO received a letter from the Federal Highway Administration (FHWA) verifying that the most recent CO levels at air quality monitors remain below 85% of the standard. The FHWA received this information from the Environmental Health Department. The letter is included in the MTP. Provided that CO levels remain at or below 85% of the standard, regional emissions analyses will not be required for transportation conformity determinations. If CO levels exceed 85% of the standard at monitors, the Limited Maintenance Plan will become invalid and the requirements of the full maintenance plan will apply once again, including regional emissions analyses.

Under the LMP, the MTP must still conform with other requirements, including interagency consultation, financial constraint, a minimum 30-day public comment period for the plan, and other federal planning requirements. The FHWA, in consultation with the EPA, has determined that this MTP has met these requirements and therefore conforms with the Limited Maintenance Plan.

Alternative Fuels Programs

Alternative fuels, as defined by the Energy Policy Act of 1992 (EPAct), include ethanol, natural gas, propane, hydrogen, biodiesel, electricity, methanol, and p-series fuels. These fuels are being used worldwide in a variety of vehicle applications. Using these alternative fuels in vehicles can generally reduce harmful pollutants and exhaust emissions. In addition, most of these fuels can be domestically produced and derived from renewable sources.

In partnership, the Mid-Region Council of Governments and the Land of Enchantment Clean Cities Coalition have proposed the expansion of the use of alternative fuels in the transportation sector of the communities that are members of the MRCOG.

As part of that partnership, this section of the 2030 Metropolitan Transportation Plan addresses the various types of alternative fuels and the mandates federally and locally to use them.

National Clean Cities Program

Created in 1993 by the U.S. Department of Energy (DOE), the mission of the National Clean Cities Program is to advance the economic, environmental, and energy security of the United States by supporting local decisions to adopt practices that contribute to

reduced petroleum consumption in the transportation sector.

Clean Cities carries out this mission through a network of more than 90 volunteer, community-based coalitions, which develop public/private partnerships to promote the use of alternative fuels and vehicles, expand the use of fuel blends, encourage the use of fuel economy practices, increase the acquisition of hybrid vehicles by fleets and consumers, and advance the use of idle reduction technologies in heavy-duty vehicles.

In 1994, the Land of Enchantment Clean Cities Coalition became the 11th DOE designated Clean City Coalition. Its members total more than 60 stakeholders presently as it continues to expand its efforts state-wide. The City of Albuquerque and the Mid Region Council of Governments are stakeholders in the Land of Enchantment Clean Cities Coalition.

Today, National Clean Cities stakeholders are currently displacing 240M gasoline gallon equivalents (gge) per year, and the Clean Cities goal is to displace 2.5 billion gallons of petroleum per year by 2020. That is the equivalent of the annual gasoline consumption of 5 million cars or taking one supertanker off the high seas every eight days.

Alternative fuels are the cornerstone of Clean Cities, but in 2004 the program expanded its focus to:

- Increase the use of fuel blends (diesel/biodiesel, ethanol/gasoline, and compressed natural gas (CNG)/hydrogen),
- Accelerate sales of hybrid vehicles,
- Promote informed consumer choice on fuel economy, and
- Encourage the use of idle reduction technologies for heavy-duty trucks and other vehicles.

These four additions to the Clean Cities portfolio will help the program realize its mission and meet the program's goals of displacing 2.5 billion gallons of petroleum in the transportation sector by 2020. Clean Cities is part of the Office of Energy Efficiency and Renewable Energy's FreedomCAR & Vehicle Technologies Program.

Energy Policy Act of 1992

Congress passed the Energy Policy Act of 1992 (EPAct) on October 24, 1992, with the goals of enhancing our nation's energy security and improving environmental quality. The Act addresses all aspects of energy supply and demand, from common forms of energy such as coal, oil, and nuclear power to alternative fuels, renewable energy, and energy efficiency. Through EPAct, the U.S. Department of Energy (DOE) aims to decrease the nation's dependence on foreign oil and increase energy security by encouraging the use of domestically produced alternative fuels.

DOE's overall mission is to replace 30% of petroleum-based motor fuels by the year 2010. EPAct helps DOE achieve this goal by mandating that federal, state, and alternative fuel provider fleets purchase alternative fuel vehicles.

Alternative fuels, as defined by the Energy Policy Act of 1992 (EPAct), include:

- Methanol, ethanol, and other alcohols
- Blends of 85% or more of alcohol with gasoline
- Natural gas and liquid fuels domestically produced from natural gas
- Liquefied petroleum gas (propane)
- Coal-derived liquid fuels
- Hydrogen
- Electricity
- Biodiesel (B100)*
- Fuels (other than alcohol) derived from biological materials
- P-Series

Energy Policy Act of 2005

On August 8, 2005, President Bush signed the Energy Policy Act (EPAct) of 2005. Some of the provisions defined in EPAct 2005 are summarized in the table below. For the full text of the Act, visit the Library of Congress Web site, and search by Bill Number for HR 6.

The information provided here summarizes EPAct 2005 sections that are of interest to Clean Cities stakeholders. In many cases, the provisions require

Section 701 Federal Fleet Dual-Fuel Vehicles: Fuel Use Requirement	Requires federal fleets to use alternative fuels in dual-fuel vehicles unless the Secretary of Energy determines an agency qualifies for a waiver. Grounds for a waiver are: alternative fuel is not reasonably available to the fleet and the cost of alternative fuel is unreasonably more expensive that convention fuel.
Section 702 Federal Fleets Incremental Cost Distribution	Requires the U.S. General Services Administration (and other federal agencies that procure vehicles for fleets) to spread the incremental vehicle costs of all vehicles. This mandate modifies 42 USC 13212 (EPAct 1992 Section 303).
Section 703 Alternative Compliance for State and Alternative Fuel Provider Fleets	Expands compliance options under EPAct 1992 by allowing fleets to choose a petroleum reduction path in lieu of acquiring AFVs. Interested fleets must obtain a waiver from the U.S. Department of Energy (DOE). To receive a waiver, fleets must prove to DOE that they will achieve petroleum reductions equivalent to their alternative fuel vehicles (AFVs) running on alternative fuels 100% of the time.

further rulemaking by the appropriate agencies. Keep in mind that although EPAct 2005 "authorizes" funding for activities, in some instances, the funds must still be "appropriated" through a separate federal budgeting process. The authorized funding listed indicates ceiling amounts that federal agencies may request for the defined activity.

State of New Mexico Renewable Fuels Executive Order

By 2010, all cabinet-level state agencies, public schools (K-12), and institutions of higher education are required to take action toward obtaining fifteen percent (15%) of their total transportation fuel requirements from renewable fuels such as ethanol and biodiesel. (Reference Executive Order 2005-049, 2005)

On October 31, 2006, Governor Bill Richardson announced his legislative agenda in the areas of clean energy and a clean environment. The Governor's agenda is designed to invest in the tax incentives, biofuels and green buildings that will continue to make New Mexico the nation's Clean Energy State. It includes a $23 million investment in energy efficiency and green buildings, a recurring investment ($9.6 million this year) for land, wildlife, and clean energy projects, and $3 million in tax incentives for biofuels, energy efficient appliances and renewable energy manufacturers.

Renewable Fuels

To help break our addiction to foreign oil, keep our air clean and create jobs, Governor Richardson today proposed tax credits for the use and distribution of biofuels like biodiesel. Under the Governor's proposal, biodiesel distributors will receive a six cent per gallon tax credit for every gallon of B5 biodiesel blend delivered beginning in 2007, and biodiesel facilities will be eligible for a one time tax credit of 30% of the cost of equipment and installation to allow for the sale of biodiesel blended fuels. He also announced biofuel standards that will mean by 2012, five percent of every gallon of diesel sold in New Mexico will come from agricultural sources, and a 20 percent biodiesel standard by 2020. This plan will save the equivalent of half-a-million barrels of oil per year by 2012, rising to 2.2 million barrels of oil saved annually by 2020.

City of Albuquerque Alternative Fuels Executive Order

Recognizing the overall benefits of alternative fuels, Mayor Martin J. Chavez in March 2006 issued Executive Order # 19 requiring 100 % use of alternative fuels in the municipal fleet. This effort is complimented by frameworks established by the Kyoto protocols for local governments supported by the U.S. Conference of Mayors.

While it is widely acknowledged that no one fuel represents a universal solution to transportation, each of the alternative fuels examined by the City of Albuquerque are less polluting than conventional petroleum based fuels. However, the lack of a widespread alternative fuels infrastructure must be addressed by the city in tandem with the alternative fuels deployed by the City. Ultimately, it remains in the community's, and the country's, best interest to incorporate a mix of clean alternative fuels for most municipal fleet duty cycle applications.

Alternative Fuels Summary

Alternative fuels are being used worldwide in a variety of applications. Using alternative fuels in vehicles can reduce harmful pollutants and exhaust emissions. In addition, most of these fuels can be domestically produced and derived from renewable sources.

Biodiesel

Biodiesel is a domestically produced, renewable fuel that can be manufactured from vegetable oils, animal fats, or recycled restaurant greases. Biodiesel is safe, biodegradable, and reduces serious air pollutants such as particulates, carbon monoxide, hydrocarbons, and air toxics. Blends of 20% biodiesel with 80% petroleum diesel (B20) can generally be used in unmodified diesel engines; however, users should consult their OEM and engine warranty statement. Biodiesel can also be used in its pure form (B100), but it may require certain engine modifications to avoid maintenance and performance problems and may not be suitable for wintertime use. Users should consult their engine warranty statement.
Pure biodiesel (B100) is considered an alternative fuel under EPAct. Lower-level biodiesel blends are not considered alternative fuels, but covered fleets can earn one EPAct credit for every 450 gallons of B100 purchased for use in blends of 20% or higher. Biodiesel (fatty acid alkyl esters) is a cleaner burning diesel replacement fuel made from natural, renewable sources such as new and used vegetable oils and animal fats. Just like petroleum diesel, biodiesel operates in compression-ignition engines. Blends of up to 20% biodiesel (mixed with petroleum diesel fuels) can be used in nearly all diesel equipment and are compatible with most storage and distribution equipment. These low-level blends (20% and less) generally do not require any engine modifications, however, users should consult their OEM and engine warranty statement. Biodiesel can provide the same payload capacity and as diesel.

Higher blends, even pure biodiesel (100% biodiesel, or B100), may be able to be used in some engines (built since 1994) with little or no modification. However, engine manufacturers are concerned about the impact of B100 on engine durability. Additionally, B100 is generally not suitable for use in low temperature conditions. Transportation and storage of B100, however, require special management.

Using biodiesel in a conventional diesel engine substantially reduces emissions of unburned hydrocarbons, carbon monoxide, sulfates, polycyclic aromatic hydrocarbons, nitrated polycyclic aromatic hydrocarbons, and particulate matter. These reductions increase as the amount of biodiesel blended into diesel fuel increases. The best emission reductions are seen with B100.

The use of biodiesel decreases the solid carbon fraction of particulate matter (since the oxygen in biodiesel enables more complete combustion to CO2) and reduces the sulfate fraction (biodiesel contains less than 15 ppm sulfur), while the soluble, or hydrocarbon, fraction stays the same or increases. Therefore, biodiesel works well with emission control technologies such as diesel oxidation catalysts (which reduce the soluble fraction of diesel particulate but not the solid carbon fraction).

Emissions of nitrogen oxides increase with the concentration of biodiesel in the fuel and the increase is roughly 2% for B20. Some biodiesel produces more nitrogen oxides than others, and some additives have shown promise in reducing the increases. More R&D is needed to resolve this issue.

Biodiesel has physical properties very similar to conventional diesel.

Electricity

Electricity can be used as a transportation fuel to power battery electric and fuel cell vehicles. When used to power electric vehicles or EVs, electricity is stored in an energy storage device such as a battery. EV batteries have a limited storage capacity and their electricity must be replenished by plugging the vehicle into an electrical source. The electricity for recharging the batteries can come from the existing power grid, or from distributed renewable sources such as solar or wind energy.

Fuel cell vehicles use electricity produced from an electrochemical reaction that takes place when hydrogen and oxygen are combined in the fuel cell "stack." The production of electricity using fuel cells takes place without combustion or pollution and leaves only two byproducts, heat and water.

Electricity is unique among the alternative fuels in that mechanical power is derived directly from it, whereas the other alternative fuels release stored chemical energy through combustion to provide mechanical power. Motive power is produced from electricity by an electric motor.

Electricity used to power vehicles is commonly provided by batteries, but fuel cells are also being explored. Batteries are energy storage devices, but unlike batteries, fuel cells convert chemical energy to electricity.

Ethanol

Ethanol is an alcohol-based alternative fuel produced by fermenting and distilling starch crops that have been converted into simple sugars. Feed stocks for this fuel include corn, barley, and wheat. Ethanol can also be produced from "cellulosic biomass" such as trees and grasses and is called bioethanol. Ethanol is most commonly used to increase octane and improve the emissions quality of gasoline.

Ethanol can be blended with gasoline to create E85, a blend of 85% ethanol and 15% gasoline. E85 and blends with even higher concentrations of ethanol, E95, for example, qualify as alternative fuels under the Energy Policy Act of 1992 (EPAct). Vehicles that run on E85 are called flexible fuel vehicles (FFVs) and are offered by several vehicle manufacturers.

In some areas of the United States, lower concentrations of ethanol are blended with gasoline. The most common low concentration blend is E10 (10% ethanol and 90% gasoline). While it reduces emissions, E10 is not considered an alternative fuel under EPAct regulations.

Ethanol (ethyl alcohol, grain alcohol, EtOH) is a clear, colorless liquid. In dilute aqueous solution, it has a somewhat sweet flavor, but in more concentrated solutions it has a burning taste. Ethanol (CH3CH2OH) is made up of a group of chemical compounds whose molecules contain a hydroxyl group, -OH, bonded to a carbon atom. Ethanol made from cellulosic biomass materials instead of traditional feed stocks (starch crops) is called bioethanol.

The Clean Air Act Amendments of 1990 mandated the sale of oxygenated fuels in areas with unhealthy levels of carbon monoxide. Since that time, there has been strong demand for ethanol as an oxygenate blended with gasoline. In the United States each year, approximately two billion gallons are added to gasoline to increase octane and improve the emissions quality of gasoline.

Blends of at least 85% ethanol are considered alternative fuels under the Energy Policy Act of 1992 (EPAct). E85, a blend of 85% ethanol and 15% gasoline, is used in flexible fuel vehicles (FFVs) that are currently offered by most major auto manufacturers. FFVs can run on gasoline, E85, or any

combination of the two and qualify as alternative fuel vehicles under EPAct regulations.

In some areas, ethanol is blended with gasoline to form an E10 blend (10% ethanol and 90% gasoline).
Chemical properties: Ethanol is ethane with a hydrogen molecule replaced by a hydroxyl radical.

Hydrogen

Hydrogen (H2) will play an important role in developing sustainable transportation in the United States, because in the future it may be produced in virtually unlimited quantities using renewable resources. Hydrogen has been used effectively in a number of internal combustion engine vehicles as pure hydrogen mixed with natural gas.

In addition, hydrogen is used in a growing number of demonstration fuel cell vehicles. Hydrogen and oxygen from air fed into a proton exchange membrane (PEM) fuel cell "stack" produce enough electricity to power an electric automobile, without producing harmful emissions.

The simplest and lightest fuel is hydrogen gas (H2). Hydrogen is in a gaseous state at atmospheric pressure and ambient temperatures. Hydrogen may contain low levels of carbon monoxide and carbon dioxide, depending on the source.

Hydrogen is being explored for use in combustion engines and fuel cell electric vehicles. On a volumetric basis, the energy density of hydrogen is very low under ambient conditions. This presents greater transportation and storage hurdles than for liquid fuels. Storage systems being developed include compressed hydrogen, liquid hydrogen, and physical or chemical bonding between hydrogen and a storage material (for example, metal hydrides).

The ability to create hydrogen from a variety of resources and its clean-burning properties make it a desirable alternative fuel. Although there is no significant transportation distribution system currently for hydrogen transportation use, we can transport and deliver hydrogen for early market penetration using the established hydrogen infrastructure; for significant market penetration, the infrastructure will need further development.

Methanol

Methanol, also known as wood alcohol, can be used as an alternative fuel in flexible fuel vehicles that run on M85 (a blend of 85% methanol and 15% gasoline). However, it is not commonly used because automakers are no longer supplying methanol-powered vehicles.

Methanol can be used to make methyl tertiary-butyl ether (MTBE), an oxygenate which is blended with gasoline to enhance octane and create cleaner burning fuel. MTBE production and use has declined because it has been found to contaminate ground water.

Methanol (CH3OH) is an alcohol fuel. Today most of the world's methanol is produced by a process using natural gas as a feedstock. However, the ability to produce methanol from non-petroleum feedstocks such as coal or biomass is of interest for reducing petroleum imports.
Chemical Properties: As engine fuels, ethanol and methanol have similar chemical and physical characteristics. Methanol is methane with one hydrogen molecule replaced by a hydroxyl radical (OH).

Natural Gas

Natural gas is domestically produced and readily available to end-users through the utility infrastructure. It is also clean burning and produces significantly fewer harmful emissions than reformulated gasoline or diesel when used in natural gas vehicles. In addition, commercially available medium- and heavy-duty natural gas engines have demonstrated over 90% reductions of carbon monoxide (CO) and particulate matter and more than 50% reduction in nitrogen oxides (NOx) relative to commercial diesel engines. Natural gas can either be stored onboard a vehicle as compressed natural gas (CNG) at 3,000 or 3,600 psi or as liquefied natural gas (LNG) at typically 20-150 psi. Natural gas can also be blended with hydrogen.

Natural gas is a mixture of hydrocarbons—mainly methane (CH4)—and is produced either from gas wells or in conjunction with crude oil production. Natural gas is consumed in the residential, commercial, industrial, and utility markets.

The interest in natural gas as an alternative fuel stems mainly from its clean burning qualities, its domestic resource base, and its commercial availability to end users. Because of the gaseous nature of this fuel, it must be stored onboard a vehicle in either a compressed gaseous state (CNG) or in a liquefied state (LNG).

Chemical Properties: The main constituent of natural gas is methane, which is a relatively unreactive hydrocarbon. Natural gas as delivered through the pipeline system also contains hydrocarbons such as ethane and propane; and other gases such as nitrogen, helium, carbon dioxide, hydrogen sulfide, and water vapor.

Propane

Propane or liquefied petroleum gas (LPG) is a popular alternative fuel choice for vehicles because there is already an infrastructure of pipelines, processing facilities, and storage for its efficient distribution.

Besides being readily available to the general public, LPG produces fewer vehicle emissions than gasoline. Propane is produced as a by-product of natural gas processing and crude oil refining.

According to the Gas Processors Association HD5 specification for LPG as a transportation fuel, LPG must consist of 90% propane, no more than 5% propylene, and 5% other which is primarily butane and butylene. It is produced as a by-product of natural gas processing and petroleum refining. The components of LPG are gases at normal temperatures and pressures.

P-Series

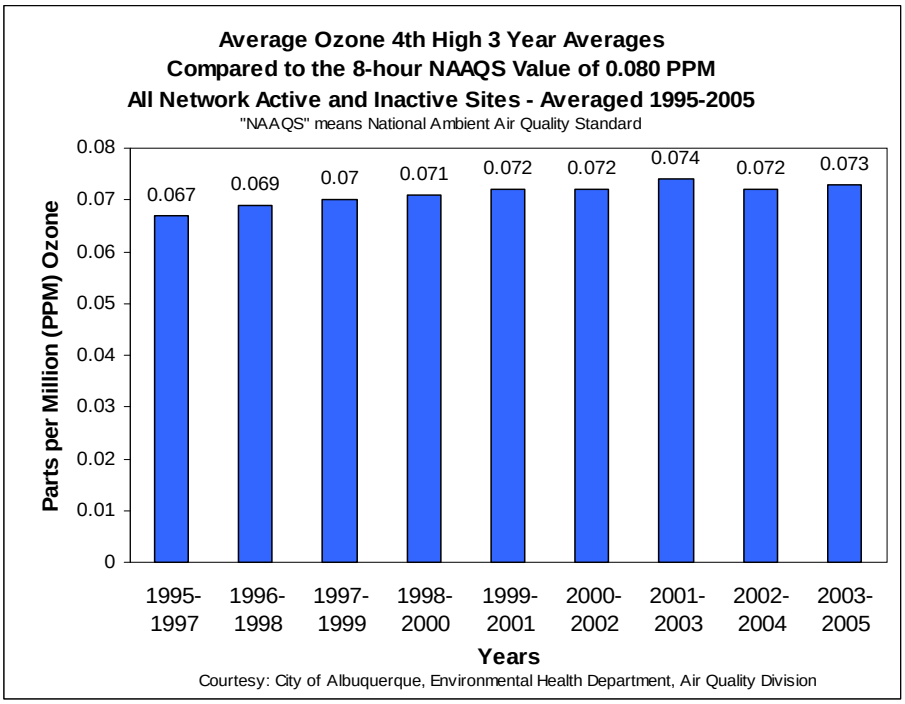
P-series fuel is a unique blend of natural gas liquids (pentanes plus), ethanol, and the biomass-derived co-solvent methyltetrahydrofuran (MeTHF). P-Series fuels are clear, colorless, 89-93 octane, liquid blends that are formulated to be used in flexible fuel vehicles (FFV's). P-Series are designed to be used alone or freely mixed with gasoline in any proportion inside the FFV's gas tank. These fuels are not currently being produced in large quantities and are not widely used. Since 1992, when the Energy Policy Act (EPAct) was passed, only one new fuel has been recognized as an alternative fuel under the EPAct petitions provision. P-Series fuels were added to the list of alternative fuels in 1999.

Future Potential Air Quality Issues

Like many medium size urban areas, the Albuquerque region may be approaching potential violations to the federal standards for ozone. Ground-level ozone is the principal ingredient in photochemical smog. It is the final product of a series of complex chemical reactions that take place in the lower atmosphere between so-called 'ozone precursors' in the presence of heat and sunlight. Principal among the ozone precursors are volatile organic compounds (VOC) such as raw fuel vapors, and oxides of nitrogen (NOx) formed primarily during combustion of fossil fuels. The ozone precursors mingle together in the atmosphere and "cook" in the presence of ultraviolet light given off by the sun. Since ozone doesn't form immediately, and because heat and sunlight are actors in its creation, ozone can form miles away from the original source of its precursors, and it forms more readily during the hot summer months.

In fact data from many of the air monitors in this region indicate that the trend has been in the upward direction, towards violations, for several years (see Figure 13-12). The 8-hour standard is 0.080 parts per million of ozone. Monitors have recorded occasional concentrations that approach 90% of the standard during the summer ozone season. In the event that this trend continues, this region may be facing non-attainment for ozone. If this occurs it may be more difficult for agencies to utilize federal transportation dollars for general purpose lane additions to the roadway system, there may be additional pressure on transportation agencies to reduce dependency on auto travel, and additional regulatory requirements may be required to reduce the production of ozone.

Figure 13-12



Though no violations of federal standards for ozone have occurred in the AMPA region, ambient concentrations of this unhealthy pollutant are high enough to warrant steps to reduce its formation in our airshed. Many projects currently planned in this MTP and programmed in the TIP, especially those funded with Congestion Mitigation/Air Quality (CMAQ) funds, to reduce carbon monoxide emissions may also help in reducing ground-level ozone. This is yet another positive effect of increasing the share of trips by transit, walking, biking, and high-occupancy vehicles. Reducing ozone could also be another compelling side-effect of creating communities in which some trips by car are replaced by walking and other more air-friendly travel.

F. Federal Planning Emphasis Areas

SAFETEA-LU, which was signed into law in August 2005, identifies eight planning emphasis areas to be considered in the development of the MTP and the decisions about capital and programming investments resulting from the plan and metropolitan Transportation Improvement Program (TIP). The emphasis areas and a brief description of how they are addressed in the AMPA are provided below.

1. **Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency**
   The MPO participates on economic development boards and committees throughout the region. The Public Involvement Committee includes representatives from the Economic Forum and the local Chambers of Commerce. MRCOG administers the local Workforce Investment Act activities. These staff contacts allow MRCOG to assess the economy-related needs of the transportation system and respond to those needs appropriately. Meeting the mobility needs of the workforce as well as goods movement provides ample opportunities to expand the MPA's competitiveness in the global economy.

2. **Increase the safety of the transportation system for motorized and non-motorized users**
Safety is an important factor in the transportation system and is considered at both the project and area-plan levels. Safety considerations are routinely considered as part of the analyses for public transportation, bicycle and roadway projects. The Walking/Bicycling Advisory Group (WABAG) provides an opportunity to obtain citizen and staff input regarding pedestrian and bicycling safety issues for projects and plans. MPO staff served in leadership and participatory roles in developing the statewide Comprehensive Transportation Safety Plan initiated by the NMDOT during FY 2006.

3. **Increase the security of the transportation system for motorized and non-motorized users**
The terrorist events of September 11, 2001 provide a good illustration of the challenges facing metropolitan areas in preparing for and responding to unexpected security incidents or natural disasters. One lesson from September 11th is paramount – effective coordination and communication among the many different operating agencies in a region is essential. Such coordination is needed to allow enforcement/ security/safety responses in an expeditious manner, while at the same time still permitting the transportation system to handle the possibly overwhelming public response to the incident.

   Although the immediate organizational response to security incidents and disasters will be the responsibility of security/public safety agencies, there is an important role that MPOs can play in promoting coordinated planning in anticipation of unexpected events or natural disasters. In addition, the MPO could also provide a centralized location of information on transportation system conditions and local/ national responses that might be useful in an emergency. Particularly in the development of the Metropolitan Transportation Plan (MTP), the MPO will pursue planning and coordination efforts related to transportation security.

4. **Increase the accessibility and mobility of people and for freight**
To the extent possible, all MPA transportation planning efforts work towards ensuring that accessibility and mobility options are considered and moved forward. The Transportation Accessibility Model (TRAM) activity is specifically aimed at identifying ways to increase the accessibility of the transportation system to citizens. Combined with demographic data, this work enables planning for specific target populations and communities. The Commuter Rail and United We Ride projects are also designed to provide people in the region with more mobility options.

5. **Protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and State and local planned growth and economic development patterns**
One of the more important goals of the transportation planning process is ensuring that the transportation system is responsive to environmental considerations such as air quality. During FY 2006, the Limited Maintenance Plan for carbon monoxide became effective, demonstrating the positive results of the MPO working together with local, state, and federal partners. Staff continues to work with area partners to monitor air quality issues related to ozone, and the MRCOG is a signatory of the memorandum of understanding forming the Land of Enchantment Clean Cities Corridor program.

6. **Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight**
MPO planning efforts continue to be multimodal as well as intermodal in nature. This includes ensuring the connectivity of the transportation system for goods movement as well as the mobility of the traveling public. The WABAG meets regularly to discuss bicycle and pedestrian issues and to assure that the PIC and TPTG have vital

information regarding bicycle and pedestrian concerns. As part of the development of the 2030 MTP, MPO staff have developed a Pedestrian Composite Index that analyzes markets for and deterrents against pedestrian activity in an effort to identify and prioritize areas for potential improvements. MPO staff coordinates closely with the NMDOT Bicycle/Pedestrian/Equestrian committee. The Commuter Rail and United We Ride projects address integration and connectivity issues in the transportation system.

7. **Promote efficient system management and operation**
   Efforts related to system management and operation are similar to those concerned with system preservation in that they emphasize ensuring that the system functions in an efficient manner. MPO planning activities include assessing the efficiency of the current system prior to recommending capacity improvements in the MTP or programming funds in the TIP. The MPO has begun major revisions to the Congestion Management System to better integrate it into the planning process. And the MPO continues to provide technical support and coordination for Intelligent Transportation System planning and projects.

8. **Emphasize the preservation of the existing transportation system**
   Ensuring the adequacy of the existing infrastructure is critical to continuation of the transportation system. The MPO continues to focus on preserving infrastructure, emphasizing it in the goals which guide development of the MTP. In fact, the majority of public funds for roadways in the 2025 MTP is devoted to preserving past investments through reconstruction and rehabilitation projects. This same emphasis is expected to be present in future MTPs and TIPs.