



**Belen to Santa Fe Commuter Rail Project  
Project Development History  
October 2009**



*New Mexico Rail Runner Express Train at Waldo Canyon Bridge*

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## **Belen to Santa Fe Commuter Rail Overview**

On July 14<sup>th</sup>, 2006 at 5:10 a.m. the first regularly scheduled New Mexico Rail Runner Express commuter train left the downtown Albuquerque station for the Sandoval/U.S. 550 station in Bernalillo. This trip represented the start of service for a project that began in earnest in January of 2004, two and half years prior to the first day of service. On December 11<sup>th</sup>, 2006 service was opened to Los Lunas, and on February 2, 2007 service was extended to Belen. The Bernalillo County/International Sunport station was opened on April 17<sup>th</sup>, 2007 followed by the opening of the Downtown Bernalillo station on April 27<sup>th</sup>, 2007. The Isleta Pueblo station was officially put into service on Friday December 19<sup>th</sup>, 2008.

On November 10, 2008, the first New Mexico Rail Runner Express test train slowly navigated the new alignment into Santa Fe and back. On December 15, 2008, two inaugural trains made the trip from Belen to Santa Fe marking the official opening of service to Santa Fe. Two days later, on December 17<sup>th</sup>, 2008, the first regularly scheduled revenue trains ran between Albuquerque and Santa Fe. The opening of the Santa Fe extension added another 50 miles of service to the New Mexico Rail Runner Express operating territory and marked the completion of an aggressive project to implement 100 miles of commuter rail service within a five year time frame.

The development of service in this corridor within the schedule and budget set forth for the project required concurrent efforts on many fronts. New cars and locomotives were procured; existing track and facilities were purchased from the BNSF; property was purchased for stations and the new track alignment. Ten stations and 22 miles of new track was constructed, several sidings were upgraded and approximately 80 miles of new CTC was put in place. New gates were installed at over 20 road crossings, 9 crossings were closed and quiet zones were implemented along several portions of the corridor. An internet based and hand held ticket purchase system was implemented along with a customer service and dispatch center. Train schedules and new coordinated bus routes were developed to provide new or improved connections to key markets. Finally, a tax initiative was placed on the general election ballot in November of 2008. This initiative was passed by the voters providing operating funds for train and bus service.

The implementation of commuter rail service in this corridor began in August of 2003 when Governor Bill Richardson announced that his administration was going to pursue the implementation of commuter rail between Belen and Santa Fe. To kick off this effort, the Governor provided the New Mexico Department of Transportation (NMDOT) and the Mid Region Council of Governments (MRCOG) with grants of \$1 million to begin the implementation. In September of that same year, the New Mexico State Legislature convened in special session and passed House Bill 15, now referred to as Governor Richardson's Investment Partnership (GRIP), a \$1.6 billion transportation improvement package. One of the projects in this bill, Section 27, A(2) was the implementation of commuter rail between Belen and Santa Fe.

Responding to this legislative and executive initiative, the MRCOG and the NMDOT developed a strategy for implementing commuter rail in this corridor. The project was divided into two phases. Phase I includes the portion of the corridor between Belen and Bernalillo. Phase II covers the remaining portion between Bernalillo and Santa Fe.

The purpose of this document is to provide an overview of the status and project development history of both phases of the commuter rail system.. This document was originally produced in September of 2004 to provide interested parties with information on the status of the various elements of the commuter rail project from Belen to Santa Fe. Since its original production, it has been updated on a quarterly basis to reflect the most recent information. It has also been posted on the New Mexico Rail Runner web site continuously since September of 2004. The information contained in this report has been drawn from a large number of disparate sources. There is a significant amount of detail in many of these sources that is not reproduced in this document, but is available should additional questions arise.

## **Commuter Rail Defined**

There are many different types of rail passenger transport in service in the U.S. today. Amtrak provides long distance interstate passenger service in many corridors. Large urban areas like Los Angeles have light rail and commuter rail. Some cities utilize trolleys or cable cars. Most commuter rail operations in the U.S. are oriented toward longer distance work trips that are 15 – 100 miles in length. In order to provide travel times that are reasonably competitive with the auto, stations are generally spaced between five and eight miles apart. They typically serve bedroom communities, suburban and rural areas at the origin end, and an urban center or large employment clusters on the destination end. In the western U.S., most commuter rail services utilize diesel powered locomotives to pull commuter rail passenger cars. Figure 1 depicts a typical commuter rail train set.

Figure 1. Commuter Rail Train Set



Commuter rail stations on the origin end are often park and ride lots with a boarding platform and drop off accommodations for autos and transit. An illustration of this type of station is shown in Figure 2.

Figure 2. Commuter Rail Station



At the destination end which is often the central city or downtown core of an urban area, stations are typically more elaborate because they serve multiple lines and multiple uses. Union station in Downtown Dallas, for example, serves Amtrak, the Trinity Rail Express (which is the Dallas/Fort Worth Commuter Line) and the Dallas Area Rapid Transit (DART) light rail lines.

In the western U.S., it is common for commuter rail trains to utilize the same tracks as freight trains, although several commuter rail operations such as Caltrain, and Utah Transit Authority either bought freight lines to utilize for passenger service or bought rights of way within a freight rail corridor to construct track for passenger rail service.

Commuter rail service is often confused with light rail service. Light rail operations typically serve much shorter distance trips (5-10 miles) and may have stations or stops every half mile to a mile. Light rail trains do not run on tracks carrying freight trains, and often run on tracks that run parallel to, or in the middle of general purpose traffic lanes. Light rail systems are almost exclusively run using electric power supplied by overhead wires or an electrified third rail. Light rail systems are also a lot more expensive to implement, partially due to the electrical subsystems that are required to supply power to

the line. Light rail systems cost on the order of \$35-60 million a mile to implement. In most cases light rail systems serve more intense suburban and urban developments.

## Regional Context

The Belen - Santa Fe Corridor is the center of population and the economic, financial, governmental, and educational heart of the state of New Mexico. This corridor is critical for commuters, freight, tourism, business and government for nearly one million residents and two million visitors every year. The corridor has many unique features, including connections between the Albuquerque International Airport and the State Capitol in Santa Fe. In addition, seven Native American Pueblos are located within the corridor.

Albuquerque is part of an urbanized region stretching across four counties. As the commercial, financial and educational center of the state, the population of the region has almost doubled in the past 30 years to more than 740,000 (2002 estimate) and is predicted to increase another 40 percent, to about 1,075,000, by 2025.

In the Santa Fe metropolitan area, the population has more than doubled in the same 30-year period to 142,500 and it is expected to increase another 60% to 228,000 by 2025. While Santa Fe is a major regional employment center with over 79,000 jobs, (about 21,000 of which are government related) the lack of affordable housing forces much of the workforce to live outside the city. The median home price in Santa Fe was \$270,475 in 2003, nearly \$100,000 higher than the national median. **By 2007 the median price for a home in Santa Fe increased to \$371,000.** At the same time, the median household income is less than the national average. This has created a significant commuter population traveling the corridor on a daily basis. Santa Fe is also a well-known tourist destination attracting between 1 and 2 million visitors each year. It is a major factor in the economy of the state.

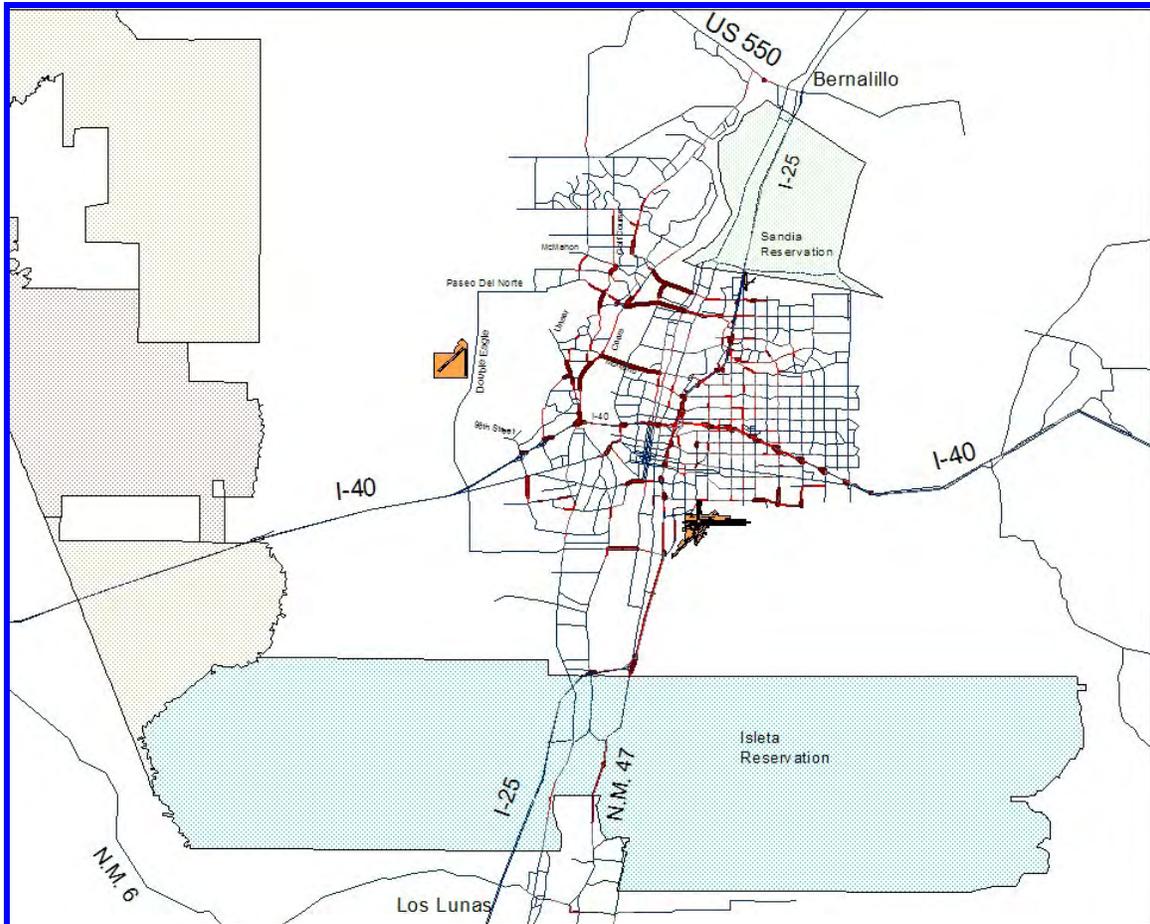
In 2002, New Mexico's population was estimated at 1,855,000. Total employment for this same year was estimated at 774,000. The Albuquerque-Santa Fe corridor contains nearly half of the state's entire population. With over 443,000 jobs in the corridor, Albuquerque and Santa Fe together contain nearly 60% of New Mexico's employment. By 2025, population in the corridor will grow by nearly 50% to more than 1,300,000.

## Transportation Issues in the Middle Rio Grande Valley

The MRCOG is the federally designated Metropolitan Planning Organization (MPO) for Bernalillo County and the southern portion of Sandoval County, which includes the communities of Rio Rancho, Bernalillo, Algodones and Placitas. In addition, the MRCOG is the Regional Planning Organization (RPO) for Valencia and Tarrant Counties. Acting in the capacity of the MPO, the MRCOG is required to produce (every four years) a Metropolitan Transportation Plan (MTP), which contains a prioritization (in five year increments) of all transportation projects over a minimum of the next 20 years. This plan also has to be financially constrained, which means transportation revenues are projected for the time frame covered by the plan, and the sum of transportation capital

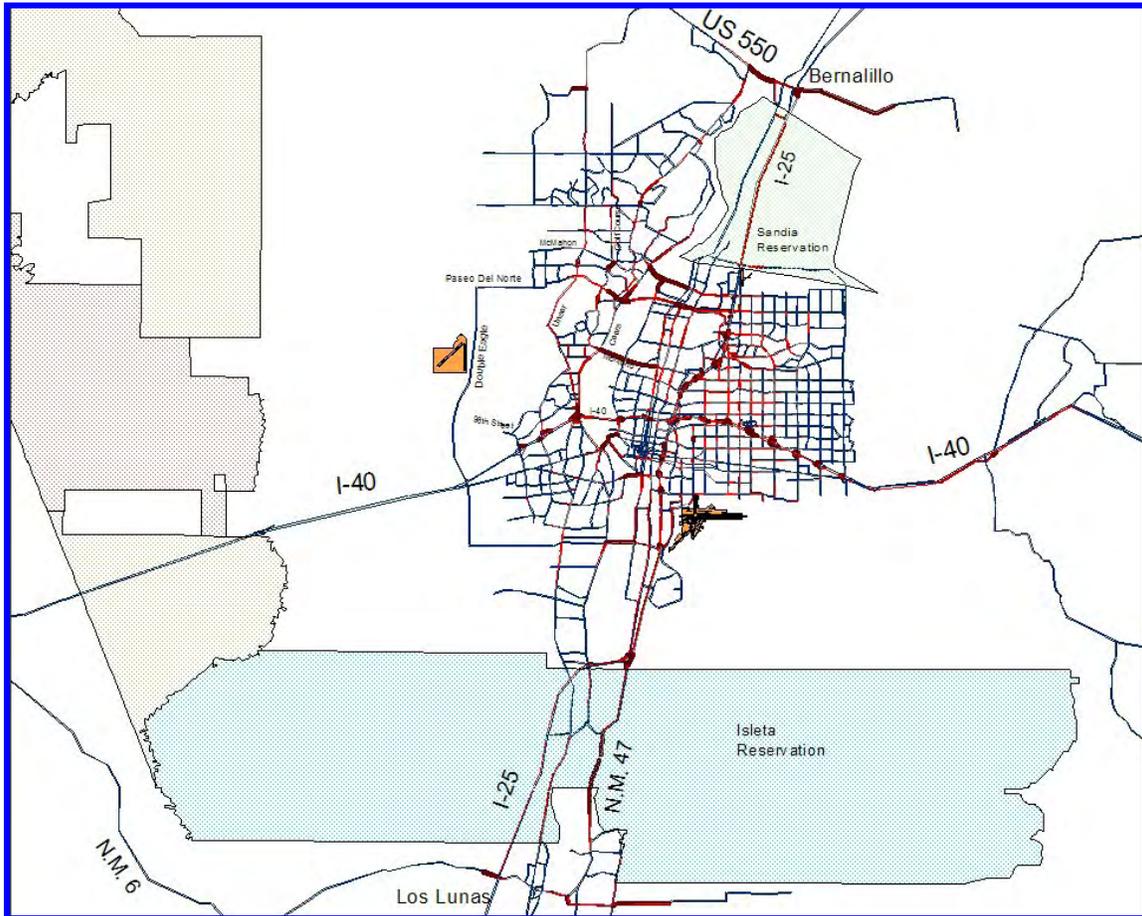
projects and maintenance activities, cannot exceed expected revenues. In order to develop this plan, the MRCOG conducts a great deal of analysis to assess the performance of the transportation system at different time intervals. This is done utilizing a series of models that forecast future transportation demand based on the distribution of growth and the anticipated transportation supply. Figure 3. below shows an example of this kind of analysis.

Figure 3. Volume to Capacity Ratios on the MTP Year 2002 Roadway Network



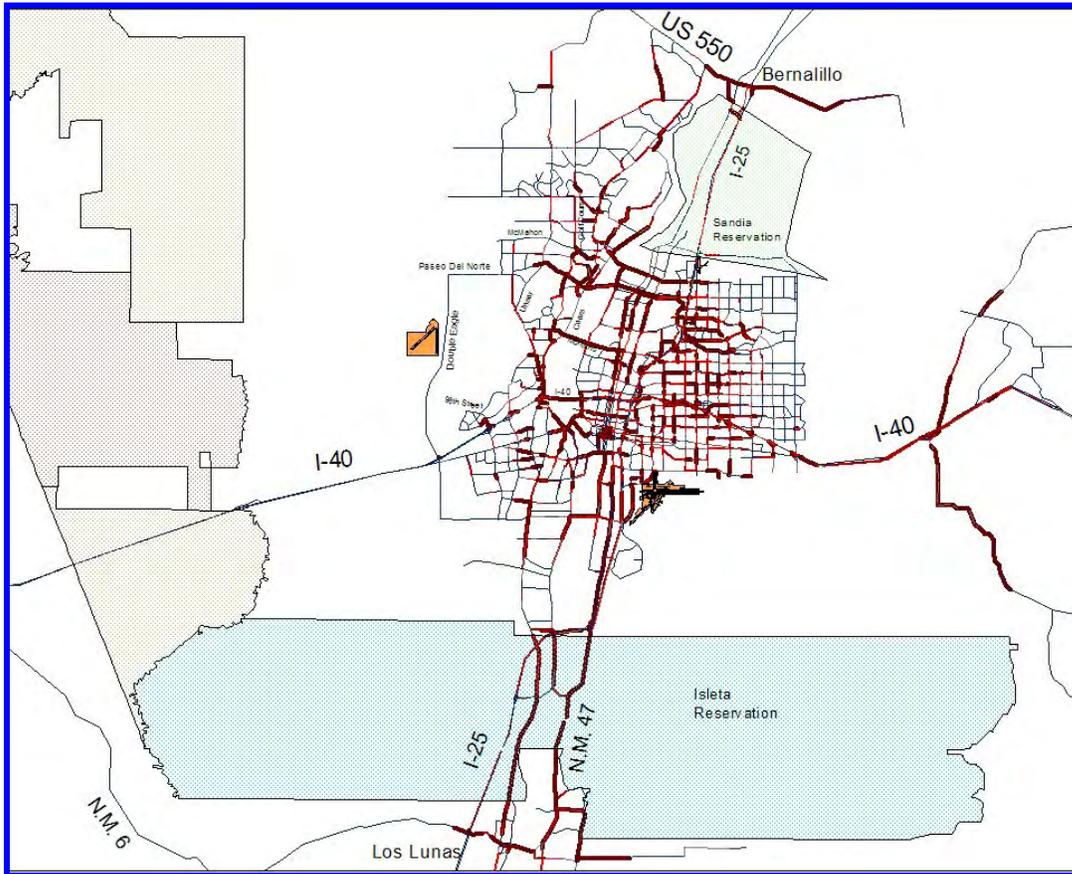
Volume to capacity ratios are a measure of the peak hour auto volumes relative to the hourly capacity of the roadway. Roadways that are in blue have lower volume to capacity ratios and are therefore not congested during the peak hour. Roadways that are red or dark red, are roadways which were at, or over capacity in the peak hour in the year 2002. The year 2002 served as a base year for the MRCOG 2025 MTP. The figure illustrates that the river crossings and several Westside arterials are congested as are portions of the interstate system. The section of I-25 between Broadway (N.M. 47) and Gibson Blvd. is also experiencing some peak hour congestion. The next figure shows this same information for the year 2010.

Figure 4. Volume to Capacity Ratios on the MTP Year 2010 Roadway Network



One can see in Figure 4, that despite additional roadway construction projects between 2002 and the year 2010, there are still many places in the region where roadways are anticipated to be congested. This is particularly true of the river crossings and on the interstate system. I-25 is projected to be fairly congested from the N.M. 47 Interchange to Gibson, and portions of I-25 and N.M. 47 (the two key facilities that transport traffic between Bernalillo County and Valencia County) are anticipated to experience peak hour congestion through portions of the Isleta Reservation. On the northern side of Albuquerque, I-25 (the only major roadway facility connecting Bernalillo, Northern Rio Rancho and Placitas to the urban area) is anticipated to experience peak hour congestion as are portions of U.S. 550 (from N.M. 528 to I-25) and N.M. 165 (the state road to Placitas). This portion of the urban area is also one of the fastest growing parts of the community for residential development. Much of this new residential growth will produce additional work trips destined for the central portion of Albuquerque. Work trips are typically concentrated during the peak periods causing the need for additional capacity in the corridor. Figure 5 shows this same information for the year 2025.

Figure 5. Volume to Capacity Ratios on the MTP Year 2025 Roadway Network



By the year 2025, peak hour congestion in this region is anticipated to be a great deal worse than 2002 or 2010. All routes connecting Valencia County to the Albuquerque urban area are anticipated to be severely congested for long distances. Even the section between Rio Bravo and Gibson is congested despite the addition of lanes on I-25 along this portion of the roadway. On the north side (which assumes an additional lane on I-25 between Tramway and U.S. 550) there is still moderate congestion on I-25 but more severe congestion on U.S. 550 and at the U.S. 550/I-25 Interchange. It is also worth noting the interstate and arterials adjacent to most of the activity centers in the urban area (Downtown, Uptown, Journal Center, Albuquerque International Airport, UNM/TVI and Intel) are anticipated to be congested. Keep in mind that the roadway network for the year 2025 includes and assumes many new and capacity enhanced facilities over the 2002 base year. In fact, the capital costs of these improvements on the roadway side (in year 2002 dollars), plus the maintenance cost (for the roadway system between 2002 and 2025) is estimated at \$1.9 billion in the MTP.

These figures illustrate that despite extensive expenditures on new roadway capacity, mobility in the region is expected to decline significantly over time. To translate some of this information into more understandable terms, the table below illustrates peak hour travel times between Belen and Albuquerque and Bernalillo and Albuquerque for 2004 and the year 2025.

Table 1. Auto Travel Times

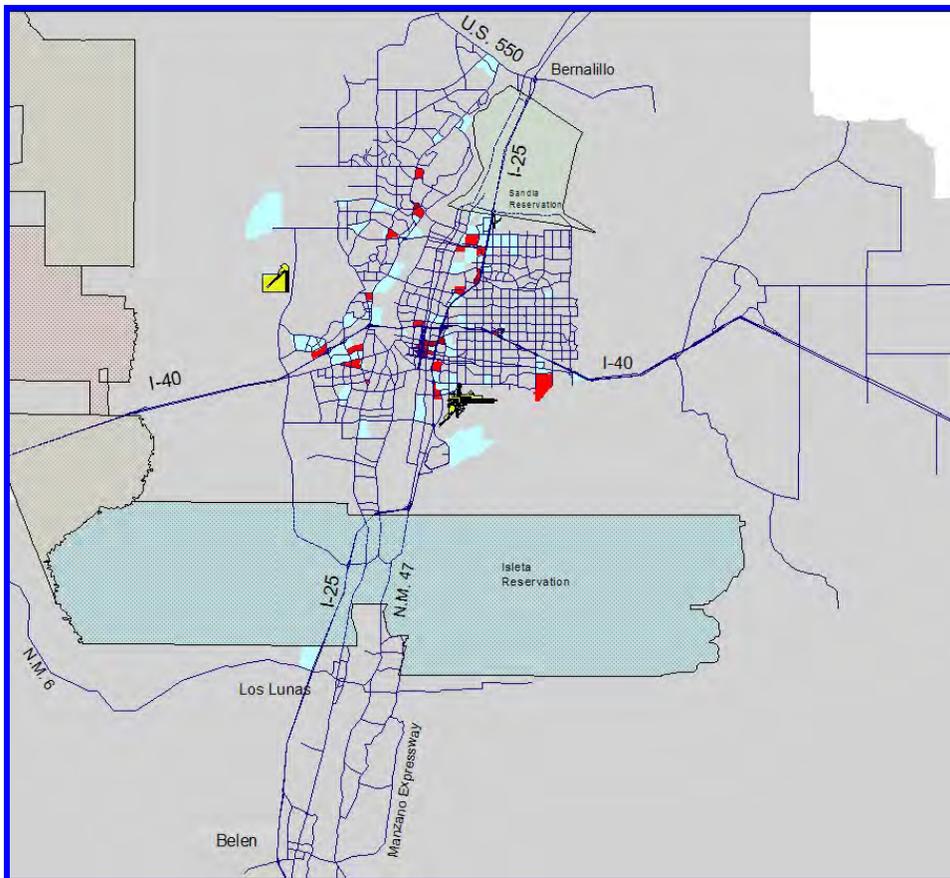
Downtown Albuquerque to Downtown Belen  
Distance 34 Miles

Peak Hour	Year 2004	Year 2025	Difference
Travel Time In Minutes	45	82	37
Avg. Speed	46 mph	25 mph	21 mph

Downtown Albuquerque to Downtown Bernalillo  
Distance 20 Miles

Peak Hour	2004	2025	Difference
Travel Time In Minutes	25	35	10
Avg. Speed	48 mph	34 mph	14 mph

Figure 6. Growth in Jobs Expressed in Jobs Per Acre 2002-2025



There are many factors that explain the degeneration of the region’s roadway performance over time. They include growth and the distribution of growth, the costs of

and the resources available to provide the necessary transportation services and infrastructure, the existence of significant environmental, physical or political obstacles in many of the critical transportation corridors, and the phenomena of generated traffic.

Figures 6 and 7 illustrate two of these factors more clearly. Figure 6 shows job growth expressed in jobs per acre between the year 2002 and 2025. Zones colored red are anticipated to experience the most growth in jobs, followed by blue and then grey. Job growth over the next 20 years is expected to occur to a large degree within existing employment centers (Downtown, UNM, Journal Center, Uptown, the Kirtland Complex and Intel).

Figure 7. Growth in Population Expressed in Persons Per Acre 2002-2025

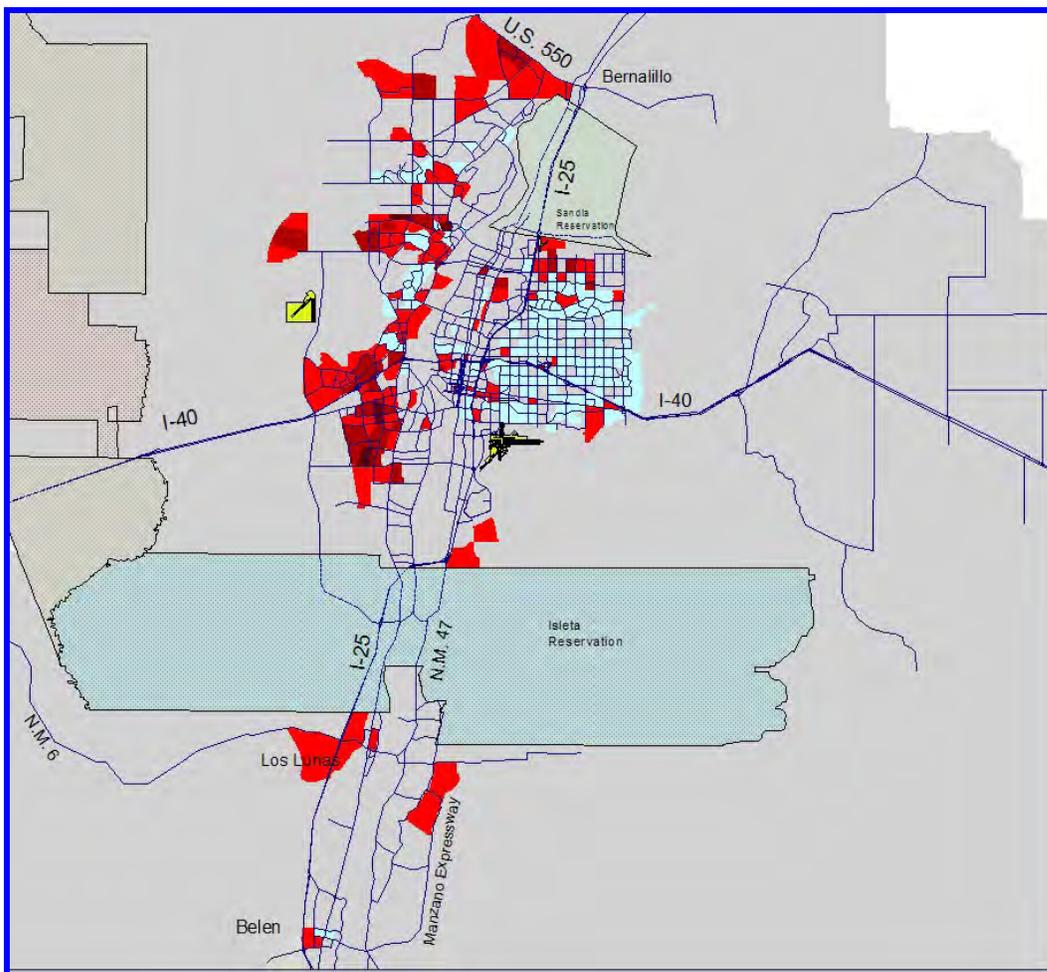


Figure 7 shows population growth expressed in persons per acre between the year 2002 and 2025. While most of the new population growth expected to occur in this area over the next 20 years is located west of the Rio Grande in the northwest and southwest regions of Albuquerque, large absolute increases in population are anticipated for Valencia County (particularly in the Los Lunas and Belen areas) and in the Northern Rio

Rancho, Bernalillo, Placitas area. Table 2. illustrates these increases by county for the period 1970-2025.

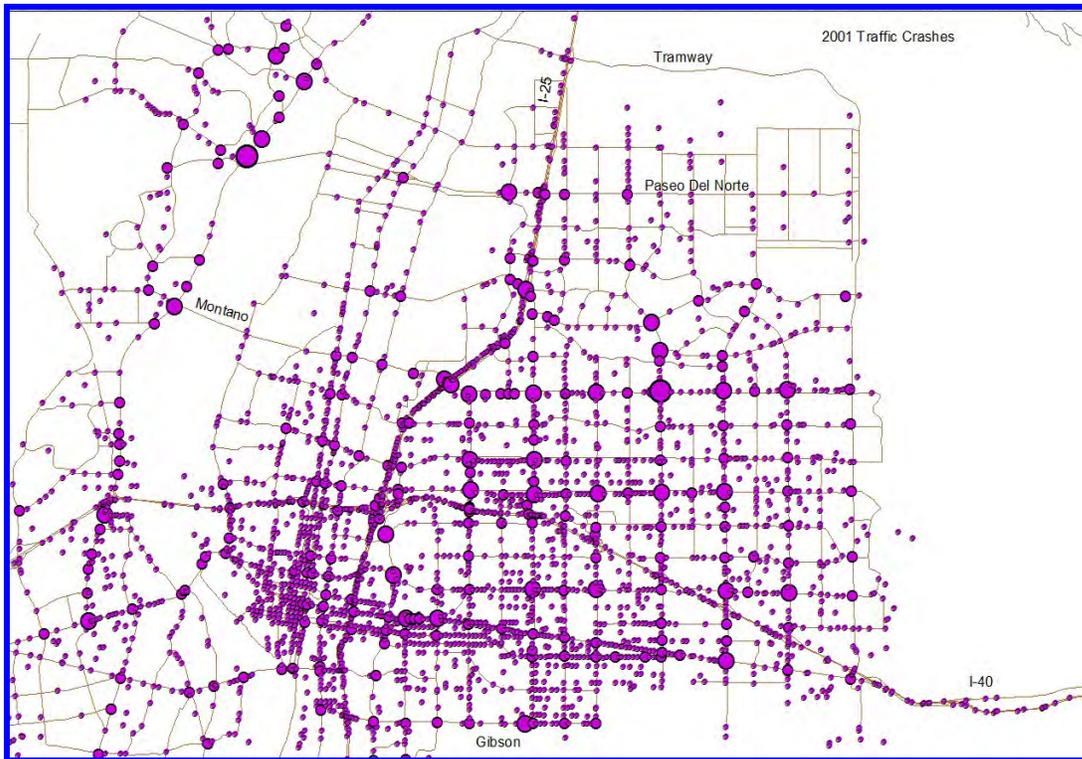
Table 2. Population Increases by County 1970-2025

Population	Sandoval	Valencia	Bernalillo	Total
1970	17,492	20,451	315,774	353,717
2000	89,908	66,152	556,678	712,738
2025	179,998	118,593	729,750	1,028,341
% 2000-2025	100.0%	79.0%	31.0%	44%

The north south corridor (Belen to Bernalillo) is one that is particularly vulnerable because the growing population centers in Valencia County, Bernalillo, Placitas and Northern Rio Rancho are separated from the urban area by the Isleta and Sandia Indian Reservations. The existing roadway options through these areas are limited and the possibility of adding new roadways is highly unlikely..

The modeling analysis done for the MTP assumes that the roadway system performs in its optimum condition. However there are many recurring phenomena that impact the performance of the roadway system. Figure 8 below shows traffic crashes in the central Albuquerque region.

Figure 8. Year 2001 Traffic Crashes in the Albuquerque Area



Dots that are larger indicate that more crashes have occurred at the location. In the year 2001 there were 1,254 traffic crashes on I-25 between Gibson Blvd. and Tramway Blvd. These are traffic crashes reported through the State Accident Reporting System, so they do not include disabled vehicles on the side of the road, or minor incidents that are not reported. Still, this translates into about 3.5 crashes per day. This portion of I-25 serves many strategic destinations including Downtown, UNM/TVI, the Kirtland Complex and the Journal Center. 2003 Average Weekday Traffic Volumes on this section range from 57,800 to 183,500. Traffic crashes on this portion of the interstate can be extremely disruptive, especially those that occur in the peak periods. While crashes per million vehicle miles of travel are expected to decrease over time as portions of the interstate are reconstructed, increasing traffic volumes (and therefore vehicle miles of travel) will result in a steady increase in the total number of traffic crashes on I-25 over time. The end result will be more peak commutes disrupted by traffic crashes.

Roadway construction is another recurring activity that can limit the optimum capacity of the roadway system. Figure 9 illustrates all roadway related projects (of regional significance) included in the 2025 MTP. These projects are expected to be implemented between the year 2002 and the year 2025.

Figure 9. 2002-2025 Roadway Projects

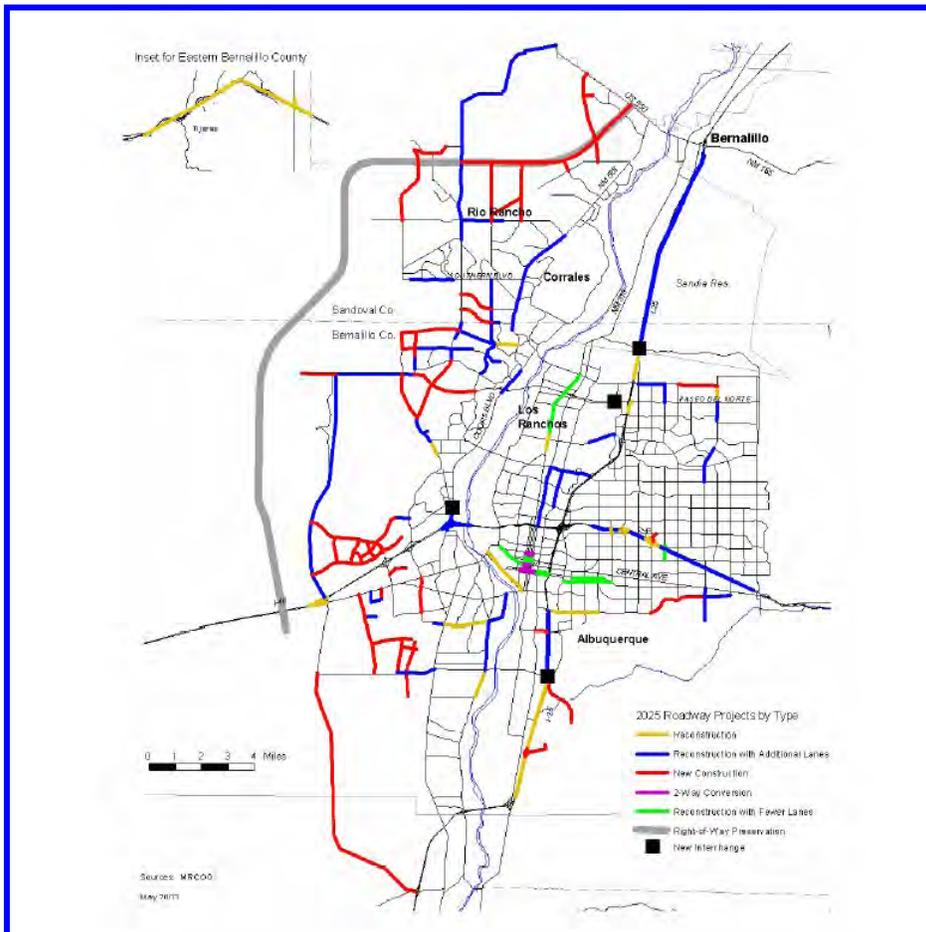


Figure 9 illustrates that a great deal of I-25 between Broadway (N.M. 47) on the south and Bernalillo (U.S. 550) is anticipated to be reconstructed over the next 20 years. While most roadway construction projects are managed to minimize the impact on the traveling public, all projects will affect roadway capacity to some degree, either through speed reductions or lane reductions or, in some cases, both. The projects on I-25 and I-40 are not planned to occur all at the same time, leading some to perceive that the interstate system is in a perpetual state of re-construction.



While this is not entirely the case, it can be said that roadway construction is another factor that needs to be considered when assessing the performance of the roadway system.

It is not easy to communicate the importance of pursuing the implementation of modes that offer alternatives to the roadway system without understanding the short and long term implications of a single mode transportation system. The Albuquerque urban area is not unique. It has simply reached a point in its history where road building cannot keep pace with growth and the distribution of growth in this constrained environment. An article in USA Today elaborates on the Texas Transportation Institute's annual report on the state of congestion in this country's urban areas:

### **Sprawl produces crawl: bigger cities, bigger traffic jams** **USA Today, Sept. 7, 2004**

WASHINGTON (AP) - Los Angeles for years has had the nation's worst traffic jams, but these days even the streets and highways in small and medium cities from Brownsville, Texas, to Anchorage, to Honolulu, Hawaii, are giving rush-hour drivers fits. Snarled traffic is costing travelers in the 85 biggest U.S. cities a whopping 3.5 billion hours a year, up from 700 million two decades ago. The problem worsened over the past two decades in small, medium and large cities, according to the Texas Transportation Institute's annual Urban Mobility Report released Tuesday. The institute, part of Texas A&M University, looked at data from 1982 to 2002.

Over that period, the study recorded the greatest leap in congestion in Dallas, from 13 hours annually in 1982 for the average peak-period traveler to 61 hours annually in 2002, and in Riverside, Calif., from nine hours annually per rush-hour traveler in 1982 to 57 hours on average in 2002. The average urban traveler was stuck in road traffic 46 hours a year in 2002, a 187% increase over the 16 hours lost in 1982. Even more startling is the decline of free-flowing traffic during rush hour. In 1982, 30% of urban highways and arteries were congested. Twenty years later, drivers were delayed on 67% of those roads.

Alan Pisarski, author of "Commuting in America," said that escaping to a small city no longer means escaping from traffic. "You're beginning to see problems in places that you didn't know had problems, places you've never heard of," Pisarski said. Even in cities with the least bad congestion - Anchorage, and Brownsville, Texas - drivers lost five hours a year to traffic. In medium-sized cities such as Honolulu it was 18 hours. What's alarming is how congestion outpaces a city's ability to handle it. In 54 urban areas, traffic snarls increased 30% faster than roads could be built to alleviate them.

Tim Lomax, the report's author, said the news was not all bad. Roads were built fast enough to catch up to spreading populations in some cities, such as Anchorage, New Orleans, Pittsburgh, Tampa, and Charleston, S.C. **"They've been getting worse, but they've been getting worse slower than everyone else," Lomax said. "In the bizarre world of transportation mobility, that's progress."**

The report notes that major highway improvements can take 10 years to 15 years to complete. Traffic in some cities has actually gotten better - but that's because their economies have done poorly. "In a lot of the places in the past we've seen success in cities suffering job declines - Pittsburgh, Buffalo, Cleveland," Pisarski said. "Unemployment is a great solution." The biggest time-saver, according to the report, is public transit, which shaves 32% off the time drivers spend sitting bumper-to-bumper. "If public transportation service was discontinued and the riders traveled in private vehicles, the 85 urban areas would have suffered an additional 1.1 billion hours of delay in 2002," the report said.

Lomax said the benefits to transit systems are in cities that are already too congested to handle more vehicles. "Typically you're in a situation where you can't handle any more transit on the roads, so public transit becomes the way you support economic development," he said. The report is based on data from the states and the Transportation Department.

## Transportation Issues in the Albuquerque to Santa Fe Corridor

This part of the corridor has many of the same characteristics as the north south corridor between Belen and Bernalillo. The corridor is currently served by interstate 25, a four-lane interstate highway. **It is the only continuous roadway connecting Albuquerque and Santa Fe that directly serves both population centers.** It traverses the Pueblos of Sandia, Santa Ana, San Felipe and Santa Domingo, so expanding the capacity of the facility, or pursuing the construction of another roadway in the corridor would involve some significant challenges.

The portion of I-25 between Bernalillo (U.S. 550) and Cerrillos Road in Santa Fe is primarily rural interstate. Traffic volumes on this section are on the order of 30,000 vehicles per day. The highest directional peak hour volumes recorded in this section by the MRCOG Traffic Surveillance Program are about 1,850 vehicles in the northbound direction during the a.m. peak hour and about 2,150 vehicles in the southbound direction during the p.m. peak hour. Directionally the interstate can handle up to 3,000 vehicles in one hour before significant decreases in speed can be expected. This is not to imply that the current condition is desirable for many who have to make this drive. Spending an hour driving at speeds in the range of 70 to 75 mph in a traffic stream that carries 2100 vehicles per hour, can be tense, tedious, and challenging but there is existing capacity on the interstate in this section to handle the current peak hour demand, as well as peak demand for some time into the future. However, because it is the **only transportation facility** in this corridor, it is particularly vulnerable to traffic crashes, construction, weather and other incidents that may cause even a slight disruption to the normal carrying capacity. Serious traffic crashes, often result in the closure of this facility or a reduction in the number of lanes available, marginalizing a connection that serves a large portion of the State's population and jobs. An example of this kind of exposure occurred on September 8, 2004, when a cement truck overturned on I-25 between the two Interchanges in Bernalillo. This crash closed northbound I-25 for over an hour. Northbound traffic backed up over 7 miles, and traffic had to be re-routed to N.M. 313 through the town of Bernalillo. Unfortunately these kinds of incidents occur on a fairly regular basis.

The two urban areas at either end of this corridor provide a different set of transportation challenges. The previous section provided a great deal of information related to transportation issues in and around Albuquerque. Many of these same issues are present in Santa Fe. The core area of Santa Fe includes the renowned four hundred year old historic district with its many tourist hotels and retail shops; a significant concentration of state and local government office buildings, including the Capitol and the South Capitol

complex; the Santa Fe Municipal Complex and Convention Center and Santa Fe County Courthouse and Government offices and large tracts of densely populated neighborhoods.

Figure 10. Year 2005 Employment Densities Central Santa Fe

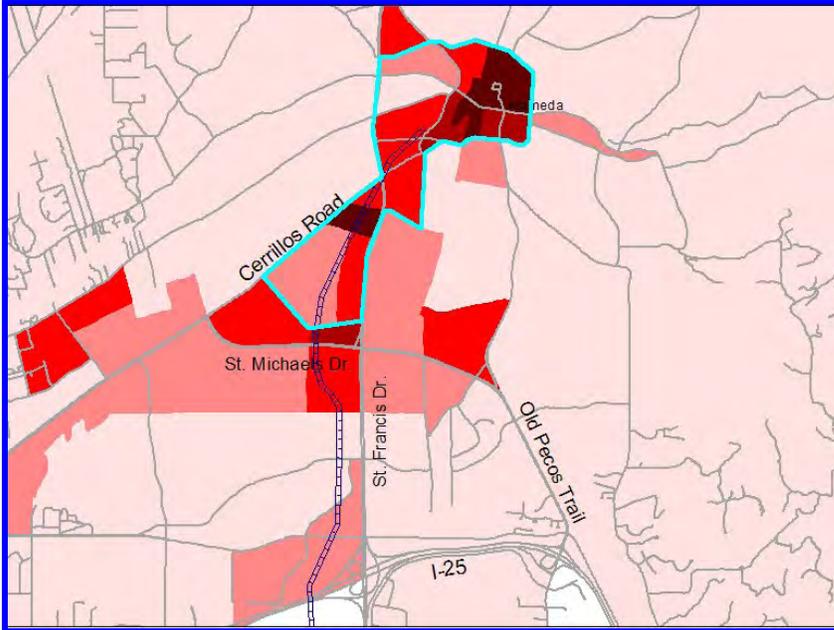


Figure 10 depicts job densities in gradients, the darker the shade of red the more job density there is in the zone.

Figure 11. 2005 Housing Densities Central Santa Fe

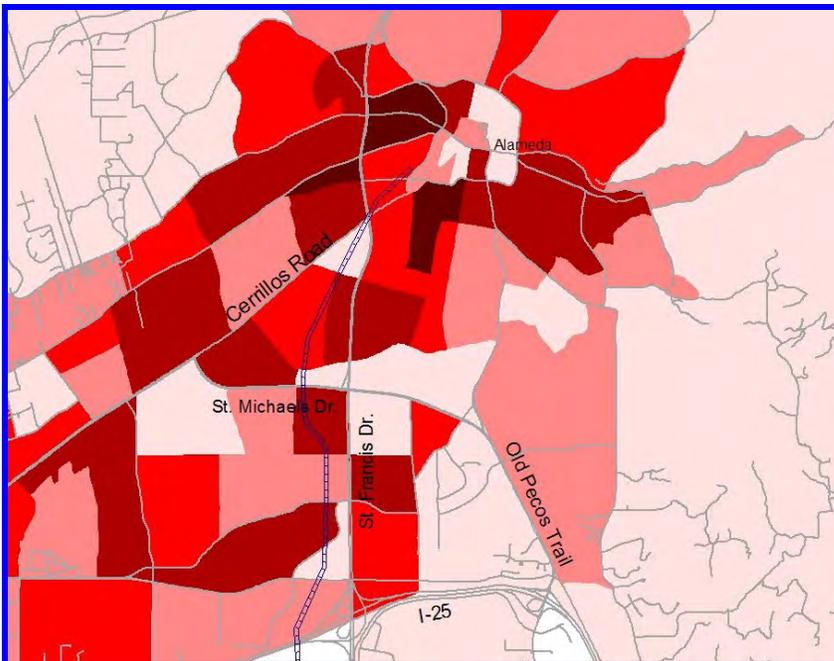
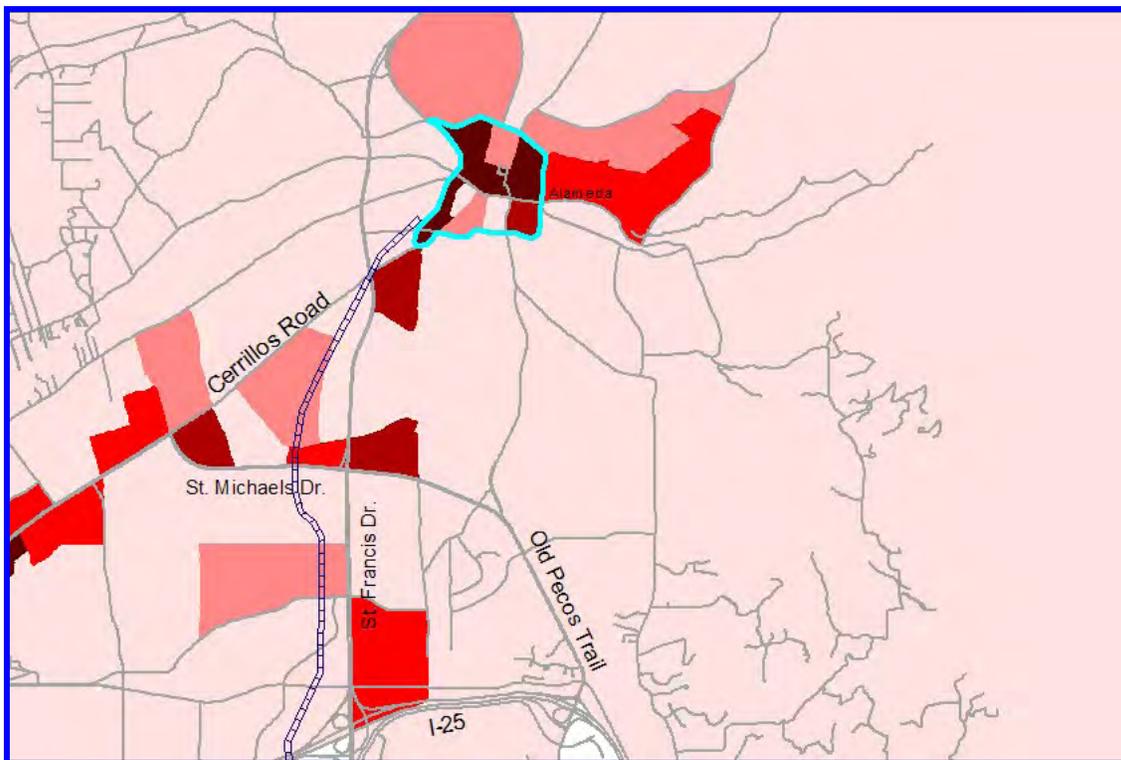


Figure 10 also shows the existing rail line (in blue hatch parallel to St. Frances Dr.), which was ultimately utilized by the commuter rail service. The existing station area downtown is the planned terminating point for the service and another station will be located in the vicinity of the south capital complex. The light blue line, outlines an area that would be highly accessible to these two locations. This area contains about 18,000 jobs today. This high degree of accessibility to a concentrated area of employment is a very positive situation for the commuter rail market. Many of these jobs are located within a short walk of planned stations sites. Those that are not could be quickly accessed via a shuttle system. Figure 11 illustrates the same information for housing densities. Again, the darker shade of red represents greater housing density in the zone. Figure 11 also illustrates that the denser parts of Santa Fe are highly accessible to the rail line and potential stations. While it is difficult to spatially represent the location of tourism and all that tourism entails, hotel room densities are one indication of activity. Hotel room densities are depicted in Figure 12.

Figure 12. Hotel Room Densities in Central Santa Fe



The largest cluster (measured by density) of hotel rooms is inside the light blue polygon. There are nearly 1200 hotel rooms in this area, which is also the core of historic downtown Santa Fe. All of these rooms are within one mile of the existing downtown Santa Fe rail station.

Traveling from the rest of Santa Fe or elsewhere (Albuquerque, Northern New Mexico) to this core area is today, means utilizing a very limited arterial system (St. Francis Drive,

Cerrillos Road, Old Pecos Trail) and finding adequate parking, which is a scarce commodity in downtown Santa Fe. Portions of St. Francis, Cerrillos Road and other roadways serving this core area are congested during the peak periods today.

Table 3. Average Weekday Traffic Volumes on Major Roadways in Santa Fe

<b>TRAFFIC VOLUMES</b>										
(Average Weekday Traffic/24-Hours)										
<b>Roadway</b>	<b>1996</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>
Cerrillos Rd.	55,400	55,150	55,700	56,000	55,000	55,000	60,200	59,600	53,200	51,800
St. Francis Dr.	51,850	52,550	53,900	51,400	52,800	54,800	54,800	54,800	51,400	52,100
St. Michael's Dr.	38,300	38,500	39,200	40,550	40,550	40,550	40,550	40,500	38,000	38,000
Airport Rd.	31,350	35,950	36,750	37,000	37,000	37,000	30,700	36,700	32,600	32,500
Rodeo Rd.	32,500	32,500	33,600	34,600	34,600	34,600	31,700	30,450	32,950	32,950
Paseo de Peralta	27,500	27,700	27,200	27,200	27,200	27,200	27,200	27,200	27,200	26,500
Old Pecos Trail	21,700	21,100	21,200	21,800	23,400	22,700	22,750	22,700	25,700	25,700
Agua Fria	17,700	19,100	19,450	19,500	19,550	21,550	21,500	21,300	21,000	23,100

Source: City of Santa Fe Public Works Department

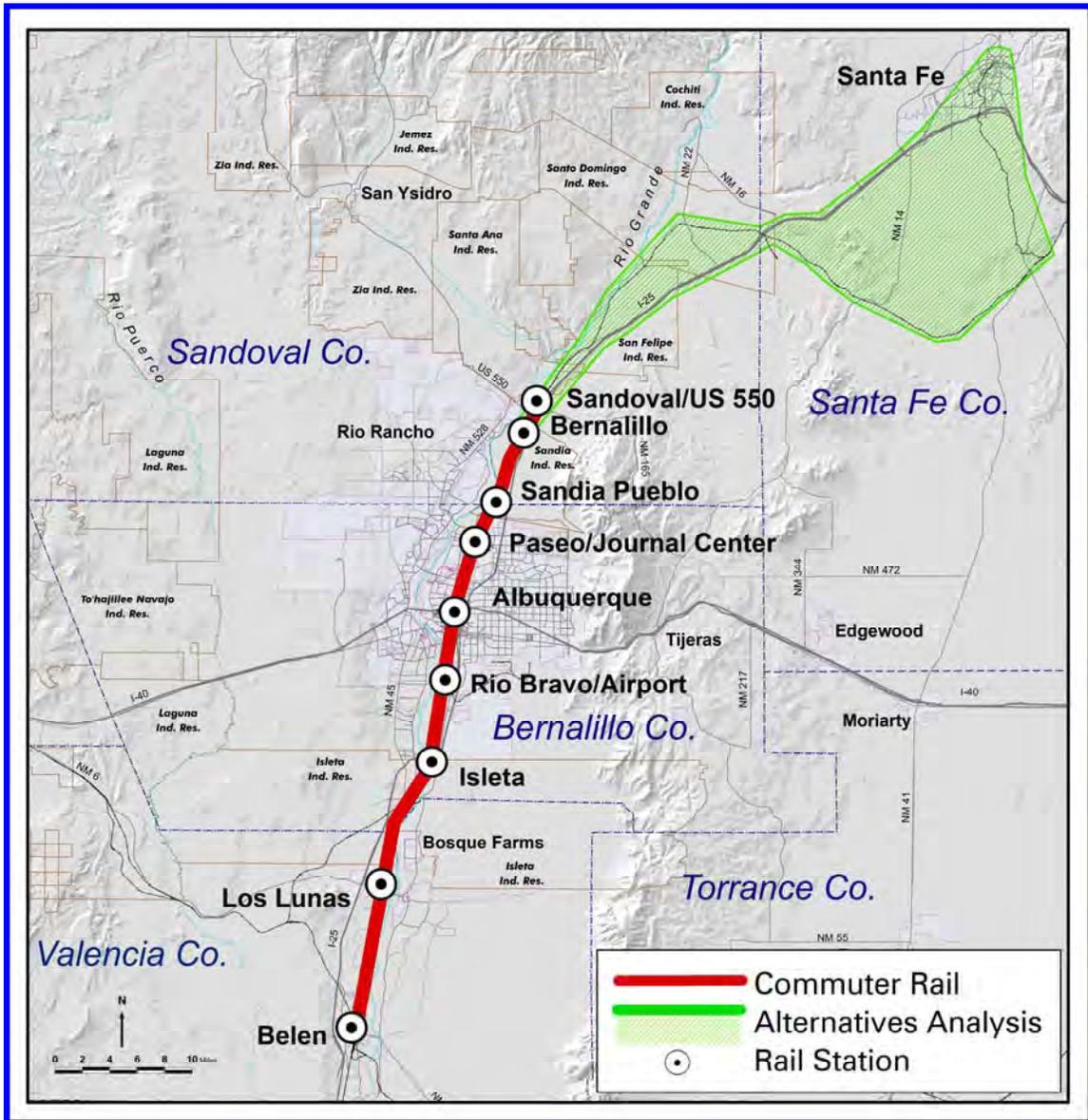
Table 3 illustrates Average Weekday Traffic Volumes (AWDT's) on several of the key arterials serving downtown Santa Fe. Cerrillos Road and St. Francis Drive are particularly notable because they are already carrying over 50,000 cars a day, and are the key facilities for accessing this part of Santa Fe. It is also worth noting that the volumes on these key roadways did not change appreciably even though the Santa Fe by-pass was constructed and opened to traffic in the year 2000. In addition many of these roadways are forecasted to get considerably worse over time, as Santa Fe continues to grow. There are no plans to expand roadway infrastructure around or into this core area over the next 20 years, primarily due to the historic and cultural nature of the area. Providing reasonable transportation alternatives to this part of Santa Fe is an issue that is integral to the future of the downtown Santa Fe employment, retail, and tourism markets. It will be very difficult for this area to remain as a vibrant employment center, tourist destination, retail and service center without any new transportation capacity over the next 20 years.

### Commuter Rail and the Belen to Santa Fe Corridor

Implementing commuter rail in this corridor will not solve all of the issues mentioned above, but this venture will implement a transportation mode that can address many of these issues in a very substantive way. First, the plan would utilize the existing rail line for the vast majority of the corridor. For Phase I, this meant utilizing the Burlington Northern Santa Fe (BNSF) line starting just east of downtown Belen, proceeding north through downtown Los Lunas, Isleta Pueblo, South Albuquerque, and into the Alvarado Station in Downtown Albuquerque. The line then continues north through the North Valley of Albuquerque, Sandia Pueblo and into the center of Bernalillo. Phase I service terminates at a park and ride station located at the railroad tracks and U.S. 550. Phase II would then utilize the existing line starting from Bernalillo northward through Santa Ana,

San Felipe and Santa Domingo Pueblos. The existing line then crosses I-25 at the base of La Bajada Hill and proceeds east to Lamy where it transects the Santa Fe Southern Line which proceeds north into Downtown Santa Fe. The Santa Fe Southern Line includes a number of grades and horizontal curves that restrict train speeds in most cases to less than 20 mph. Therefore, if the existing tracks were utilized all the way to Santa Fe, the trip from Downtown Albuquerque to Downtown Santa Fe would take in excess of 2 hours. A commuter rail service based on this time frame is not likely to draw much of a customer base. Therefore a new track alignment for a portion of this route became necessary. Figure 13 below illustrates the initial corridor map of both phases.

Figure 13. Commuter Rail Corridor Map



The dark green shaded area in Phase II which is bounded by I-25 on the north, the existing BNSF line to the south, and the Santa Fe Southern line on the east, is the area that was initially evaluated for alternative track alignments. All of the potential new track alignments investigated for this area involved connecting the existing BNSF line (just east of I-25) to the existing Santa Fe Southern line somewhere near, or south of I-25. It was always assumed that the alignment of the existing Santa Fe Southern line would then be utilized from I-25 into Downtown Santa Fe.

With the exception of the new track and alignment needed for a portion of Phase II, commuter rail service could be implemented in this corridor using most of the existing line which lies within existing rights of way insuring that no rights of way needed to be acquired through any of the native communities in the corridor.

In many areas of the country (Seattle, Salt Lake City, San Jose) implementing commuter rail service on an existing freight rail line was difficult due to the large volume of freight trains already utilizing the tracks. By contrast, the rail line in this corridor has an abundance of excess capacity. Amtrak runs one train a day in each direction between Lamy and Isleta Pueblo, and the BNSF typically runs three to four sprint trains (local delivery) a day between Belen and Albuquerque, and one to three long haul trains that traverse the entire corridor. The track in this corridor is also in relatively good shape, with most of it rated for passenger service at 79 mph. While a portion of the track between Belen and Isleta Pueblo required some signal and track improvements to improve the capacity and speed of the line, overall, this corridor is in good condition and very well suited for commuter rail service. Train travel times between Downtown Albuquerque and Belen are about 40 minutes. Train travel times between Bernalillo and Downtown Albuquerque are about 25 minutes. These travel times are about what it takes to drive between these points today during peak traffic period. As noted above, auto travel times in this corridor are anticipated to increase significantly in the future.

One of the key advantages of implementing commuter rail service in this region is the reliability of commuter rail travel times. Not only are commuter rail travel times not subject to many of the factors that can make auto times so unreliable (recurring congestion, crashes, incidents, weather) but also commuter rail travel times can be expected to decrease overtime as additional improvements are made to the infrastructure, and technological advances improve the performance of train sets. Auto travel times are forecasted to do the opposite. Improvements to regional mobility and travel time reliability are two key criteria that are often used to assess the performance of transportation projects. Commuter rail service in this corridor can provide both, at a level the roadway system cannot hope to achieve.

When the Atchison, Topeka, and Santa Fe Railroad laid north-south tracks through the middle Rio Grande Valley in 1881, the resulting freight and passenger rail services transformed the economic fortunes of this region. Throughout New Mexico, railroads served as powerful economic engines, tying the territory into a growing national economy and spurring the growth of communities such as Belen, Los Lunas, Albuquerque, and Bernalillo along the route. Many of us cross the track every day

without realizing the tremendous potential the existing rail line still holds for economic development. The track represents an underutilized, valuable asset in the heart of many of these communities that can once again stimulate local economies. While the era of heavy freight rail expansion is past, passenger rail is now enjoying a renaissance across the United States, and New Mexico is perfectly situated to join regions such as Denver, Dallas, and Salt Lake City in using passenger rail service to drive local economic development. Efficient transportation is vital to any healthy economy. Connecting employers with employees is a key component of economic development, and the efficient movement of goods and services is important to every business. Employers need to be confident that their employees can get to work on time, every day, and workers are more efficient when they avoid long, stressful commutes. As more and more employees now live outside the communities in which they work, efficient *regional* transportation systems are essential to future economic growth. Passenger rail can provide broad-reaching economic benefits through improved safety, lower transportation costs, and enhanced development opportunities at rail station sites. In other parts of the country, new passenger rail systems have increased regional employment, business activity, and productivity. In each community, new rail stations have become centers of activity, stimulating economic growth and raising property values in the area. In the Belen to Santa Fe corridor, station sites are located in or near the traditional downtowns of the communities along the line. The town of Bernalillo for example, began working on integrating the proposed station site into their main-street redevelopment program. Belen pursued a similar course of action with their “Heart of Belen” Becker Street revitalization project. In a September 14<sup>th</sup>, 2004 news story in the *Albuquerque Journal*, Belen officials recognized that the implementation of commuter rail service is an important component of their downtown revitalization plans. The commuter rail service provides another dimension of activity and transport that is very consistent with redevelopment objectives. Rail service is also seen by many as a quality of life issue and asset that can be marketed to prospective businesses considering a move or start up to the region. In today’s global environment, cities don’t compete for economic development opportunities, regions do. Local governments must organize and collaborate for economic development and a safe, efficient transportation infrastructure/network is a fundamental building block of this effort.

There were many questions about the impact rail service would have in this corridor on air quality and traffic congestion. Mitigating and managing congestion and air quality issues in this region will require a concerted effort in many areas including improvements to the public transportation system, roadway capacity enhancements, investments in Intelligent Transportation Systems (ITS), and changes in growth and development patterns. A singular focus on individual projects, roadway or otherwise, without efforts in the other key areas, will not produce an effective response to the forecasted transportation and air quality challenges. This is the case for several reasons. The information provided on congestion earlier indicates how massive the problem is expected to be just in the north south corridor. A single project in this corridor regardless of the type (roadway, bus service, HOV lanes, rail) is not going to change the situation significantly. Despite the lane additions on I-25 in the MTP, for example, congestion is still expected to get worse over time. Unlike lane additions to the interstate or other high type facilities in the

corridor, commuter rail can provide an alternative to the traffic congestion. It can provide an alternative for travelers during construction, and it can provide an alternative for travelers when the weather is poor. Because this service will be the first commuter rail system in this state, and will primarily serve markets adjacent to the rail line, it is not reasonable to expect dramatic changes in urban or regional congestion as a result of the implementation, no more than one should expect a dramatic change in the levels of congestion as a result of a roadway project (e.g. the BIG-I Reconstruction, Coors/I-40 Interchange Reconstruction). Over the longer term, if additional investments are made in public transportation, roadway capacity expansions, Intelligent Transportation Systems, (ITS), and, if the region can figure out ways to change traditional development patterns to some degree, there may be some detectable changes in the levels of traffic congestion during the peak periods. In this context the commuter rail service can serve an important role as part of an overall strategy to manage congestion.

The state of air quality in the region is driven by similar considerations. Bernalillo County is designated as a maintenance area for Carbon Monoxide (CO). As part of the development of the MTP, the MRCOG in cooperation with the City of Albuquerque Environmental Health Department produces estimates of CO emissions related to mobile sources. This is accomplished by taking transportation summary statistics (speeds and Vehicle Miles of Travel) from the MRCOG travel demand model (by analysis year) and using them as inputs into Mobile6 (the EPA approved Air Quality Model) which produces estimates of CO for the subject analysis years. In order to insure that Bernalillo County does not exceed CO standards, the results of this analysis are compared to a CO “budget” which is developed independently and represents a ceiling that if exceeded, is likely to produce CO levels in Bernalillo County that are beyond the limits set forth by the Clean Air Act Amendments of 1991. The results of this analysis from the MTP are illustrated in Table 4 below.

Table 4. CO Budgets and Projected Emissions from the 2025 MTP (Bernalillo County)

<b>Mobile CO Emissions in Tons per Day</b>	2005	2006	2010	2015	2025
Budget	367.28	312.65	312.65	312.65	312.65
Projected CO Emissions	344.71	308.31	272.01	249.02	246.79
Headroom	22.57	4.34	40.64	63.63	65.86
Daily Vehicle Miles of Travel	15,623,747	16,005,062	17,530,322	18,961,531	21,739,212

The table illustrates that over the course of the next 20 years, CO emissions in Bernalillo County are expected to decline by almost 100 tons. In other words, the analysis predicts that on a daily basis, 100 fewer tons of CO will be emitted into the atmosphere by mobile sources in the year 2025 than are emitted today despite all of the additional growth in population and Vehicle Miles of Travel. A great deal of this improvement in total emissions is due to an expected continuation of cleaner burning autos and improvements to fuels. This is one area where future year conditions are predicted to be better than they are today. This analysis did not assume the implementation of commuter rail service. If

the rail service was included, CO emissions would be a few fractions of a ton lower than those presented in the table. This conclusion is based on a great deal of sensitivity analysis the MRCOG has already done when evaluating build and no build alternatives for roadway projects both large and small. In almost every case, there was no observable statistically significant change in the air quality results. The main reason for this (and it would be the same case for commuter rail) is that even the most significant projects do not materially affect system level average speeds or vehicle miles of travel enough to have an effect on air quality. The transportation system is so large (both in terms of total miles and vehicle miles of travel) that at any given time, transportation projects are only affecting an extremely small percentage of the overall system, and this results in extremely small changes in system level statistics like CO emissions.

Like many medium size urban areas, the Albuquerque region is approaching potential violations to the federal ozone standards. 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 many years. Many of these monitors have recorded concentrations that regularly exceed 90% of the standard. In the event that this trend continues (and it appears that it will) this region will likely be found to be in non-attainment for ozone. If this occurs, it will be more difficult for agencies to utilize federal transportation dollars for general purpose lane additions to the roadway system, there will be additional pressure on transportation agencies to reduce dependency on auto travel, and additional regulatory requirements will need to be developed to reduce the production of ozone. It is not likely, for the reasons cited above, that commuter rail service will prevent this day from coming, but it can serve as a very important piece of an overall strategy aimed at improving the region's air quality.

The commuter rail project is not the only high capacity transit initiative under consideration for this region. The NMDOT in cooperation with the MRCOG and the City of Albuquerque conducted a very detailed transportation systems study of the middle Rio Grande region that was completed in 2001. This work, entitled The Middle Rio Grande Connections Study, offered a series of recommendations for transportation improvements in the region. Part of this work involved developing a system recommendation for high capacity transit. High capacity transit in this case, meant rail or other high capacity modes of public transportation. This system was refined and incorporated into what is now known as the MRCOG Long Range High Capacity Transit System Map which is shown in Figure 14 below. This map includes the commuter rail corridor (in blue) and a series of yellow corridors designated for some other form of high capacity transit.

Figure 14. MRCOG Long Range High Capacity Transit Map



This map was approved by the Metropolitan Transportation Board of the MRCOG in 2002. As a follow on to the Middle Rio Grande Connections Study, the City of

Albuquerque initiated the Rapid Transit Project (RTP), which focused on the implementation of light rail, modern streetcar or bus rapid transit in the Central Ave./Lomas Blvd. corridor between Coors Blvd. and Louisiana. The City of Albuquerque opted to pursue the modern streetcar technology in this corridor. Like the commuter rail project, this project could provide a very critical transit link in the east/west direction. The two initiatives together, with a meet point at the Alvarado Transportation Center, could provide a significant near term framework for future expansions to the public transport system in the region.

Finally, there are a number of other angles from which to consider the commuter rail project. There is a population in this corridor that does not drive, and has very poor access to the region's services, educational institutions, jobs and amenities. This population is expected to increase as the population ages, and the number of elderly people who cannot drive also grows. The U.S. Census Bureau projects that the number of Americans age 65 or older will swell from 35 million today to more than 62 million by 2025 - nearly an 80 percent increase. As people grow older, they often become less willing or able to drive, making this population more dependent on alternative methods of transportation.

The cost of auto travel has also climbed significantly over the past ten years, partially due to the price of gas, but mainly due to the other costs associated with auto ownership like the cost of a vehicle, insurance and repairs. According to the Bureau of Labor Statistics Consumer Expenditure Reports the proportion of household income devoted to transportation has risen from 10% in 1935 to 14% in 1960 to about 20% today. Housing is the only category that exceeds transportation as a percentage of household expenses. The American Automobile Associations 2004 estimated cost per mile to drive an automobile is at 56.2 cents. This figure reflects the per mile costs to operate a new car including depreciation, insurance, fuel, and routine maintenance. If this figure is applied to a standard round trip between Albuquerque and Santa Fe of 120 miles the cost per trip is \$67.44. If the average commuter makes this trip 200 times a year the annual costs are approximately \$13,500. And nationally, on average, transportation costs are three times what the average household spends on healthcare. Transportation costs as a percentage of household income are expected to continue to grow in the years to come, making it more difficult for lower income households to afford transportation expenditures. In addition with gas prices exceeding \$3.00 and \$4.00 a gallon transportation costs are affecting a much larger percentage of the population. While it is possible that gas prices will decline somewhat before they rise again, the economy of any area that has not developed effective alternatives to the auto will be impacted to a greater degree, as residents have less disposable income to spend on goods and services.

In addition the cost of congestion and crashes continue to grow. The most recent report on congestion from the Texas Transportation Institute indicates that congestion costs the U.S. economy about \$74 billion annually. A 2008 AAA research report indicates that auto crashes cost the U.S. economy about \$160 billion a year. This same report noted that auto crashes in Albuquerque cost about \$1.2 billion per year which translates into an annual cost per licensed driver of \$1,514.00.

## Commuter Rail Project Status Phase I

Between August of 2003 and December of 2008, the MRCOG and the NMDOT worked together to accomplish a number of tasks. They included the development of a branding and naming scheme, station development, rolling stock acquisition, negotiations with the BNSF, service design, obtaining a contract operator and public involvement. The sections below describe the work that was accomplished in each of these areas, and work plans for tasks not completed to date. It is important to note that all of these work elements were interrelated to some degree, meaning that decisions made for one of these elements could affect all of the others. For example, the times available for the commuter service to run on the track (a BNSF negotiation item) could affect the service design (schedule) which could affect the number of and size of trains required which in turn could influence the platform design. Because of the schedule, the initial focus was on long lead capital items, like station development, the acquisition of rolling stock and the negotiations with BNSF. These efforts helped to define the commuter rail service to some degree, but also caused a number of iterations in service planning because of the issues mentioned above.

### Branding and Naming

On March 21, 2005, Governor Bill Richardson formally announced the name and branding schemes for the New Mexico's commuter rail service at a press conference in Albuquerque New Mexico (see Figure 15 below).

Figure 15. Governor Richardson Unveiling The New Mexico RailRunner Express with Albuquerque Mayor Martin Chavez



The name, “New Mexico Rail Runner Express”, colors (red, yellow and silver) and logo (the roadrunner), were chosen after months of research, focus group meetings, and design evaluations. To assist with this work the NMDOT and the MRCOG utilized Vaughn Wedeen Creative, an Albuquerque based design and marketing firm. The Rail Runner name, colors and logo are integral to many aspects of this project including the platform design, train paint schemes and car interiors. The name, colors and logo were drawn from features of New Mexico’s history and heritage (see Figure 16 below) and also provide a very noticeable look to the commuter rail service.

Figure 16: Origins of RailRunner Name, Colors & Logo



## Station Development

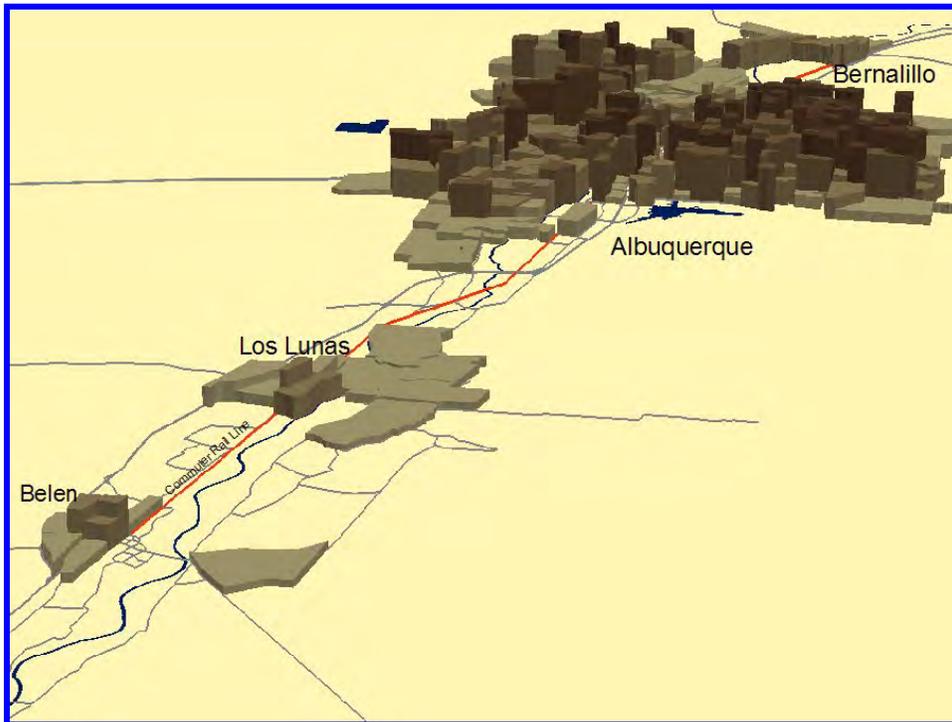
The size and look of Commuter rail stations can range from something as simple as a single platform to elaborate multi platform, joint use, full service, inter-modal facilities like Penn Station in Manhattan. In the Phase I corridor the focus was on providing stations that met the basic needs of the proposed service. At the origin end, most consist of a platform and a parking lot. At the destination end, (downtown Albuquerque) a station already existed along with several buildings that house ABQRIDE, Amtrak and Greyhound.

The process of identifying station locations was guided by a number of parameters. These included more general commuter rail operational characteristics, the existing track alignment, local community preferences, BNSF operational considerations, land availability, existing plans, and the location of population and employment centers. In order for a commuter rail service to be time competitive with the auto, it was not desirable to have stations located closer than five miles apart. In order to maximize the potential of the service, station locations were evaluated based on accessibility to population centers on the origin end and employment centers on the destination end. Access to the roadway system, transit connections and pedestrian and bike facilities were other key considerations.

Because the starting point for identifying station locations was the existing line, the first task was to identify general station locations relative to spacing requirements and existing communities. Intuitively, this exercise was already simplified by the project termini.

Stations would need to be located somewhere in Belen and Bernalillo, and downtown Albuquerque. From these known points other logical candidate locations were selected based on station spacing and the existence of established communities. Hence Los Lunas, Isleta Pueblo, South Albuquerque, North Albuquerque and Sandia Pueblo were added to the list. This work was guided by a considerable amount of source data (e.g. 2000 Census, population and employment forecasts, aerial photography etc.) like the data depicted in Figure 17 below.

Figure 17. Year 2000 Census Population Data in 3D



Much of this initial work was completed by MRCOG staff. Once these initial locations were identified, it was necessary to look at specific sites along the line and apply another level of detail to the analysis. The MRCOG retained the services of HDR Inc. to assist with this step of the station development process.

One of the initial tasks was to collect basic information on all candidate sites. In some cases, for reasons described below, there was only a single site in a community, in others there were multiple candidate sites identified. The following page illustrates some of information collected for candidate station site profiles.

The information included in these candidate station site profiles provided a baseline to assess the adequacy of the site from a general market, environmental, rail operations, land acquisition, land adequacy and accessibility perspective.

**COMMUTER RAIL STATION LOCATION EVALUATION CRITERIA**

The purpose of the evaluation criteria is to identify potential commuter rail station locations, evaluate these locations, and select a preferred station location. The Los Lunas and the Albuquerque commuter rail stations are established.

<b>NMDOT/MRCOG COMMUTER RAIL PROJECT STATION SITE ALTERNATIVES SCREENING CRITERIA</b>	
<b>Criteria</b>	<b>Measure</b>
Size of Site	Assessment of the size of the parcel(s) available for the proposed station and park and ride site. Should consider potential for future expansion. Sizes should be determined from scale accurate aerial photos.
Consistency with existing land use and local plans	General assessment of whether the proposed station site is consistent with existing land uses, or reflects existing transit supportive development, plans, or policies.
Economic development potential	Evaluation of the proximity of the proposed station site to areas targeted by local jurisdictions for new development, or intensification of existing development.
Ownership (Public, Private)	Qualitative assessment of the current ownership of parcel(s) impacted by the station site location as shown in county assessors GIS data files.
Proximity of utility services	Qualitative assessment of the location of utilities needed to service the proposed station site. Should be based on locations shown in the MRCOG GIS data and noted in field observations.
Possible impacts on major utilities	Qualitative assessment of potential impacts on major utilities based on locations shown in the MRCOG GIS data and noted in field observations.
Proximity to know hazardous material sites	Qualitative assessment of the potential for hazardous materials either on or in close proximity of the proposed station site. Should be based on a database search and knowledge of previous land use.
Vehicular Access	Qualitative assessment of the ease of access for automobiles from major arterials and other roadways.
Pedestrian/Bicycle Access	Qualitative assessment of the ease of access for pedestrians and bicyclists.
Transit Access	Qualitative assessment of the proximity to existing transit routes
Proximity and ease of access to activity centers	Qualitative assessment of the number and size of activity centers, such as employment centers, recreational facilities, and high density commercial and residential areas served by each proposed station site.
Proximity and ease of access to zero-car and low-income households	Estimation of the extent of households within ½ mile of the proposed station site based on 2000 census data.
Ease of implementation	Estimation of the relative ease of implementation and time required for implementation of each proposed station site based on factors such as construction access/restrictions and other constructability constraints.
Possible impacts on potential historic, archaeological, and cultural resources	Qualitative assessment of potentially historic, archaeological, and cultural resources potentially impacted by the proposed station site based on field observations.
Impacts on floodplains, riparian areas, critical habitat	Qualitative assessment of potential impacts on floodplains, riparian areas, and critical habitat based on data obtained from FEMA and other regulators.

Additionally, in the Fall of 2003, the MRCOG formed a Commuter Rail Task Force (CRTF), primarily from MRCOG board members. This group was comprised of locally elected officials from communities along the Phase I line. Station site selections were discussed with this group and separately with elected officials from each community. This information was also considered in the site selection process.

This level of effort generated seven initial site locations.

1. Belen: Northeast corner of Reinken Ave. and the railroad tracks.
2. Los Lunas: Courthouse Dr. and the railroad tracks
3. Rio Bravo/Airport: Northeast quadrant of Rio Bravo and the railroad tracks.
4. Downtown Albuquerque: Alvarado Transportation Center
5. North Albuquerque: Northeast Quadrant El Pueblo Road and railroad tracks.
6. Bernalillo: Downtown Bernalillo east of Bernalillo Town Hall.
7. Sandoval County: Southwest Quadrant U.S. 550 and the railroad tracks.

Subsequent discussions with the Pueblos of Sandia and Isleta resulted in the identification of station sites for each Pueblo bringing the total number of stations for Phase I to nine.

In all cases, the sites selected were not expected to be a problem from an environmental, railroad operations, or accessibility standpoint. But, the decision on a final site location was based on different factors in different communities. For example, elected officials from the City of Belen expressed a desire to locate the station as close to downtown Belen as possible. Access and land adequacy issues in the vicinity of Belen produced two candidate sites, one just adjacent to downtown Belen, and one several miles north of the downtown. The site next to downtown was selected because it was favored by the City Council and Mayor of Belen, and also was accessible to a larger population pool than the other location.

In Los Lunas the selection of a station site was relatively simple. The Village of Los Lunas had pursued Federal funds to locate and construct an inter-modal center for on demand transit services. The identified site was centrally located in Los Lunas on a piece of land adjacent to the railroad tracks. Because of its purpose, location and size, it became the preferred site for the Los Lunas station.

The station location in south Albuquerque was chosen because it was the only location with adequate vacant land for a considerable distance along the line, and other candidate sites (Woodward Road and the railroad tracks) required the disruption and or displacement of some fairly large BNSF operations (UPS offloading and the Ford auto loader facility). In addition the preferred site was located just off Rio Bravo Blvd., a major arterial and river crossing.

The Alvarado Transportation Center is centrally located in downtown Albuquerque. It is the hub of the City of Albuquerque public transportation operations and is also next to the Amtrak station and the Greyhound Bus station. The decision to locate a stop here was

based on these connecting services, and the accessibility of this location to jobs and services.

There were two potential sites initially considered for the northern part of Albuquerque. One at Alameda Blvd. and the railroad tracks, and the other at El Pueblo (the site that was ultimately selected). The Alameda site was rejected after an open house in north Albuquerque, primarily due to neighborhood concerns and difficulties providing reasonable access to the site given peak hour traffic volumes on Alameda Blvd.

Sandia Pueblo indicated that they wanted to explore the location of a station in the vicinity of Roy Ave. and the rail road tracks. The Pueblo supported the initiation of an Environmental Assessment to determine the preferred location for a station stop in this general area. The preferred location identified in the EA is on the N.W. quadrant of Roy Ave. and the railroad tracks with direct access to the station off N.M. 313.

In June of 2005, Isleta Pueblo expressed an interest in developing a station within the Pueblo boundaries. The MRCOG and NMDOT worked with the Pueblo to complete the environmental work on a site just west of N.M. 47 and north of the Isleta Pueblo golf course. In the winter of 2008 the Pueblo of Isleta endorsed the station plans and signed the agreements to move forward on the implementation of this station.

The Town of Bernalillo chose the desired commuter rail stop in Bernalillo. The site and the proposed use are consistent with goals of the Town of Bernalillo including a main-street program and downtown revitalization. Discussions with elected officials and staff from the town of Bernalillo also resulted in the investigation of an additional site. The site selected for downtown was not well suited for a park and ride lot, nor was it well suited to capture travelers in the U.S. 550 corridor (Northern Rio Rancho and Placitas). Hence the four quadrants adjacent to U.S. 550 and the railroad tracks were investigated. The southeast quadrant was already being utilized for a park and ride facility and it is frequently near capacity. Expanding this site was considered an option but flood plain issues to the south of the existing parking lot were difficult to manage and a considerable grade difference existed between the parking lot and the tracks that would have required extensive work to address Americans with Disabilities Act (ADA) access. The lot directly catty-corner to this site (Northwest quadrant) was also considered, but after an extensive review of access options from U.S. 550 the site at the Southwest quadrant was selected. Both of the sites were equally as viable for a commuter rail station but access to the site on the southwest quadrant was found to be more direct.

The selection of a site for each stop was the first step in the development process. Once a site was selected, several additional steps were taken. Table 5, illustrates the status of some of the tasks for each of the station locations.

Table 5. Status of Station Development Tasks

Station	Environmental Review*	Survey	Site Plan	Property Acquisition	Construction
Belen	Complete	Complete	Complete	Complete	Complete
Los Lunas	Complete	Complete	Complete	Complete	Complete
Isleta Pueblo	Underway	Complete	Complete	N/A	Complete
Rio Bravo	Complete	Complete	Complete	Complete	Complete
Alvarado	Complete	Complete	Complete	Complete	Complete
Los Ranchos/Journal Center	Complete	Complete	Complete	Complete	Complete
Sandia Pueblo	Complete	Complete	Complete	N/A	To Be Determined
Bernalillo	Complete	Complete	Complete	Complete	Complete
U.S. 550	Complete	Complete	Complete	Complete	Complete

\*The level of effort varied by site. Includes hazardous materials assessment, historic, archeological and cultural resources, and plant / animal life

After sites were selected, draft site plans were prepared for each station. Since many of the station locations serve as park and rides, most of the site plans include the station platform and a parking lot, like the site plan for the U.S. 550 site depicted in Figure 18. below.

Figure 18. US. 550 (Sandoval County) Site Plan



In addition to these activities, MRCOG and HDR developed a prototypical station platform and initiated efforts to develop architectural themes for the platforms that could represent the local community's identity, and also create a unifying theme and communications protocol (signs, information etc.). Between September of 2004 and the end of February 2005, the MRCOG, NMDOT and HDR worked with each of the local communities to accomplish a number of tasks. They included: finalizing a site plan, acquiring the necessary property, identifying station access improvements, and finalizing the look of the platform and adjacent site work. This effort involved public meetings to gather information and feedback on initial concepts, like the draft mock up of a station platform at the Belen site in the figure 19 below.

Figure 19. Draft Mock Up of the Belen Station Platform



Additional work occurred on the design and features of each station. The basic platform evolved from the mock up shown in Figure 19 to designs that better reflect the interests of the local communities and southwest architecture. Figure 20 illustrates a sample of the revised look.

Figure 20. New Station Platform Design



Work on the downtown Albuquerque (Alvarado) Station focused on adding a commuter rail platform to the north end of the existing Amtrak platform and providing better access to the Alvarado Intermodal Center and the recently completed Alvarado II complex which houses a terminal for inter-city bus service. The access concept that is now complete is depicted in Figure 21 below.

Figure 21. Alvarado Intermodal Center Access to Train Platform



Another activity associated with the station design was the development of signage, a kiosk and station monument. These features were added to the final design to produce the prototypical platform shown in Figure 22.

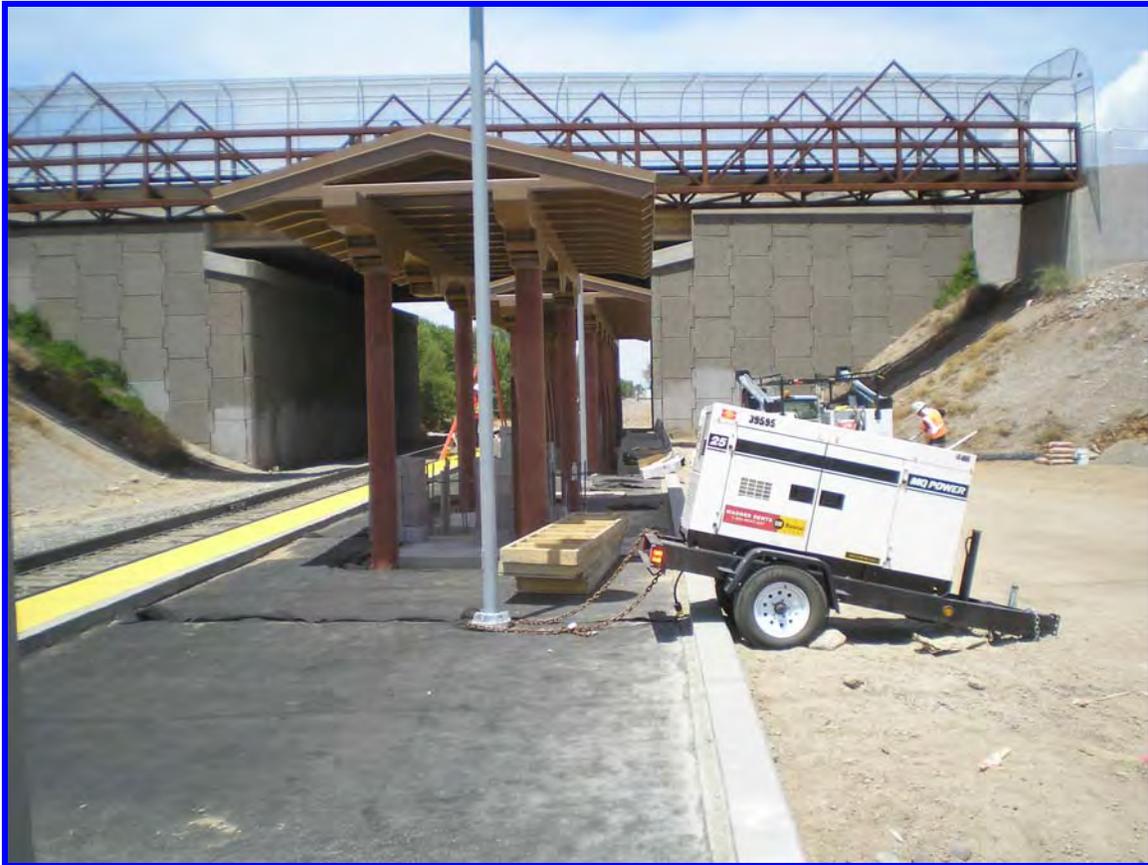
Figure 22. Final Platform Design



Final designs were completed for seven of the nine stations (except Isleta, Sandia) in late June of 2005 and were put out to bid for construction in early July. The bid closed on August 8<sup>th</sup>. After review of the bid submittals, Twin Mountain Construction Inc. (now Kiewit New Mexico) was awarded the contract to construct the seven stations in the bid

document. The station construction mobilization process began in mid September and work on the Los Ranchos/Journal Center and U.S. 550 sites began in early November. Since all of the station sites required rights of way from the BNSF (for platforms) construction on these sites and several of the remaining locations could not move forward until New Mexico and BNSF closed on the Belen to Bernalillo properties on March 17<sup>th</sup>. 2006. After the closing, work commenced on completing the U.S. 550 and Los Ranchos/Journal Center stations. These two stations were completed in late June of 2006.

Figure 23. Los Ranchos/Journal Center Station Under Construction



Later in the Spring of 2006, construction was initiated at Belen, Los Lunas, downtown Albuquerque and downtown Bernalillo stations. The downtown Bernalillo and Belen stations required the installation of station track. This track was ordered in December of 2005 for delivery in mid-July of 2006. This track order was delayed twice by Progress Rail Inc. and was finally delivered in early November of 2006. Due to this delay, the extension of service to Los Lunas was delayed until December 2006, and service to Belen was delayed until February 2, 2007.

Figure 24. Rail Runner Trains at the Downtown Albuquerque Station



Construction of the Rio Bravo station (now called the Bernalillo County/Sunport International Station) was initiated in December of 2006 and was completed on April 15<sup>th</sup>, 2007. Construction began on the Isleta Station in August of 2008. This station was completed and opened in December of 2008. In August of 2009 the Bureau of Indian affairs approved the EA and associated agreements clearing the way for the construction of the Sandia Station. This station is expected to be complete in November of 2009.

## Rolling Stock Acquisition

Acquiring rolling stock (engines and passenger cars) for the commuter rail project was a particularly challenging element of the project. Based on information acquired from other commuter rail agencies, the typical time frame for acquiring new vehicles was on the order of 2 to 3 years from the date of order. Used equipment was also in very short supply, with the exception of some very old equipment owned by Metra, Chicago's commuter rail operator. The MRCOG hired LTK Engineering Services, a nationally recognized firm specializing in the acquisition of rail passenger cars and locomotives to help seek out rolling stock solutions for the operation.

One of LTK's first tasks was to advise the MRCOG on the availability of used equipment, and potential options for acquiring new equipment. LTK's review of the used passenger car market yielded very few results. The Virginia Rail Express was exploring the possibility of selling their fleet of year 2000 Kawasaki bi-level cars, but a decision was not forthcoming. Metro in New York had some single level cars that they were thinking about selling, but follow up conversations with Metro revealed that this was not the case. Metra in Chicago was dispensing some old 1960s vintage gallery cars. These cars were not ADA accessible, had asbestos in the walls and many of them were finished with lead based paint. In the late spring of 2004 LTK advised the MRCOG and the NMDOT that the Southern California Regional Rail Authority (SCRRA) was in the process of selecting a contractor for the design and construction of new passenger rail cars. As part of this process the MRCOG contacted the SCRRA and requested an option on the final contract for new cars. Securing an option on another agency's car order carries no immediate financial obligation, it simply provides a place holder if the agency holding the option chooses to exercise it. MRCOG was granted an option by the SCRRA, but the SCRRA process was protested and due to events described below, MRCOG withdrew the SCRRA car procurement option.

In order to purchase passenger cars, the MRCOG and the NMDOT released a Request for Proposal (RFP) with a technical specification for service proven bi-level cars, new or used. LTK wrote the majority of the technical specification and the RFP was released in July of 2004, and closed in August of 2004. Four responses to the RFP were received. All but one proposed new cars, the remaining offered Chicago Metra Gallery cars "as is". A selection committee was assembled as part of this RFP process and proposing firms were rated based on the RFP criteria. The committee chose Bombardier Transportation Inc. to provide the cars for the service. A contract with Bombardier was negotiated and executed to build up to 10 new bi-level coaches with a proposed delivery of all cars within one year of notice to proceed. The bi-level cars selected contain about 140 seats per car and can carry up to 200 persons per car, seated and standing. The cars have three levels: a low level boarding level with seats, a restroom and accommodations for bikes and wheelchairs, a mid level at each end of the car and an upper level. Of the 10 cars ordered, 6 were cab cars. These cars have an engineer's cab at one end of the coach, which allows the engineer to run the train from either end of the train consist. A cab car is always located at the end of the train, so that the trains can be run in a "push-pull" mode, which means that in one direction the engine will be at the front of the train, but when the train runs in the opposite direction, the cab car will be at the front end of the train. This allows trains to reverse direction on the line without having to turn around at the end points.

The first car was completed in a little over eight months from notice to proceed, setting a new record in car construction time. The remaining nine cars were all constructed and transported to Albuquerque in the fall of 2005. Figure 25 shows several of the cars in Albuquerque.

Most of the seats in the car are in a "knee to knee" configuration with a small table separating facing passengers. In most cases, standard AC power outlets are available next to the tables so that passenger's will be able to power their own electronic devices, such

as laptops. Several of the cars are equipped with ADA accessible restrooms, bike tie downs and wheel chair locks. They also include overhead luggage racks and digital message boards. The MRCOG and the NMDOT are in the process of implementing wireless communications in the corridor that will be accessible from the cars. Figure 26 illustrates the interior of one of the cars.

Figure 25. Bombardier Bi-Level Coaches In Albuquerque



Figure 26. Car Interior (Lower Level)



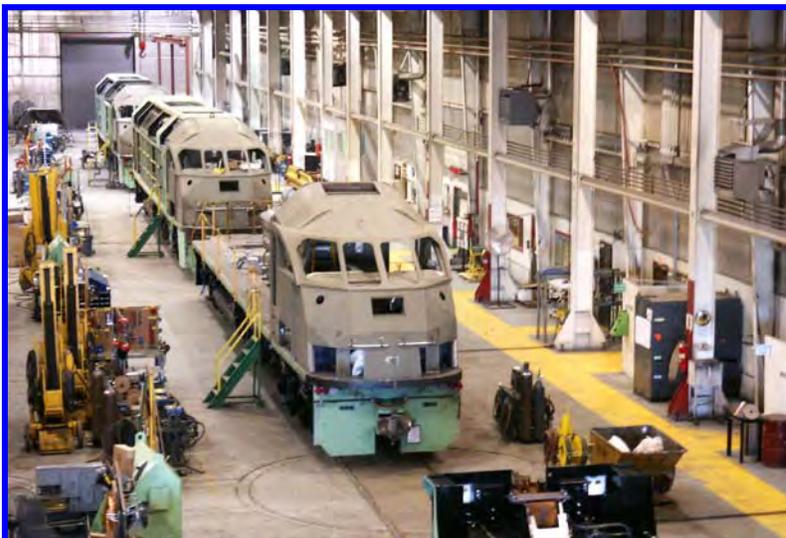
LTK also evaluated new locomotive engines, but deliveries typically take about two years and costs were in the range of \$3.0 and \$3.5 million. Rebuilt engines were also evaluated. Delivery of these vehicles was found to be in the range of one year to eighteen months, and the typical cost was between \$1.8 and \$2.5 million. LTK also located several AMTRAK used P-40 locomotives that were not utilized by Amtrak due to service cut backs and Amtrak's recent acquisition of a series of new P-42 engines. The P-40s were built in 1993 and were out of service for only a relatively short time period.

In late July 2004, Amtrak issued a request for bids on their P-40 locomotives. LTK inspected each of the locomotives and prepared an estimate of the cost associated with making each of the locomotives service ready. In addition, they provided the MRCOG and NMDOT with an estimated present value for each locomotive, to serve as a basis for a potential bid. MRCOG and the NMDOT submitted a bid on six of these Amtrak locomotives. The closing date for bids was September 15, 2004. Amtrak did not accept the bid provided by the MRCOG and NMDOT. After several subsequent failed attempts to reach a reasonable price for the purchase of these locomotives with Amtrak, the MRCOG and the NMDOT decided to pursue other options.

Given the time constraints, the most promising option was to utilize a purchase option from another transit agency to acquire locomotives. The San Joaquin Regional Rail Commission granted the MRCOG and the NMDOT an option to purchase up to five locomotives from Motive Power Inc. in Boise, Idaho. A contract with Motive Power was negotiated to acquire four Diesel-Electric MP36PH-3C locomotives with an option for a fifth. These engines are EPA Tier 1 compliant and contain the latest engine and cab technologies.

These locomotives were built in Boise Idaho at Motive Power's production facility depicted in Figure 27 below.

Figure 27. Motive Power Production Facility, Boise, Idaho



The locomotives produce about 3600 horsepower and are capable of running speeds in excess of 100 mph. They hold about 2000 gallons of fuel and get about 1 mile to the gallon. The locomotives were scheduled for delivery to Albuquerque in October, November and December of 2005. The first unit arrived in Albuquerque on October 10<sup>th</sup>. The second unit arrived in mid November, and the remaining units arrived in Albuquerque in December of 2005 and January 2006. Figure 28 depicts the first completed locomotive in Boise, Idaho prior to shipping.

Figure 28 Locomotive 101 In Boise, Idaho



Figure 29 illustrates the look of the train sets with the Motive Power Locomotives, Bombardier Bi-Level cars and the New Mexico Rail Runner Express paint scheme. Note that the roadrunner head is on the engine and cars display the tail feathers. Since these train sets run in a “push – pull” configuration the roadrunner is going backwards half the time!

Figure 29. Final Train Set



After the first closing occurred, the MRCOG and Herzog began the process of dynamically testing each car and locomotive. This process concluded towards the end of April 2006. Rail Runner trains continued to run between Albuquerque and Bernalillo in May and June of 2006 to insure that all the equipment was operating properly before service was initiated and to qualify locomotive engineers for the Phase I service. Starting in late June and continuing through July 12<sup>th</sup> of 2006 crews ran the trains to simulate the scheduled service to insure that stations times were reliable.

## **Negotiations with the BNSF**

At the time this project started the BNSF Railroad owned the rail line running north out of Belen all the way to the New Mexico state line at Raton and beyond. This line used to be a critical link in the freight and passenger network of the now defunct Atchison Topeka and Santa Fe railroad (AT&SF). Because the BNSF owned the line and the rights of way proposed for use by the commuter rail service for Phase I, the MRCOG and the NMDOT engaged in negotiations with the BNSF to explore alternative arrangements for the use of the line. Late in the fall of 2003 MRCOG solicited and selected private sector expertise to assist in the process of negotiating with the BNSF. The consultant selected for this particular area was Lonnie Blaydes Consulting. This negotiation process started in earnest in January of 2004 with a clear message from the BNSF that while this line was underutilized, they were going to be very sensitive to aspects of the commuter rail service that may impact their ability to move freight. As an initial step in the negotiations, the BNSF asked for a rough sketch of potential service parameters (times the line would be utilized by the commuter rail service) so that they could perform an initial “engineering assessment” of the potential impacts created by the service parameters and advise the MRCOG and the NMDOT accordingly. The MRCOG provided BNSF with this initial set of information in February of 2004. By March of 2004, the BNSF provided the MRCOG and NMDOT with feedback on the draft parameters. This included the need to extend several existing sidings on the line, the addition of a couple of new sidings, the signalization of the portion of the track between Belen and Isleta Pueblo and improvements to several track and road crossings (necessitated primarily by the new track based signal system). Most of these improvements were needed to increase the carrying capacity of the line to minimize or remove potential time conflicts with BNSF freight and Amtrak passenger movements.

After March of 2004, additional discussions with the BNSF took place, in part to test the implications of alternative service options against the capital improvements required to accommodate the service options. This was necessarily an iterative process, as the BNSF, MRCOG, the NMDOT, and consultants working on the project explored service options and the resulting improvements at greater levels of detail. This included track and signal improvements but also the accommodation of station platforms, dispatch, safety and current and future BNSF operations in the corridor. In addition, the BNSF was asked to respond to several different use arrangements including the purchase of the line, a lease of time on the line, and the purchase of an easement.

The MRCOG, BNSF and HDR also concluded a very detailed assessment of all the roadway crossings of the line to aid in the identification of safety improvements. A large part of this work effort involved updating information on each crossing that was held by either BNSF or the NMDOT, including the crossing type (public/private), traffic volumes, site characteristics (visibility and geometrics), adjacent or accessible land uses, and crossing function (arterial, service road, agriculture).

Substantial progress was made on many of the technical issues. In fact there were very few cases where the need for improvements was disputed. On September 28<sup>th</sup>, 2004, Governor Bill Richardson signed a Memorandum of Understanding with the BNSF which outlined the intent of both parties to complete a transaction for the commuter rail service. Draft Joint Use and Purchase and Sale agreements were generated and negotiated at constant two week intervals between March of 2005 and September of 2005. After considerable legal review final agreements were generated in early November of 2005. They included a Joint Use Agreement, which describes the relationship between the parties (BNSF and New Mexico) and how business will be conducted on the line (priorities, maintenance responsibilities, dispatch, service provisions) and three purchase and sale agreements which describe property sales for each of the three property transactions (Belen to Bernalillo, Bernalillo to Lamy and Lamy to the Colorado state line). It is worth noting that through the course of the negotiations BNSF's price for the line went down significantly, as did their requirements for track and signal improvements. Keep in mind that these agreements took the better part of two years to complete so developing a complete understanding of all of the details in the agreements requires a thorough reading of all of the documents. The significant pieces of the agreements are as follows:

### **Property Acquisition**

Through three separate closings, New Mexico would acquire the line and associated rights of way from Belen, New Mexico to the Colorado state line for \$75 million. Specifically, New Mexico will assume all of BNSF's right, title, and interest in improvements located on the land including signals, rights of way and track, right, title and interest in any tangible personal property and fixtures of any kind owned by BNSF and attached to or used exclusively in connection with the ownership, maintenance or operation of the railroad, and right, title and interest to third party leases/easements other than fiber optic agreements as of the date of each closing. BNSF reserved for itself and its successors an exclusive easement for freight railroad purposes, including, but not limited to, the construction, maintenance, repair, replacement and operation of freight rail and associated facilities, subject to the provisions of the Joint Use Agreement.

The first closing, which occurred on March 17<sup>th</sup>, 2006, resulted in the purchase of the line, spurs, rights of way etc. for the portion of the corridor between Belen and Bernalillo. The cost for this segment was \$50 million. There are about 51 miles of mainline track and 10 miles of spur line track in this segment. In most places along this section, New Mexico acquired the full width of the corridor. For most of the corridor this width is 100 feet. BNSF retained the Abajo Switching Yard, and the auto offloading and inter-modal

facilities in the southern part of Albuquerque. New Mexico received additional width properties that BNSF owned in Belen and downtown Bernalillo for stations.

The second closing occurred on February 28<sup>th</sup>, 2007 and resulted in the purchase of the line, rights of way etc. for the portion of the corridor between Bernalillo and Lamy. The cost for this segment was \$20 million. There are approximately 48 miles of mainline track and four miles of spur track in this segment. New Mexico acquired the full width of the corridor that was owned by BNSF. For most of the corridor, this width is 100 feet.

The third closing, which was originally scheduled to occur in December of 2008 but has been delayed until further notice, will result in the purchase of the line, rights of way etc. for the portion of the corridor between Lamy and Colorado state line. The cost for this segment is \$5 million. There is approximately 170 miles of mainline track and 30 miles of spur track in this segment. New Mexico will acquire the full width of the corridor that is currently owned by BNSF. For most of the corridor this width is 100 feet.

### **Rights**

The Joint Use Agreement defines the ongoing relationship between New Mexico and BNSF for use of the rail line purchased by New Mexico. A key concept of the agreement is that New Mexico *owns* the corridor and BNSF becomes a *tenant* of New Mexico. **As owner of the corridor New Mexico controls its own destiny.** Important rights identified in the Joint Use Agreement include:

With the exception of signals on the Belen-Isleta segment (which New Mexico would have installed regardless) capital improvements are determined by New Mexico, not mandated by BNSF. This contrasts with the \$40-50 million of improvements BNSF was insisting on prior to purchase.

As of the second closing in February 2007, **New Mexico may operate as many trains as it wants on the corridor provided they do not unreasonably impact BNSF freight operations.**

After the third and final closing, New Mexico may take over dispatch of the corridor. Prior to dispatch take over, New Mexico pays BNSF a flat fee for dispatch services.

Commuter rail trains have priority over freight trains in the corridor.

BNSF retained the obligation to serve the rail freight customers. New Mexico does not have to provide any rail freight service.

Before each closing New Mexico has the opportunity to conduct any necessary environmental due diligence on the corridor. If sites are identified that New Mexico does not want due to environmental conditions, BNSF can either cure the sites before the property is transferred, remain the responsible party for the environmental condition or retain ownership of the property.

## **Responsibilities**

After each closing, New Mexico is responsible for maintaining the track, signals and rights of way for the segment. Where Rail Runner Express trains and BNSF freight both operate, BNSF must pay New Mexico its proportionate share for BNSF use of the corridor. The use is measured by Gross Ton Miles (GTM) and BNSF freight trains are much heavier than Rail Runner Express trains. BNSF freight service will thereby contribute to the operating cost of Rail Runner Express service.

For the track between Bernalillo and Lamy, where Rail Runner Express does not initially operate, BNSF and Amtrak will pay for most of the maintenance costs. For the portion of the track between Lamy and the Colorado state line, BNSF & Amtrak will pay 100% of the maintenance costs of a minimum track and signal standard for at least 7 years. After 7 years, New Mexico has no minimum standard of maintenance and BNSF must pay at least its average level of maintenance costs for the previous years. If New Mexico chooses to run service that is more frequent than 12 trains per year on any segment between Lamy and the Colorado state line, maintenance shares will be based on the GTMs of the users for the segment New Mexico is using. The 12 trains per year provision was incorporated into the deal so that New Mexico could run excursion and special trains on these segments without triggering the maintenance cost share based on GTMs.

New Mexico will maintain a \$200 million (standard for new commuter systems in the west) insurance policy for Rail Runner Express service. New Mexico will also maintain a \$50 million escrow fund to guarantee its insurance and liability responsibilities.

Every five years, both NMDOT and BNSF will review the safety record of the commuter rail operation to determine whether to reduce the amount of money in the escrow account.

## **Is This a Good Deal?**

There are a variety of ways this purchase can be viewed within the context of other transportation investments. It is more difficult to compare this type of transaction to other types of public agency transactions that involve large sums of money. First, public agencies do not buy long stretches of rail corridors everyday. However there are some recent transactions that do provide some comparative context. The Utah Transit Authority (UTA) purchased a 25 foot wide, 175 mile long corridor from Brigham City to Payson in 2002. About 40 miles of the corridor includes track, for the remainder it is just rights of way. UTA paid \$185 million to purchase the corridor from the Union Pacific. Because the purchase did not include the actual track for a majority of the corridor, this has translated into higher project development costs. The first phase of UTA's commuter rail project will utilize about 44 miles of this right of way. Construction costs including track, signals, cars, locomotives and stations for this first phase (which was opened in May of 2008) came in at \$612 million, which is a little over \$13.6 million per mile. Sounder Transit in Seattle negotiated an agreement with the BNSF to run up to 30 commuter rail

trains a day on existing BNSF track between Seattle and Tacoma (a distance of 32 miles). Sounder pays an annual fee to run trains, but also paid the BNSF \$331 million for track improvements to create additional capacity on the line for the commuter trains. In 2003, Sounder Transit negotiated a 97 year easement to run four trains a day on the BNSF's 37 mile long line between Seattle and Everett Washington. The Sounder has agreed to pay the BNSF \$258 million for track improvements. As part of this same transaction Sounder purchased 21 miles of line between Tacoma and Lakewood Washington for \$32 million. From 1991 to 2000 the Southern California Regional Rail Authority (SCRRA) purchased approximately 340 miles of track and rights of way from the Union Pacific and the BNSF in the Los Angeles area for their commuter rail system Metrolink. SCRRA has paid out a total of \$705 million for these purchases. In 1983, the Trinity Rail Express (TRE) which now operates commuter rail between Dallas and Fort Worth Texas, paid \$34 million for the 34 mile line that connects the two cities. The line was purchased from the Rock Island Railroad.

The New Mexico transaction is much more favorable than these both from a cost and control perspective. The capital costs for the Belen to Bernalillo phase, which is about 48 miles in length, are about \$75 million plus the \$10 million in value added improvements provided by Sandoval County. If the purchase of the first phase is added to these development costs the end result is a total Phase I cost of \$135 million. This translates into a \$2.8 million cost per mile for a fully developed system, which is \$11 million dollars a mile cheaper than UTA's first phase. Much of this difference can be attributed to fact that the New Mexico purchase involved the acquisition of a very high quality line, with very little existing use, for a very reasonable price. As noted later in this report, the Denver region voted in November of 2004 to increase sales taxes by a half percent to generate about \$4.7 billion over the next 10 years for the purpose of constructing 3 new light rail, and two new commuter rail lines in the Denver area. While the commuter rail lines have yet to be developed, they are estimated to cost between \$10 and \$12 million per mile.

From a pure cost perspective, the New Mexico transaction resulted in the purchase of 270 miles of track, rights of way etc. for \$75 million, which translates into a cost per mile of about \$250,000. The transactions listed above indicate that it is not unusual to pay on the order of at least \$1 million per mile for a railroad corridor (track or not). If these costs (\$1 million per mile) are applied back to the New Mexico transaction one might expect an overall cost in the \$250 - \$300 million range. But it is also important to consider aspects that go beyond the pure cost comparisons. New Mexico purchased a railroad that is in very good shape, and has very little freight traffic on it. This translates directly into significant cost savings on the project development side as illustrated by the comparisons to the Denver and Utah. If New Mexico had not acquired this track, and was looking at full development costs associated with new alignments on property that needed to be acquired, the overall Phase I costs would be closer to \$10 million per mile, resulting in a fully developed Phase I cost of \$480 million (as opposed to the \$135 million that New Mexico expended). This doesn't even factor in the amount of additional time and controversy that would be associated with property acquisition and track construction.

In addition, New Mexico's ownership of the rail line will provide the state with the ability to control its own future in terms of train dispatch, necessary capacity improvements and working with local communities that may have interests in joint uses of the rights of way. The corridor from El Paso to Albuquerque and on north to Denver is a vital transportation link today, and its importance will grow significantly over time as population increases. This transaction preserves a substantial portion of this corridor for future transportation needs. Finally, the BNSF invested proceeds from this sale back into capacity improvements on their east west transcontinental line in New Mexico. This created more jobs for residents of New Mexico and positioned the BNSF to increase the amount of freight moving in this corridor, which produced a secondary benefit for Interstate 40 between Tucumcari and Gallup.

The purchase of the line from Lamy to the Colorado state line was mainly done with future corridor preservation in mind, at a reasonable cost of \$5 million. New Mexico will maintain this piece of railroad when it is acquired from the BNSF, but the transaction is structured to ensure that New Mexico will not incur any long term financial liability as a result of this maintenance responsibility. If New Mexico tried to acquire a 200 mile long 100 foot wide piece of property in this increasingly strategic transportation corridor, the studies, legal research and surveying activities alone would probably exceed \$5 million.

The NMDOT commissioned a valuation of the line from Belen to the Colorado state line from a functional perspective. This valuation focused on the value of the infrastructure based on the cost of replacement less depreciation. The end result was a line value of \$151 million, twice the purchase price in the transaction. This value did not include the price of the land in the corridor.

Arguments can, and will be made that these dollars should have been spent on other transportation initiatives, that have more perceived value. This will always occur anytime large expenditures are allocated for transportation projects. However, this report has already indicated that additional expenditures on roadway lanes etc., while necessary in many cases, do not produce the same kinds of travel time benefits that rail does. Adding an extra lane on I-25 between Belen & Santa Fe has been estimated to cost \$720-\$740 million. This improvement does not substantially change mobility in the corridor and the price for admission is still the cost of a car, insurance, gas and maintenance.

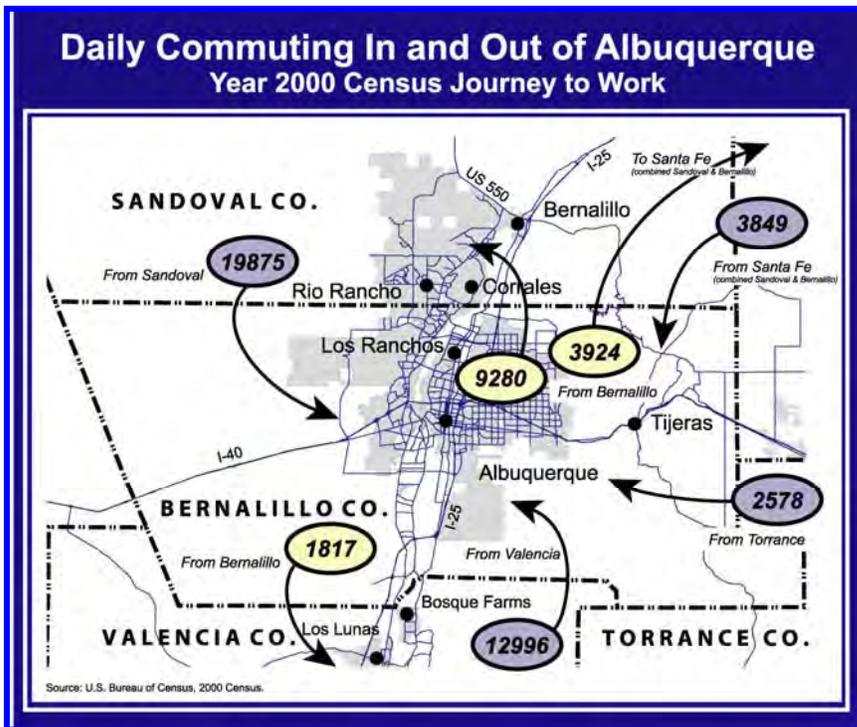
### **Service Design**

Developing a final service design for Phase I involved the consideration of a number of sub elements that include market analysis for multiple trip purposes, train schedules and frequency of service, connecting services, fare structures, surveys of travel behavior and competing auto travel times. These elements are all largely interdependent with the major elements discussed. For example, train schedules and frequency, are one determinant of market shares and a large determinant of operating costs. Connecting services are an important dimension of the market analysis which can affect patronage. The service design in this corridor could potentially impact freight movements which can, in turn, affect the need for track and signal improvements.

To address these interdependencies, the MRCOG and NMDOT pursued the development of a service design for Phase I in an iterative matter in coordination with the other elements of the project, and within the context of the budget for Phase I. Most of the service design work was accomplished utilizing MRCOG staff with some assistance from Planning Technologies LLC, a firm retained by the MRCOG to assist with model development and enhancements and planning technical support.

For the market analysis, early work focused on summarizing year 2000 Census data, reviewing relevant previous studies, developing origin and destination data from the Census Transportation Planning Package (CTPP) and using results from the MRCOG travel demand model. For example some of the first data available from the CTPP were county to county work trip tables. The county to county data indicate that in the year 2000, an estimated 12,996 people lived in Valencia County and worked in Bernalillo County (see Figure 30 below). Only 1,817 persons lived in Bernalillo County and worked in Valencia County. Figure 30 also shows sizable commute exchanges between Sandoval County and Bernalillo County in both directions.

Figure 30. Summary of Year 2000 CTPP County to County Commuter Flows

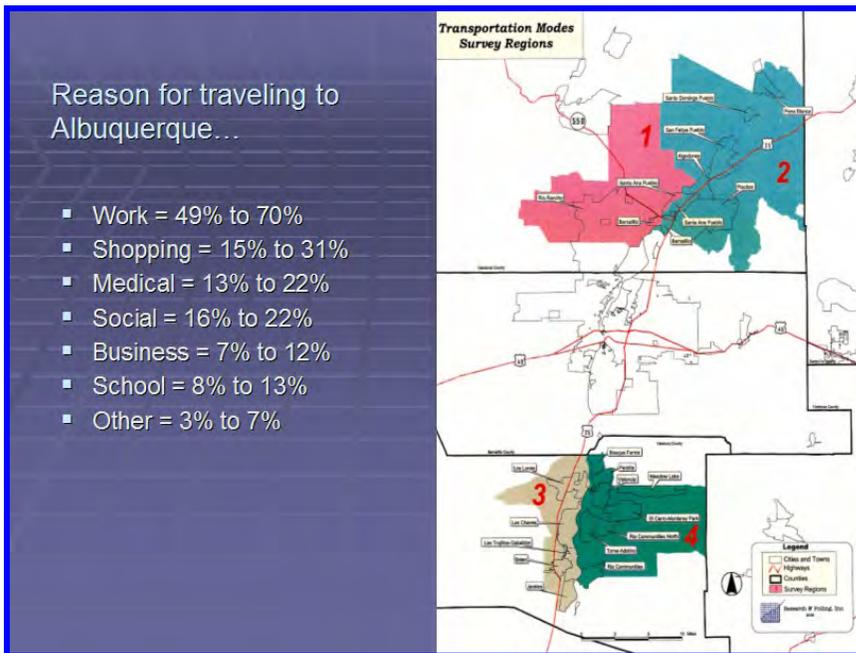


The data for work exchanges between Santa Fe County and the counties of Bernalillo and Sandoval shows that almost 4,000 people lived in Bernalillo or Sandoval County and worked in Santa Fe, and about the same number lived in Santa Fe County and worked in the counties of Bernalillo or Sandoval. Further analysis has since indicated that about 3,000 of these persons are actually coming from Town of Edgewood. This information does not show the total number of exchanges between counties because it is based on the

Census long form, so it is only an indication of regular commute flows. Data collected from MRCOG traffic counts reflect much higher volumes of traffic between these counties, but the traffic counts capture all trips (work, shopping, education, business, tourism etc.). This information did provide the MRCOG and the NMDOT with a basis for understanding the relative size of the work market related exchanges between counties.

Another part of this early work focused on an extensive survey of travel behavior in the commuter rail corridor that was generated by the City of Albuquerque as part of the Rapid Transit Project. This survey conducted by Research and Polling in March of 2003, included 69 questions and generated some very specific and useful information about travel markets between northern Sandoval County and Valencia County and the City of Albuquerque. The survey was completed for 1000 households and the results have a stated margin of error of 3.9% at the 95% confidence level. Figure 31 illustrates the results of one particular question from the survey.

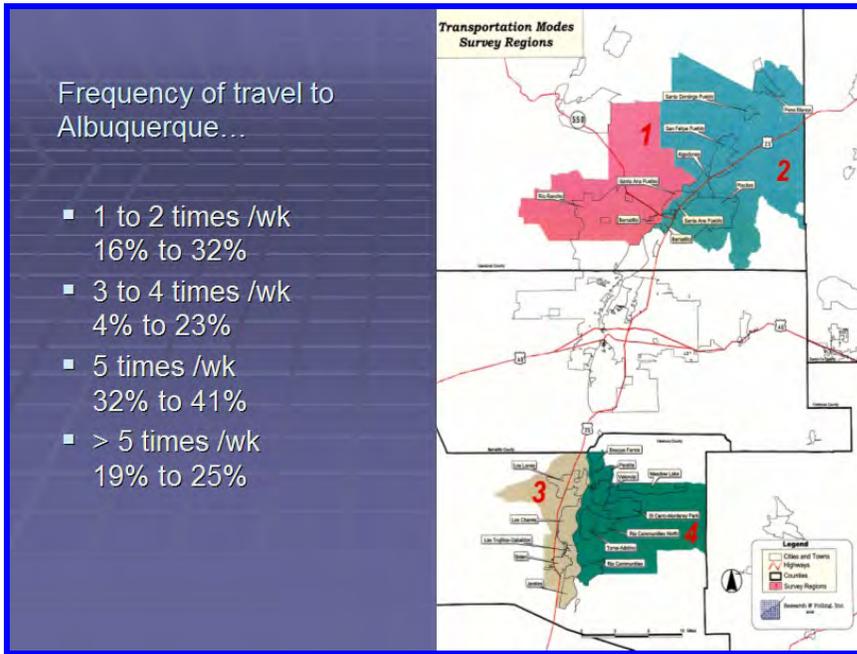
Figure 31. Trip Purpose to Albuquerque



The map on the right of the figure indicates the four areas for which survey results were summarized. Area 1 includes the northern portion of Rio Rancho and the portion of Santa Ana Pueblo on the west side of the Rio Grande. Area 2 includes the communities of Bernalillo, Placitas, Algodones and Pena Blanca and the Pueblos of Santa Ana, San Felipe and Santa Domingo. Area 3 includes the developed portion of Valencia County on the west side of the Rio Grande, and area 4 includes the developed portion of Valencia County on the east side of the Rio Grande. Figure 31 illustrates survey respondent's reasons for traveling to Albuquerque. The range in percentage is due to the varying rates from the 4 sub-areas. It is clear that the work trip is the largest market based on this survey, which is a positive result for commuter rail service, but other notable trip purposes include shopping, medical and social.

Figure 32 illustrates the results to another question from the same survey. The results indicate that many of the respondents travel to Albuquerque 5 or more times a week (51%-66%). This is a positive indication of a stable customer base for commuter rail service.

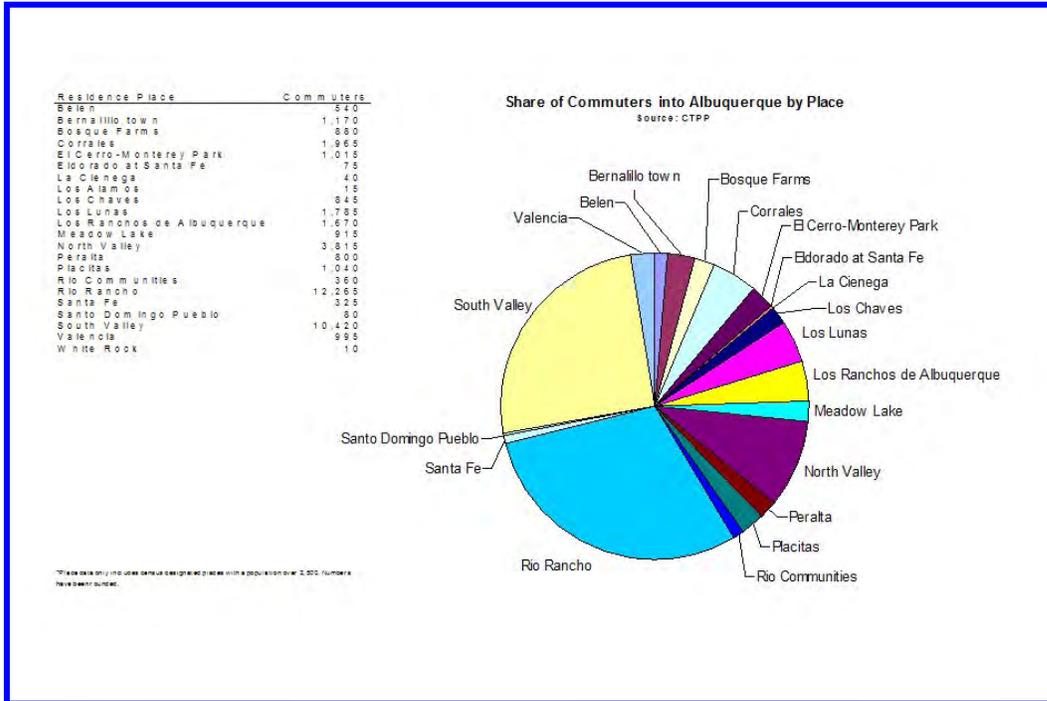
Figure 32. Trip Frequency to Albuquerque



As negotiations with the BNSF continued the NMDOT and MRCOG developed a better sense of the tradeoffs between service and capital improvements. For example, much of this corridor is single track with sidings. Service scenarios that required commuter rail trains to meet and pass each other required more extensive capital improvements than those that did not. BNSF also provided an estimate of train travel times along the corridor which was utilized to help establish service parameters. The BNSF travel time data indicated that a 45 minute travel time (including stops) could be achieved between Belen and Albuquerque, and travel times of about 22 minutes between Albuquerque and Bernalillo. In order to serve the peak periods (as defined by the survey and MRCOG traffic count data), the train travel time information was used to identify the number of trains that could reasonably run during the peak period while avoiding train meets (other than downtown Albuquerque) or severely impacting BNSF's freight operations or Amtrak's intercity rail service. Using these parameters, it was determined that three trips could be made from Belen into Albuquerque during the morning peak period, and three from the north (two of which would originate in Belen and continue north to Bernalillo before making the return trip to Albuquerque). The same level of service could be provided in the reverse direction during the afternoon peak period.

In order to take these general service concepts and market information to a greater level of detail, more information was required. MRCOG obtained the next level of CTPP data in May of 2004. Figure 33 provides a summary of this information.

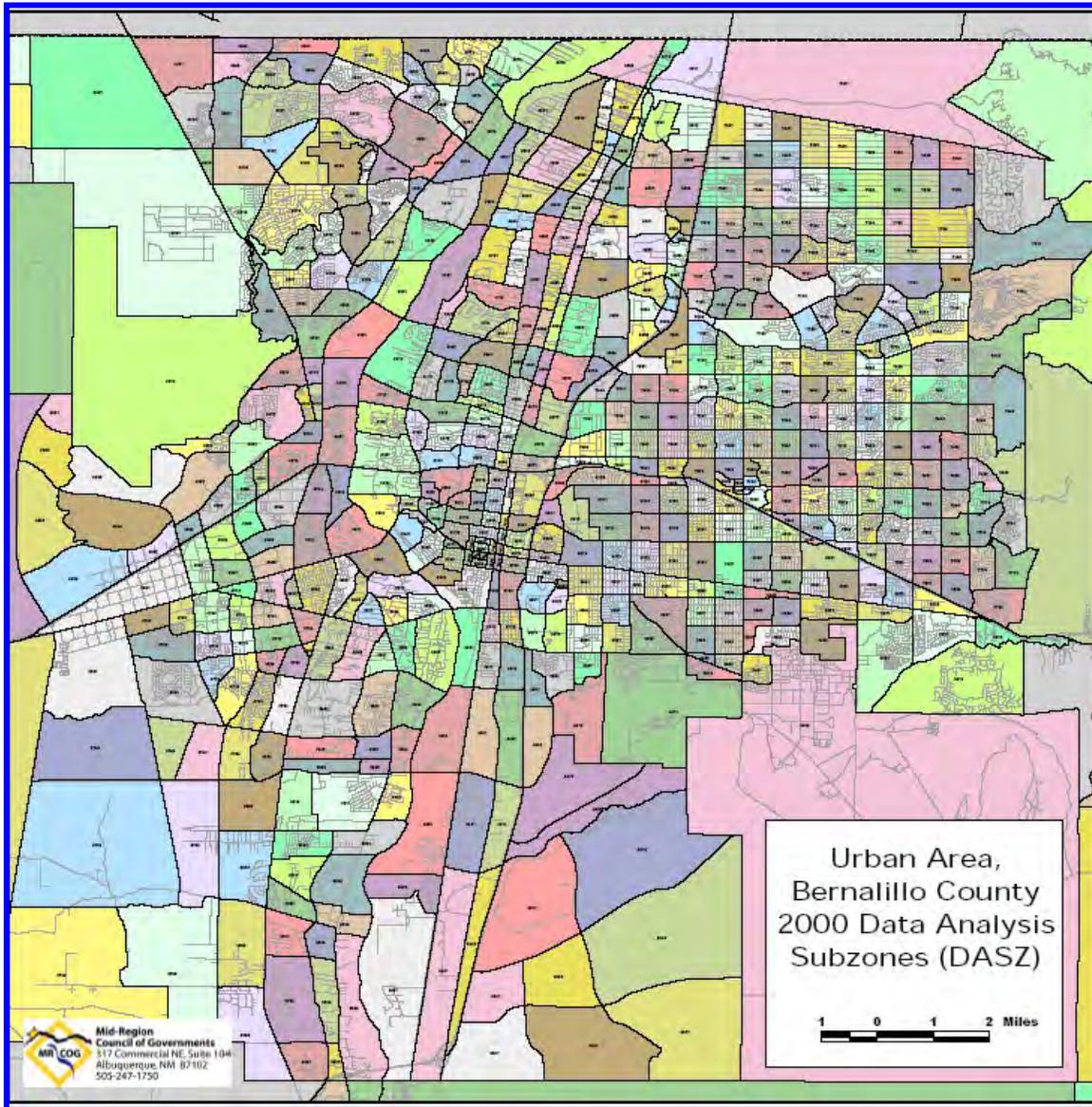
Figure 33. Year 2000 CTPP Share of Commuters into Albuquerque by Place



While the previous CTPP data illustrated County to County commute flows, this release contained data disaggregated to smaller levels of geography. The commute flows into the City of Albuquerque are illustrated for many of the communities along the line. According to the CTPP, about 1170 workers commute from Bernalillo into Albuquerque. The number for Los Lunas is about 1,750.

Another release of CTPP information had commute flows broken down into even smaller levels of geography called Data Analysis Sub Zones or DASZs. This level of CTPP data, which was available for the entire Phase I corridor includes commute exchanges between every single DASZ. This information provided a highly disaggregate base of commuter information to analyze very specific origins and destinations for the commuter rail service. This source data and trip tables from the MRCOG travel demand model were the primary sources of origin and destination data utilized to identify markets. Figure 34 illustrates this zone structure for the Albuquerque urban region.

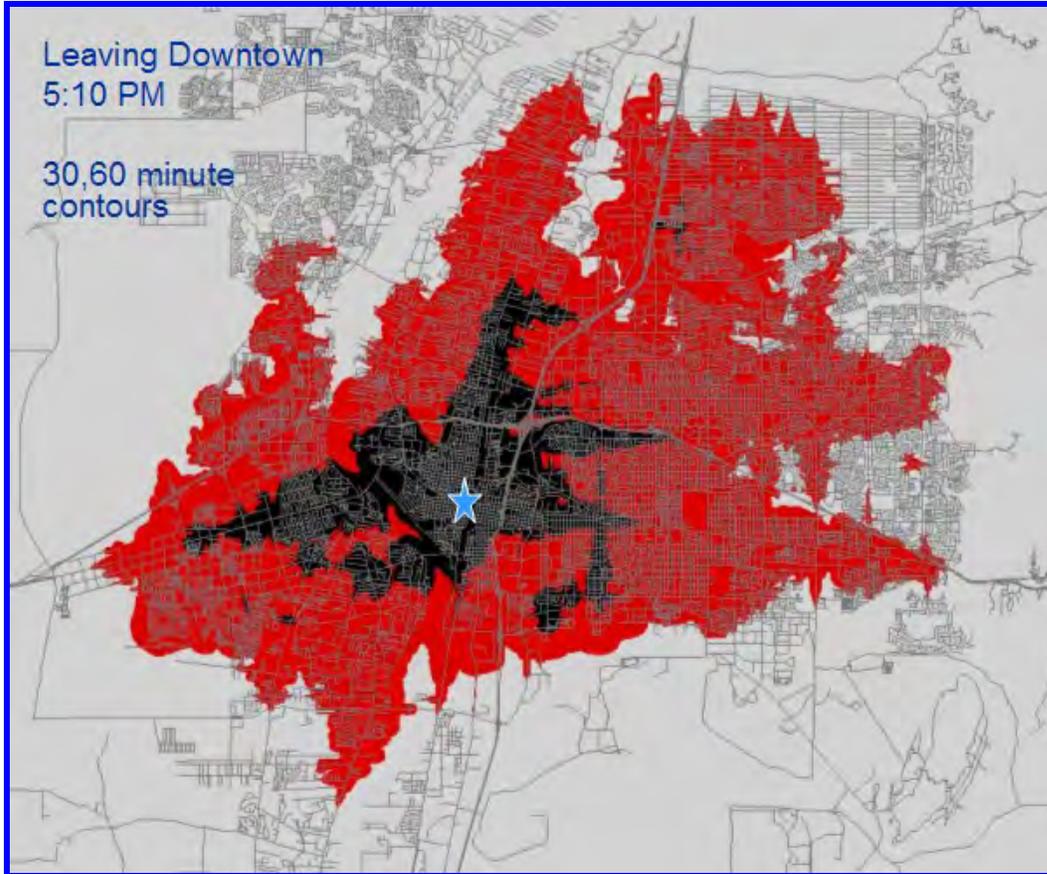
Figure 34. DASZs In The Albuquerque Urban Area



Identifying total trip markets was one piece of establishing patronage estimates. The next part involved assessing the commuter rail service scenarios and alternative connecting service configurations, to help determine what portion of the total travel market the commuter rail service could capture. To assist with this piece of work the MRCOG maintains and utilizes a highly disaggregate model to assess markets for all types of projects. This model, called the Transportation Accessibility Model or TRAM, can measure accessibility by mode of transportation or combinations of modes. It can also generate travel time contours based on real time transportation system performance by mode. For example, all the ABQRIDE bus routes and timetables are coded into the model. If the model is provided with the time of day and a trip origin, it can then generate

travel time contours at any interval for any mode (or mode combinations) from the origin outward. Figure 35 illustrates an example of this capability.

Figure 35. Travel Time Contours Based on the ABQride Bus System



This figure illustrates the “accessibility” of destinations from downtown Albuquerque using the modes walk and bus. The black area represents how far one could get between 0 and 30 minutes, while the red area indicates how far one could get between 31 and 60 minutes. These contours can then be overlaid on Census data or future year forecasts of population or jobs for example to determine the markets that are available at different levels of accessibility e.g. population located within 25 minutes by bus from downtown Albuquerque.

To utilize this capability for the commuter rail service some modifications had to be made to the model to accommodate mode combinations involving autos and rail (to simulate park and ride). Also alternative commuter rail train schedules needed to be developed with timetables so that “real time” conditions could be simulated, like those presented in the picture above. For example, if a train leaves Belen at 6:30 a.m. and arrives in downtown Albuquerque at 7:15 a.m. it is important for the market analysis to know which destinations are within reach from the station by mode (walk, bus, shuttle). The other piece of this work involved coding alternative, or new shuttle service into the

scenarios (where it made sense) to better understand how the markets could change if good connecting shuttle services were available to or from the commuter rail stations. It is important to point out that ABQRIDE routes only covered a portion of the City of Albuquerque when this analysis was conducted, so stations outside of downtown Albuquerque did not have any fixed route, or on demand, bus service.

To identify potential markets that could benefit from better connecting services, the year 2000 Census data and MRCOG estimates of population and employment by DASZ we used. For key employment destinations these data were disaggregated further using N.M. Department of Labor data and other sources to estimate the number of employees in specific buildings. Figure 36 illustrates this information for downtown Albuquerque.

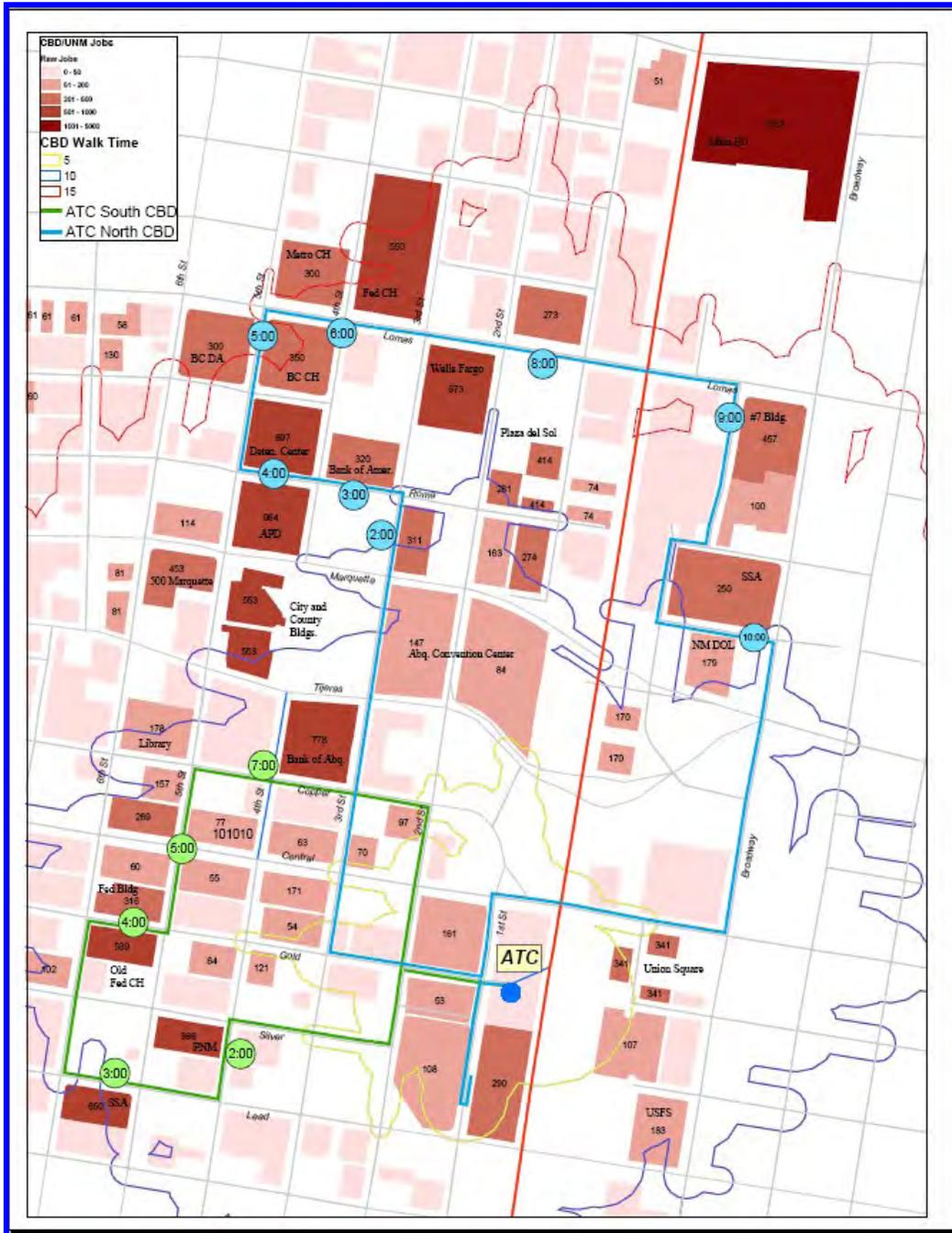
Figure 36. Employment in 3D by Block, Downtown Albuquerque



The TRAM was then used to generate walk and bus contours from stations, to determine which areas would not be accessible using the current bus system or via a short walk. These areas were identified as potential markets for connecting shuttles.

Shuttle routes were then coded into the TRAM to test the additional market covered. Figure 37 illustrates some test shuttle routes serving downtown Albuquerque. The shuttles are coded in with time points (time elapsed from the station). The figure also shows walk travel time contours in 5, 10 and 15 minute intervals.

Figure 37. Test Shuttle Routes in Downtown Albuquerque



Since there were multiple combinations of these alternatives, along with multiple combinations of train schedules, a considerable amount of analysis was completed to generate alternative final service designs. This effort resulted in a focus on serving employment destinations where rail/walk or rail/bus travel times were within 20 minutes of comparable auto travel times. The focus employment destinations are illustrated in Figure 38.

Figure 38. Target Destination Markets

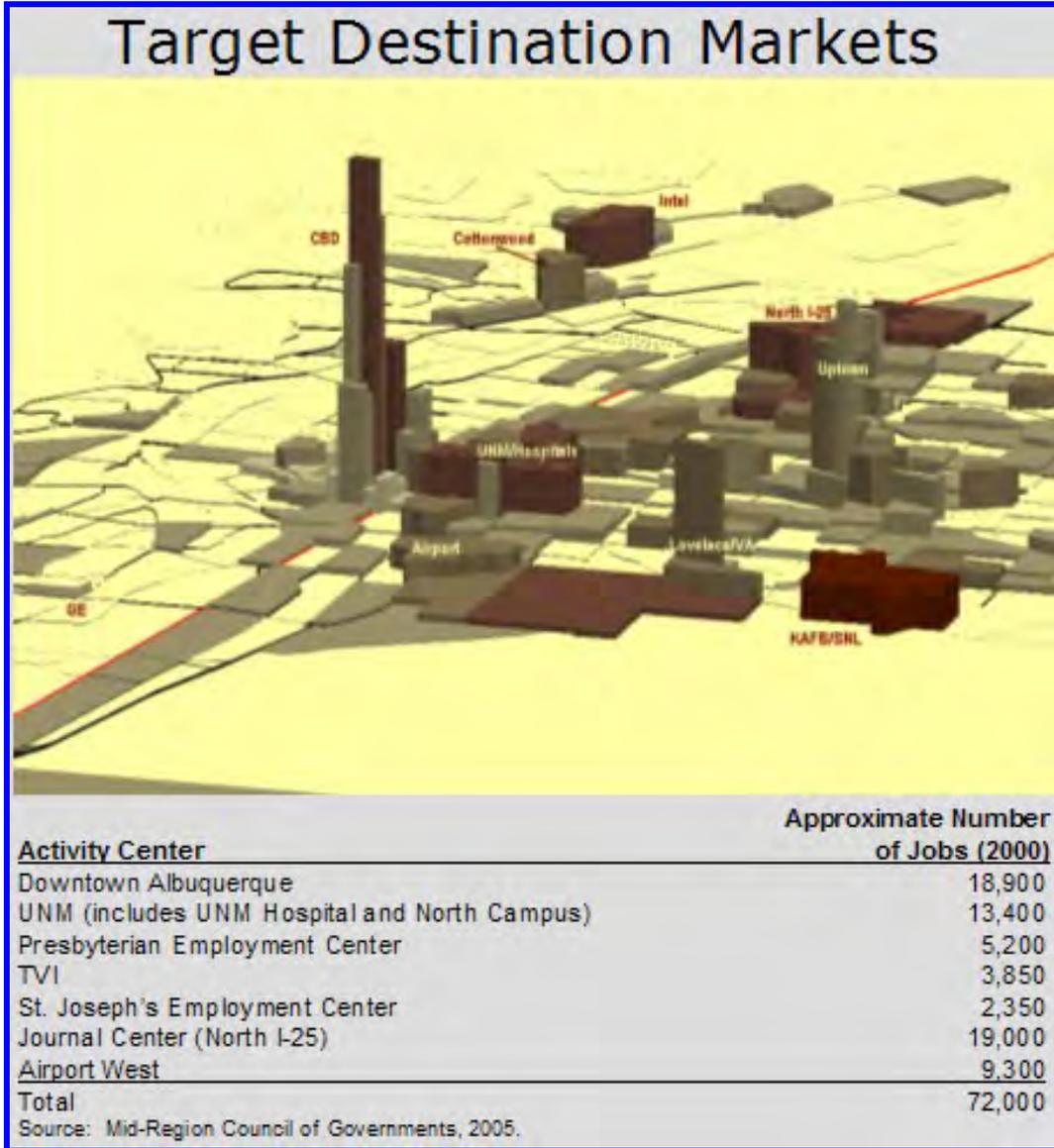


Figure 38 illustrates employment in three dimensions in the Albuquerque area. The red line running through the center of the figure is the commuter rail line. The table below the figure indicates how many jobs are located in each target employment cluster. The most obvious markets are those associated with downtown Albuquerque, and the cluster of hospitals and educational institutions (UNM & TVI) just east of downtown. Together this grouping of destinations represents about 43,000 jobs. All of these destinations can be accessed from the downtown station via rail/walk or rail/bus. Most are served quite adequately by the current bus system, particularly those along Central Ave., which are served by the ABQRIDE Route 66 bus service which runs every 15 minutes and the Rapid Ride express bus service which also runs on Central Ave. Rapid Ride operates on 10-15 minute headways as well, but unlike the Route 66 service, it only stops at key

destinations at approximately half mile intervals. This service, which carried over 1 million passengers in its first year of operation uses high capacity articulated buses that utilize signal pre-emption (bus drivers can activate traffic signals to generate green lights) to produce bus travel times that are comparable to auto travel times.

Figure 39. ABQ Rapid Ride Bus



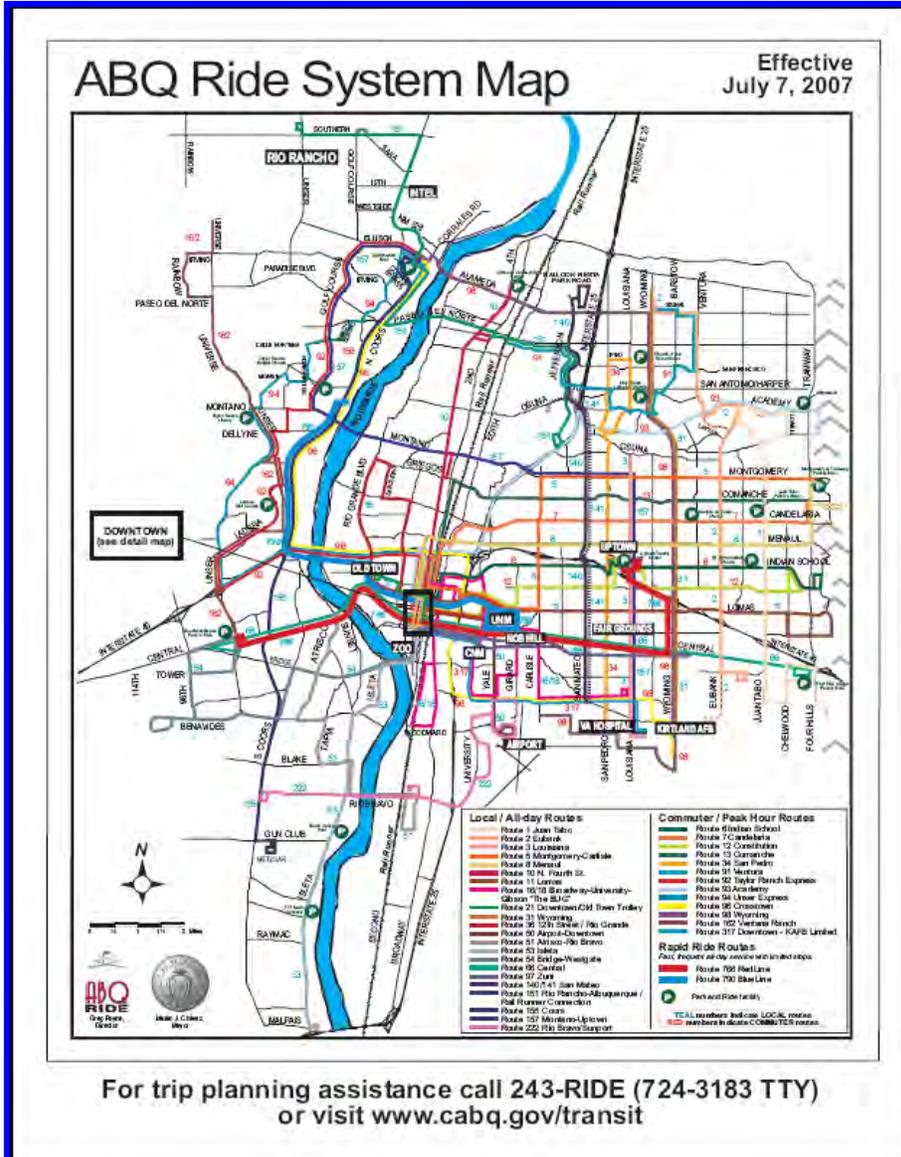
Rapid Ride serves the Central Ave. corridor from the west side of Albuquerque to Uptown with stops at key destinations like the Biological Park, Old Town, downtown, Presbyterian Hospital, UNM, Nob Hill and Uptown. The Rapid Ride stops in downtown Albuquerque at the Alvarado Transportation Center (ATC), within a couple hundred feet of the commuter rail platform. This service provides connections from the Rail Runner to several of the key destinations in this corridor. A route map for the Rapid Ride service is illustrated in Figure 40 below.

Figure 40. Rapid Ride Route Map



There are many other existing bus routes that provide service from the ATC. It is the hub for a majority of ABQ Ride bus routes as depicted in Figure 41.

Figure 41. ABQRIDE System Route Map



For a complete description of ABQRIDE service (including schedules and route maps) see [www.cabq.gov/transit](http://www.cabq.gov/transit). MRCOG staff evaluated existing services and did not pursue new or alternative bus routes for markets that are well served by the current system (like those along Central Ave.). For the key destinations in the core of Albuquerque mentioned above, there are only two that required new bus service. They include direct service to TVI and the North UNM campus. While it is possible to get to these two destinations using existing ABQ Ride routes, the current service is not travel time competitive and in some cases does not stop close enough to key buildings. MRCOG had several discussions with both TVI & UNM to see if this situation could be addressed. One of the outcomes of

these discussions was the implementation of a shuttle service by the University of New Mexico Hospital (UNMH). This shuttle was put in place on July 14<sup>th</sup> 2006 and provides direct service from the downtown Albuquerque station to UNMH. ABQRide added a new bus route in July 2007 (Route 317) that serves the Main TVI campus directly from the Downtown Albuquerque station. This route also serves the Kirtland Air Force Base/Sandia National Labs complex.

The MRCOG and ABQRide also investigated the implementation of a couple downtown Albuquerque circulator routes to make it more convenient for employees and others to access downtown destinations from the ATC. ABQRide announced the implementation of this service on July 12<sup>th</sup>, 2006. This service, called the “D-Ride”, runs every 7 minutes and originates at the Alvarado Transportation Center. A map of the route is included in Figure 42 below.

Figure 42. ABQRides “D-Ride” Downtown Circulator

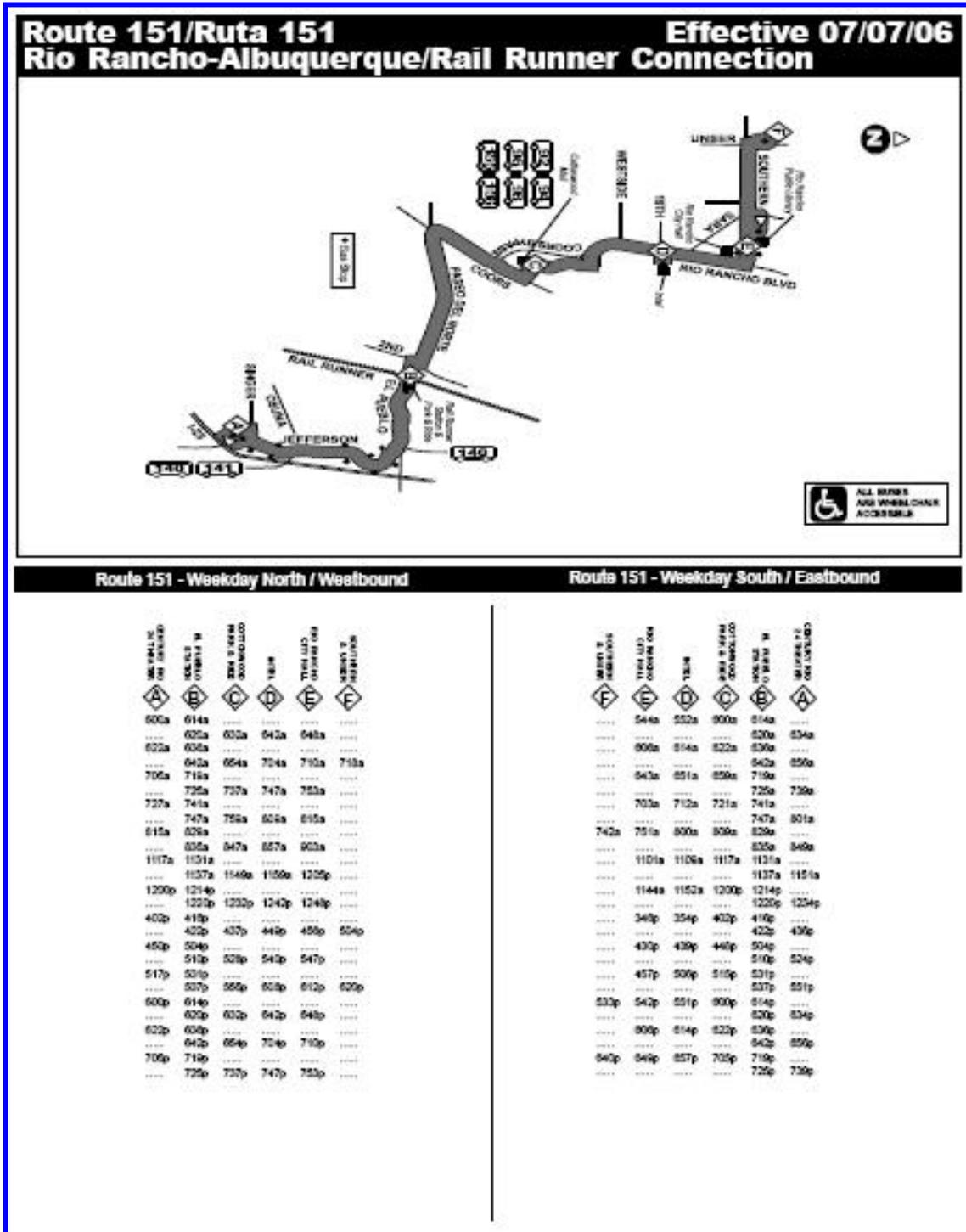


Another key and emerging destination is the Albuquerque International Airport including the job base that has emerged between I-25 and the airport centered on University Blvd. There were 9300 jobs in this area in the year 2000. This center can be served effectively from the Bernalillo County/Sunport International station. The MRCOG worked with Bernalillo County and the City of Albuquerque to establish a new bus route that serve this destination (and the residential areas west of the Rio Grande) from the Bernalillo County/Sunport International station. This new route (Route 222) went into service on April 17<sup>th</sup>, 2007, when the Bernalillo County/Sunport International station was open for service.

There was also interest in a connection to the Kirtland Air Force Base, Sandia National Labs complex. This is a difficult destination to serve given the distance this complex is from commuter rail stations. However the Route 317 bus mentioned above started serving this destination in July of 2007 from the Downtown Albuquerque station. In addition the Route 222 was extended in the Spring of 2008 to directly serve the VA Hospital, Kirtland Air Force Base and Sandia National Labs complex.

The final employment destination of note is the Journal Center area, centered on Jefferson Avenue between Paseo Del Norte and Singer Blvd. This employment cluster had over 19,000 jobs in the year 2000. Most of these jobs are accessible by bus from the Los Ranchos/Journal Center station. Prior to service start up the bus system did not provide a connection between this station and the Journal Center area, so the MRCOG, the City of Rio Rancho, Sandoval County and the City of Albuquerque evaluated alternatives bus routes to serve these destinations. The end result of these discussions was the implementation of an entirely new route that serves the Journal Center, the Los Ranchos/Journal Center Station, Cottonwood Mall, Intel, Rio Rancho's government Center, and Southern Blvd. and Unser Blvd. in Rio Rancho. The route was jointly funded by all four parties and the service is provided by ABQRide as Route 151. The route was designed around train arrival times at the Los Ranchos/Journal Center stations. Each time a train is at the station, two buses (one going in each direction) are at the station to meet the trains. Buses typically arrive about five minutes before train arrivals and depart right after train departures. This route creates a multidirectional service that can be used by train patrons to reach important employment destinations (Journal Center, Cottonwood Mall, Intel, Rio Rancho City Hall), or by residents to access the train service. In addition, this route also provides a connection between residents on the Westside and the Journal Center. Figure 43 illustrates a map of the route and scheduled time points.

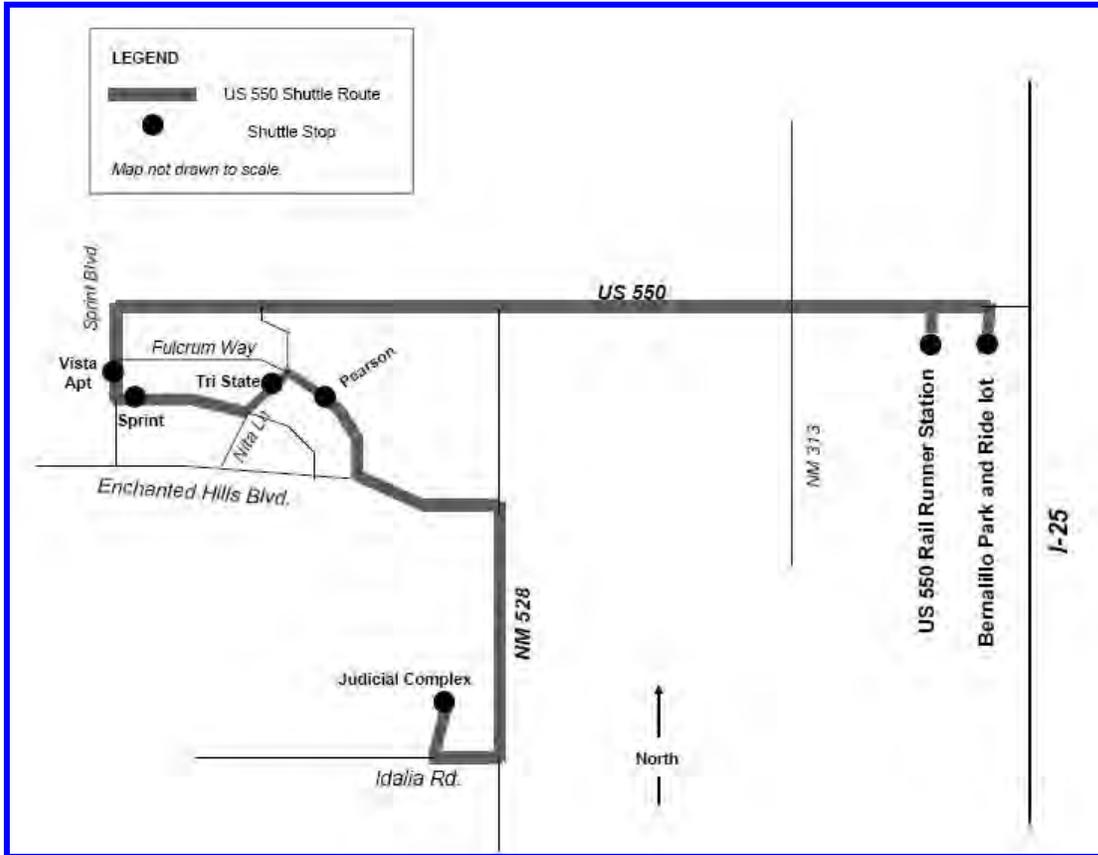
Figure 43. Route 151



As part of the effort to provide better connections to the Rail Runner service, the NMDOT, MRCOG and Sandoval County evaluated different ways to provide a shuttle connection between northern Rio Rancho and the Sandoval/U.S. 550 station. The end result of these discussions was the implementation of a new shuttle service that connects

northern Rio Rancho to the Sandoval/U.S. 550 Rail Runner station with additional stops at the Bernalillo Park & Ride providing a connection to the Santa Fe bus service. A map of this route is illustrated in Figure 44 below.

Figure 44. Map of U.S. 550 Shuttle



Like the Route 151, this shuttle was designed around train arrivals and departures at the Sandoval/U.S. 550 station. This route also serves an employment center between Enchanted Hills Blvd. and U.S. 550 in Rio Rancho. More current schedules for this route are available at [www.nmpark&ride.com](http://www.nmpark&ride.com) or [www.nmrailrunner.com](http://www.nmrailrunner.com).

For most of the outlying stations no transit service is in place. The MRCOG and Rio Metro (the transit district for the Albuquerque Metro area) have been working with these communities to identify feasible transit services that could provide these connections as part of the Mid Region Transit District service plan development.

Another important element of the service planning was the generation of train schedules, and fare structures. As part of this process the MRCOG released a draft train schedule for public comment on January 12<sup>th</sup> 2006. The release of the draft schedule is restated in its entirety below:

**Draft Rail Runner Service Schedule for Public Comment**

**How to read the draft schedule:**

The train schedule presents northbound (Belen to the “Sandoval County / US 550” station in Bernalillo) and southbound service (Sandoval County / US 550 to Belen) separately. There are nine northbound trains each day, four of which start in Belen and five of which start in Downtown Albuquerque. Each day there are seven southbound trains, all of which start at the Sandoval County / US 550 station. The departure time for each train is listed in the row across from each station name. The times presented in the table represent both arrival and departure time since the train will stop at each station for approximately one minute. Please note that not all trains will travel the entire corridor and not all trains will stop at all stations. The stations a train will not stop at are noted with a “—”.

Initially the Railrunner will operate only on weekdays. We expect to add Saturday service within the first year of operation.

Please note that not all stations will be in operation on opening day. Information on station status will be posted on the Rail Runner website and available by calling the MRCOG office closer to opening day.

**Northbound Rail Runner Schedule (read down) – Monday through Friday**

	Train #1	Train #2	Train #3	Train #4	Train #5	Train #6	Train #7	Train #8	Train #9
→ Belen	---	5:45 A	6:50 A	---	1:30 P	--	---	---	7:30 P
→ Los Lunas	---	6:00 A	7:05 A	---	1:45 P	--	---	---	7:45 P
→ Isleta	---	6:11 A	7:16 A	---	1:56 P	--	---	---	7:56 P
→ Rio Bravo / Airport	---	6:22 A	7:27 A	---	2:07 P	--	---	---	8:07 P
→ Downtown Albuquerque	5:10 A	6:30 A	7:35 A	11:25 A	2:15 P	4:10 P	5:25 P	6:30 P	8:15 P
→ Paseo / Journal Center	5:21 A	6:41 A	7:46 A	11:36 A	--	4:21 P	5:36 P	6:41 P	---
→ Sandia	5:25 A	6:45 A	7:50 A	11:40 A	--	4:25 P	5:40 P	6:45 P	---
→ Downtown Bernalillo	5:33 A	6:53 A	7:58 A	11:48 A	--	4:33 P	5:48 P	6:53 P	---
→ Sandoval / US 550	5:35 A	6:55 A	8:00 A	11:50 A	--	4:35 P	5:50 P	6:55 P	---

**Southbound Rail Runner schedule (read down) – Monday through Friday**

	Train #1	Train #2	Train #3	Train #4	Train #5	Train #6	Train #7
↓ Sandoval / US 550	6:00 A	7:10 A	8:20 A	12:05 P	4:55 P	6:05 P	7:10 P
↓ Downtown Bernalillo	6:02 A	7:12 A	8:22 A	12:07 P	4:57 P	6:07 P	7:12 P
↓ Sandia	6:10 A	7:20 A	8:30 A	12:15 P	5:05 P	6:15 P	7:20 P
↓ Paseo / Journal Center	6:14 A	7:24 A	8:34 A	12:19 P	5:09 P	6:19 P	7:24 P
↓ Downtown Albuquerque	6:25 A	7:35 A	8:45 A	12:30 P	5:20 P	6:30 P	7:35 P
↓ Rio Bravo / Airport	---	---	---	12:38 P	5:28 P	6:38 P	---
↓ Isleta	---	---	---	12:49 P	5:39 P	6:49 P	---
↓ Los Lunas	---	---	---	1:00 P	5:50 P	7:00 P	---
↓ Belen	---	---	---	1:15 P	6:05 P	7:15 P	---

The draft schedule was based primarily on Census Journey To Work data, travel departure information from the MRCOG survey, and predominate start and end times for the major employment destinations accessible by the line and connecting transit services. This initial schedule was oriented toward commuters traveling from outlying areas to the

major employment destinations in south, central and north Albuquerque discussed above. A single mid day train was also included. In anticipation of the Belen Station opening additional service on the south leg of the corridor was evaluated. The end result was a more expansive service schedule that included reverse commute train trips in the morning and evening peak periods and a third train trip into Albuquerque for both periods. This schedule has changed as result of the extension of service to Albuquerque and the addition of new stations. Current train schedules can be found at [www.nmrailrunner.com](http://www.nmrailrunner.com). The original schedule was designed to serve the larger commuter markets accessible by the line (and short transit connections) at predominate market departure and arrival times.

It was recognized that certain trip destinations were so far removed from Rail Runner stations that the proposed schedule and associated ABQRIDE bus routes would not produce a total trip travel time that was competitive with most auto travel times. Because of costs and other factors it was not possible to serve all major transportation origins and destinations by rail and connecting transit services. It took decades to develop the roadway/auto based transportation system that exists today. It takes time and resources to introduce new modes and connections and grow a public transportation system that can effectively provide choices to a majority of trip markets in a large urban area.

Work was completed on a fare policy for the service in the Spring of 2006. The basis for the fare policy is described below. The MRCOG commissioned a survey through Research & Polling Inc. to gather additional information about fare price sensitivity, schedules and awareness of the commuter rail project and other information including: perceptions of the adequacy of the current transportation system in the Albuquerque metro area, identification of the most effective messages to encourage ridership, and identification of factors most important to commuters when considering whether to use public transportation.

The data was collected by phone interviews conducted in the latter part of June 2005. A total of 1,250 adult individuals completed interviews including 500 Albuquerque metro area adult residents, 375 Valencia County adult residents who commute to certain employment clusters in Albuquerque for school and/or work, and 375 southern Sandoval County adult residents who commute to certain employment clusters in Albuquerque for school and/or work. The Albuquerque metro sample size of 500 at a 95% confidence level provides a maximum margin of error of 4.4%. In theory, in 95 out of 100 cases, the results based on a sample of 500 will differ by no more than 4.4 percentage points in either direction from what would have been obtained by interviewing all Albuquerque Metro area adult residents. The Valencia County sample size of 375 and southern Sandoval County sample size of 375 at a 95% confidence level each provide a maximum margin of error of 5.1%. In theory, in 95 out of 100 cases, the results based on a sample of 375 will differ by no more than 5.1 percentage points in either direction from what would have been obtained by interviewing all Valencia County and southern Sandoval County area adult residents. Some of the more interesting findings of the survey included a high level of support for the project among all survey respondents including the sample from the Albuquerque urban area as depicted in Figure 45. The mean score of 4.2 suggested that there was a great deal of public support for commuter rail and an improved

bus system in the region. The survey asked residents in Valencia and Sandoval Counties about travel characteristics associated with their commutes into Albuquerque. Characteristics of interest included travel times, distance, cost, frequency, time of day etc. Figure 46 below illustrates their responses to the cost of gas associated with the commute.

Figure 45. Support For Public Transportation Among Albuquerque Residents

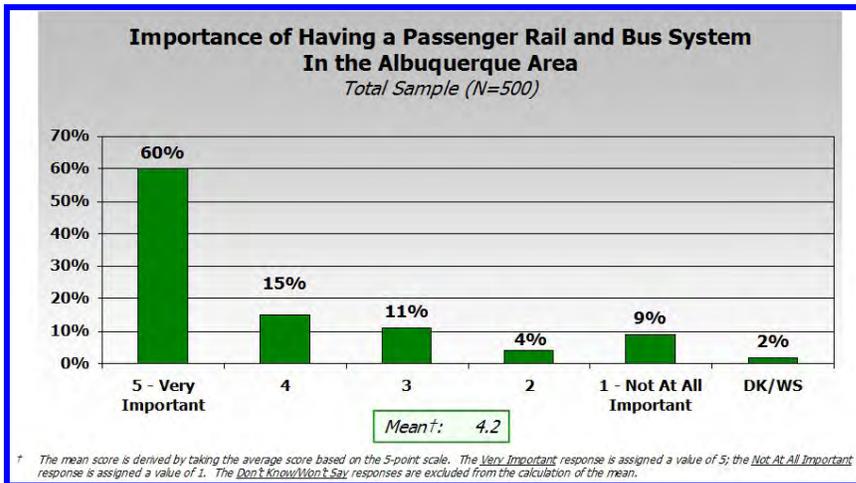
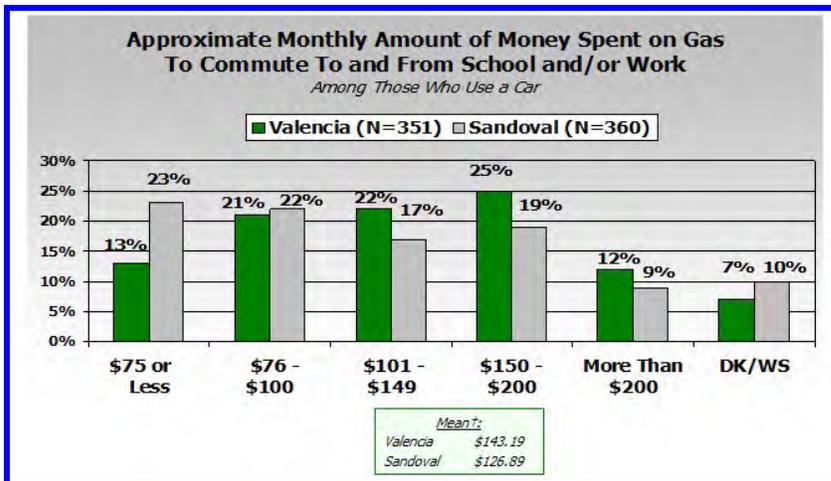


Figure 46. Monthly Commute Costs from Valencia & Sandoval Counties to Albuquerque



The data from this question indicated that on average Valencia County commuters spend about \$143.00 and Sandoval County commuters spend about \$127.00 on gas per month to commute to Albuquerque. The survey was completed when the price of gas was in the range of \$2.19 a gallon. Note that other auto related expenses (insurance, depreciation, and maintenance) are not included in these costs.

Respondents were also asked to identify how much they would be willing to pay to ride the commuter rail. Figures 47 & 48 illustrate the responses to these questions.

Figure 47. Price Willing To Pay For A One Way Ticket On The Commuter Rail

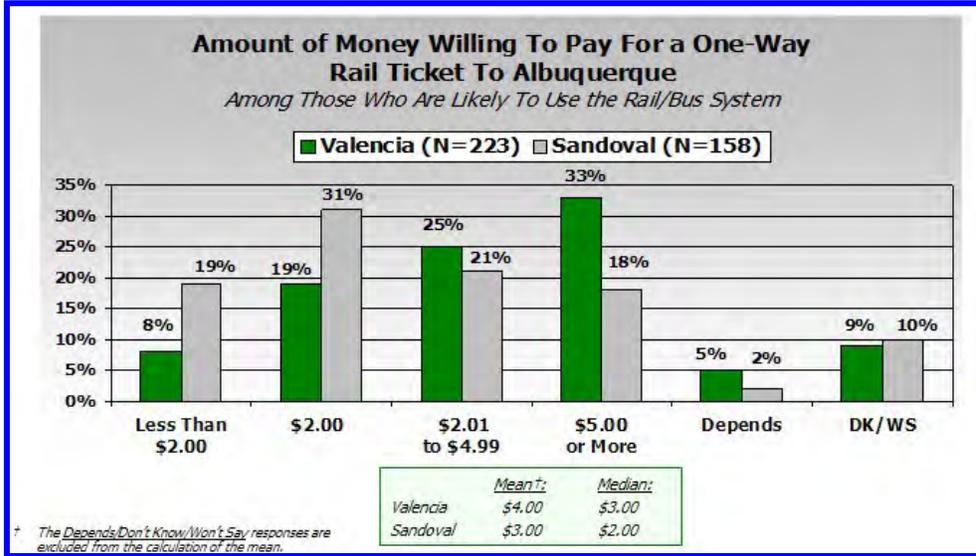
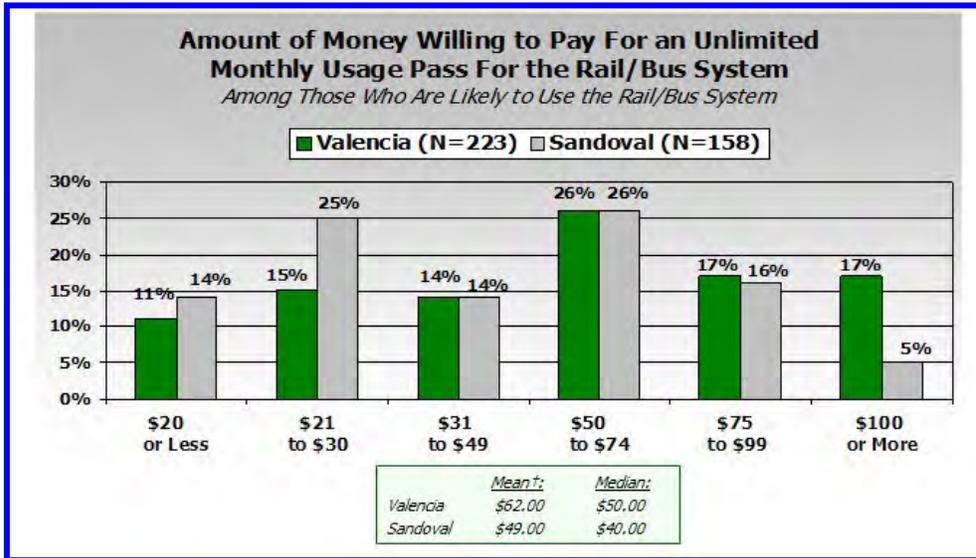


Figure 48. Price Willing To Pay For A Monthly Pass On The Commuter Rail



The data indicated that on average Valencia and Sandoval County commuters were willing to pay between \$3.00 and \$4.00 for a one way ticket and \$49.00 and \$62.00 for a monthly pass. Data from these questions and others were utilized to formulate a fare policy for the commuter rail service.

There were a number of other issues that were considered before finalizing a fare policy. They included, determining what fare categories should be offered, evaluating alternative fare structures, (zone based and Flat Fee) and other features that are standard in most

commuter rail fare policies (e.g. discounts for seniors and children, discounted multi-ride tickets, annual passes and bus transfers).

The easiest fare system to administer is a flat fee regardless of fare category. However a flat fee would either greatly favor those traveling longer distances or have serious cost implications (and thus patronage issues) for those riders traveling only a short distance. This is one of the reasons that very few commuter rail operations utilize a flat fee structure.

The most equitable systems (the cost is proportional to the distance) are zone based fares. These structures are more commonly used because fares can be based on distance traveled, so users traveling shorter distances pay less than those that are traveling further. To simplify the structure, and make the fare system easy for users to understand, zones are typically established which include groups of stations as opposed to calculating fares from station to station.

After due consideration of a number of these factors, and a review of fare structures in place at other commuter rail operations a zone based structure with a variety of fare categories was developed. The zone base system was also developed in anticipation of service to Santa Fe. Zone based systems consisting of four and five zones were evaluated. The four zone system was chosen because it represents the most equitable division of station groupings relative to distance traveled and it will be easier for users to understand.

This system, and proposed fares and fare categories is described below. Note that this system went into effect on April 1, 2007. In the interim, free service was provided between Albuquerque and the U.S. 550 station from the start up in July to November 1<sup>st</sup>. On the southern leg service was provided for free until April 1<sup>st</sup>. This approach allowed users to try out the system for a fairly low cost.

The pricing for zone to zone travel was based primarily on the survey results, the distances involved and competing auto costs which for these purposes was based primarily on the cost of gasoline.

**Original New Mexico Rail Runner Express Fare Policy**

Zones

*The corridor between the Belen and the Sandoval County / US 550 station is divided into the following three zones:*

- Zone A**      *Belen  
Los Lunas*
  
- Zone B**      *Isleta Pueblo  
Bernalillo County / International Sunport  
Albuquerque Downtown  
Los Ranchos / Journal Center  
Sandia Pueblo*
  
- Zone C**      *Downtown Bernalillo  
Sandoval County / US 550*

Fares

**Fares are based on the number of zones passengers travel either partially or wholly through in one direction of travel.**

***Full Fares:***

<i>Fare Options</i>	<i>Travel within -</i>		
	<i>1 Zone</i>	<i>2 Zones</i>	<i>3 Zones</i>
<i>One-Way</i>	<i>\$1</i>	<i>\$2</i>	<i>\$3</i>
<i>Day Pass</i>	<i>\$2</i>	<i>\$3</i>	<i>\$4</i>
<i>10-Day Pass</i>	<i>\$18</i>	<i>\$27</i>	<i>\$36</i>
<i>Monthly Pass</i>	<i>\$35</i>	<i>\$50</i>	<i>\$65</i>
<i>Annual Pass</i>	<i>\$350</i>	<i>\$500</i>	<i>\$650</i>

***Reduced Fare***

<i>Fare Options</i>	<i>Travel within -</i>		
	<i>1 Zone</i>	<i>2 Zones</i>	<i>3 Zones</i>
<i>One-Way</i>	<i>\$1</i>	<i>\$1</i>	<i>\$2</i>
<i>Day Pass</i>	<i>\$1</i>	<i>\$2</i>	<i>\$3</i>
<i>10-Day Pass</i>	<i>\$9</i>	<i>\$13</i>	<i>\$18</i>
<i>Monthly Pass</i>	<i>\$17</i>	<i>\$25</i>	<i>\$32</i>
<i>Annual Pass</i>	<i>\$175</i>	<i>\$250</i>	<i>\$325</i>

***Ticket Options***

*One-Way Fare: valid for travel from one station to another station.*

*Day Pass: valid for unlimited travel for the calendar day.*

*Monthly Pass: valid for unlimited travel for one month.*

*Annual Pass: valid for unlimited travel for one calendar year.*

### *Full and Reduced Fares*

*Full and reduced fares are offered. Full fares apply for all adults ages 18 – 64 who are not eligible for reduced fares.*

*Reduced fares are available for:*

*Seniors age 65 or older with a valid identification*

*Children ages 5-17*

*Individuals with disabilities*

*Students with a valid student ID*

The zone groupings were based primarily on travel markets and distances from the downtown Albuquerque station, the primary destination for this first phase. The Isleta and Sandia stations are almost equidistance from the downtown station (about 9.5 miles) and the next stations beyond these two are a considerable distance from these stations. It was important to ensure that the zone boundaries would not encourage users to drive forward to the next station to avoid a more expensive fare. The Los Lunas station is 11 miles from the Isleta station and the Bernalillo station is 7 miles from the Sandia station will provide a deterrent to this kind of behavior.

Several options for ticket sales were evaluated by the MRCOG. These included having booths at each station, implementing ticket vending machines, and selling tickets on board. After an extensive review of each option, that included an evaluation of initial capital costs and annual operating expenses among other criteria, a decision was made to implement the following ticket sales elements:

**On Line Ticket Purchases:** This element was implemented on June 25, 2007 and allows users to purchase all ticket products on line and pay with a credit/debit card for the desired ticket product. The system allows users to print the tickets at home. Ticket products purchased in this manner have several features that provide for ticket validation on board trains as part of the system described below. The financial transactions are handled as part of this process and revenues are deposited into a secure bank account.

**On Board/At Station Ticket Purchases:** Ticket “agents” are stationed on board trains with handheld ticket vending/validating devices. These devices work with cell phone or wireless technologies to allow for the purchase of tickets with cash, credit and debit cards. The devices also have a scanner which is utilized to validate ticket products sold by the device or tickets sold on line. At the end of a shift, information on all transactions is uploaded from the device to the same transaction environment used for on line ticket purchases, thus providing a single unified financial database and reporting system. Agents are stationed on each train and make themselves available outside of trains at stations for ticket sales.

These two elements together provide a ticket sales environment that is user friendly and secure. There are also opportunities to utilize the web based ticket sales environment at retail/commercial establishments around stations or in places frequented by potential train riders. Also, since the handheld devices are portable, they can be used at promotional events for advanced ticket sales.

## **Operations**

There were many different issues that needed to be addressed to prepare for the actual operation of the service. The NMDOT and the MRCOG needed to identify how the operation would be staffed, prepare and provide all FRA required safety and operational information, develop policies related to the operation, institute an advanced marketing plan, identify customer service needs, and prepare the corridor and stations for train service.

A significant part of this preparation was hiring a contract operator. The MRCOG and NMDOT released a Request for Proposal (RFP) in February of 2005 for a contract service operator, vehicle and locomotive maintenance, maintenance of way and several other elements that were necessary for providing ongoing service. The RFP closed on April 1<sup>st</sup>, 2005 and a selection of the highest rated firm was made in late May of 2005. The MRCOG and the NMDOT signed a contract with the highest rated firm, Herzog Transit Services Inc. Herzog provides commuter rail services in Dallas and San Jose. Herzog is responsible for crewing and operating the trains, maintaining the equipment and rights of way and constructing some of the capital improvements needed for the service. Herzog actively engaged in a number of activities in preparation for assuming these responsibilities. They established a local office in Albuquerque at 100 Iron Street S.E. adjacent to the proposed maintenance facility. They recruited and hired for positions related to the operations and maintenance activities. Herzog took over rights of way maintenance responsibilities on March 17<sup>th</sup>, 2006. In addition, Herzog was responsible for running trains during the equipment commissioning exercise, and the simulated schedule runs. They have also been maintaining the cars and locomotives. Herzog hired about 30 people for Phase I operations and maintenance activities. An additional 12 employees were hired for maintenance of way activities between Bernalillo and Lamy.

Another important aspect of making the service operational was the preparation of a safety plan for the corridor and training activities that focused on emergency preparedness. The safety plan was prepared by the MRCOG and Herzog and submitted to the FRA for approval. This plan addresses FRA safety requirements related to the equipment, stations, rights of way and operating procedures. The FRA approved the plan in June of 2006.

Also, the NMDOT, MRCOG, BNSF, FRA, Amtrak, local and state law enforcement and emergency response personnel engaged in several training exercises to prepare for the service start up. On several different occasions local emergency responders were invited to class room and field trip style training designed to familiarize these folks with the

commuter rail equipment, safety and access features and technical specifications. The Department of Homeland Security also performed a vulnerability assessment of the corridor and held a de-briefing with local and state law enforcement personnel. On June 17<sup>th</sup>, 2006 after two days of classroom training, a full scale emergency drill was held with representatives from local and state emergency response personnel, the FRA, BNSF, Amtrak, Herzog staff and MRCOG and NMDOT staff. The purpose of the drill was to present a “real world” emergency situation and evaluate the response. Figure 50 below illustrates a portion of the drill which involved extricating an “injured” person through the second floor window of a Rail Runner car.

The MRCOG teamed with Operation Lifesaver to develop and distribute safety awareness materials for public events and other activities. Operation Lifesaver is a national program that promotes railroad safety and safety awareness. Much of the focus of this program is on children and young adults with a specific emphasis on the importance of exercising caution at railroad crossings. These safety awareness activities were coordinated with public involvement and open house activities discussed in the next section. This is now an ongoing part of the operations program. Along with this effort the MRCOG, Herzog and NMDOT evaluated signage at all crossings in the corridor and replaced worn striping and signage at several crossings.

Figure 49. Emergency Response Training



Figure 50. Emergency Response Drill



Several full scale emergency response drills have been held since this initial exercise as well as additional class room training sessions.

To increase awareness of the pending service the NMDOT and the MRCOG developed an advanced marketing plan that included renting space on highly visible billboards in the corridor, purchasing air time on local radio and TV stations and placing advertisements in local media. As part of this same effort the MRCOG developed an updated website for the Rail Runner and established a customer service phone line.

The MRCOG, the City of Albuquerque and the NMDOT teamed up to complete a targeted clean up of the rail corridor. Efforts focused on picking up litter and removing graffiti for the portion of the corridor from the downtown Albuquerque station to the Sandoval/U.S. 550 station.

The MRCOG and the NMDOT worked together to develop and implement a strategy to sign streets in the vicinity of Rail Runner stations. These signs were put in place to direct traffic to the station entrances as illustrated in Figure 51.

Figure 51. Street Sign to Rail Runner Station



Figure 52. Information Kiosk



In preparation for opening day the MRCOG and Herzog ran simulated service for several weeks prior to the service start up. The purpose of these runs was to fully simulate actual conditions, so groups were invited to board to simulate passenger loadings, announcements were made and station times were tracked. Finally, schedule, safety, bus route, and operating policy information was developed to place in the kiosks at each station.

## Public Involvement

The Phase I project and pending service generated a great deal of public interest. To accommodate this interest and to keep interested parties aware of the status of the project, the NMDOT and the MRCOG developed a public involvement/awareness plan. There were three main components of this plan. One was to provide briefings to groups or associations on the status of the project. Another was to provide information to media outlets (print, radio, TV) and maintain a current status report on the Rail Runner website ([www.nmrailrunner.com](http://www.nmrailrunner.com)). The final component consisted of a series of public meetings organized around station sites in the communities along the line.

While public involvement activities continue even today the lists below provide a sample of group presentations conducted during the development of the project.

N.M. Institute of Traffic Engineers  
Amtrak Local Union Representatives (Engineers/Conductors)  
American Society of Civil Engineers, New Mexico  
American Society of Professional Engineers, New Mexico  
New Mexico Board of Realtors  
Economic Forum of Albuquerque  
Urban Council of Albuquerque  
Santa Fe Rail-yard Board of Directors  
University of New Mexico Transportation Committee  
New Mexico Economic Development Department Staff  
Rio Communities Homeowners Association  
Santa Fe Kiwanis Club  
Mountain View Neighborhood Association  
American Association of Retired Persons of Los Lunas  
Belen Chamber of Commerce  
Downtown Albuquerque Open House (Alvarado)  
House Transportation Committee  
Sierra Club Land Use & Transportation group  
League of Women Voters  
Friends of the Cumbres & Toltec Railroad  
Belen Rotary Club  
NAIOP/New Mexico Homebuilders  
Albuquerque Hispano Chamber of Commerce Board of Directors

In addition the NMDOT and the MRCOG provided briefings and presentations on the project to elected officials and government agencies. The list below provides a sample of these groups.

Valencia County Commission  
New Mexico Congressional Delegation & Staff (Wash. D.C.)  
Santa Fe County Commissioners & Staff  
Federal Railroad Administration (Regional)

Federal Transit Administration (Regional)  
Congresswoman Heather Wilson  
Santa Fe MPO Policy board  
New Mexico Transportation Commission  
Governor Paisano Sandia Pueblo  
New Mexico Finance Authority Legislative Over-sight Committee  
New Mexico Legislative Finance Committee  
Santa Ana Pueblo Enterprise Board

The MRCOG also provided regular briefings on the project to its standing boards and committees which contain staff and elected officials from the four county area covered by the MRCOG. And as noted earlier the MRCOG formed a Commuter Rail Task Force that includes elected officials from the following communities:

City of Belen  
Village of Los Lunas  
Valencia County  
Bernalillo County  
Sandoval County  
City of Albuquerque  
City of Rio Rancho  
Village of Los Ranchos  
Town of Bernalillo

There were a number of stories in the print media on the commuter rail project over the course of the initial two and a half years. This included the Albuquerque Journal, the Albuquerque Tribune, the New Mexican, and the Valencia County News-Bulletin. In addition, many press conferences have been held associated with project milestones. For example Governor Bill Richardson held a press conference in February of 2004 at the Alvarado Transportation Center to describe the project status and schedule. This event, which included a demonstration ride up the line to Bernalillo and back, was well attended by elected officials throughout the corridor. News conferences were also held in September of 2005 when the first car arrived in Albuquerque, October of 2005 when the first locomotive arrived, November of 2005 for the U.S. 550 Station groundbreaking, December of 2005 when agreements were signed with the BNSF and in May of 2005 for the Belen station groundbreaking. More press conferences were held for service start up and station openings. A press conference was also held when the ticket/fare system was implemented in November of 2006.

A series of public open houses were held in the various communities along the line to provide information on the commuter rail project and to solicit public comment and feedback on many elements of the commuter rail project including the service design, station design, station accessibility, fares, amenities etc. Meetings were held in September 2004, for Belen and Los Lunas, February 2005 for the Alvarado Station site and October & November 2004 for the remaining station sites and adjacent communities.

Figure 53. Los Lunas Open House



Efforts were also made to open the cars and locomotives to the general public so they could see first hand what the equipment looked like. An open house was held at the downtown maintenance yard in early December 2005 to provide interested parties with a first look at the equipment. After New Mexico closed on the portion of the line between Belen and Bernalillo, train sets were brought directly to some of the communities. In late May and early June of 2006 for example, open houses were held at Isleta Pueblo, Los Lunas, Downtown Albuquerque (for “Bike to Work” day), Bernalillo and on a spur near the Journal Center to provide others with an opportunity to see the equipment and pick up information on the Rail Runner.

Figure 54. Train “Open House” at Isleta Pueblo



Throughout the course of the project regular briefings were provided to elected officials at the local and state levels. In addition, MRCOG staff continued to meet with employers, attend community events, fairs and meetings, neighborhood association meetings, club and social group meetings, and other like activities to distribute information on the project and answer questions.

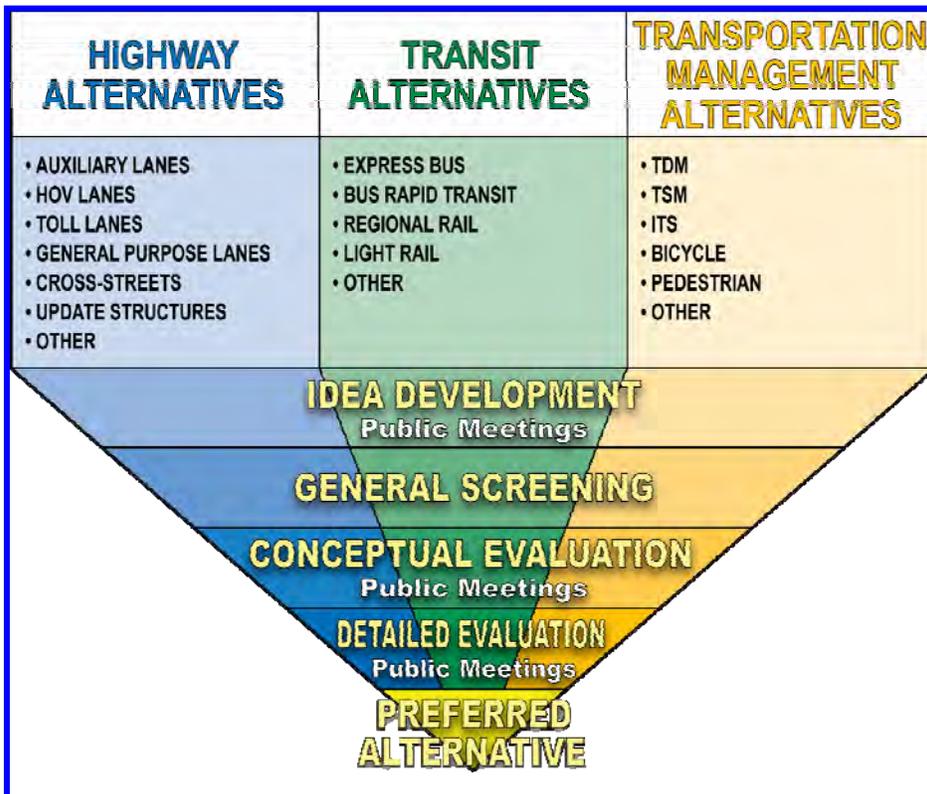
In October of 2006 the *Albuquerque Journal* commissioned a series of polls through a private firm to survey persons that were likely to vote in the up coming election on candidates and issues. As part of this exercise a poll was taken on the New Mexico Rail Runner express, that included the fact that costs associated with implementing the service between Belen and Santa Fe would be on the order of \$400 million and that the service would require an annual subsidy in excess of \$10 million. The survey then asked the question “do you think this is a good idea or a bad idea?” Over 60% of those responding to this statewide poll thought the service was a good idea. Only 31% thought it was a bad idea and 9% did not have an opinion. The news story on this poll indicated that in most areas of the state the project received majority support. In the service corridor close to 70% of those responding thought it was a good idea. The poll had a margin of error of plus or minus 3%.

## Commuter Rail Project Status Phase II

### Alternatives Analysis

The approach to implementing commuter rail between Bernalillo and Santa Fe started with a very general assessment of transportation related issues in the corridor and an extensive review of potential solutions. From a federal perspective, this initial evaluation is often referred to as an “alternatives analysis” which is really just a term to describe the initial stage of the process. The NMDOT and the MRCOG initiated the Alternatives Analysis in October of 2004. URS Griener was retained by the NMDOT and the MRCOG to assist with the development of the Alternatives Analysis report. Two public meetings were held (one in Santa Fe and one in Bernalillo) at this time to solicit input on the types of alternatives and technologies that should be considered in the Alternatives Analysis and to provide a forum to explain the process associated with the development of an Alternatives Analysis. A conceptual view of the Alternatives Analysis process is illustrated in Figure 55. Basically, a variety of transportation solutions and strategies are developed at the beginning of the Alternatives Analysis. These solutions include Highway Alternatives (the addition of general or special purpose lanes), Transit Alternatives including rail and express bus and Transportation Management Alternatives including Intelligent Transportation Systems (ITS) and Travel Demand Management (TDM) programs.

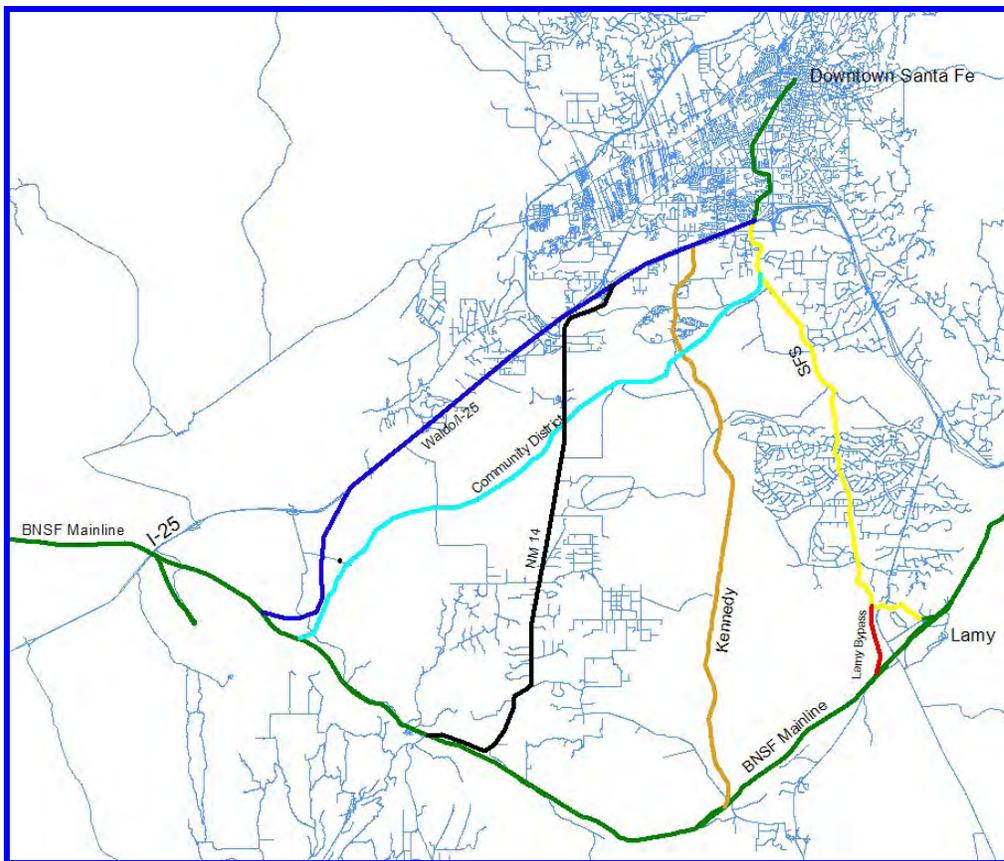
Figure 55: Alternatives Analysis Process



Note that alternatives were developed which included elements from more than one of these categories like Express Bus on HOV lanes. As the Alternatives Analysis proceeds the goal is to screen alternatives, first at a general level, then at a conceptual level and then finally through a detailed evaluation. Alternatives are eliminated as the process moves forward based on increasingly detailed criteria.

After the initial round of public meetings a range of alternatives were developed and subjected to the general screening process. The rail alternatives included in the general screening are depicted in Figure 56 below.

Figure 56. Rail Alternatives Considered in the Alternatives Analysis



All of the rail alternatives considered in this study assumed the use of the existing BNSF line (shown in green) from Albuquerque to points south and east of I-25 at the base of La Bajada hill. From this point the alternatives diverged from the BNSF mainline at various points to the east and then converged in the vicinity of the existing Santa Fe Southern (SFS) line and I-25. All of the rail alternatives assumed the use of the SFS alignment from I-25 into Downtown Santa Fe (this portion of the SFS line is also green). The Waldo/I-25 alternative depicted in blue diverges from the BNSF mainline just east of I-25, and then rejoins the I-25 alignment at the top of La Bajada hill. It then follows the I-

25 alignment until it reaches the point where the SFS crosses I-25. The Community District alternative also diverged from the BNSF mainline just east of I-25. It then proceeded through the Waldo Canyon area and then paralleled I-25 until it intersected with the SFS line. The NM 14 alternative diverged from the BNSF mainline at Cerrillos and then followed the NM 14 road alignment to I-25. It then followed I-25 to the SFS line. The Kennedy alternative followed the alignment of the old New Mexico Central railroad line. The old railroad bed is still visible in many places along this alignment (the tracks were dismantled in 1929) which diverged from the BNSF mainline near the old town of Kennedy and proceeded north through the Santa Fe Community College to I-25. It then followed the I-25 alignment to the SFS rail line. The final rail alternative considered diverged from the BNSF mainline at the Lamy bypass (in red) and then utilized the existing SFS alignment into downtown Santa Fe. Unlike the other alternatives the SFS alignment is an active railroad, however, the track is very old and vertical curves and structures limit train speeds to a maximum of 20 mph.

A second round of public meetings was held in February of 2005 in both Bernalillo and Santa Fe to review details of the conceptual level of screening and to solicit comments on those alternatives being carried forward into the detailed analysis. After the conceptual level of screening, all but two of the rail alternatives were eliminated. Only the SFS (with the Lamy Bypass) and the Community District alternative were carried into the detailed evaluation of the alternatives (along with BRT, HOV and general purpose lanes alternatives).

After another round of public involvement in August 2005, the detailed evaluation of the remaining alternatives was completed in September of 2005. The analysis included an evaluation of costs, markets, ridership, accessibility, land use, general environmental conditions, feasibility, travel times and other factors. The end result of this analysis was series of recommendations including the selection of the Community District commuter rail alternative as the Locally Preferred Alternative or LPA. Travel times for this alternative between downtown Albuquerque and downtown Santa Fe were estimated to be in the range of one hour and twenty minutes. The 2008 capital cost of this alternative were estimated at \$240 million. Prior to the Alternative Analysis Study, capital costs for this portion had been estimated in the range of \$200 - \$250 million. Year 2025 weekday ridership forecasts for the Community District alternative were estimated at 3,500. This forecast only includes work trips between Albuquerque and Santa Fe. It did not include all other trip purposes in the corridor, nor did it include work trips in the Santa Fe region commuting to jobs in Santa Fe. The Alternatives Analysis report, which is available online at [www.nmrailrunner.com](http://www.nmrailrunner.com), also recommended that safety, Intelligent Transportation System (ITS) and minor capacity improvements be implemented on I-25 between Albuquerque and Santa Fe.

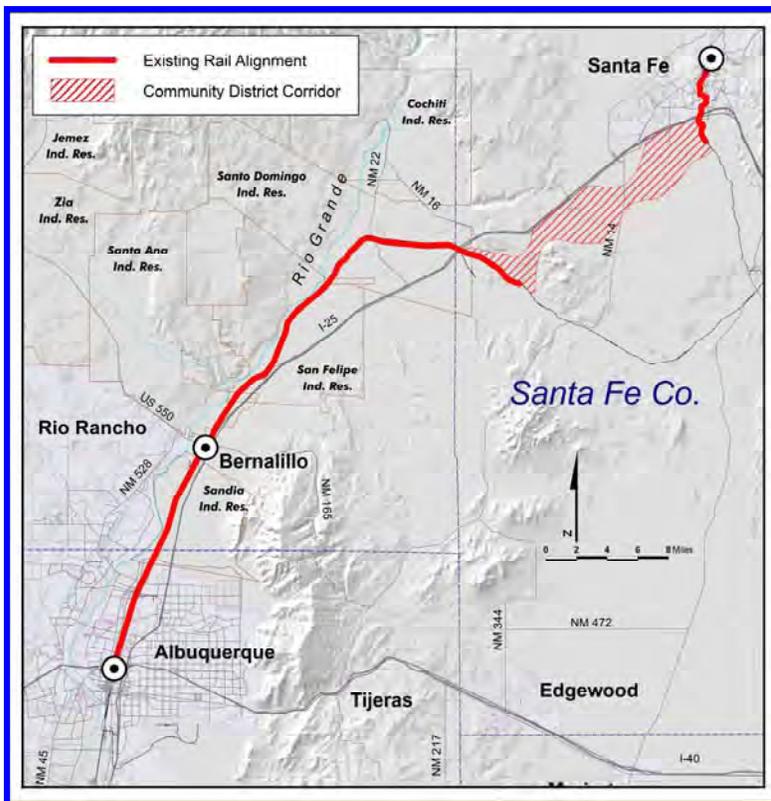
The Alternatives Analysis report included a number of other findings related to transportation issues in this corridor. If no transportation improvements were implemented in this corridor, a one way peak hour auto trip between downtown Albuquerque and Downtown Santa Fe would take over two hours in the year 2025. Also, the study estimated the cost to add a lane in each direction on I-25 between the Big I in

Albuquerque and the St. Francis exit in Santa Fe at about \$320 million. Adding this extra lane will produce a year 2025 one way peak hour travel time between downtown Albuquerque and downtown Santa Fe of about one hour and fifty minutes. This travel time assumes no delays due to crashes, roadway construction and maintenance or poor weather.

The Alternatives Analysis also concluded that using the existing tracks to Lamy, and a significantly upgraded Santa Fe Southern Line from Lamy to Downtown Santa Fe would produce one way train travel times from Downtown Albuquerque to Downtown Santa Fe on the order of one hour and 50 minutes. This alternative was also 24 miles longer than new tracks in the Community District Corridor which resulted in significantly higher operational costs for the same level of service. This alternative was eliminated from further study for these reasons.

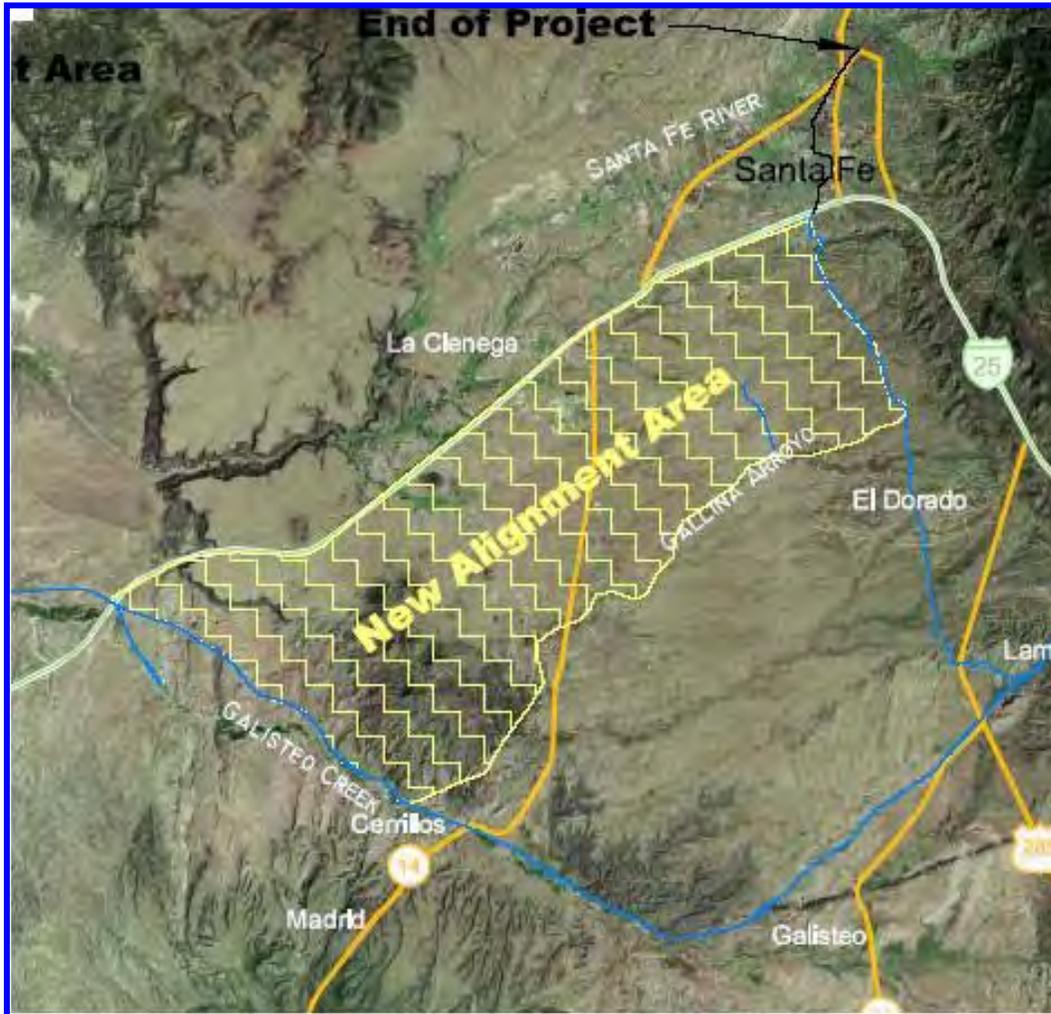
The final report was completed in September of 2005. The NMDOT and the MRCOG then initiated the next step in the process which was to conduct the additional planning, environmental and engineering work on the Community District corridor. The purpose of this work was to produce a more detailed analysis of the corridor and establish with great specificity an actual alignment, station locations, rolling stock requirements, environmental mitigation and avoidance, market estimates, and costs.

Figure 57. Community District Corridor



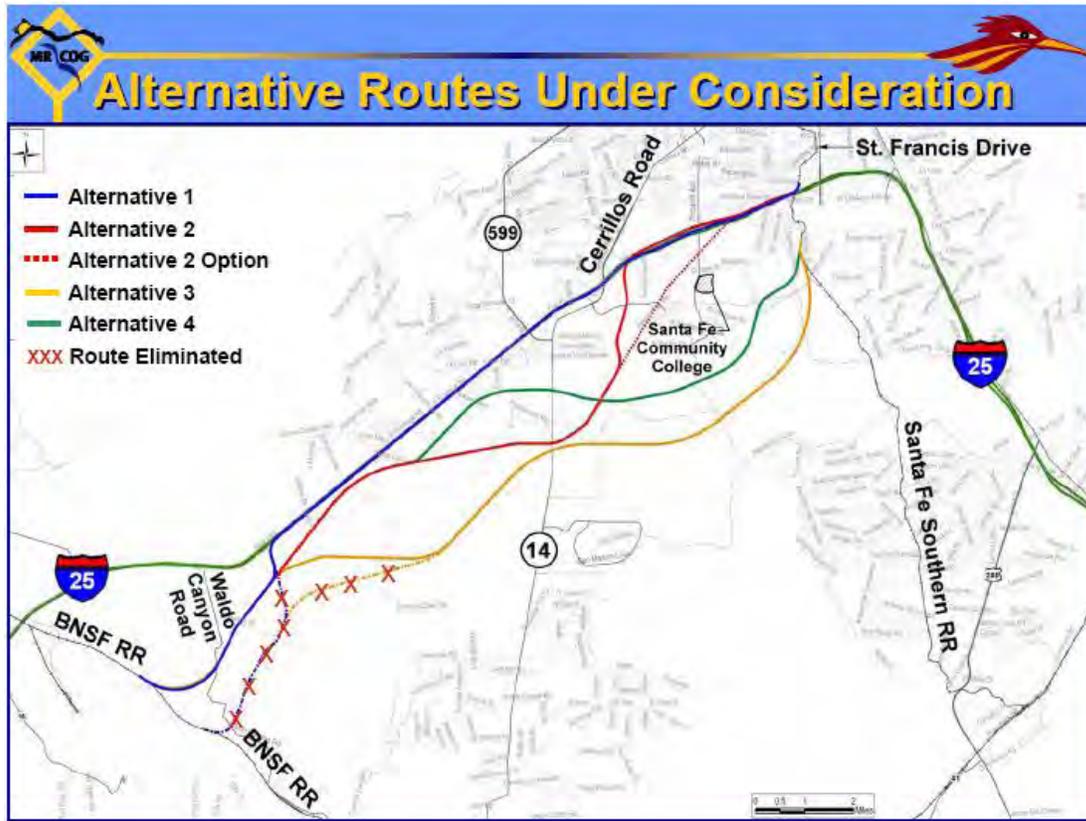
The starting point for this element included a more thorough investigation of alignments for the new rail in the portion of the corridor represented by the red hatched area in Figure 56. After some initial evaluations this area was expanded. The larger area is depicted in Figure 57 below.

Figure 57. Revised Community District Corridor



A public meeting was held in Santa Fe in May of 2006 to provide information on the status of work in this portion of the corridor and to solicit comments, suggestions and concerns related to the possibility of alignments traversing this area. After the June meeting four specific alternatives (with several options) were identified in the yellow hatched area. Generalized costs, feasibility and travel time information were developed for each of these alternatives and presented at a subsequent public meeting held in Santa Fe in August of 2006. The four alternatives are depicted in Figure 58 below.

Figure 58. Alternative Alignments in the Community District Corridor



All of these alternatives assumed the use of the existing line from Bernalillo to a point a couple of miles east of I-25 at the base of La Bajada Hill. At this point new track would be constructed up La Bajada Hill in the vicinity of Waldo Canyon. At the top of the hill the alignments diverge. Alternative 1 migrates into the I-25 median and intersects with the Santa Fe Southern Line just north of I-25. Alternative 2 parallels I-25 before dropping to the south and crossing N.M. 14 just south of the State of New Mexico Penitentiary. At this point it would head due northeast and intersect with I-25, where it would follow the I-25 median until connecting to the Santa Fe Southern Line just north of I-25. Alternative 3 traverses the corridor south of, but parallel to I-25 and connects to the existing Santa Fe Southern line just south of Arroyo Hondo. Alternative 4 proceeds north of the State Penitentiary, crosses N.M. 14, and then heads east around the southern edge of Rancho Viejo before swinging northeast and tying into the Santa Fe Southern line just south of Arroyo Hondo.

These alternatives were developed in June and July of 2006 and released for public comment in early August of 2006. A public meeting was held in Santa Fe in August to explain the alternatives and identify concerns and opportunities associated with each of the alignments. As part of this effort, information on several general screening criteria were provided for each alternative, including construction costs, property acquisition required, potential noise impacts, potential visual impacts, general environmental screening data, and general performance characteristics (e.g. train travel times). This

information was also placed on the New Mexico Rail Runner Express web site. For most of these screening criteria the performance of the alternatives was surprisingly similar. Notable exceptions included Alternative 1 having much lower property acquisition requirements and Alternative 2 having considerably higher construction costs (about \$35 million more than the others which ranged from \$115-\$120 million). On most other accounts the screening criteria applied to the alternatives yielded similar results.

After the public meeting in August comments were received on the alternatives. About 150 written comments were received in various forms. Out of all the comments received 48% identified a preference for Alternative 1, 32% preferred Alternative 3, 7% preferred Alternative 2 and 3% preferred Alternative 4. Out of all the comments received 13% identified opposition to Alternative 3, 12% opposed Alternative 2 and 10% opposed Alternative 4. No comments were received in opposition to Alternative 1.

Another public meeting was held in September Of 2006, to solicit comments on the portion of the existing Santa Fe Southern line that would be utilized by all the alternatives from the I-25 vicinity to downtown Santa Fe. The purpose of this meeting was to focus specifically on this portion of the line and to solicit concerns and identify opportunities and issues from citizens or businesses in this portion of the corridor. Primary comments expressed at this meeting included concerns about train horn noise, vibration, and suggestions regarding potential station locations. Information was provided to those attending this meeting that a detailed noise and vibration analysis would be conducted and that quiet zones were under consideration as a way to mitigate train horn noise.

As a result of the technical analysis and public comment received related to the four alternatives it became clear that two of the four alternatives held the most promise for further investigation. These alignments are depicted in the Figure 59 below.

Figure 59. Alternatives Considered For Further Evaluation



The two alternatives depicted in Figure 59 include Alternative 1, which enters the median of I-25 just west of the rest area and runs for about 11.3 miles in the median of I-25 before exiting the median to intersect with the Santa Fe Southern line just west of the St. Francis/I-25 Interchange; and a hybrid alternative (referred to as Alternative 5) that utilizes the portion of Alternative 2 from the top of La Bajada hill until it intersects with Alternative 4 on the east side of N.M. 14. At this point the alignment of Alternative 4 would be utilized, but instead of heading northeast around the east end of Rancho Viejo, the alignment would head almost due east and utilize the last portion of Alternative 3 to connect to the Santa Fe Southern line, just south of Arroyo Hondo. For Alternative 1, potential station locations were considered in the N.M. 599/Cerrillos Road area as well as in the median of I-25 at Richards Ave. For Alternative 5, potential station locations were considered in the vicinity of N.M. 14 where the alignment would cross this facility and a location south and east of existing Rancho Viejo (red hatched area). More information is provided on stations below. For both of these alternatives stations were assumed at the South Capital Complex and at the terminus of the line in Downtown Santa Fe.

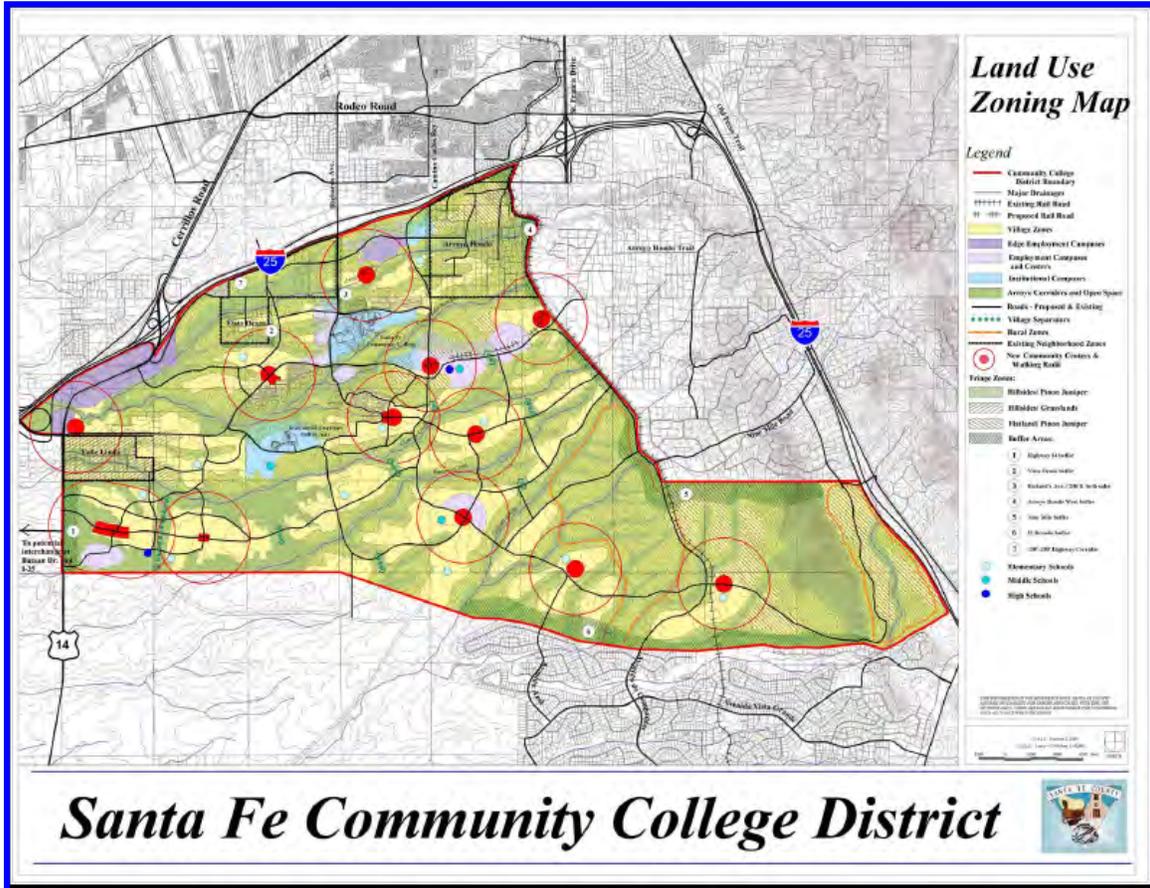
Additional analysis was conducted on these two alignments including an extensive noise and vibration analysis, a market analysis and surveys of biological and cultural resources. These two alternatives were also the focus of another public meeting held on November 16<sup>th</sup> 2006 in Santa Fe, as well as several neighborhood level meetings. The sections below describe (in summary form) how these alternatives compared across a range of characteristics. More detail can be found on the Rail Runner website at [www.nmrailrunner.com](http://www.nmrailrunner.com).

### **Land & Development**

Alternative 1 would require approximately 105 acres of rights of way compared to 352 acres needed for Alternative 5. This difference is due to the use of land in the median of I-25 (for Alternative 1) which is already in public hands. Since both alternatives require the same rights of way acquisition to traverse the Waldo Canyon area, the real point of comparison is the 247 additional acres of land required for Alternative 5. Fortunately the land required for both alternatives is in relatively large holdings meaning that Alternative 1 only traverses 4 parcels of land while Alternative 5 traverses 8 parcels of land. In addition, a considerable amount of the land needed for Alternative 5 is in the hands of the New Mexico State Land Office.

As noted above Santa Fe is expected to grow in population and jobs over the next 20 years. A great deal of growth has been projected by the Santa Fe Metropolitan Planning Organization to occur south of I-25 between N.M. 14 and the Santa Fe Southern tracks. Figure 60 illustrates Santa Fe County's Community College District plan which illustrates how growth is anticipated to be organized in this area.

Figure 60. Community College District Land Use Plan



Development under this plan would be clustered primarily in the flatter areas, around community centers, with strong pedestrian and bike access from adjacent residential areas. Rancho Viejo, which is already partially developed, is in the center of this plan. Alternative 1, runs in the Median of I-25 at this point so it is on the north edge of the Community College District Plan. Alternative 5, however, traverses the plan area following the north edge of the Bonanza Creek, and the south edge of several future communities in the plan. From a pure market perspective (discussed below) Alternative 1 is better situated to serve existing and future growth projected for the Santa Fe area. However Alternative 5 is better situated to offer opportunities for transit oriented development in this area due to the Community College District Plan and the vast tracts of undeveloped land that Alternative 5 traverses in this area.

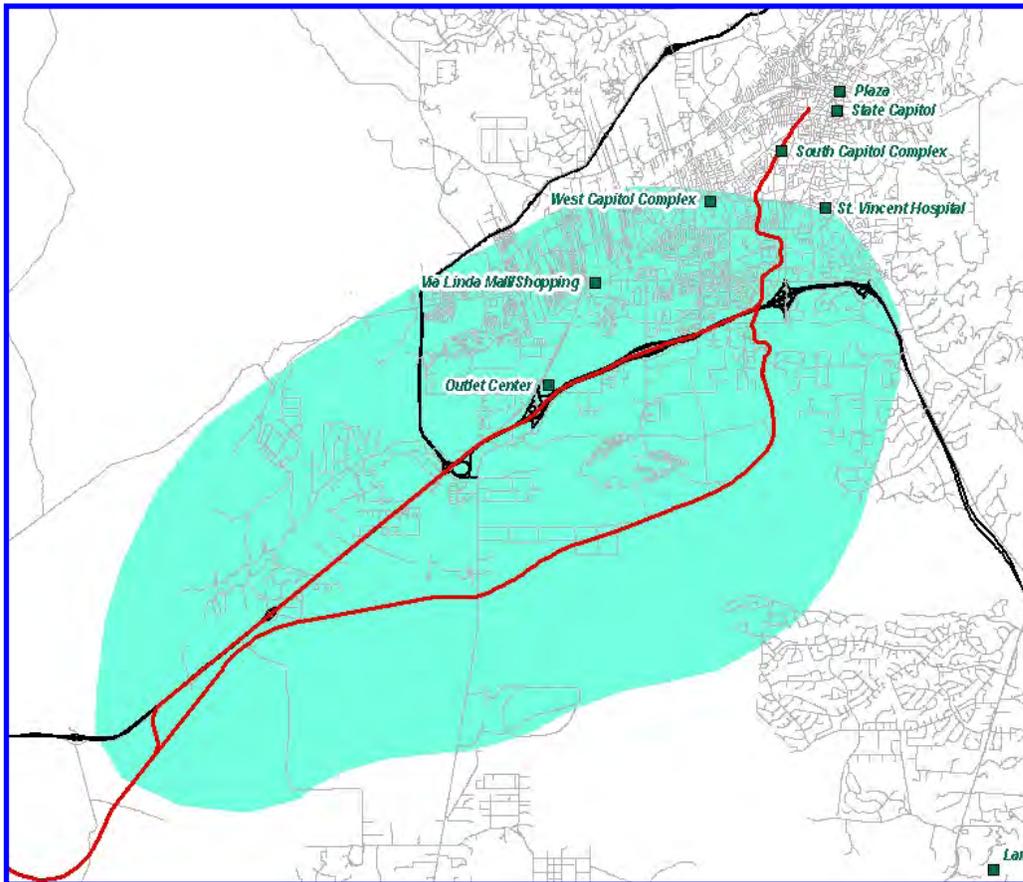
**Market Analysis**

Many comments were received from residents of Santa Fe expressing interest in the opportunities for the rail alternatives to serve Santa Fe to Santa Fe trip markets. In order to address this and station location issues, a market analysis was conducted to provide information on the potential of each alternative to serve these markets. Albuquerque to

Santa Fe markets are addressed in the Alternatives Analysis report mentioned above, which estimated Albuquerque to Santa Fe work trip ridership at 3,500 in 2025.

This analysis started with a very general review of the corridor as depicted in Figure 61 below.

Figure 61. Corridor Footprint (3 Mile Buffer Around Both Alignments)



The blue shaded area is characterized by the statistics in Table 6 below. Note that the table includes both 2005 and year 2030 values. The 2030 values were provided by the Santa Fe MPO. Trips to Santa Fe destinations were captured from the 2000 Census Journey to Work data and the Santa Fe MPO travel demand model. Trips to Albuquerque destinations were captured from the 2000 Census Journey to Work Data and a combined Albuquerque to Santa Fe travel demand model.

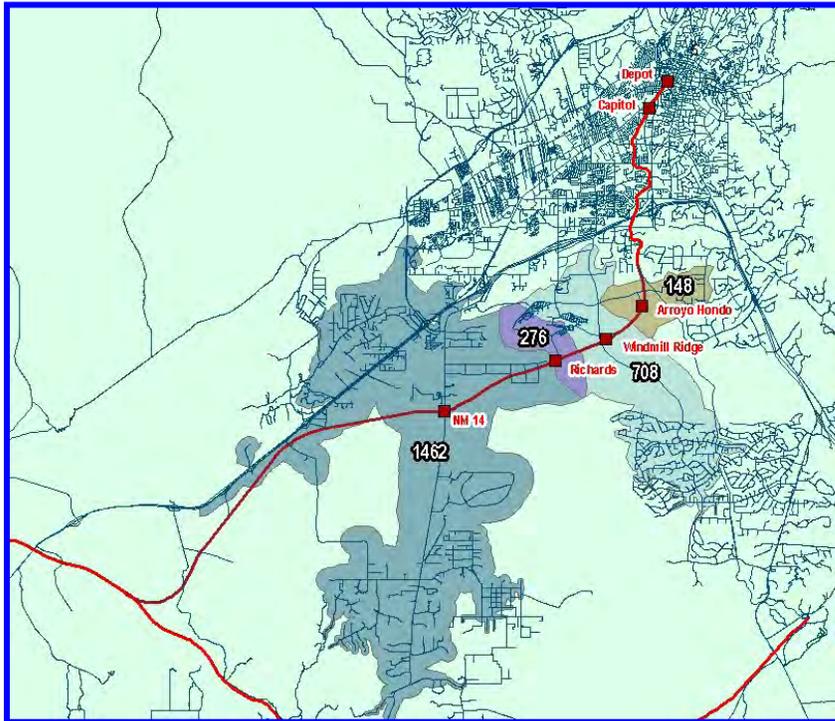
Keep in mind that this is a very large area, so the next step involved examining the alternatives in more detail. To accomplish this, a very detailed characterization of the Santa Fe region street network was assembled from various GIS coverages maintained by the City of Santa Fe and Santa Fe County. For the year 2030, additional streets were added from the Santa Fe MPO 2030 street network. This network was then utilized to determine levels of accessibility to station locations using auto travel time, contours.

Table 6. Market Shed Corridor Statistics

	2005	2030
Population	54,898	121,688
Households	20,934	45,797
Dwelling Units	22,069	47,897
Employment	20,976	48,890
<b>Trips to Santa Fe</b>		
Plaza/Depot/Capitol	6,237	8,302
Also St. Francis/West Capitol	12,009	16,297
<b>Trips to Albuquerque</b>		
CBD/UNM/North I-25	160	589
All Activity Centers	176	759
Bernalillo County/RR	806	3,234

The travel time contours were then over-laid on zone based data to generate the summary statistics described in Table 6. This method of measuring access is far superior to methods that look at access “as the crow flies”. These methods tend to greatly overstate accessibility. Figure 62 illustrates this method as it was applied to station locations along alternative 5. The area of the contour represents Year 2030 access to each station based on a 15 minute drive time.

Figure 62. 2030 Drive Access Contours to Alternative 5 Potential Stations



This particular run included a station at N.M. 14 and 3 stations south and east of Rancho Viejo. It is highly unlikely that 3 stations would ever be located this close together but one of the purposes of this analysis was to determine if one of the three sites was superior (in terms of market accessibility) over the other two. Also, “back gates” were included to identify market potential in Eldorado and the portion of Arroyo Hondo on the east side of the Santa Fe Southern line. The numbers included inside the contours represent year 2030 trips within the 15 minute drive contour that have destinations in the proximity of the South Capital Complex or the Downtown Santa Fe station. Other summary statistics from this particular alternative are illustrated in Table 7 below.

Table 7. Market Summary Statistics Alternative 5 with Back Gate to Eldorado & Arroyo Hondo

Alternative 5: Northbound	2005					2030				
	NM 14	Richards	Windmill Rd	Ayo Hondo	Total	NM 14	Richards	Windmill Rd	Ayo Hondo	Total
Population	5,606	363	3,682	220	9,871	27,504	4,157	10,344	2,104	44,109
Households	1,952	140	1,507	97	3,696	10,040	1,594	4,086	819	16,539
Dwelling Units	2,076	146	1,589	103	3,914	10,480	1,679	4,295	862	17,316
Trips to Santa Fe (Plaza/Depot/Capitol))	433	28	364	24	849	1,462	276	708	148	2,594
Trips to Santa Fe (+ W Capitol/St.Frnccs)	795	56	669	45	1,565	2,740	523	1,352	284	4,899

The table illustrates quite clearly that this alternative has much greater market potential after this area develops (2030) then today (2005). This is an indication of the growth anticipated for the area. Primary Santa Fe Destinations were pulled from Santa Fe MPO travel demand model trip tables. They include trips to the Plaza, the Depot area, and the South Capitol complex – each directly served by rail and within walking distance. These trips have the highest potential for ridership. Secondary Santa Fe Destinations include the St. Francis corridor & the west Capitol complex, both requiring bus transfers. These trips have lower potential for capturing ridership due to lower density & delays from transfers. Without back access to Alternative 5 stations from Eldorado or Arroyo Hondo, the results are a little lower in most cases as depicted in Table 8. Neither of these connections is anticipated by the Santa Fe MPO 2030 roadway network.

Table 8. Alternative 5 Market Analysis Without Eldorado or Arroyo Hondo Access

Final Alternative 5: Northbound	2005			2030		
	NM 14	Windmill Rd	Total	NM 14	Windmill Rd	Total
Population	5,606	4,176	9,782	27,379	16,443	43,822
Households	1,952	1,706	3,658	9,993	6,430	16,423
Dwelling Units	2,076	1,796	3,872	10,428	6,755	17,183
To Santa Fe Primary Targets	433	406	839	1,119	1,119	2,238
To Santa Fe Secondary	795	753	1,548	2,135	2,135	4,270

Aside from the general conclusion that markets for Alternative 5 get stronger over time as the area around the alignment develops, it is also clear that if this alternative were implemented it would make sense to locate a station in the vicinity of N.M. 14, and also

an additional station south and or east of Rancho Viejo. The analysis does not indicate a need for more than one station in this area, nor does it indicate that one location is better than another in this vicinity.

Similar runs were conducted for Alternative 1, with stations assumed at I-25 and N.M. 559 and I-25 and Cerrillos Road. Again it is unlikely that two stations would be located in such proximity, but the goal was also to see if one location was better than the other. The analysis for Alternative 1 also assumed that a station would be located in the median of I-25 and Richards Road.

Figure 63. Alternative 1 Station Market Analysis (3 Stations)



The 15 minute contours for this evaluation cover a very large area due to the proximity of the stations to higher speed facilities like I-25, N.M. 14 and N.M. 599. The contours also cover a larger portion of developed Santa Fe than those generated for Alternative 5. Summary statistics from the Alternative 1 evaluation are provided in Table 9 below.

Table 9. Accessibility Analysis For Alternative 1 with Stations at I-25 and N.M. 599 and I-25 and Richards Avenue.

Final Alternative 1: Northbound	2005			2030		
	NM 599	Richards	Total	NM 599	Richards	Total
Population	11,510	10,617	22,127	39,097	36,975	76,072
Households	3,883	4,146	8,029	13,980	14,018	27,998
Dwelling Units	4,068	4,339	8,407	14,371	14,714	29,085
To Santa Fe Primary Targets	921	1,202	2,123	2,086	2,548	4,634
To Santa Fe Secondary	1,682	2,386	4,068	3,901	5,053	8,954

The accessibility statistics indicate that if Alternative 1 were implemented it would make sense to locate stations at these two locations. Both have strong potential trip markets to both primary and secondary destinations. The data also indicate that like Alternative 5, the market potential for Alternative 1 is expected to improve over time.

For the purpose of comparing the two alternatives, Tables 10 & 11 below illustrate final summary statistics for the years 2005 and 2030.

Table 10. Year 2005 Potential Markets Alternatives 1 & 5

2005 Comparison of Alternative 1 and Alternative 5				
	Northbound		Southbound	
	Alt 1	Alt 5	Alt 1	Alt 5
Population	22,127	9,782	66,811	54,274
Households	8,029	3,658	25,818	20,535
Dwelling Units	8,407	3,872	27,464	21,737
Trips to Santa Fe Primary Targets	2,123	839		
Trips to Santa Fe Secondary Targets	4,068	1,548		
Trips To Albuquerque Prime Targets			262	233
Trips To All Abq Activity Centers			282	243
Trips To Bernalillo County/Rio Rancho			1,071	943

Table 10 indicates that Alternative 1 has greater market potential in 2005 by at least a two to one margin in almost every category. This is not all that surprising given the proximity of Alternative 1 to a larger portion of existing development. Note that the summary table

also includes southbound trip summaries (these are trips with origins in Santa Fe within a 20 minute drive of a station) and destinations associated with Albuquerque prime destinations, Albuquerque activity centers and the balance of the Albuquerque Metro area. The two alternatives perform similarly for these southbound markets, but the total markets are much smaller than those associated with the northbound direction.

Table 11 illustrates the same information for the year 2030. Again the data indicate that Alternative 1 has much greater market potential both in terms of general accessibility and specific trip markets. The southbound trip markets are also included in this table and the data indicate that the two alternatives have similar market potential for these trip markets.

Table 11. Year 2030 Potential Markets Alternatives 1 & 5

2030 Comparison of Alternative 1 and Alternative 5				
	Northbound		Southbound	
	Alt 1	Alt 5	Alt 1	Alt 5
Population	76,072	43,822	141,192	126,402
Households	27,998	16,423	54,101	47,549
Dwelling Units	29,085	17,183	56,717	49,795
Trips to Santa Fe Primary Targets	4,634	2,238		
Trips to Santa Fe Secondary Targets	8,954	4,270		
Trips To Albuquerque Prime Targets			686	615
Trips To All Abq Activity Centers			882	790
Trips To Bernalillo County/Rio Rancho			3,747	3,362

It is important to remember that the purpose of this market analysis was to produce information that would be helpful in determining optimal station locations and to assess the performance of the two alternatives. These are not ridership numbers, nor do they represent trip markets that cover the entire corridor. This analysis is not exact, but it is consistent and provides a basis for comparison. It is highly unlikely that refinements to this methodology would have produce numbers that would change the magnitude of the differences between the alternatives. It is very clear that Alternative 1 is the superior alternative based on market potential, both today and in the future.

## Operational Performance

One of the service goals of this phase is to produce travel times between Downtown Albuquerque and Downtown Santa Fe in the range of 1 hour and 15 minutes. Preliminary train travel times were calculated for both alternatives from these two points and the results are shown in Table 12.

Table 12. Train Travel Times From Downtown Albuquerque to Downtown Santa Fe

<b><u>Alternative</u></b>	<b><u>Route Length</u></b>	<b><u>Travel Time</u></b>
<b>Alternative 1</b>	<b>17.9 miles</b>	<b>81 min 25 sec</b>
<b>Alternative 5</b>	<b>20.9 miles</b>	<b>84 min 56 sec</b>

Because Alternative 5 is about three miles longer than Alternative 1 the train travel times are about 3 minutes longer than those produced by Alternative 1. These preliminary travel times are on the order of 1 hour and 20 minutes, but additional engineering will be done to reduce the times to meet the goal. This can be done by addressing geometric and track condition issues between Albuquerque and Santa Fe. The train travel times produced by the alternatives are not significantly different and both are in the ball park of the stated goal.

## Noise Analysis

Of the 500 or so comments received during the development and analysis of these alternatives, train noise was the most commonly stated concern. Specifically there were many people concerned about train horn noise. Until the summer of 2005 trains were required by law to sound horns at all railroad crossings. In the summer of 2005 the Federal Railroad Administration released final rules for Quiet Zones, which identify acceptable treatments at railroad crossings that if implemented, eliminate the requirement for train horns. In almost all cases, the installation of quad gates, or the implementation of a 100 foot long un-mountable median in both directions perpendicular from the track at the crossing together with single gates, will satisfy the requirements. It is also important to note that the minimum length of a quiet zone is one half mile. This means that in areas where crossings are more frequent than one half mile, multiple crossings must be treated concurrently to establish a quiet zone.

As a result of the comments made and the impacts of train horn noise on adjacent land uses, the NMDOT committed to establishing quiet zones at all crossings in the Santa Fe urban area. This effectively eliminated the most significant impact produced by the trains.

Eliminating train horn noise does not entirely address the noise produced by trains. Other sources of noise include noise produced by the locomotive and the wheels of the train on rail. In order to assess these sources of noise, and the duration of the noise, readings were taken of trains using the line in the Albuquerque area. The noise receptors were placed about 75 feet from the track centerline.

Figure 64. Noise Levels For Rail Runner Trains at 38 mph

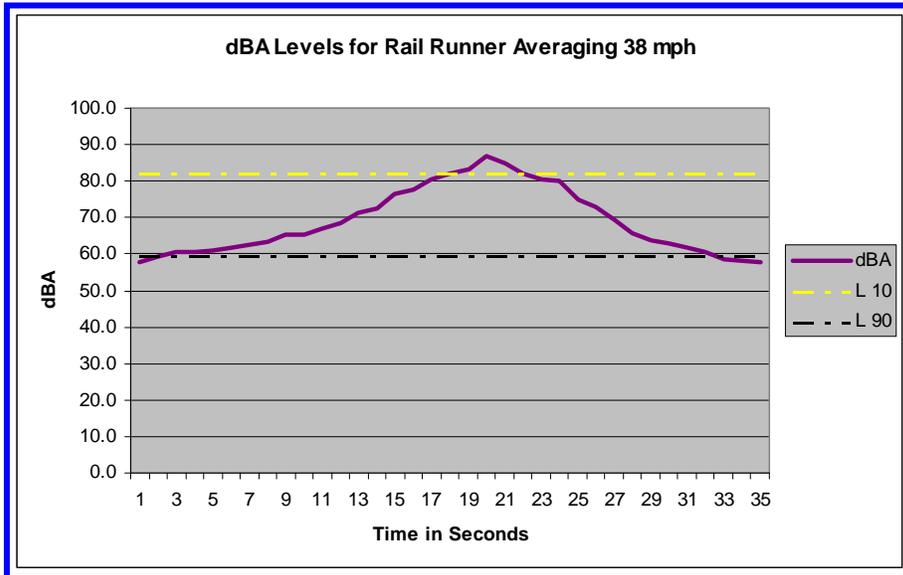
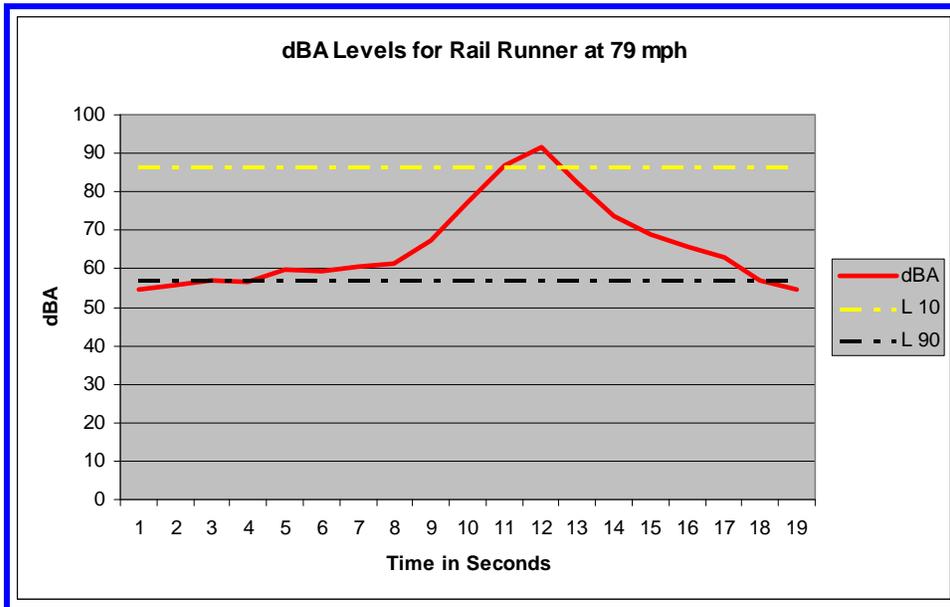


Figure 64 illustrates the results of this analysis on a Rail Runner train traveling at 38 mph, which is slightly higher than the speeds these trains would run through the developed portion of the City of Santa Fe. The graph indicates that the noise peaks at about 87 decibels and the entire noise event lasts about 25 seconds.

Figure 65. Noise Levels For Rail Runner Trains at 79 mph



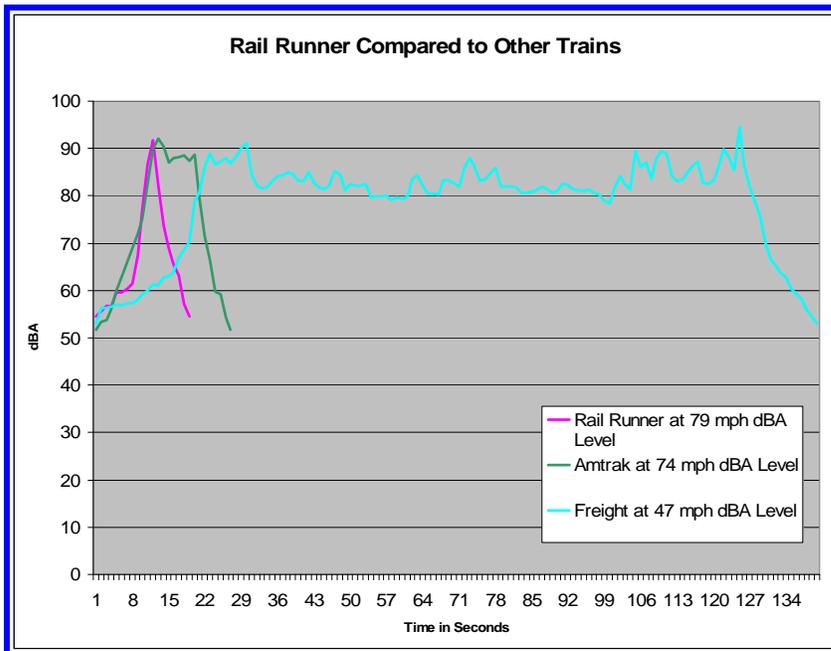
At higher speeds (in this case 79 mph) the peak noise level is about 91 decibels and lasts about 12 seconds. These speeds are comparable to the speeds the train would run in undeveloped areas.

Keep in mind that these are readings in very close proximity to the track and as the distance increases from the track noise levels go down. Noise recordings were also made of Amtrak and Freight trains. This was done because it was clear that most people's experience with train noise is based on these types of trains.

Figure 66. Noise Recording of a Freight Train



Figure 67. Rail Runner Train Noise Compared with Amtrak & Freight Train Noise



While all three train types have very similar peak noise readings the duration of the noise event for both Rail Runner and Amtrak trains is much shorter. The freight train recording

indicates that the noise event lasts over two minutes. Since noise impacts are a function of the noise levels at the source of reception (as opposed to the source of generation) another level of analysis was performed to identify noise impacts associated with the two alternatives and those associated with the use of the Santa Fe Southern line within the City of Santa Fe.

This assessment consisted of: (1) field reconnaissance to identify noise sensitive land uses within the project area; (2) collection of noise data to establish existing noise levels; and (3) modeling analysis to estimate the change in noise level that would occur with the implementation of commuter rail service. Because at-grade crossings will be constructed to meet “quiet zone” criteria, the use of warning horns at these locations will not be necessary; thus, the estimated noise levels and impact assessment are for locomotive and wheel noise only and do not include noise from warning horns.

Table 13 lists the locations where noise data was collected and summarizes the  $L_{dn}$  and  $L_{eq}$  of each measurement location.  $L_{dn}$  is the Day-Night Sound Level and represents the sound exposure level for a 24-hour period. It is calculated by adding the sound exposure level obtained during the daytime and evening (7 a.m. to 10 p.m) to 10 times the sound exposure level obtained during the nighttime (10 p.m. to 7 a.m.). This approach adjusts the sound level for increased sensitivity for nighttime hours when people are most affected by noise.  $L_{eq}$  is an “average” noise level for a specific period (usually one hour).

Table 13. Noise Data Collection Sites

Table #: Noise Measurement Locations and Existing Noise Levels					
Site I.D.	Site Description	FTA Land Use Category <sup>1</sup>	Measured $L_{dn}$ <sup>2</sup> (dBA)	Measured Peak-Hour Leq (dBA)	Alignment Options Covered
<b>Long-term (24-Hour) Noise Measurement Locations</b>					
1	2040 Calle Lorca – Eastside of Railroad	2	54	61	1,5
2	2961 Galisteo Road – Westside of Railroad	2	56	55	1,5
3	Arroyo Hondo Area –47 Vereda Serena Road – East of Railroad	2	49	51	5
4	Ranch Viejo – East of Flowing Wells Road	2	57	59	5
5	Churchill Road Subdivision – 19 Churchill Road	2	56	60	1
6	74 Taylor Loop – Southeast Side of Taylor Loop	2	63	62	1,5
7	3234 Nishoni Drive – East of Richards Avenue	2	67	66	1
8	27102 East I-25 Frontage Road – North of Highway 596 and South of Entrada La Cienega	2	65	66	1
9	Algodones – West of Railroad – South of Juanita Lane	2	49	48	1,5
<b>Short-term (15-Minute) Noise Measurement Locations<sup>3</sup></b>					
A	1500 Pacheco Street #703	2	55	54	1,5
B	2706 Galisteo Street	2	59	66	1,5
C	2721 Via Venado	2	61	60	1
D	316 A,B Rabbit Road	2	73	72	1
E	Park in Ranch Viejo Community – west of Richards Road	3	NA	58	5
F	North of 15 Taylor Loop	2	67	66	1
G	Open Area on Highway 586 East of Bonanza Creek Road	3	NA	51	5
H	Algodones Elementary School	3	NA	48	1,5

Notes:

NA – These sites do not have sleep activity; therefore, Ldn existing noise levels are not applicable at these sites.

<sup>1</sup> Land use category descriptors: FTA Category 1 = Buildings or parks where quiet is an essential element of their purpose; FTA Category 2 = Residences and other buildings where people sleep, such as hotels, apartments and hospitals; FTA Category 3 = Institutional land uses with primarily daytime and evening use, including schools, libraries and churches.

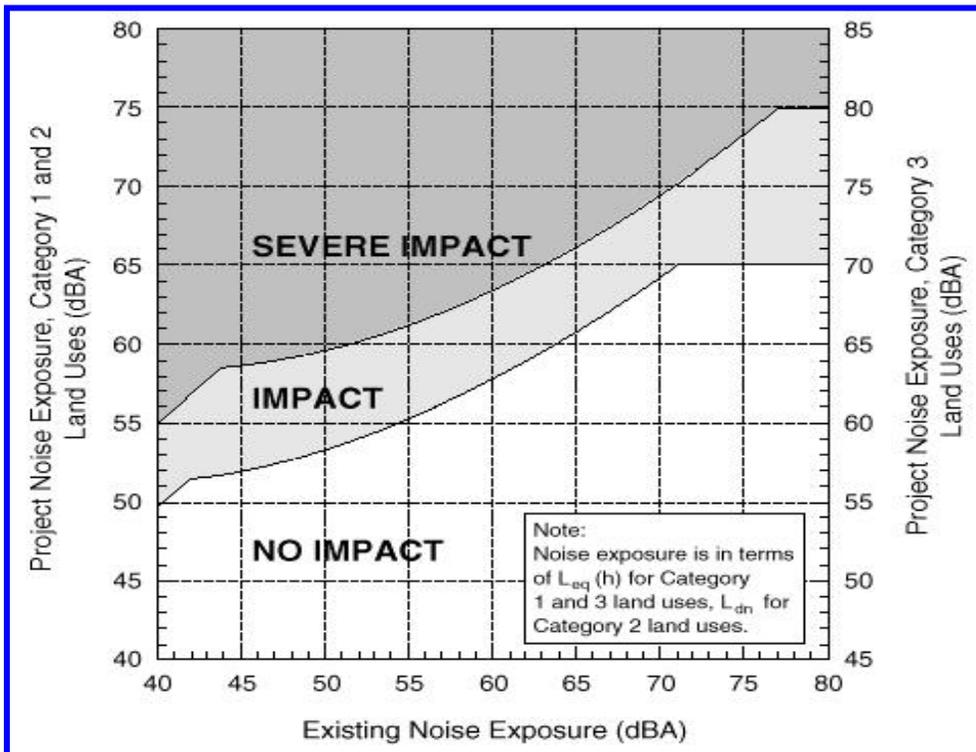
<sup>2</sup> Ldn is used for land uses with nighttime sensitivity to noise and for residential areas where FTA rather than FHWA noise procedures are applicable. Peak-hour Leq is used for commercial, industrial, and other land uses that do not have nighttime noise sensitivity.

<sup>3</sup> 24-hour noise levels at these locations were estimated based upon short-term noise samples, which were compared to the closest 24-hour noise measurement locations.

The assessment of noise impact was based on procedures and criteria used by the Federal Transit Administration (FTA Transit Noise and Vibration Impact Assessment Manual, May 2006). The analysis assumed 20 train operations per day (10 in each direction of travel) and operating speeds of 79 miles per hour in the rural areas of Santa Fe County and 45 miles per hour in the City. Actual speeds are likely to be less within the City; however, the use of 45 miles per hour provides a worst-case assessment.

The criterion for assessment of impact is illustrated in Figure 68 below. As shown in this figure, the assessment of impact is weighted on existing noise levels so that in quieter areas, noise impact occurs at lower levels than in areas with a higher ambient noise level. However, any noise level above L<sub>dn</sub> 65 in a Category 2 land use area and L<sub>eq</sub> 70 in Category 3 areas are considered to be impacted. The criteria is also separated into “impact” and “severe impact”. Impact is the level at which the public may be annoyed by a particular noise source. Severe is the level at which impacts warrant consideration of specific mitigation measures to reduce the noise level.

Figure 68. FTA Noise Assessment Criteria



The results of the initial assessment found that the maximum distance of potential impact from train noise would extend approximately 85 feet from the centerline of the train tracks in the segments proposed to be operated at 45 mph or less. In rural areas where train speeds may reach 79 miles per hour, the impact area would extend approximately 140 feet from the track centerline. Severe impacts would occur at a maximum distance of 40 feet and 70 feet from track centerline for trains operating at 45 miles per hour and 79 miles per hour, respectively. These distances represent impacts for areas with low existing noise levels. In areas with higher ambient conditions (e.g., the I-25 corridor), the distances would be less (see Tables 14 and 15).

The population residing within the impact zones was also estimated. Table 16 summarizes the number of people living within the various impact zones adjacent to the rail lines. As shown in this table, up to 61 persons reside within the severe impact zone and approximately 237 people reside within the moderate impact zone. In both instances, the impacted areas are adjacent to the Santa Fe Southern rail line, which already has train operations.

**Table 14: Distance from Track Centerline for Moderate Impacts**

<u>Existing Noise Level</u>	<u>Ldn = 55 dBA</u>	<u>Ldn = 60 dBA</u>	<u>Ldn = 65 dBA</u>
Train @ 45 mph	85 ft.	65 ft.	45 ft.
Train @ 79 mph	140 ft.	110 ft.	65 ft.

**Table 15: Distance from Track Centerline for Severe Impact**

<u>Existing Noise Level</u>	<u>Ldn = 55 dBA</u>	<u>Ldn = 60 dBA</u>	<u>Ldn = 65 dBA</u>
Train @ 45 mph	40 ft.	30 ft.	20 ft.
Train @ 79 mph	70 ft.	50 ft.	40 ft.

**Table 16: Population Residing within Noise Impact Zones**

<u>Alignment</u>	<u>Severely Impacted</u>	<u>Moderately Impacted</u>
Alignment 1	0.	0
Alignment 5	0	8
SFS Alignment	61	237

Table 16 also provides a comparison between the two alternatives. Note that when the FTA criteria are applied, Alternative 1 produces no moderate or severe noise impacts. Noise from I-25 is actually more prominent than train noise. Alternative 5 produces no severe noise impacts but an estimated total of 8 people could be moderately impacted. These properties are located along the Santa Fe Southern line around Arroyo Hondo.

Table 16 also shows that an estimated 61 people could be subject to severe noise impacts, and another 237 to moderate noise impacts along the portion of the Santa Fe Southern line between I-25 and Downtown Santa Fe. This analysis was done based on train speeds of 45 mph to illustrate the worst-case assessment. Also the distances were applied from the track centerline outward to property boundaries. If any portion of the property was

within the distance criteria, the entire property was assumed to be affected. This also results in a worst-case assessment.

This noise analysis will be revisited as the project moves forward. Noise criteria will be applied at lower train speeds (30-35) mph, and distance criteria will be applied in more detail (to actual structures). If this additional analysis results in the identification of impacted properties, mitigation measures will be evaluated.

The vibration impacts of the train operations were also assessed in the initial noise analysis. The findings of the vibration analysis indicate that vibration from train operations will not extend beyond 50 feet. This distance is within the proposed right-of-way limits for the rail corridor; therefore, impacts to structures adjacent to the train tracks are not anticipated.

### **Biological & Cultural Resources**

To address biological and cultural resources in the entire corridor, surveys were commissioned to evaluate both elements in the Fall of 2006. The results of these surveys indicated that while sites exist in both alternatives, there were no features identified that would fatally flaw an alternative. On the cultural resources side 12 sites were identified within the project limits for Alternative 5, and no sites were identified for Alternative 1. Seven sites were identified on common segments (Waldo Canyon & the Santa Fe Southern). Identified resources include:

- Historic railroad and associated elements
- Prehistoric sites (artifact scatters)
- Historic sites (artifact scatters)
- Camino Real segments

The biological resource survey concluded that for Alternative 1, no federal threatened and endangered species or habitat were found, however a spring was located in the median of I-25 as well as several large prairie dog colonies which may provide habitat for burrowing owls. Wetlands were identified at Bonanza Creek. Because the median is less than ideal habitat for most species these findings were not consider problematic. For Alternative 5 areas of potential habitat were identified for burrowing owls and the Grey Vireo which is a state listed threatened species. No federal threatened and endangered species or habitats were identified. Alternative 5 also traverses Bonanza Creek wetlands.

### **Cost**

Cost estimates were generated for the construction of the two alternatives as another criterion for comparison. The construction costs for both alternatives were in the neighborhood of \$120 million. Major cost elements are depicted in the table below.

Table 17. Cost Elements As A Percentage of Construction Costs

<b>% of Cost</b>	<b>Alternative 1</b>	<b>Alternative 5</b>
<b>Civil Work (Grading/Prep/Subgrade)</b>	<b>40</b>	<b>60</b>
<b>Track/Signals</b>	<b>30</b>	<b>32</b>
<b>Structures (Bridges)</b>	<b>25</b>	<b>3</b>

The primary difference between the two alternatives was cost differences between categories. Alternative 1 required more resources for structures but less for civil work. Structures would be required to enter and exit the I-25 median and at all interchanges and crossings (La Cienga, N.M. 599, Cerrillos Road, Richards Avenue). A very small percentage of the costs associated with Alternative 5 are for structures because the alignment crosses very few significant drainage ways. However more dollars are needed for civil work, to provide the relatively flat and linear path for train tracks. The median of I-25, has already been set to the grade of the Interstate for much of the length, and while adjustments to the grade of the median will be required to accommodate rail, this work is not as significant as that required for Alternative 5. The fully burdened construction cost for both alternatives was estimated to be about \$140 million. This figure includes the construction costs and rights of way, mitigation, and project development costs.

### **Public Comment**

The November 16<sup>th</sup>, 2006 public meeting which focused on the evaluation of the two alternatives generated a number of formal public comments. A total of 214 comments were received. The majority of the comments (135) came from residents of Rancho Viejo, most of which vehemently objected to Alternative 5 and were supportive of Alternative 1 for reasons listed below.

Of the 214 comments received 181 expressed a preference for Alternative 1, and only 5 expressed a preference for Alternative 5. 28 of the comments did not express a preference for an alternative. Only 3 comments were received from people opposed to the project in general. Stated reasons for objecting to Alternative 5 included, perceived impacts to quality of life and natural environment (134), concern with noise (66), concern that traffic will increase in Ranch Viejo area as riders access stations (35), concern that property values would be affected (21). Stated reasons for supporting Alternative 1 included; Alternative 1 uses an existing transportation corridor (72), Alternative 1 serves more people (31) and perception that Alternative 1 would cost less.

### **Santa Fe Southern Section**

The evaluation of alternative alignments garnered much of the public attention, but both of the alternatives would utilize a portion of the Santa Fe Southern to access the South Capital Complex and the Downtown station. Alternative 1 would utilize the Santa Fe Southern alignment from just north of I-25 to downtown, a distance of approximately 4.5 miles. Alternative 5 intersects with the Santa Fe Southern just south of Arroyo Hondo

and would utilize the Santa Fe Southern alignment for about 6.8 miles into Downtown Santa Fe.

A condition assessment of this portion of the line was conducted in August and September of 2006. The assessment concluded that the Santa Fe Southern alignment would have to be substantially upgraded over any portion utilized by the commuter rail service. Recommended upgrades included, replacing most bridges, adding new ballast and replacing the existing bolted rail with new continuously welded rail. The latter would provide for improved ride quality and reduce train noise associated with rail joints.

Railroad crossing improvements were also identified, including providing gates and signals at all crossings along this portion of the alignment. Prior to project implementation there were 10 crossings along this portion of the corridor. Only four of the ten had gates and signals. The others were protected by stop signs and cross bucks.

In addition a trackside signal system was also needed for this section. The trackside signal system provides for a more efficient movement of trains as well as broken rail detection. Broken rail detection insures that trains cannot traverse a section of rail if the rail is broken in any part of the section.

Several concerns were expressed regarding the potential for commuter trains to disrupt traffic circulation, particularly in this part of Santa Fe. Many of the roadways crossed by the railroad tracks carry large volumes of traffic that are important to the overall traffic circulation in Santa Fe. The primary concern was the effect trains would have on traffic at grade crossings. To address these concerns an assessment was done of likely service scenarios based on 20 train movements a day for any single crossing. A total of nine to ten of these movements would occur in the a.m. (6:00 – 9:00) and p.m. (3:00 – 7:00) peak periods, when traffic congestion is usually the most problematic. Train speeds over most of this portion of the line were anticipated to be in the range of 30-35 mph. This means that gates at road crossings would be down about 50 seconds per train movement. Trains then could be expected to cause about 4 minutes of delay at each crossing over the duration of each peak period (3 hours in the morning and 4 in the afternoon) if five trains were run during each period. The analysis concluded that this additional delay would not affect the level of service on the adjacent roadway system and should be more than compensated by vehicles taken off the road by the train service. Part of this was based on the performance of similar high volume crossings in the Phase I corridor. Rail Runner trains cross these crossings fourteen times a day (as do two Amtrak trains and 3-5 freight trains). No detectable change in traffic congestion has occurred on any of these roadways since service started in July of 2006.

A bike and pedestrian trail runs along most of the Santa Fe Southern rights of way in this section. It is paved in some places and dirt in others. A commitment was made to complete the trail and pave all portions along this section of the rail corridor.

## **Preferred Alternative Selection**

After completing this level of analysis and public involvement the technical advisory team was convened to solicit their suggestions related to a preferred alternative. The TAC met on December 8<sup>th</sup>, 2006 and unanimously recommended that Alternative 1 be selected as the preferred alternative. The SFMPO board met on January 24<sup>th</sup>, 2007 and heard public testimony on the issue which was vastly in favor of Alternative 1 and opposed to Alternative 5. The MPO Board's legal counsel advised them that they could not make a decision at this meeting because he did not feel they were duly constituted as the MPO Board due to recent changes to their bylaws. The MPO TAC met on February 1, 2007 and recommended Alternative 1 as the preferred alternative to the SF MPO Board. The SFMPO met again on February 8<sup>th</sup>, 2007 and passed a resolution supporting Alternative 1 as the recommended alignment.

After due consideration of all of the information and process the NMDOT on February 15<sup>th</sup>, 2007 selected Alternative 1 as the preferred alternative, primarily due to the Santa Fe MPO recommendation, vastly superior market potential, public comment and the minimal impacts associated with utilizing an existing transportation corridor. In April 2007 the Santa Fe MPO Board amended the Metropolitan Transportation Plan to include the preferred alternative and amended the Transportation Improvement Program to include funding for the Santa Fe extension.

## **Alternative 1 and I-25 Median Issues**

Since Alternative 5 was proposed to run primarily through vacant land it was easier for people to picture how this alternative would function as a rail corridor. Once Alternative 1 was selected as the preferred alternative many comments were received which raised questions regarding how rail and stations might work in the median of I-25. Specifically concerns were raised about constructability, safety and the adequacy of the I-25 rights of way to accommodate rail and stations.

Getting rail in and out of the I-25 median is simply a matter of building structures. On the west end the rail enters the median by going under the frontage road and the northbound lanes of I-25 in a box structure. This entry occurs between the rest area and the Canada de Santa Fe overpass. In order to make this clearer, a rendering and simulation of this entry into the median was generated to provide a more realistic picture of how trains would enter and exit the median of I-25. Figure 69 below shows a frame of the simulation. The rendering shows a south bound Rail Runner train exiting the median of I-25 prior to passing under the frontage road on the south side of I-25. This simulation and others generated for the project, proved to be a very effective means for communicating how project features would look and perform. The public in general reacted very favorably to these forms of communication because they could be immediately understood.

Figure 69. Rendering of I-25 Median Entry/Exit on the West Side of the Corridor



On the east end near the Santa Fe Southern crossing of I-25 the median is depressed meaning it is lower than the grade of I-25 lanes. The Santa Fe Southern line passes under I-25 as well. In order to match grades with the Santa Fe Southern line, the tracks pass underneath the southbound lanes of I-25 in a boxed structure before intersecting with the Santa Fe Southern as depicted in Figure 70.

Figure 70. Entry/Exit From the I-25 Median on the East End of the Corridor



Since the land on the northeast corner of the Santa Fe Southern line and I-25 is elevated, a cut was required in this section similar to the cut that the Santa Fe Southern line uses to traverse this area.

The I-25 rights of way along the portion that was proposed to be used by Alternative 1 average about 400 feet in width, although at Richards Avenue the rights of way are almost 900 feet wide. Median widths are at least 90 feet for much of this section of I-25, although the median is almost 600 feet wide at Richards Avenue. The median is only about 60 feet wide just west of the St. Francis/I-25 Interchange. In all cases the rights of way widths were found to be more than sufficient to accommodate rail, additional lanes on I-25 (perhaps as many as 5 more in each direction) and new interchanges if warranted. There are places along the median where retaining walls were installed to accommodate the grade of the rail. In portions where there was no positive barrier or sufficient distance for the safe operation of both modes of travel, guardrail separates the rail and the traffic lanes of I-25. The rail line passes under all current overhead structures on I-25 (e.g. La Cienega Interchange), and over all current underpasses of I-25 (e.g. N.M. 599 Interchange, Cerrillos/I-25 Interchange and Richards Avenue). There are many examples of rail utilizing freeway medians in this manner. Figure 71 provides an example of trains running in the median of a freeway in Chicago.

Figure 71. Chicago Freeway Median



The placement of stations along rail lines in the median of freeways does present some challenges, but it has been done successfully in other cities in the U.S. Figure 72 depicts a freeway median station on the Green Line in Los Angeles.

Figure 72. Freeway Median Station in Los Angeles



## Environmental Clearance and Project Development Activities

After the selection of Alternative 1 in February 2007 the project development process began to focus on implementation. Some activities, like the purchase of cars and locomotives for the Santa Fe service were initiated well before this point, but many others could not begin in earnest until an actual track alignment was identified. The selection of a preferred alternative spurred the initiation of final environmental efforts, design and construction strategies and final station site selections.

### Rolling Stock Acquisition

The service extension to Santa Fe required the acquisition of more rolling stock. To address this issue, 12 more cars were ordered in November of 2006 as part of an option on the original procurement from Bombardier. New Mexico retained 5 locomotive options as part of the original procurement with Motive Power, and four of these options were exercised in March of 2007. The schedules associated with these two orders called for the delivery of vehicles throughout the 2008 calendar year. The 12 new cars were delivered to Albuquerque in May, June and July of 2008. These cars were then tested and commissioned and rotated into consists serving the Phase I corridor. Locomotives were built starting in the spring of 2008 and all four were delivered in the fall of 2008. Figure 73 below depicts three of the locomotives en route to Albuquerque.

Figure 73. Three New Locomotives En Route To Albuquerque From Boise Idaho



### **Track Procurement & Construction**

Given the rise in the price of steel and the long procurement periods associated with track acquisition, an RFP was released by the MRCOG in February of 2007 for rail and ties sufficient to supply all Phase II track construction. Awards were made to LB Foster Inc. for 7200 tons of rail and Rocla Concrete Tie Inc. for the 79,000 ties required for Phase II construction.

The NMDOT and the MRCOG investigated several different project development strategies for design and construction of Phase II. A decision was made in late February of 2007 to pursue a Design Build contract for the portion of the new line between Waldo and the junction with the Santa Fe Southern. This process concluded in August of 2007 with a contract award to Twin Mountain Construction (now Kiewit New Mexico) and Herzog Contracting as a joint venture. HNTB was the design partner on the team. Construction commenced on this section in late September 2007 with a scheduled

completion date of November 21, 2008. Figure 74 illustrates some early work on this section of the project.

Figure 74. South I-25 Construction Detour



A traditional design-bid-build method was used for the portion of the Santa Fe Southern Line between I-25 and Downtown Santa Fe. This contract was awarded in January, 2008 to Twin Mountain Construction/Herzog. Construction began on this piece in March of 2008 with a scheduled completion date of late November 2008.

Over the course of the spring and summer of 2008 construction proceeded on schedule for the design build portion of the project. All 9 major structures were completed on schedule including the La Cienega interchange and bridge structure which was opened to traffic on October 1, 2008. In the fall of 2008 the final grade was constructed for the entire 18 miles followed by the installation of the track and signal system.

The construction of this segment required the movement of 2 million cubic yards of earthwork, 3.5 million pounds of rebar (primarily for structures and walls), almost 16,000 cubic yards of concrete and 58,000 feet of guardrail. Most of the earthwork associated with the job involved moving materials from cut sections at the base and on the top of La Bajada hill, and the entry points to the I-25 median, to fill sections on the grade ascending La Bajada and in some portions of the I-25 median. Figure 75 below illustrates the finished grade near Waldo Canyon. As indicated in the photograph this section had to be built up or “filled” to construct a gradual grade up La Bajada Hill. The ruling grade in this section is 3.2%, the steepest portion of the rail corridor. Figure 76 shows the cut section on the south end of the job where the new line deviates from the current main line near Waldo Junction.

Figure 75. Finished Grade Ascending La Bajada



Figure76. New Alignment Left of the Existing Line near Waldo Junction



Figure 77. Track Tamping in the I-25 Median



Figure 78. La Cienega Interchange



Figure 77 depicts track tamping and ballast clean up while Figure 78 illustrates the reconstruction of the La Cienega interchange. The view of Figure 78 is from the median on the railroad bed, before tracks were laid in this section. As noted above the construction on this section was completed in November of 2008.

Over the spring and summer of 2008 work also progressed on the portion of the line between I-25 and downtown Santa Fe. The grading and drainage work and all structures were completed. New sub-grade, ballast and track were then laid from the junction just north of I-25 into the Santa Fe Railyard. All nine intersections were upgraded with new crossing panels and gates necessary for the establishment of quiet zones.

Figure 79. Grading Work near Rodeo Road



Work in this section then focused on tamping track, placing sidewalks and remaining signals, constructing the Rail Trail and final grading. Most of this work was completed in the fall of 2008 along with re-seeding disturbed ground with a native seed mix and the planting of re-placement trees. Construction in this section proved to be quite challenging because most of the alignment is in close proximity to adjacent neighborhoods, so extra care was taken to minimize noise and dust impacts as much as possible. In addition, work on the grade crossings had to be done quickly to reduce the impact of construction on the City's roadway network. Much of the intersection work was done at night and/or over weekends to further minimize the impact on the roadway system. Work on this section was substantially complete by the end of November.

Figure 80. Completed Road Crossing at Siringo.



Most of the track and grading work on this section was completed during the day, primarily between Monday and Thursday. Each week a section of the old track was taken out of service on Monday and replaced by Thursday evening. This was done to restore the track to operating condition by Friday mornings so the Santa Fe Southern could continue to provide excursion service Friday through Sunday.

### **Signalization, Communications & Dispatch**

In addition to the track and crossing work a total of about 60 miles of CTC was installed between Albuquerque and Santa Fe. This work began in the early Spring of 2007 and concluded in November of 2008. This work was coordinated with, and part of a larger set of projects to provide CTC and the communications infrastructure necessary for train dispatch. The JUA between New Mexico and the BNSF allowed for New Mexico to assume dispatch in the corridor in June of 2009. Further discussions with the BNSF led to a joint decision allowing New Mexico to implement a dispatch system between Belen and Santa Fe and Lamy as part of the service extension to Santa Fe. As a result of this decision work began on the design and implementation of a dispatch and communications system in early 2007. This work involved identifying portions of the corridor that needed enhanced or supplemental communications infrastructure and identifying all of the back

office software and hardware requirements for a dispatch center at the offices of the MRCOG.

The implementation of this system began in the summer of 2008 and a fully functional dispatch center was brought on line and cut over on December 5<sup>th</sup>, 2008. Most of this work involved constructing new radio base stations, outfitting existing communication towers with new equipment, securing new communication lines and integrating the communications infrastructure with the signal system and the software and hardware at the MRCOG. Another significant part of this work involved pre-testing components and portions of the communication system, and then testing larger portions of the system as they came on line.

To staff the dispatch center the MRCOG advertised for positions and hired dispatch staff in October 2008. Dispatchers were then trained on the dispatch system and qualified for dispatching the new territory. Part of the training involved time at the BNSF dispatch center in Fort Worth, Texas, observing and working with the dispatch desk responsible for this portion of the corridor.

### **Station Development**

In a separate but concurrent activity, the Santa Fe MPO in cooperation with the MRCOG, NMDOT, City of Santa Fe and Santa Fe County, convened a technical committee to evaluate station locations along the I-25 median and along the stretch of the Santa Fe Southern line in between I-25. The Environmental Assessment included clearance for stations at the Downtown Santa Fe Railyard and the South Capital complex only. This work was subjected to two open houses in late November and early December of 2007. The committee made a recommendation to the Santa MPO Policy Board that three additional stations should be considered. The recommended locations were at I-25 and N.M. 599, I-25 and Richards Avenue and a station at Zia Road and St. Francis. The Santa Fe MPO Policy Board considered this recommendation at their December 13<sup>th</sup>, 2007 meeting, along with public testimony regarding these potential station sites. After due deliberation the Santa Fe MPO Policy Board approved additional station locations at I-25 and N.M. 599 and at Zia and St. Francis. The Board specifically limited the Zia and St. Francis site to a “neighborhood scale station” with significant limits on auto parking. The Board also recommended that further study be conducted for a potential station between Richards Ave. and Cerrillos Road within the I-25 median.

After decisions were made about station locations in December of 2007 a public open house was held on January 30, 2008 to provide information on station site layouts, draft train schedules and construction activities.

In order to move forward on station implementation several site layouts were presented for the N.M. 599 station. The concept that received the most favorable comments at the open house is illustrated below in Figure 81.



2008. Only a couple of comments were received as part of the public comment review. Most of these comments expressed interest in the State constructing the station as soon as possible.

Figure 82. Conceptual Image of the NM 599 Station



After additional review and more traffic analysis and joint meetings between the Federal Railroad Administration (FRA) and the FHWA, the FHWA issued a FONSI and Section 810 approval for the station in December of 2008. Construction began on this station in February of 2009 and was completed in late July 2009. This station was the most complex of all constructed for the project because it involved reconfiguring an existing interchange, constructing a pedestrian overpass and constructing the platform in the median of an Interstate highway immediately adjacent to an active railroad line. The station as constructed has 250 parking spaces with room for an additional 150 spaces.

The platform in the median of I-25 is protected by guardrail and New Jersey barrier as well as several hundred feet of fencing. The fencing runs along both sides of I-25 for some distance on either side of the station to discourage potential riders from trying to access the station from I-25. In addition fencing was installed on the parking lot side of the station to discourage riders from trying to cross I-25 at grade.

On July 31, 2009 a ribbon cutting ceremony was held at the station and regular service to the station commenced on August 1, 2009.

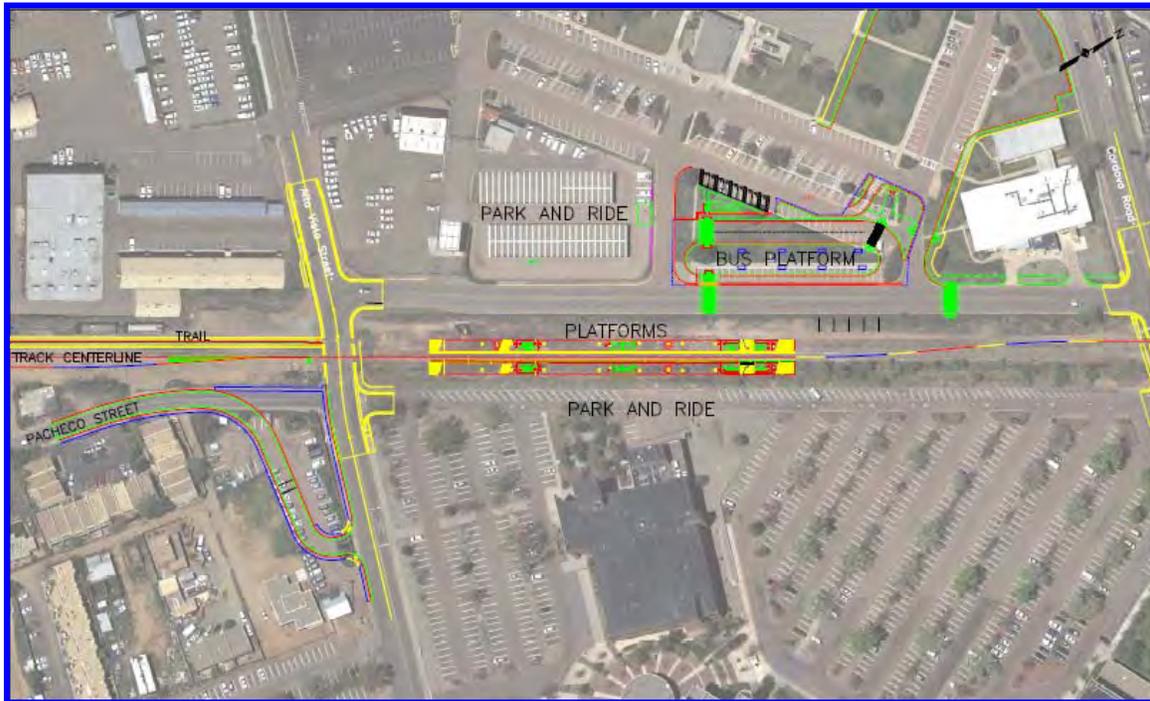
Figure 83. Opening Day NM 599 Station



In February 2008 work also began on site plans and design work for the Downtown Railyard, South Capital and Zia stations. Another public meeting was held in April of 2008 to solicit input on these station concepts as well as the NM 599 station. After this meeting the design work continued until final plans were generated for all four stations in late April 2008.

The South Capital station was anticipated to become a major destination station due to the considerable number of jobs located at the government complexes surrounding the station. The site plan generated for this station included a double sided platform and access to adjacent facilities to accommodate the potential demand at the station and the demand for access on both sides of the tracks. Station parking is provided on NMDOT site just west of the platform. The entire row of diagonal parking along the east side of the tracks was also identified for station parking. A total of 200 parking spaces are available to serve this station, but more can be provided as needed. The site plan also included a bus island (upper right hand corner) which accommodates up to 8 buses at a time. Parking for the disabled is provided on the north side of the platform. The initial site layout for the South Capital Complex station is illustrated in Figure 84 below.

Figure 84. South Capital Complex Station Layout



The site plan also called for speed tables on the roadway just west of the station to limit auto speeds and provide for safe pedestrian crossings. Bike lanes were also provided on the roadway. Note that access to government buildings on the east side of the tracks is provided in two locations which line up with the sidewalk network into this campus. Also Pacheco Street is re-aligned so that it intersects with Alta Vista a couple hundred feet east of the current intersection. This was done to provide more separation from the railroad tracks. The traffic analysis completed for the station site indicated that this re-alignment would improve traffic operations because it eliminated the hazard created by the pre-existing all-way stop at Alta Vista and Pacheco.

The Zia/St. Francis station was somewhat unique in this group of stations because the adjacent land was owned by a private party that was in the process of generating site development plans. This location was also designated as a “neighborhood scale station” by the Santa Fe MPO Board, which meant the development of this station, would have to be coordinated with plans to develop adjacent properties.

The public open house held on January 30, provided an avenue for public comment on alternative site concepts for the South Capital Complex and I-25/N.M. 599 stations. Public comment and input for the Zia/St. Francis station was expected to occur as part of the City’s development approval process for the adjacent development. Due to neighborhood and City of Santa Fe concerns about potential development of the adjacent property and to insure that undesirable informal uses of this station would not occur the NMDOT agreed to have the platform for this station designed and constructed as part of

the project but the NMDOT also agreed that trains would not stop at this station until notice and approval to do so was provided by the City of Santa Fe.

The terminus for the service in Santa Fe is the Downtown Railyard station. This area is in the middle of a large redevelopment project that went through an extensive approval process with the City of Santa Fe. The planning for this station involved some minor additions to the existing facilities (an historic station & platform are already in place) to accommodate Rail Runner trains.

Figure 85. Downtown Railyard Station



Figure 85 illustrates the planned improvements which included rebuilding the edge of the current platform which had deteriorated in several places, building a mini-high to provide level boarding for disabled passengers, and providing a walkway out to Guadalupe Street.

The South Capital, Zia and St. Francis and Railyard improvements were included in a Request for Bids (RFB) issued by the MRCOG in June of 2008. Bids were received on July 11, 2008 and an award for this work was granted to Kiewit New Mexico (Formerly Twin Mountain Construction) on July 28, 2008. Construction was initiated on these stations in August and was completed on schedule in November of 2008.

In addition to design and construction work on these stations, modifications were also designed and constructed for the U.S. 550 station in Bernalillo. Based on the market analysis it was clear that this station would be a major boarding point for commuters heading to Santa Fe. As depicted in Figure 86 below, the station is located just south of U.S. 550 on the west side of the tracks. The NMDOT also maintained a large active park

and ride lot immediately adjacent to the east side of the tracks (outlined in red on the photo). This lot is was used primarily for Bernalillo, and Rio Rancho residents that commuted to Santa Fe using the Park and Ride bus service or shared rides. To accommodate the anticipated shift of these markets and others to commuter rail, a pedestrian overpass was designed and constructed that linked the upper lot with the station platform. This project also added more parking spaces to the upper lot.

Figure 86. U.S. 550 Station in Bernalillo



The overpass was placed on the north side of the station and intercepts the middle of the upper park and ride lot. This overpass and additional parking was completed in December of 2008.

All of the stations constructed as part of the extension to Santa Fe included several basic features to address safety concerns and the passenger information needs. These features include real time video surveillance of parking lots and platforms, a public address system, variable message signs, and emergency phone access. The stations also are

equipped with an information kiosk displaying train schedules and other relevant information.

### **Service Design**

Work continued on the development of train schedules, fare structures, and the evaluation of bus connections to stations throughout 2008. As part of this effort the MRCOG and the NMDOT released two alternative draft train schedules at the January 30, 2008 open house. These draft schedules were also put out on the Rail Runner web site. About 1500 comments were received relative to the draft schedules. A vast majority of the comments requested additional information on weekend schedules and bus connections to station sites. Many of the comments also requested changes to train arrival or departures times. To address these comments The MRCOG and NMDOT released a revised draft train schedule, proposed fares and draft bus connections on August 11, 2008, and held additional public meetings in Santa Fe, Bernalillo and Albuquerque to explain the new information and to solicit comment.

The revised schedule included several adjustments to the schedules released in January of 2008, but it was also refined based on several other considerations. First and foremost were the resources available for service. The operating budget (which anticipated service to Santa Fe starting in December) was approved as part of the NMDOT's budget through June 30, 2009. While many comments expressed interest in more service, the schedule had to be financially constrained. Therefore, much of the proposed service focused on serving the largest directional peak markets. Generally this translated into more peak service from the Albuquerque region into Santa Fe in the morning and more peak service from Santa Fe to Albuquerque in the afternoon and evening due to the vast disparity in directional commute markets.

The schedule was also designed to address concerns expressed during public meetings related to service hours in Santa Fe. While many comments were received expressing an interest in earlier service from Santa Fe to Albuquerque, or later service from Santa Fe to Albuquerque, the service hours were constrained to some degree to insure that trains did not run too late or too early in and out of Santa Fe.

Another factor that was considered in the development of the schedule was the current schedule and service provided in Phase I. This service had been in place for two years and many passengers worked through life style and personal schedule changes to adjust their travel patterns to work with the Phase I schedule. Significant changes in the existing schedule had the potential to complicate these existing markets. The draft schedule therefore, reflected minimal changes to the existing schedule in the Albuquerque area while maximizing the number of through trips from Belen to Santa Fe.

The initial schedule admittedly contained some large gaps due to the resources available. But these gaps were present primarily in the late morning and early afternoon when ridership markets were expected to be relatively weak. The initial weekday schedule is shown below in Figure 87.

Figure 87. Initial Weekday Schedule

Revised Draft Weekday Schedule: Santa Fe Extension													
Northbound													
	#500	#502	#504	#506	#508	#510	#512	#514	#516	#518	#520	#524	
Belen				5:40a	6:50a	7:56a		2:00p			5:35p	6:42p	7:40p
Los Lunas			4:50a	5:50a	7:01a	8:07a		2:12p			5:47p	6:54p	7:52p
Isleta			5:03a	6:05a	7:15a	8:22a		2:26p			6:03p	7:10p	8:06p
Sunport			5:10a	6:11a	7:21a	8:28a		2:33p			6:09p	7:16p	8:12p
Albuquerque Arrive			5:18a	6:20a	7:30a	8:37a		2:41p			6:16p	7:25p	8:21p
Albuquerque Depart	4:30a	5:05a	5:21a	6:23a	7:33a		10:37a		4:15p	5:21p			6:30p
Los Ranchos	4:42a	5:17a	5:33a	6:35a	7:45a		10:49a		4:26p	5:33p			6:42p
Bernalillo	X	5:29a	X	X	X		11:03a		4:40p	5:47p			6:57p
U.S. 550	4:56a	5:50a	5:47a	6:49a	7:59a		11:08a		4:45p	5:52p			7:01p
NM 599	5:31a	6:22a	7:24a	8:34a			11:43a		5:23p	6:30p			7:36p
Zia/St. Francis													
South Capital	5:47a		6:37a	7:39a	8:49a		11:59a		5:41p	6:46p			7:52p
SF Rail Yard	5:52a		6:42a	7:44a	8:54a		12:05a		5:46p	6:51p			7:57p
Southbound													
	#501	#503	#505	#507	#509	#511	#513	#515	#517	#519			
SF Rail Yard			6:10a	7:12a	8:19a	9:19a	10:30a	11:30a	12:40p	1:40p	2:50p	3:50p	
South Capital			6:15a	7:17a	8:24a	9:24a	10:35a	11:35a	12:45p	1:45p	2:55p	3:55p	
Zia/St. Francis													
NM 599			6:33a		7:35a	8:42a	9:42a	10:52a	12:02p	1:02p	2:12p	3:12p	
US 550			6:00a	7:10a	8:12a	9:12a	10:22a	11:32a	12:42p	1:42p	2:52p	3:52p	
Bernalillo			6:03a	7:14a	8:17a	9:17a	10:27a	11:37a	12:47p	1:47p	2:57p	3:57p	
Los Ranchos			6:18a	7:29a	8:32a	9:32a	10:42a	11:52a	13:02p	1:52p	3:02p	4:02p	
Albuquerque Arrive			6:30a	7:41a	8:43a	9:43a	10:53a	12:03p	1:03p	2:13p	3:13p	4:13p	
Albuquerque Depart					6:47a	7:47a	8:47a	9:47a	10:57a	11:57a	13:07p	14:07p	
Sunport					6:56a	7:56a	8:56a	9:56a	11:06p	12:06p	13:16p	14:16p	
Isleta					7:02a	8:02a	9:02a	10:02a	11:12p	12:12p	13:22p	14:22p	
Los Lunas					7:18a	8:18a	9:18a	10:18a	11:28p	12:28p	13:38p	14:38p	
Belen					7:30a	8:30a	9:30a	10:30a	11:40p	12:40p	13:50p	14:50p	

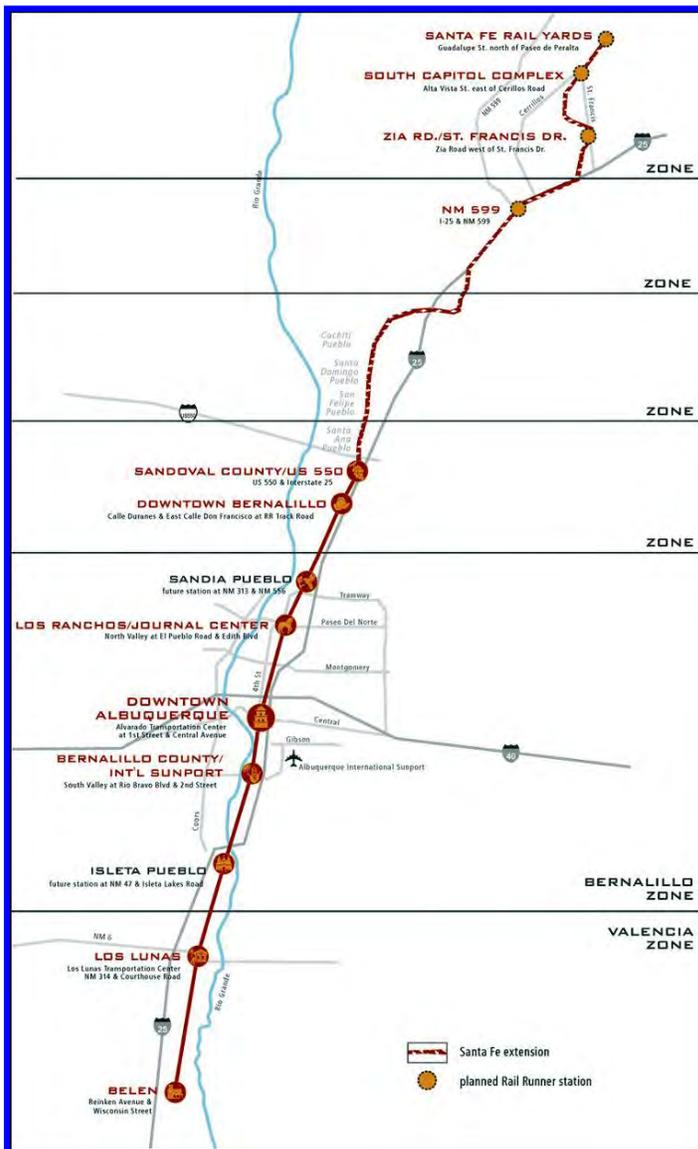
Many of the comments received expressed a desire for weekend service. In response to these comments a draft Friday/Saturday schedule was developed and released on August 11, 2008. This proposed schedule did not include Sunday service due to the resources expected to be available through June 30, 2009. It was also necessary to leave an open day for the continuation of some heavy track work primarily between Waldo and Albuquerque.

Figure 88. Draft Saturday Schedule

Draft Saturday Schedule									
NorthBound									
	#S500	#S502	#S504	#S506	#S508	#S510	#S512	#S514	
Belen			9:00a	10:48a	2:00p	3:47p	7:00p	8:45p	
Los Lunas			9:12a	11:00a	2:12p	3:59p	7:12p	8:57p	
Isleta			9:28a	11:14a	2:28p	4:13p	7:28p	9:11p	
Sunport			9:34a	11:20a	2:34p	4:19p	7:34p	9:17p	
Albuquerque Arrive			9:43a	11:29a	2:43p	4:28p	7:43p	9:26p	
Albuquerque Depart	6:20a	8:46a	11:32a	2:46p	4:31p	7:46p	9:29p		
Los Ranchos	6:32a	9:58a	11:44a	2:58p	4:43p	7:58p	9:41p		
Bernalillo	6:47a	10:13a	11:58a	3:13p	4:57p	8:13p	9:56p		
U.S. 550	6:52a	10:18a	12:04p	3:17p	5:02p	8:18p	10:01p		
NM 599	7:26a	10:52a	12:43p	3:52p	5:42p	8:52p	10:40p		
Zia/St. Francis									
South Capital	7:41a	11:07a	12:53p	4:07p	5:58p	9:07p	10:55p		
SF Rail Yard	7:46a	11:12a	1:04p	4:12p	6:03p	9:12p	11:00p		
SouthBound									
	#S501	#S503	#S505	#S507	#S509	#S511	#S513	#S515	
SF Rail Yard			8:10a	11:30a	1:20p	4:30p	6:20p	9:28p	11:19p
South Capital			8:15a	11:34a	1:24p	4:34p	6:24p	9:32p	11:19p
Zia/St. Francis									
NM 599			8:30a	11:50a	1:40p	4:50p	6:40p	9:48p	11:35p
US 550			9:04a	12:24p	2:14p	5:24p	7:14p	10:22p	12:11a
Bernalillo			9:10a	12:30p	2:20p	5:30p	7:20p	10:28p	12:15a
Los Ranchos			9:24a	12:44p	2:34p	5:44p	7:34p	10:42p	12:29a
Albuquerque Arrive			9:36a	12:56p	2:46p	5:56p	7:46p	10:54p	12:41a
Albuquerque Depart	8:00a	9:39a	12:59p	2:49p	5:59p	7:49p			
Sunport	8:09a	9:48a	1:08p	2:58p	6:08p	7:58p			
Isleta	8:15a	9:54a	1:14p	3:04p	6:14p	8:04p			
Los Lunas	8:31a	10:10a	1:30p	3:20p	6:30p	8:20p			
Belen	8:43a	10:22a	1:42p	3:32p	6:42p	8:32p			

After several months of development, the draft fare structure for the Santa Fe extension was released. The proposed fare and zone structure was basically an extension of the existing structure (see fare development process for Phase I above). Basically the zone structure was extended to the Santa Fe area using a similar strategy to insure that there was equity in the cost relative to distance traveled. While the end result was not perfectly symmetrical zones the proposed zone structure included the original three zones covering the fifty miles of service territory in Phase I, and an additional three zones covering the 50 miles between Bernalillo and Santa Fe. The proposed zone structure depicted in Figure 89 below also provided for potential future stations located between Bernalillo and the NM 599 station.

Figure 89. Draft Zone Structure



The fares that were applied to this zone structure are illustrated in Figure 90 below. The fares were basically an extension of the existing fare structure although some adjustments were made to monthly pass prices to encourage more riders to purchase this product.

Figure 90. Draft Fare Structure

<b>FULL FARE</b>				
<i>Number of Zones Traveled</i>	<i>1 TRIP</i>	<i>Day Pass</i>	<i>Monthly Pass</i>	<i>Annual Pass</i>
1 Zone	\$1.00	\$2.00	\$35.00	\$350.00
2 Zones	\$2.00	\$3.00	\$50.00	\$500.00
3 Zones	\$3.00	\$4.00	\$65.00	\$650.00
4 Zones	\$5.00	\$7.00	\$95.00	\$950.00
5 Zones	\$6.00	\$8.00	\$100.00	\$1,000.00
6 Zones	\$7.00	\$9.00	\$110.00	\$1,100.00

<b>REDUCED FARE</b>				
<i>Number of Zones Traveled</i>	<i>1 TRIP</i>	<i>Day Pass</i>	<i>Monthly Pass</i>	<i>Annual Pass</i>
1 Zone	\$1.00	\$1.00	\$17.00	\$170.00
2 Zones	\$1.00	\$2.00	\$25.00	\$250.00
3 Zones	\$2.00	\$3.00	\$32.00	\$320.00
4 Zones	\$3.00	\$5.00	\$47.00	\$470.00
5 Zones	\$4.00	\$6.00	\$50.00	\$500.00
6 Zones	\$5.00	\$7.00	\$55.00	\$550.00

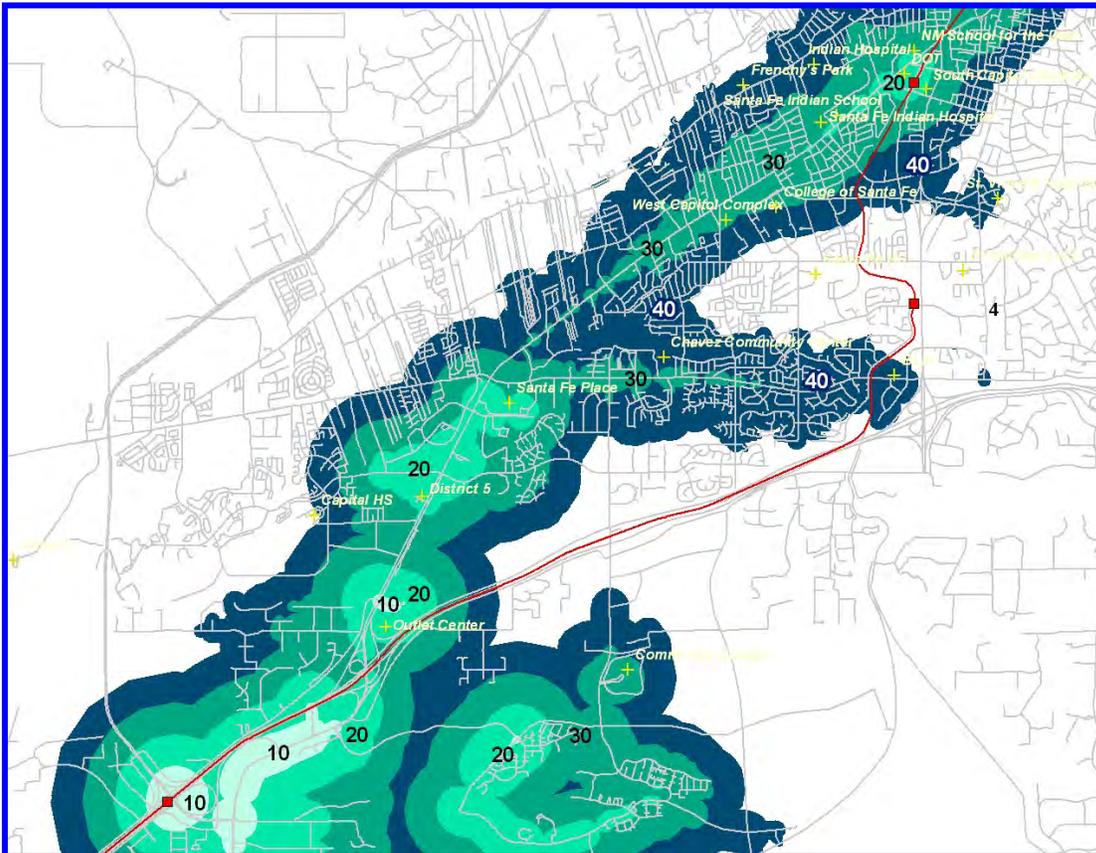
Based on the draft zone system and fare structure a trip from downtown Albuquerque to the Santa Fe Railyard station (5 zone trip) costs \$6.00 one way and \$8.00 for a day pass under a full fare scenario. The reduced fare, which applies to Seniors (age 65 and over), students regardless of age and persons with disabilities would be \$4.00 one way or \$6.00 for a day pass for this same trip. A 5 zone monthly pass was priced at \$100.00 full fare and \$50.00 reduced fare. To encourage more ticket purchases on the website a \$10

discount was applied to all monthly passes purchased off the internet. In addition a \$1 discount was applied to all day pass purchases.

The draft fare and schedule information were presented at three public meetings in Santa Fe, Bernalillo, and Albuquerque (August & September of 2008) were placed on the web site during this two month period. Only a couple of comments were received regarding the fare and zone structure. Most were for clarification purposes. About 100 comments were received on the revised schedule. Most of these comments expressed interest in more service then the draft schedule provided.

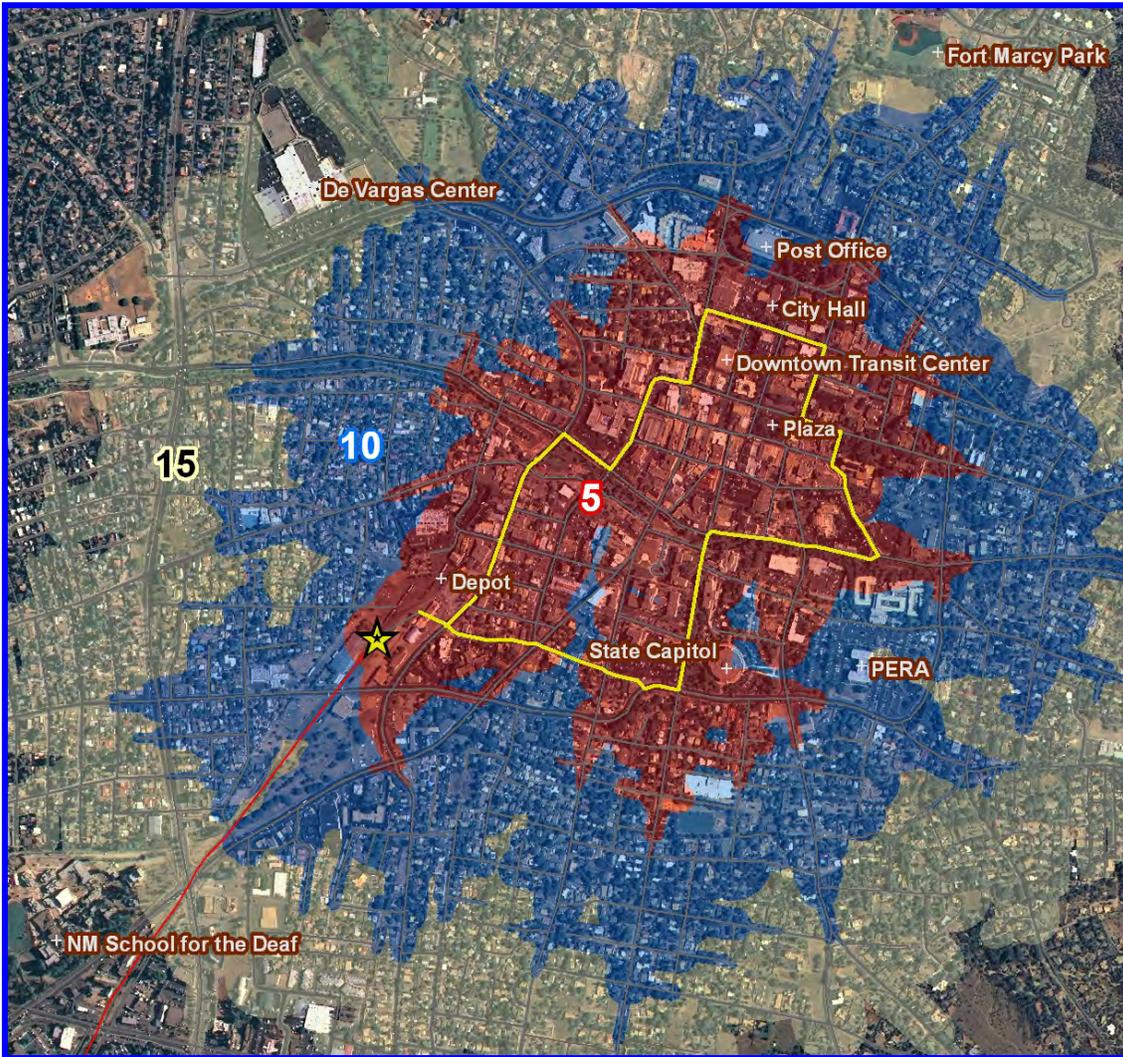
As part of the service design NMDOT and MRCOG staff have met regularly with Santa Fe Trails staff to develop an initial draft plan for providing bus connections to Rail Runner stations. This effort also involved an extensive evaluation of potential train/bus markets, similar to the effort that was put forth as part of the Phase I service design. For example, the figure below illustrates bus and walk travel times in the Cerrillos Road corridor from both the South Capital station and the NM 599 stations. This analysis was helpful in identifying optimal connecting bus services for origins and destinations in the southwest part of Santa Fe.

Figure 91. Travel Time Contour Analysis on South Cerrillos



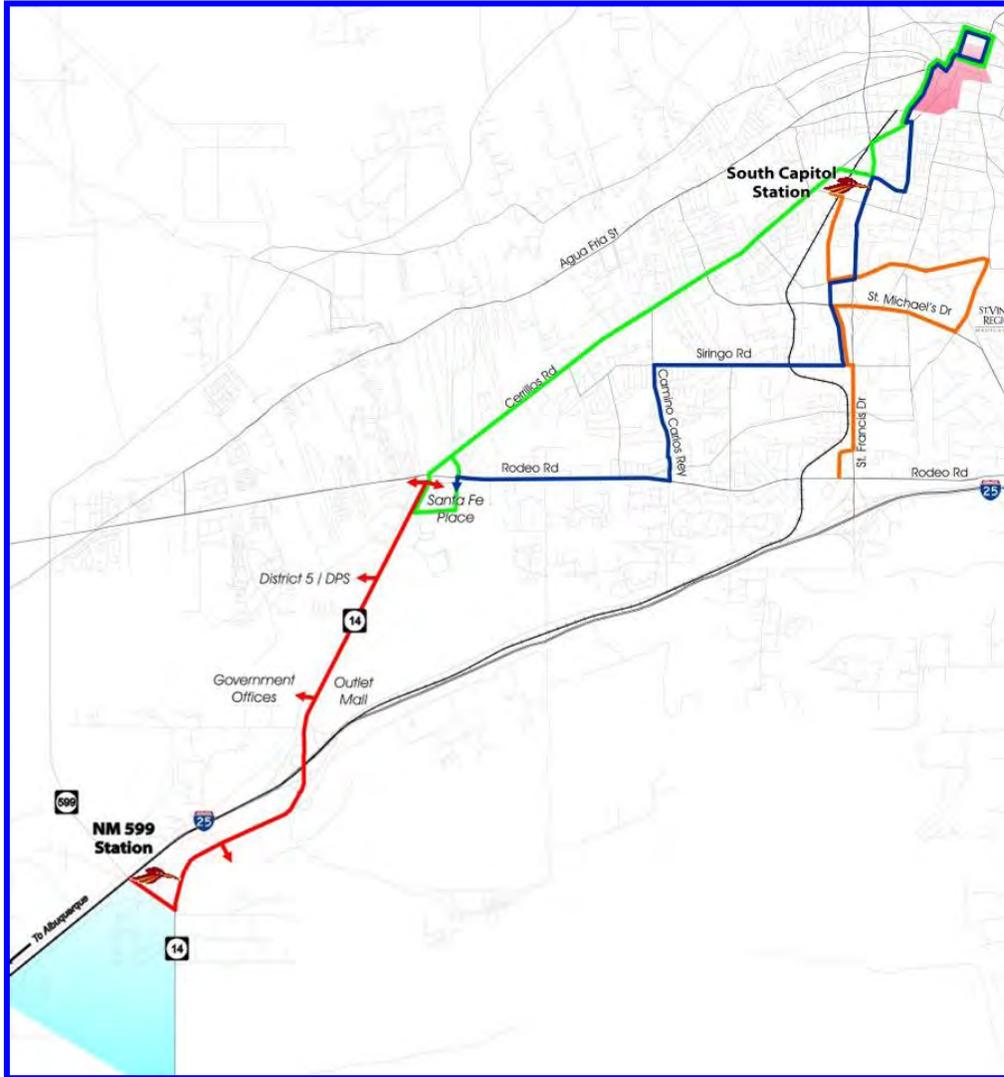
While many different bus and train alternatives were evaluated as part of this work, the primary purpose was to identify feasible new connections that could serve, or better serve the major origin and destination markets in Santa Fe accessible by train, bus and walking. Figure 92 illustrates analysis that was performed on a potential shuttle connection from the Santa Fe Railyard station to major destination in downtown Santa Fe including several state office complexes, the State Capital and the Santa Fe Plaza.

Figure 92. Analysis of Potential Shuttle from/to the Santa Fe Railyard Station



The end result of this exercise was the development of potential improvements to the bus system in Santa Fe. Work continued on the development of these bus routes and schedules through the summer of 2008. Once the train schedule was finalized the final bus routes and schedules were developed. Obviously, for these connections to work well it was necessary to have bus and train “meets” that consumed the least amount of time possible. Figure 93 illustrates the local connections that were developed as part of this process.

Figure 93. Local Bus Connections To Rail Runner Stations



The light green line in Figure 92 is the current Santa Fe Trails Route 2 which runs on fifteen minute headways from Santa Fe Place on the southwest side of town to downtown Santa Fe along Cerrillos Road. The schedule for this route was not modified given the service frequencies but the route was changed slightly to deviate buses into the South Capital station to meet trains. This allowed train passengers to reach destinations on Cerrillos southwest of the South Capital station and north in downtown Santa Fe.

The red line on the map was a proposed new route that would connect the NM 599 station to Santa Fe Place. This route would also serve several destinations between the NM 599 station and Santa Fe Place. This connection also provided users with connections to the Route 2 and destinations on South Cerrillos and the Santa Fe Trails Route 4 which serves destinations on Rodeo, Camino Carlos Rey, Siringo, Pacheco, San

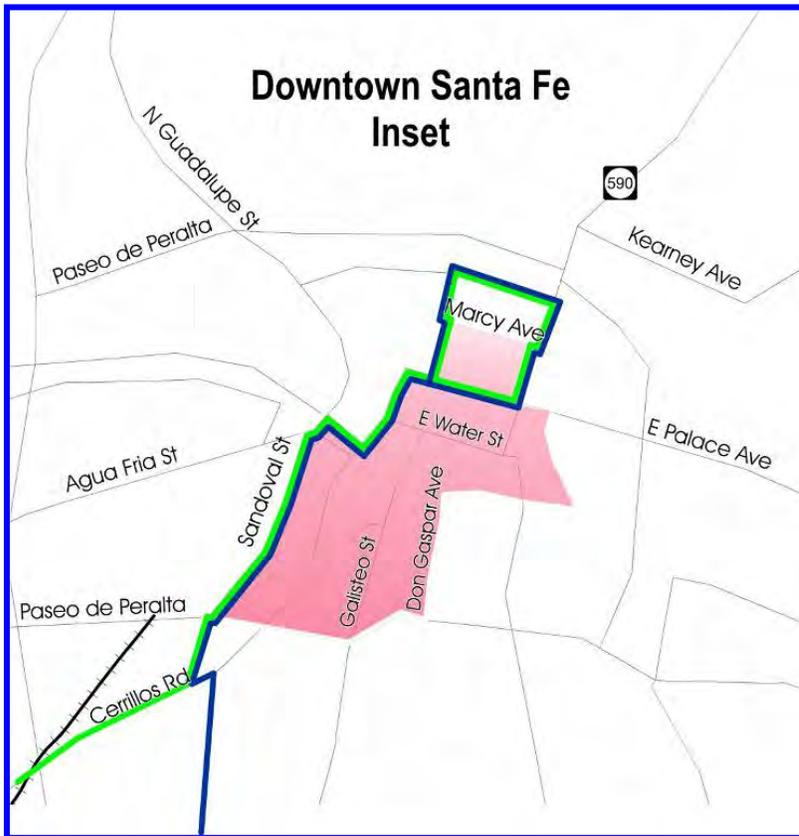
Mateo and St. Francis. Route 4 will also deviated into the South Capital station before continuing on into downtown Santa Fe. Other improvements to Route 4 included changing the headway during peak periods from 30 minutes to fifteen minutes to provide better connections with Rail Runner trains.

The orange route was another proposed new route that would meet trains at the South Capital station and serve destinations on Pacheco, San Mateo, St. Michaels Drive (including St. Vincent’s Hospital), St. Francis and the Rodeo Business Park area. This route was initially designed to serve peak trains only.

Bus or shuttle connections were also evaluated for the blue shaded area on the south side of the NM 599 station. Important destinations in this area include the New Mexico National Guard complex and the State Penitentiary.

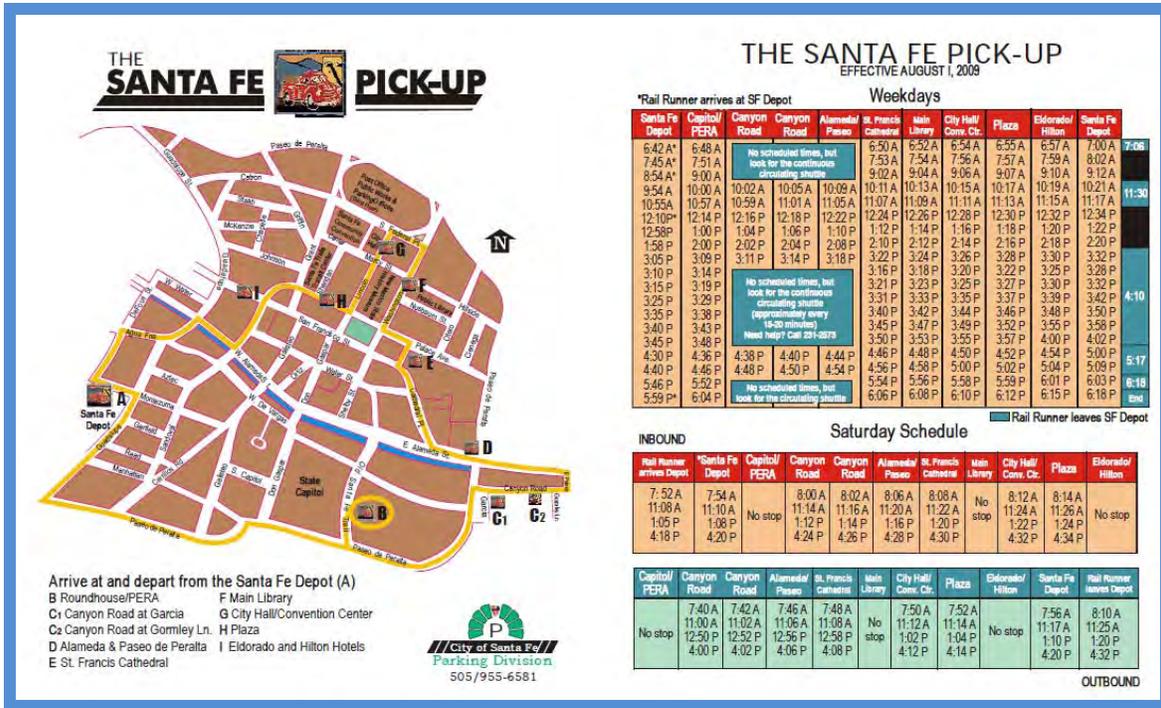
Travel from the Santa Fe Railyard station to downtown Santa Fe destinations was addressed by the City of Santa Fe through the development of plans to run a series of shuttles between the station and important attractions. Supporting analysis was done to identify the desired coverage area which is depicted in Figure 94 below.

Figure 94. Downtown Shuttle Coverage Area



The service that was developed out of this analysis is known as the “Santa Fe Pick- Up”  
 The initial service route and schedules are illustrated in Figure 95. Below.

Figure 95. Santa Fe Pick-Up Service



All of these improvements to the bus system were designed to provide connections to many of the major destinations in Santa Fe, and also connectivity to train service for many residents of Santa Fe. Due to the connections to multiple Rail Runner stations, and the numerous intersecting points, users were provided with several options to access train stations, homes, places of business or places of interest.

A considerable number of comments were received expressing interest in a connection in Albuquerque to the Albuquerque International Airport. While this destination was served by the Route 222 from the Bernalillo County/Sunport station and the Route 50 from the Downtown Albuquerque station, both of these routes served other destinations as well and did not provide the most optimal connection to the airport. To address this issue a direct shuttle was put in place to and from the airport from the Downtown Albuquerque station. This shuttle serves trains coming from, or going to, destinations north of downtown Albuquerque including Santa Fe. This connection (known as Route 350) was put in place in conjunction with the service start up to Santa Fe. The Route 350 basically provides door to door service between the Airport and the Downtown Alvarado train station. Buses that serve this route have been wrapped with a mosaic that attempts to convey the purpose of the route. Figure 96 below illustrates one of the buses used to provide the connection to the Airport.

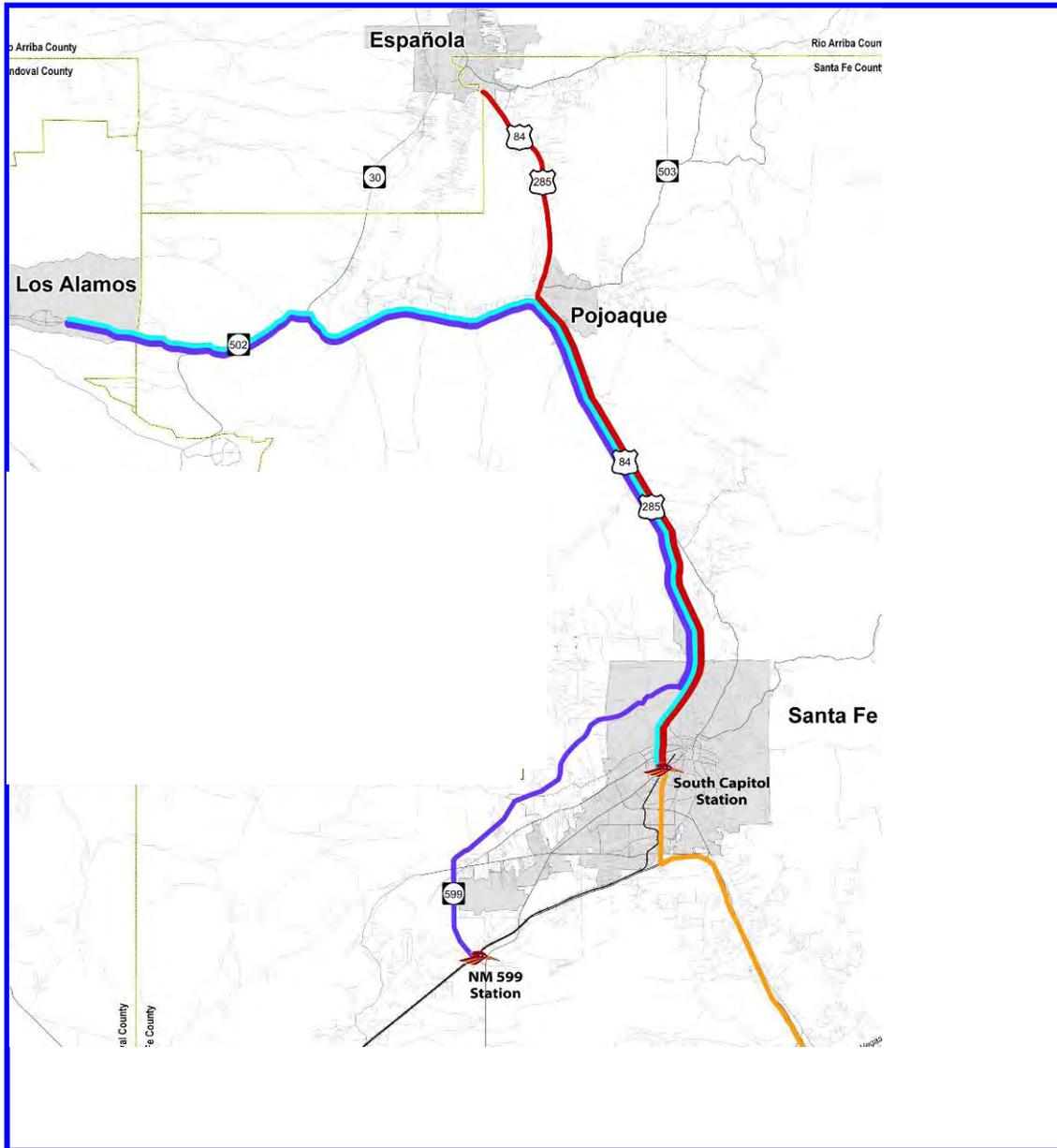
Figure 96. Route 350 Airport Connection Bus



In addition to local bus connections, there are also regional bus connections that provide connections to trains in the Santa Fe area. Most of these routes were in service prior to the extension to Santa Fe, but were modified to some degree to meet trains at various stations. These routes are funded by the NMDOT as part of the Northern New Mexico Park & Ride system.

New Mexico Park & Ride buses connect to both the NM 599 station and the South Capital Station as depicted in the graphic below. The Purple Route was rescheduled to meet a.m. northbound trains to provide connecting northbound service to Los Alamos. In the afternoon, buses originate in Los Alamos and meet southbound trains at the NM 599 station. The red route provides service to and from Espanola and Pojoaque to the South Capital Station. The orange route provides similar service to and from Las Vegas. The blue route provides a connection between Los Alamos, Pojoaque and the South Capital Station. The current schedules for the red, blue and orange routes will remain the same. Current schedules for these routes can be found on the NMDOT web site at <http://www.nmshtd.state.nm.us/> The integration of these routes with the train service provided in most cases a better connection between these routes and the Albuquerque metro area. An integrated monthly pass is also available that allows users to utilize both systems.

Figure 97. New Mexico Park & Ride Routes



Reciprocity agreements between the City of Santa Fe and the NMDOT were also signed that allow New Mexico Rail Runner Express ticket holders to use the Santa Fe Trails bus system at no additional cost. The end result of all of this work was the generation of a basically seamless public transport system which for the most part provides a broad array of service to multiple origins and destinations.

After the initiation of service to Santa Fe the town of Taos, New Mexico also added a shuttle between the Santa Fe Depot and Taos. The Buffalo Thunder Resort and Casino

also added a similar shuttle that runs between the Santa Fe Depot and this complex which is located about 18 miles north of Santa Fe.

Like the train schedule, these bus connections provided a solid starting point that was based on serving the largest markets in the corridor. It is likely that bus coverage will also expand over time to serve more markets. There are several other opportunities to connect special events and seasonal attractions in this corridor. While they are not mentioned specifically in this document, efforts will be made to provide service to major events and attractions.

### **Environmental Analysis & Public Interactions**

The selection of a preferred alternative in February of 2007 represented a major milestone in the development of the Santa Fe extension. The sections above describes many of the activities of subsequent project development. While the analysis of alternatives required a great deal of environmental analysis, other types of evaluations, and a very active process to engage the public, the selection of a preferred alternative provided the opportunity to continue these efforts at a different level. Once the preferred alternative was selected the NMDOT and the MRCOG began work on an Environmental Assessment (EA) for the entire corridor between Bernalillo and Santa Fe. This document was released for public comment at the end of July, 2007. While public meetings continued from February through July, a formal public hearing was held on the document on August 24, 2007. A Finding of No Significant Impact (FONSI) was issued by the Federal Highway Administration (FHWA) in mid September 2007. Concurrently the FHWA approved the NMDOT section 810 request to use the median of I-25 for the rail project.

As a follow up to this public hearing two more public meetings were held in October of 2007. These meetings generated a number of additional comments related to the project including comments and concerns related to train noise, traffic disruption, environmental issues, wild life habitat (prairie dogs mainly), safety, station locations, train operations and property values. To address these comments the MRCOG prepared detailed responses to all the comments received at either of these meetings or via email, and sent them to all persons attending either meeting. The comments and responses are also posted on the New Mexico Rail Runner Express web site at [www.nmrailrunner.com](http://www.nmrailrunner.com). Meetings with several neighborhood associations and other civic groups were also held during this period to solicit additional input and address concerns.

As construction activities commenced in the Fall of 2007 additional meetings were held with neighborhoods to address concerns about construction related noise and dust. Weekly project and public information meetings were also initiated at this time and included representatives from the NMDOT, the MRCOG, Contractors, the City of Santa Fe and Santa Fe County. These meetings provided an opportunity for all agencies to discuss concerns with the contractors and project managers and coordinate activities. The other purpose of these meetings was to review upcoming construction activities and allow

public information officials from each of these agencies the opportunity to serve notice to the media and agency departments regarding these construction activities.

Figure 98. Public Meeting at the Genoveva Chavez Community Center, Santa Fe



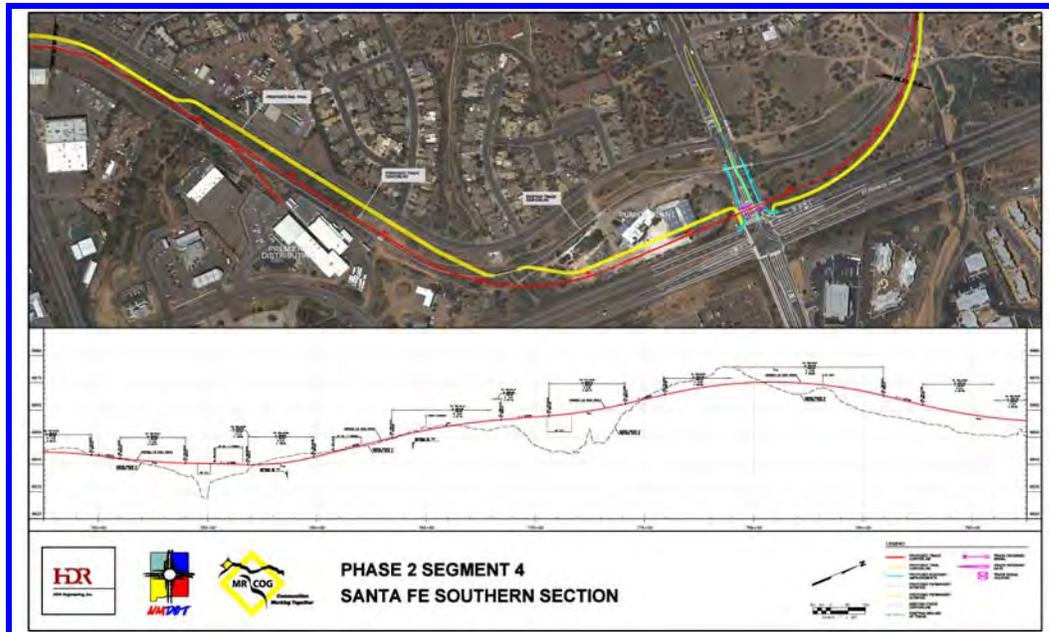
Traffic control and detour plans, as well as station designs were approved through the City of Santa Fe process, and ultimately the Santa Fe City Council, providing additional opportunities for public comment and discussion.

Throughout this process a great deal of project related information was also posted on the NMDOT and Rail Runner web sites. Much of this information was similar to information presented at regular public meetings but the web provided a stable source of project level information for those that did not attend meetings or those that wanted more frequent updates on project related issues. Aside from the comments and responses mentioned above, all technical and formal documents (like the Environmental Assessment) were posted for public comment. Other information posted on the web included the proposed schedules, fares and bus connections, weekly construction reports, traffic advisories, power-point presentations, videos, notices of public meetings and responses to frequently asked questions. In addition, the web site allows for direct public comment on any topic, document or issue via email.

As more detailed project information became available it was also posted on the web site for public review. For example, in order to provide the public with a better sense of the proposed track, intersection and trail design within the City of Santa Fe a series of down-

loadable graphics were posted on the New Mexico Rail Runner Express web site. An example of these graphics is depicted in Figure 99 below.

Figure 99. Sample Graphic Depicting Alignment Design for the Santa Fe Southern



The Rail Runner web site also had a specific section dedicated to project construction. This section was updated on a weekly basis with information on current construction activities and road and trail closures. A toll free Rail Runner line was also established to provide the public with direct access to the Rail Runner operations center.

Efforts were also made to educate large employers in the Santa Fe area about the benefits of public transportation, flexible schedules and tax benefits for transit users to provide more opportunities for employees to use the train. A small deviation from regular work schedules is often all that is needed to provide expanded opportunities for many employees to access utilize public transport.

As part of continual efforts to address safety related issues, Operation Lifesaver presentations were provided to many of the schools in the Santa Fe area in proximity to the track alignment. Emergency response training was also provided to responders along the corridor and in the Santa Fe area, starting with a detailed classroom workshop in November of 2007 that was followed up with a full scale emergency training exercise. Hands on safety training sessions were also held in Lamy in September of 2008 for first responders in the Santa Fe area. This was followed up with a similar event held at Domingo Junction near the Santo Domingo Pueblo a few weeks later. This event provided safety training for emergency responders' in the Santo Domingo area.

Operation Lifesaver and these training exercises continue to be a main staple of New Mexico Rail Runner Express safety efforts in the corridor as do periodic public safety commercials that are aired on the local TV and radio stations.

Figure 100. Santa Fe Area Emergency Responders at Lamy Safety Training Session



A New Mexico Rail Runner Express train was also brought to Santa Fe for the grand opening of the Santa Fe Railyard which was held on September 13, 2008. This event was well attended by many in the Santa Fe area and the train was opened for public tours. A booth was also set up at this event to provide information on draft fares, schedules and other frequently asked questions.

Trains were brought up to the Santa Fe Railyard and the South Capital station several more times in the Fall of 2008 to provide more opportunities for residents and others to see the equipment. As part of these events train and bus schedules and Operation Lifesaver information was provided by New Mexico Rail Runner Express staff. Staff also responded to many questions and comments about the service at these events.

Figure 101. New Mexico Rail Runner Express Train at Railyard Grand Opening



During this same trip the train ventured out on a section of the new track in the median of I-25.

Figure 102. Locomotive View from Train in the I-25 Median



Public interactions continued through the fall as the service start date approached. Presentations were made to a number of civic groups in Santa Fe, and information booths

were set up at a number of special events in Santa Fe including the Indian Market, Santa Fe Fiestas, Santa Fe Place, large employers including State government offices, the New Mexico State Fair and the Balloon Fiesta.

Finally, on December 15, 2008 two inaugural trains made the run from Belen to the Santa Fe Depot where a well attended service grand opening was held.

Figure 103. New Mexico Rail Runner Express Train on Inaugural Run to Santa Fe



Figure 104. Governor Bill Richardson Addresses a Large Crowd at the Inaugural Ceremony



Figure 105. New Mexico Rail Runner Express Train Returning to Albuquerque



Two days later, on December 17<sup>th</sup>, 2008, the first regularly scheduled revenue trains ran between Albuquerque and Santa Fe.

## New Mexico Rail Runner Express Financials

A summary of the capital and operating costs for the project is described below. Note that the operating costs will continue to change as changes to the service and inflation are applied. The operating cost information is supplied to provide a sense of the cost elements and revenue sources utilized to provide service in these first years of operation.

### Capital Costs

In the summer of 2004, an initial budget of \$75 million was established for Phase I capital costs. This figure was arrived at utilizing information from a number of sources. Track, signal and crossing improvements estimated at \$30 million came primarily from negotiations with the BNSF, and were based on the level of improvements estimated to run commuter rail service without adversely impacting their freight operations. This estimate was based on the State leasing the line from the BNSF and not on an outright purchase. The NMDOT and the MRCOG also had HDR review cost estimates from the BNSF to insure that they were in line with comparable railroad improvements.

In December of 2005, the Sandoval County Commission approved \$10 million for the commuter rail project to assist in the acquisition of rolling stock, track and signal improvements in Sandoval County and to provide additional resources for station development in Sandoval County. These funds were utilized to add additional value in these areas. The Sandoval County Commission also approved an additional \$6 million to provide for connecting transit services in Sandoval County.

The acquisition of rolling stock (engines and passenger cars) was estimated at around \$30 million. This figure was based on the purchase of up to 10 cars at approximately \$2.2 million each, and 4-5 locomotives at \$1.5-\$2.0 million each. The \$2.2 million figure per car was based on recent comparable purchase prices for passenger cars from other commuter rail service providers. The locomotive pricing was based on the acquisition of rebuilt locomotives (as opposed to new) and recent sale prices of these vehicles. The contract negotiated with Bombardier for 10 cars came in at approximately \$22 million with an additional \$900,000 option for spare parts. The four engines acquired from Motive Power cost approximately \$9 million with a \$600,000 option for spare parts. An additional engine was ordered as a result of the Sandoval County contribution discussed above, bringing the total cost of all rolling stock to about \$35 million. About \$10 million was set aside for station development, which works out to about \$1.1 million per station. This figure was based on a relatively simple station design concept and proved to be much lower than the actual station costs. The bid for the construction of the initial 7 stations came in at about \$16 million. Part of this increase is attributed to value added components of the stations in Sandoval County and the additional resources dedicated by the County for these purposes. Subsequent changes to the scope of construction have added another \$2 million to the station costs. The cost of steel concrete and fuel also contributed to higher costs than were estimated as part of the original budget.

Fortunately the cost of track and signal improvements (originally estimated at \$30 million) came in at about \$10 million. This change was due to a reduction in the original estimate of required capital improvements as a result of negotiations with the BNSF and the states acquisition of the line instead of a lease arrangement.

The remaining \$5 million was designated for a maintenance and inspection facility. Commuter rail equipment must be inspected and maintained on a regular basis. Many of these activities require a covered area, a pit under the tracks so equipment that is on the underside of the engines and cars can be accessed for inspections and maintenance, tools to perform the work, and spare parts. The \$5 million figure was based on the cost of the maintenance facility for the Trinity Rail Express commuter service in the Dallas/Fort Worth area. To date about \$4 million have been spent on the maintenance facility, including yard track, structures and tools. The maintenance facility/yard was acquired as part of the BNSF transaction.

Phase I capital improvements are basically complete, except for the station construction at Sandia Pueblo. It is important to note that when the project was originally scoped the budget included specific items by major capital category. Since 2004 there have been a number of other activities that have taken place in the Phase I corridor that were not part of the original project budget but have been completed as a result of legislative or local efforts. Items that would fall into this category are the purchase of land for a future station at Montano Road and the railroad tracks, the construction of a special events platform near Avenida Cesar Chavez for University of New Mexico athletic events, the funding of a Transit Oriented Development (TOD) plan focusing on areas around Phase I stations and the investigation of a potential spur to the International balloon Fiesta park. These projects were funded primarily through legislative capital outlay appropriations. It is likely that there will be many future projects like this in the Phase I corridor as communities and elected officials continue to identify additional opportunities leverage the value of the Rail Runner service.

With this in mind the table below illustrates actual costs by major capital element for Phase I activities **originally** scoped as part of the project.

Table 18. Phase I Capital Costs by Major Capital Element

<b>Element</b>	<b>Cost (In Millions)</b>
10 Bombardier Bi-Level Cars	\$ 23.0
5 Motive Power Locomotives	\$ 12.7
Construction of Isleta & Bernalillo Sidings	\$ 4.6
18 miles of CTC	\$ 5.8
Construction of 8 Stations	\$ 26.3
Maintenance Facility	\$ 3.6
Crossing & Surfacing Improvements	\$ 4.0
Tie Replacement	\$ 3.2
<b>Capital Subtotal</b>	<b>\$ 83.2</b>
BNSF Phase I Corridor Purchase	\$ 50.0

<b>Total</b>	<b>\$133.2*</b>
<b>Cost Per Mile</b>	<b>\$ 2.8</b>

\*Total includes \$10 million provided by Sandoval County

Since 2004 the NMDOT and the MRCOG have also pursued state and federal Section 130 and other federal safety funds to improve crossings in the corridor. This funding has been utilized to augment the Phase I funding for crossing improvements and to implement a quiet zone from Downtown Albuquerque north through Sandia Pueblo. These efforts are part of a continuous program to improve crossings in the corridor.

To cover the capital costs of Phase I the NMDOT programmed \$75 million from the GRIP program. This action was incorporated into the MRCOG Transportation Improvement Program by the MRCOG Metropolitan Transportation Board in June of 2004 and approved in the Statewide Transportation Improvement Program by the New Mexico Transportation Commission in July of 2004. As noted above Sandoval County approved an additional \$10 million for the project. In November of 2005, the NMDOT programmed an additional \$60 million in GRIP funds to cover the purchase of the tracks and rights of way from Belen to Bernalillo. As noted previously the cost of this segment was \$50 million.

As noted previously, capital costs for the extension of service to Santa Fe were originally estimated originally to be in the range of \$240- \$250 million. This cost estimate was based on actual procurements, engineer's estimates and known costs for similar features (like stations). The table below illustrates actual costs of major capital items originally scoped for Phase II service.

Table 19. Phase II Capital Costs by Major Capital Element

<b>Element</b>	<b>Cost (In Millions)</b>
12 Bombardier Bi-Level Cars	\$ 24.8
4 Motive Power Locomotives	\$ 10.7
Re Construction of Domingo & Nueve Sidings	\$ 2.6
Design Build Contract 18 Miles New Track & Structures	\$128.0
Santa Fe Southern Reconstruction 3.8 miles	\$ 26.9
60 miles of CTC/Signalization work	\$ 12.4
Track Procurement (25 miles of Track/7200 tons)	\$ 7.8
Tie Procurement (25 Miles of Concrete Ties/ 79,000)	\$ 6.8
Dispatch & Communications System	\$ 3.2
Rights of Way Purchase	\$ 3.8
Construction of 3 New Stations Additions to 2 Stations	\$ 23.6
<b>Capital Subtotal</b>	<b>\$250.6</b>
BNSF Phase II Corridor Purchase	\$ 20.0
<b>Total</b>	<b>\$270.6</b>
<b>Cost Per Mile</b>	<b>\$ 5.4</b>

If this total is added to the \$133.2 million price tag for Phase I, the grand total of capital costs for the project is \$403.8 million or about \$4 million per mile.

To pay for this entire cost the NMDOT has used a total of \$318 million of GRIP funds, \$60 million in interest on bonds and a \$17 million in capital outlay approved during the 2007 New Mexico Legislative Session to cover the total cost of both phases and the purchase of the line from the BNSF. The balance was covered by the \$10 million provided by Sandoval County.

It is worth noting that in the first version of this report which was released in September of 2004, the cost for Phase I was estimated at \$75 million and Phase II was estimated at between \$200 and \$250 million even though the planning for this segment had just begun. The report noted that these costs did not include costs to purchase or lease the line from the BNSF. Four years later, despite increases in the cost of steel, fuel, concrete and almost every other resource used for projects such as these, the original capital cost estimates have not changed. Early procurement of long lead capital items, a streamlined project development process and the ability to make solid decisions quickly have all contributed to this remarkable outcome. In contrast the Utah Transit Authority fifty mile starter line escalated in price over \$200 million dollars (from \$410 million to \$618 million) between 2004 and 2006.

There have been very few cases where new passenger rail has been constructed on a new rail alignment over the past 30 years. The 18 miles of new track alignment constructed as part of the extension to Santa Fe cost \$147 million or about \$8.2 million per mile. This total includes the purchase of rights of way, utility relocations, track, ties, signals, communications and all the civil and structure work to provide a functional facility. Since this portion of the project was completed as a design build, this cost also includes the cost of the design. It is worth noting that this 18 miles covers some pretty challenging terrain including a 1500 foot increase in elevation. In addition there were 9 major structures and several minor structures that were completed as part of the job.

To many people, the costs associated with this project may appear high. But all major transportation investments have become very expensive. The BIG I reconstruction ended up costing almost \$300 million. The reconstruction of the Coors/I-40 Interchange cost in excess of \$90 million. The Paseo Del Norte/Jefferson/I-25 roadway improvement project is currently estimated to cost \$350-400 million. It is likely the cost for this project will exceed \$400 million by the time it is constructed. For the cost of this single roadway project, this strategic portion of central New Mexico has acquired a 100 mile long transportation service and system that connects many of the communities up and down the Rio Grande valley. In addition the State now owns the rail line from Belen to the Colorado state line. As pressure mounts to develop more intercity passenger rail service (Denver to Albuquerque) this portion of the line will become a valuable resource.

The cost of implementing commuter rail service between Belen and Santa Fe was remarkably cheap compared to other rail new starts in the West and throughout the country. It has also occurred within an unprecedented time frame. Other urban centers in

the West have waited too long to implement rail based alternative modes of transportation and are now paying dearly as a result. In November of 2004, voters in the Denver region approved an additional half percent sales tax (over the half percent already on the books for public transportation) to fund two new commuter rail, and three new light rail lines (120 miles of new lines in total). The tax increase will generate about \$4.7 billion over the next 10 years to cover the cost of these lines, although recent escalations in energy and construction materials have resulted in revised estimates that now put the price tag for this venture between \$6 and \$8 billion. This initiative passed with fifty eight percent of the vote. In November of 2004, Phoenix voters also approved (by the same margin) an additional half percent sales tax to construct and operate a 19 mile long light rail line between Tempe and Downtown Phoenix. This project, which opened for service in the spring of 2009 cost \$1.6 billion. When Utah completes both phases of their 90 mile long commuter service between Ogden and Provo, the total cost is expected to be about \$1.6 billion. It is scheduled for completion in 2014, seventeen years from project initiation.

Since the initiation of construction on the Santa Fe extension, other activities have begun that were not part of the original phase II scope. The NMDOT and the Pueblo of Santo Domingo have worked out an agreement for a station at Domingo Junction. This station has received environmental approval from the Bureau of Indian Affairs and will be constructed in the fall of 2009 and opened for service sometime in January of 2010. Funding for this station was provided by the NMDOT using federal rural transit capital funds. The planning and environmental process for another station in the vicinity of Richards Avenue in Santa Fe has been initiated, but no time frame has been set for construction. This effort is being funded by the private sector. In the spring of 2009 the NMDOT issued a awarded a contract for the implementation of WiFi along the entire 100 mile long corridor. This project is expected to be complete at the end of 2009 and will provide passengers with real time access to the internet. These are all examples once again of activities that were initiated to further the value of the original investment. It is likely that these types of enhancements will continue in perpetuity as the service continues to grow.

### ***Operating Costs***

Annual operating costs for Phase I service were originally estimated to be in the range of \$8 to \$12 million. There was a range in these original estimates because they were formulated without a specific service design in place. The range was established by reviewing other commuter rail annual operating budgets (Trinity Rail and Altamont Commuter Express) and the service provided (trains, and train miles per day) and then developing an estimate based on a lower and higher level of train service. A portion of these costs do not vary based on the service provided. Liability insurance, for example, costs about \$1.7 million per year, regardless of the number of trains running. Major categories of expenses in this estimate included train operations and maintenance, maintenance of the rights of way, insurance, agency staff costs and marketing. Operating revenues were estimated to be in the range of \$3.0 million for this fiscal year. This figure

represents a combination of fare box revenue and BNSF maintenance payments (based on gross ton miles).

To cover Phase I operating costs, the NMDOT and the MRCOG evaluated several potential sources. Congestion Mitigation Air Quality (CMAQ) funds, which are distributed by formula from the Federal Highway Administration to the NMDOT, and a portion further distributed to the MRCOG, were identified as the most viable near term revenue source. The NMDOT programmed \$32 million in CMAQ funds to cover the operating expenses for the first three years. These funds were approved by the MRCOG Metropolitan Transportation Board in April 2005 and approved by the New Mexico Transportation Commission in June 2005.

Operating subsidies for public transportation are often cited by the media and others as a questionable use of public money, yet subsidies are common in most government programs and within government programs, particularly in transportation. In fact, one of the stated purposes for public transportation is to provide a lower cost option for users of the system. An operating subsidy is required to provide a lower cost alternative. The MRCOG Traffic Monitoring Program generates estimates of Vehicle Miles of Travel (VMT) for the metropolitan area. In 2004, the average daily VMT was 16,735,195. If the American Automobile Association's 2004 cost per mile of 56 cents is applied to this figure, the daily cost for travel in the Albuquerque area borne by drivers is a staggering \$8,702,301. This translates into an annual cost to drivers in this region of \$3.2 billion. In the same year, auto drivers and passengers in the Albuquerque region spent 494,487 hours a day in their cars. This works out to 247 hours per capita per year. In other words every man, woman and child in the Albuquerque Metropolitan Area spends on average 10 days out of every year in their car. If an hourly rate of \$5.25 is applied to this figure, the daily loss of productivity, or cost for lost time is \$2,596,056. The annual cost is \$947,560,713. If this figure is added to the previous figure the total exceeds \$4 billion per year, just for travel in the Albuquerque metropolitan area. Keep in mind that neither of these figures includes the cost of roadway construction and maintenance.

There is also a common belief that capital and maintenance costs for roadways are covered entirely by gas taxes, when in fact, a substantial portion of roadway capital and maintenance costs are covered through municipal and county bond issues based on property taxes. Also much of the gas tax that is generated by this state comes from high volume roads (Urban and Rural Interstates and Urban Principal Arterials). Low volume roads (typically more rural and suburban highways) generate very low returns on gas tax relative to the capital and maintenance costs required to keep these facilities functional. Most of New Mexico's rural highways fall into this category because they carry 2000 vehicles per day or less. These types of facilities generate between 10 and 30 percent of the revenues required to cover capital and maintenance costs. Yet there are rarely arguments about this form of subsidy because there is a general recognition that a functional transportation system cannot be developed if each segment of the system is expected to pay for itself. There is also recognition that despite these kinds of subsidies there are secondary benefits that can't always be

measured in direct returns to the government's coffers. Low volume roads are often the only way farmers and ranchers can get product to market, children can get to educational facilities, adults can get to jobs and goods can get to remote destinations. In fact many of the projects included in the GRIP are for improvements to roadways that fall into this category.

The obligation of CMAQ funding to cover the operating subsidy for the first three years provided the NMDOT and the MRCOG with some time to identify and implement funding strategies to cover the operating subsidy over the long term.

In the 2007 legislative session a bill was introduced (House Bill 400) to establish a new Rail Runner Regional Transit District. The bill also included provisions to put a 1/8 cent gross receipts tax imposition on the November 2008 ballot in the four counties that receive Rail Runner service. The tax increase would be utilized to cover the operating costs of the Rail Runner. The bill passed the New Mexico House of Representatives and through the three New Mexico Senate committees that it was referred to, however it never made it to the Senate floor before the session expired.

After the session ended work began on exploring the possibility of using the existing RTDs in the Rail Runner Corridor (North Central RTD and the Rio Metro RTD) as an institutional framework to put a tax proposal on the ballot for the November 2008 election.

The MRCOG spearheaded the effort to create an RTD for the Albuquerque region, and after many months of effort the Rio Metro Transit District (RMTD) was officially constituted at the March 2005 meeting of the New Mexico Transportation Commission. The membership of the RMTD included the counties of Valencia, Bernalillo and Valencia and most of the Cities, towns and villages in these three counties. In a separate action the North Central Regional Transit District (NCRTD) was also formed in the fall of 2004. This transit district included the counties of Rio Arriba, Taos, Los Alamos and Santa Fe. In the regular 2004 session, the legislature voted to give local governments' new gross receipts tax authority (up to 1/2 percent) to fund regional transit districts (RTDs).

Discussions and negotiations with the two RTDs produced an initiative that was placed on the ballot in the four counties receiving Rail Runner services. The initiative called for increasing the New Mexico Gross Receipts Tax by one eighth of a percent for public transit if passed by the voters. The ballot measure allocated half of the revenues from the tax to Rail Runner operations and half to connecting or expanded bus service in these counties. It was estimated that the 1/16 percent allocated to the Rail Runner would generate about \$14.5 million in the four county area. Projected operating costs were expected to be about \$22 million per year once the service was extended to Santa Fe.

In November of 2008 the tax was passed by all counties in both Transit Districts. In the Rio Metro area the tax passed district wide by a 54%-46% margin despite the

failing economy and extremely low gas prices. The North Central tax passed district wide by a 57%-43% margin. The tax went into effect on July 1, 2009. With the passage of the tax the NMDOT, MRCOG and the RTDs worked out a series of agreements for the funding and management of train operations. These agreements identify the Rio Metro Transit District as the primary agency for train operations and maintenance. The Rio metro Board is responsible for developing an annual budget in cooperation with the NMDOT, adopting policies related to operations and providing staff oversight of operations and maintenance. The NMDOT and Rio Metro Board will work cooperatively to utilize the tax dollars, fare box, BNSF revenues and state and federal funding to provide for the operations and capital maintenance. The NCTD is a party to these agreements and provides funding in the equivalent of 1/16 of the gross receipts tax collected in Santa Fe County.

These agreements produced a budget for the 2010 fiscal year (which runs from July 1, 2009 to June 30<sup>th</sup>, 2010) that is close to \$23 million. This is the first fiscal year that trains will be running on the entire 100 mile long corridor for the entire year. Revenue source estimates for this budget include \$14.2 million in RTD tax dollars, \$2.6 million in farebox revenue, \$1.6 million in BNSF and Amtrak fees, \$3.8 million in CMAQ, \$700,000.00 in State revenues for Sunday service and \$100,000.00 in revenue from advertising and merchandising. Approximately \$20.7 million of the revenue will be utilized to pay for contract operations and track and vehicle maintenance. The balance pays for agency staff including dispatch, customer service and contract oversight, printing, utilities, communications and marketing.

It is worth noting that this budget includes a full contingent of service on Saturdays throughout the year and two trains a day on Sunday. The latter was added in September of 2009.

Over the past two years gas prices have varied wildly even exceeding \$4.00 a gallon on occasion leaving many residents in central New Mexico searching frantically for a more stable alternative to the automobile. Fortunately, for many of them, the Governor and State legislature had the vision in 2003 to begin this critical part of the public transport system in this area. Combined with the improved bus service that has developed along the corridor this part of New Mexico is now well positioned to contend with the transportation and energy challenges of the future.



*New Mexico Rail Runner Exhibit at Expo New Mexico*