IV. TRAFFIC FORECASTS AND SYSTEMS ANALYSIS

A. Traffic Forecasts

Traffic forecasting was done using the Horizon Year VISUM model of the Santa Fe Metropolitan Planning Organization (MPO). The Base Model used included all the roadways in the Santa Fe MPO Future Roads Network. The socioeconomic data contains all of the development projected for the MPO which may occur 30 years or more into the future.

The Santa Fe MPO model was adjusted before the forecasting to create the NMDOT Base mode which included the following:

The Las Soleras socioeconomic data and roadway network from the traffic study submitted to the City. Las Soleras is an approved development located on the W. I-25 Frontage Road between Cerrillos Road and Richards Road.

The Jaguar Interchange with NM 599. A developer is currently negotiating with the New Mexico Department of Transportation to design and construct the Jaguar Interchange using private funding.

Four lanes on Richards Avenue from Avenida del Sur to Rodeo Road.

The six scenarios that were modeled are described below:

Scenario 1 – Full Regional System includes:

- Richards Interchange with Frontage Roads, Camino Carlos Rey Extension, Dinosaur Loop (West) overpasses over I-25
- Eldorado connection to the Community College District
- All NM 599 intersections as interchanges
- Auxiliary lanes on US 84/285 from NM 599 to Guadalupe Street
- I-25 Auxiliary Lanes and Interchange Improvements
- Includes Governor Miles extended to Rodeo Park with connections to Yucca and Galisteo
- Reduce speed limit on I-25 to 65 MPH
- Increase speed limit on NM 599 to 65 MPH

Scenario 1 is the future full build out of all of the system improvements including all interchanges on NM 599.

Scenario 2 –Intermediate Regional System includes:

- Same as Scenario 1 without the Richards Interchange

Scenario 3 – Near Term Regional System Improvements includes:

- I-25 Auxiliary Lanes and Interchange Improvements
- Eldorado connection to Community College District

- Auxiliary lanes on US 84/285 from NM 599 to Guadalupe Street

Scenario 4 – Auxiliary lanes I-25 and US 84/285 - Federal and State improvements only includes:

- I-25 Auxiliary Lanes and Interchange Improvements
- Auxiliary lanes on US 84/285 from NM 599 to Guadalupe Street
- All NM 599 intersections as signals
- Reduce speed limit on NM 599 to 45 mph.
- No Eldorado connection to Community College District

Scenario 4 included all signals on NM 599. Presumably all signals will impact the ability of NM 599 to function as a bypass road for Santa Fe and cause more traffic to use through streets in Santa Fe such as St. Francis Drive and Cerrillos Road.

Scenario 5 – CR 62 and I-25 Frontage Road Interchanges

The only improvements in Scenario 5 were interchanges on NM 599 at CR 62 and the I-25 Frontage Roads. The two interchange locations are far enough apart that they should not impact each other so they were able to be included in the same model run. The connecting local streets to these interchange locations do not interconnect.

Scenario 6 – Airport Road and CR 70 Interchange

The only improvements in Scenario 6 were interchanges on NM 599 at Airport Road and the CR 70 Connection. Again the two interchange locations are far enough apart that they should not impact each other and the connecting local streets do not interconnect.

Scenario 7 – Scenario 1 Minus Overpasses

As a result of the I-25 Study refinement, an alternative that removed the overpasses at Camino Carlos Rey and Dinosaur Trail was developed. Scenario 7 was created in order to study the regional and localized travel demand impacts from this change.

B. Systems Analysis

The impacts of the traffic modeling scenarios on St. Francis Drive are surprisingly limited. With development of substantial improvements on I-25 and NM 599 (Scenarios 1, 2 and 7), traffic volumes on St. Francis Drive reduce slightly for the most part. The other scenarios result in very little change or even a slight increase in traffic volume on St. Francis Drive. A summary of forecast traffic volumes at key locations along the Corridor is shown in Table 2 and Table 3.

Table 2 - Horizon Year PM Traffic Volume Comparison – Northbound								
	Scenario							
Northbound Traffic	Base	1	2	3	4	5	6	7
South of Sawmill	2,310	2,090	1,820	2,400	2,540	2,370	2,340	2,430
		-9.5%	-21.2%	3.9%	10.0%	2.6%	1.3%	5.2%
North of Zia	2,600	2,410	2,390	2,720	2,840	2,640	2,620	2,540
		-7.3%	-8.1%	4.6%	9.2%	1.5%	0.8%	-2.3%
North of San Mateo	3,110	3,000	3,010	3,140	3,220	3,140	3,130	3,010
		-3.5%	-3.2%	1.0%	3.5%	1.0%	0.6%	-3.2%
South of Cordova	3,460	3,380	3,390	3,480	3,520	3,490	3,490	3,400
		-2.3%	-2.0%	0.6%	1.7%	0.9%	0.9%	-1.7%
South of Cerrillos	3,450	3,410	3,420	3,470	3,520	3,480	3,470	3,420
		-1.2%	-0.9%	0.6%	2.0%	0.9%	0.6%	-0.9%
North of Cerrillos	3,620	3,580	3,590	3,620	3,680	3,630	3,630	3,590
		-1.1%	-0.8%	0.0%	1.7%	0.3%	0.3%	-0.8%
South of Agua Fria	3,460	3,400	3,430	3,460	3,510	3,480	3,460	3,420
		-1.7%	-0.9%	0.0%	1.4%	0.6%	0.0%	-1.2%
South of Alameda	3,430	3,360	3,370	3,440	3,490	3,450	3,430	3,360
		-2.0%	-1.7%	0.3%	1.7%	0.6%	0.0%	-2.0%
North of Paseo de Peralta	2,910	2,760	2,720	2,940	3,020	2,950	2,920	2,780
		-5.2%	-6.5%	1.0%	3.8%	1.4%	0.3%	-4.5%
North of Alamo	2,690	2,480	2,480	2,700	2,780	2,700	2,690	2,490
		-7.8%	-7.8%	0.4%	3.3%	0.4%	0.0%	-7.4%
North of Guadalupe	3,230	3,020	3,010	3,240	3,400	3,230	3,230	3,030
		-6.5%	-6.8%	0.3%	5.3%	0.0%	0.0%	-6.2%

For northbound traffic there is a slight reduction in traffic volumes on St. Francis Drive if all or a substantial part of the alternatives identified in the I-25 and NM 599 studies are constructed (Scenarios 1, 2 and 7). However the volume changes on St. Francis Drive are relatively small, generally 1%-5%. This suggests that St. Francis Drive is a very attractive roadway for travel, regardless of the alternatives available. The largest changes are in the southern and northern ends of the Corridor, where the alternate routes (frontage roads and overpasses and interchanges on NM 599) reduce traffic. In Scenario 7, where there are no overpasses over I-25, there is no reduction in traffic volumes south of Sawmill.

Similarly the results indicate that construction of interchanges at all locations on NM 599 has relatively limited impact on traffic volumes on St. Francis Drive, except for a small reduction on the northern end, however again the reduction is less than 10%. Indeed, installing traffic signals on NM 599 (Scenario 4) in

lieu of interchanges results in slightly increased traffic on St. Francis due to the additional travel time required to travel NM 599 in that scenario.

Table 3 - Horizon Year PM Traffic Volume Comparison - Southbound								
	Scenario							
Southbound Traffic	Base	1	2	3	4	5	6	7
South of Sawmill	3,590	2,740	3,580	4,030	3,460	3,630	3,610	4,020
		-23.7%	-0.3%	12.3%	-3.6%	1.1%	0.6%	12.0%
North of Zia	3,700	3,720	3,660	3,900	3,650	3,710	3,700	3,750
		0.5%	-1.1%	5.4%	-1.4%	0.3%	0.0%	1.4%
North of San Mateo	3,350	3,350	3,330	3,400	3,390	3,360	3,360	3,340
		0.0%	-0.6%	1.5%	1.2%	0.3%	0.3%	-0.3%
South of Cordova	3,370	3,350	3,340	3,410	3,370	3,370	3,370	3,340
		-0.6%	-0.9%	1.2%	0.0%	0.0%	0.0%	-0.9%
South of Cerrillos	3,230	3,210	3,200	3,260	3,240	3,240	3,240	3,210
		-0.6%	-0.9%	0.9%	0.3%	0.3%	0.3%	-0.6%
North of Cerrillos	3,160	3,070	3,060	3,190	3,210	3,170	3,170	3,090
		-2.8%	-3.2%	0.9%	1.6%	0.3%	0.3%	-2.2%
South of Agua Fria	3,070	2,990	3,000	3,090	3,120	3,090	3,080	3,020
		-2.6%	-2.3%	0.7%	1.6%	0.7%	0.3%	-1.6%
South of Alameda	3,200	3,130	3,110	3,240	3,270	3,210	3,220	3,130
		-2.2%	-2.8%	1.3%	2.2%	0.3%	0.6%	-2.2%
North of Paseo de Peralta	1,920	1,830	1,790	1,950	2,000	1,910	1,920	1,820
		-4.7%	-6.8%	1.6%	4.2%	-0.5%	0.0%	-5.2%
North of Alamo	1,760	1,650	1,620	1,780	1,840	1,750	1,760	1,650
		-6.3%	-8.0%	1.1%	4.5%	-0.6%	0.0%	-6.3%
North of Guadalupe	1,980	1,880	1,840	2,030	2,090	1,970	1,990	1,870
		-5.1%	-7.1%	2.5%	5.6%	-0.5%	0.5%	-5.6%

The trends are similar for southbound traffic. Full construction of improvements on I-25 and interchanges at all locations on NM 599 result in a small reduction of traffic volumes on St. Francis Drive, except for south of Sawmill. This is believed to be due to the addition of the Richards interchange and I-25 overpasses which opens up additional routes throughout the City (via Camino Carlos Rey) to access the Community College District area.

As the Zia Road and Cerrillos Road intersections with St. Francis Drive are areas of particular congestion, the Scenario results were evaluated to determine the impacts of regional improvements on these intersections. These volumes are shown in Table 4.

Table 4 - Horizon Year PM Volumes for Zia and Cerrillos Approaches With St. Francis Drive								
	Scenario							
Eastbound Traffic	Base	1	2	3	4	5	6	7
Zia West Approach	1,220	800	1,220	1,180	1,180	1,200	1,200	870
		-34.4%	0.0%	-3.3%	-3.3%	-1.6%	-1.6%	-28.7%
Zia East Approach	550	520	550	540	580	550	550	530
		-5.5%	0.0%	-1.8%	5.5%	0.0%	0.0%	-3.6%
Cerrillos West Approach	1,310	1,270	1,280	1,300	1,340	1,310	1,310	1,260
		-3.1%	-2.3%	-0.8%	2.3%	0.0%	0.0%	-3.8%
Cerrillos East Approach	1,130	1,090	1,090	1,140	1,150	1,140	1,140	1,070
		-3.5%	-3.5%	0.9%	1.8%	0.9%	0.9%	-5.3%
Westbound Traffic	Base	1	2	3	4	5	6	7
Zia West Approach	1,100	680	780	980	1,030	1,090	1,100	710
		-38.2%	-29.1%	-10.9%	-6.4%	-0.9%	0.0%	-35.5%
Zia East Approach	750	760	750	770	720	750	750	760
		1.3%	0.0%	2.7%	-4.0%	0.0%	0.0%	1.3%
Cerrillos West Approach	1,310	1,280	1,280	1,320	1,300	1,310	1,310	1,300
		-2.3%	-2.3%	0.8%	-0.8%	0.0%	0.0%	-0.8%
Cerrillos East Approach	1,380	1,400	1,400	1,370	1,310	1,360	1,370	1,400
		1.4%	1.4%	-0.7%	-5.1%	-1.4%	-0.7%	1.4%

It can be seen in the scenarios where the Richards interchange is in place (Scenarios 1 and 7) there is a substantial reduction in traffic heading west away from St. Francis on Zia. Without the Richards interchange, traffic on the west approach of Zia does not vary significantly from the Base case. Traffic levels of the east approach to Zia do not show much variance with the addition of the Richards interchange.

The Cerrillos Road intersection does not show a lot of variability under any of the evaluated regional improvement Scenarios. This is likely due to its central nature in the Corridor, and its function as the intersection of two major arterials in the center of the City and employment area.

In conclusion, regional improvements have limited impact on traffic volumes throughout the Corridor with the exception of the Richards interchange and construction of interchanges on NM 599. The forecasts do show substantial reductions on Zia Road if the Richards interchange is constructed, with slight reductions if the overpasses on I-25 are constructed. It must be stated that the overpass alternative for I-25 does not score favorably due to cost, impacts and other factors, as discussed in the Interstate 25 study.

V. DESCRIPTION OF ALTERNATIVES

In the Phase A Initial Evaluation of Alternatives, the St. Francis Drive Corridor was divided into three sections as that was considered an appropriate approach to evaluate the Corridor for the initial evaluation. After the initial screening performed in Phase A, the alternatives for each section were similar and in this Phase B Report each alternative will be evaluated separately. The exception to this is the Intersection Improvements Alternative, which will again be evaluated for each section of the Corridor.

As mentioned in Section I.A, shortfalls in the NMDOT budget have resulted in an abbreviated study being conducted. Each alternative will be studied in additional detail to establish engineering constraints and further evaluate feasibility, along with the appropriate level of environmental evaluation, but in a fashion that conforms to the resources assigned to it. The level of detail is sufficient to fulfill the requirements expected of the analysis.

A. No Build

This alternative would leave St. Francis Drive as it is today. Maintenance would be continued, however no improvements to intersections or pedestrian and bicycle facilities would be implemented other than as normal and routine maintenance. This alternative is required to be included in the evaluation of alternatives and is the base case for comparisons.

B. Trail Connectivity and Enhancements

This alternative proposes to create and enhance the pedestrian and bicycle trail and path connectivity along the Corridor and enhance linkages to other trails in Santa Fe and the surrounding neighborhoods. A continuous multi-use path along the edges of the roadway would be added and/or enhanced for the entire length of the Corridor, to the degree possible within right-of-way constraints. New trail connections will also link east/west crossings along the entire Corridor. The multi-use path is intended mainly for pedestrians and bicycles, however would be available for activity levels. Specifically, the multi-use path would connect to other trail networks in Santa Fe such as the River Trail, Acequia Trail, Rail Trail, and Arroyo Chamiso Trail, as well as linking into the proposed St. Francis Drive trail between Zia and St. Michaels. For best connectivity to trail systems, it is recommended that grade separated crossings are implemented along the Corridor similar to the proposed Arroyo Chamiso crossing just north of Zia on St. Francis Drive. Several intersections along the Corridor are candidates for pedestrian- and bicycle-friendly improvements.

The primary focus of this alternative is on enhancing and encouraging alternative modes of transportation (bike and pedestrian) and creating linkages between the two sides of St. Francis Drive. However this alternative is restricted by the limited right-of-way, especially north of San Mateo Road. This concept primarily focuses on connectivity and aesthetics and will have limited impact on vehicular capacity. Capacity would not increase or change unless combined with other alternatives or a substantial amount of traffic transfers to bicycle or pedestrian modes.

C. Intersection Improvements - Southern Portion

This alternative proposes the construction of targeted improvements at specific locations where they are necessary to improve traffic operations and enhance pedestrian crossings. This alternative includes other limited improvements such as reducing curb radii or adding an additional turn or through lane at the intersection, to complete intersection reconstruction or isolated grade separated interchanges.

This alternative responds to the future expected travel demand while limiting the impacts to specific locations along the Corridor. This alternative would also, to the maximum extent possible, incorporate urban design components to improve the pedestrian, bicyclists, and street experience. Right-of-way acquisitions would be kept to a minimum with this alternative.

It is recognized that this alternative focuses primarily on the vehicular mode (car, truck and bus) and would improve traffic operations at the expense of the bicyclist and pedestrian due to additional crossing distances. However portions of the improvements from this alternative could improve pedestrian and bicycle visibility through the use of bulb-outs, reducing the radius on the corners of the intersections where improvements are constructed, improved pedestrian signal timing and count-down pedestrian signals, bicycle signal detection, etc.

In the southern portion of the Corridor the focus of this study will be on the intersection of St. Francis Drive and Zia Road, and improvements to the St. Michael's Drive interchange.

D. Intersection Improvements – Central Portion

This alternative proposes the construction of targeted improvements at specific locations where they are necessary to improve traffic operations and enhance pedestrian crossings. This alternative includes other limited improvements such as reducing curb radii or adding an additional turn or through lane at the intersection, to complete intersection reconstruction or isolated grade separated interchanges.

This alternative responds to the future expected travel demand while limiting the impacts to specific locations along the Corridor. This alternative would also, to the maximum extent possible, incorporate urban design components to improve the pedestrian, bicyclists, and street experience. Right-of-way acquisitions would be kept to a minimum with this alternative.

In the central portion of the Corridor the intersection with the most perceived need for improvements is the Cerrillos Road intersection. This intersection will be the focus of this report.

E. Intersection Improvements – Northern Portion

The Phase A Report showed that several of the intersections in the northern portion of the Corridor will operate at poor performance in the horizon year analysis, however the improvements that are necessary to reduce vehicular delay are located on the minor streets and that no change to the road section on St. Francis Drive is required.

In the northern section of the Corridor the Santa Fe MPO 2010-2013 Transportation Improvement Plan identifies an outer year (beyond 2014) project, CN D5070, to replace the Guadalupe interchange bridge. That project will be the focus of this alternative.

F. Transportation Systems Management

Transportation system management refers to measures designed to improve traffic operations by more efficiently utilizing the existing transportation network. An example of this would be developing a new traffic signal timing plan for the Corridor to reflect changing conditions. Incorporating the Corridor into the Santa Fe Regional Intelligent Transportation System Architecture could also improve transportation operations without an investment in roadway improvements.

Transportation demand management is also sometimes considered a transportation systems management approach. Transportation demand management focuses on reducing peak-hour trips through various mechanisms, such as employer-subsidized carpooling or transit incentives, to increased costs for parking, in order to discourage single occupant vehicle commuting.

This report will focus on Intelligent Transportation Systems (ITS) solutions and seek to develop strategies to incorporate the Corridor into the Regional ITS architecture.

G. Access Control

This alternative would seek to improve traffic flow by improving access control (removing median breaks or excessive driveways).

Analysis presented in the Phase A Report indicates that there are a significant number of driveways onto St. Francis Drive (see Figure 19, page 48 in the Phase A Report). The vast majority of these driveways are for single ownership parcels and do not lend themselves to removal or consolidation via frontage roads due to the limited right-of-way, however there are several locations where access control strategies can be implemented. Many of the mid-block and unsignalized intersections are considered appropriate for elimination of the minor street left turn and minor street through movement. This is due to the large delay for these movements as well as the conflicts that result from queued vehicles from the upstream major street intersection.

H. Enhanced Transit

This alternative focuses on decreasing the number of vehicles using St. Francis Drive and the entire City street system by providing opportunities for alternative modes of transportation and therefore potentially improving traffic operations due to the reduced number of commuter vehicles travelling downtown. As a result of the Phase A Study, initial brainstorming meetings have been held with the local and regional transit operators. This ad-hoc working group is currently waiting for the 2035 Santa Fe MPO Metropolitan Transportation Plan development process to provide visibility on future funding availability to implement transit and transit service improvements.

I. Complete Streets

The primary focus of this alternative is on alternative modes of transportation (bike and pedestrian) and creating pedestrian friendly linkages between the two sides of St. Francis Drive. The effectiveness of this alternative is restricted by the limited right-of-way, especially north of San Mateo Rd. The Complete Street concept could, and should, be incorporated with other alternatives and future maintenance projects to the maximum extent possible. However it must be stated that there is no project identified to re-construct St. Francis Drive as a Complete Street.

VI. ENGINEERING AND ENVIRONMENTAL EVALUATION – NO BUILD

The No Build Alternative is a required alternative and is used as the base case for comparison purposes. This alternative would leave St. Francis Drive as it is today, with improvements and maintenance as required. District 5 estimates the annual maintenance costs are $100,000 (current year dollars) for items such as snow removal, pothole patching, sign maintenance, signal repair and pavement marking maintenance. In addition to this annual maintenance, ADA upgrades, crack seal and mill inlay projects are anticipated to total $14.25 million over the next 10 years.

A. Traffic

As documented in the Phase A *Initial Evaluation of Alternatives*, performance along the Corridor will degrade without improvements to the Corridor or changes in travel behavior. However the roadway improvements identified that reduce vehicular travel delay are primarily located on the minor streets as opposed to St. Francis Drive, except at a few locations. This indicates that improvements to St. Francis Drive are not required throughout the bulk of the Corridor and that the No Build Alternative is acceptable for most of the Corridor, at least when it comes to roadway improvements on St. Francis Drive proper. Targeted roadway improvements are still recommended however.

B. Safety

Analysis presented in the Phase A Report also showed that currently the crash rates on St. Francis Drive are lower than Statewide and County averages, and although the West San Mateo intersection has the highest crash rate it was still below a nearby urbanized area average crash rate.

C. Drainage

A series of improvements and maintenance projects for the drainage structures have been identified in previous Drainage Management Plans and were documented in the Phase A Report. Ten of the 42 drainage structures have recommendations ranging from additional drainage capacity to addressing sediment and erosion issues.

D. Constructability

Constructability is not a concern for the No Build Alternative.

E. Right-of-Way

No additional right-of-way is required for this alternative.

F. Costs

As mentioned above, District 5 estimates the annual maintenance costs are $100,000 (current year dollars) for items such as snow removal, pothole patching, sign maintenance, signal repair and pavement marking maintenance. In addition to this annual maintenance, ADA upgrades, crack seal and mill inlay projects are anticipated to total $14.25 million over the next 10 years.

G. Environmental / Mitigation

Since the no build alternative will not include any modifications to the roadway or adjacent land it will not result in a negative impact to biological, cultural resources, water resources, or hazardous materials. However, it also won't provide for the potential benefit in air quality/noise, social, and visual resources within the Corridor. As a result of lack of mitigation to traffic control, there is potential for noise and air levels to increase. As well, the lack of proposed improvements would leave the Corridor without social and visual benefits and could stagnate economic development due to poor traffic flow and lack of access to businesses.