

## **XI. ENGINEERING AND ENVIRONMENTAL EVALUATION – TRANSPORTATION MANAGEMENT SYSTEMS**

The Transportation Management System alternative encompasses a broad range of strategies whose intent is to improve traffic operations and manage traveler information. The Santa Fe MPO, in concert with the major stakeholders in the region, developed the Santa Fe Regional Intelligent Transportation System (ITS) Architecture that will be used to guide the development of ITS in the Santa Fe area. The architecture represents a shared vision of how each agency's systems will work together in the future, sharing information and resources to provide a safer, more efficient, and more effective transportation system.

Intelligent Transportation Systems involves the application of technology to enhance and coordinate travel management with such items as advanced communications, synchronized traffic signals, and dynamic message signs (DMS). Travel conditions (i.e. incidents, congestion, weather, etc.) are reported to agencies for better response and to travelers to better inform the public in their travel decision making. Further, the enhanced communication inherent in ITS improves coordination between agencies to better respond to changing travel conditions. Benefits of integrated ITS include improved mobility, reduced congestion, improved safety, enhanced emergency response and better overall system efficiency. Throughout the region, stakeholders from the NMDOT, the City and County of Santa Fe, other municipalities and emergency providers, transit operators and others, will develop communication strategies and approaches to improve the dissemination of travel information to both private and public users.

The Santa Fe Regional Telecommunications Coalition (SFRTC) is comprised of the City of Santa Fe, the County of Santa Fe and the Santa Fe Community College (SFCC). SFRTC was created to develop a High Speed Fiber Optic Metropolitan Area Network that will be capable of providing GigE network service to anchor institutions, including schools, libraries, public safety and economic development projects. A request has been submitted to the National Telecommunications and Information Administration (NTIA which is a part of the US Department of Commerce) for the BTOP (Broadband Technology Opportunities Program) ARRA Grant and the SFRTC has completed the second step of the review process. The Coalition is waiting to hear back from NTIA about potential award. If the grant is awarded this network could also be utilized for future implementation of the Santa Fe Regional ITS Architecture.

The preliminary illustrative ITS Plan is shown in Figure 31.

### **A. Traffic**

Implementation of ITS strategies on the St. Francis Drive Corridor is anticipated to improve traffic operations through the use of fiber-optic traffic signal communication equipment and enhanced traffic signal control strategies, traffic volume monitoring, remote camera surveillance of the Corridor from the NMDOT District 5 or City of Santa Fe Traffic Operations Center, and real-time traveler information through strategically placed dynamic message signs. This long-term project is identified in the Santa Fe Regional ITS Architecture. One possible concept for the St. Francis Drive ITS Corridor is shown in Figure 31.

**B. Safety**

It is considered that more efficient operation of the transportation system would result in fewer crashes and enhanced safety.

**C. Drainage**

The ITS Alternative is not expected to result in substantial drainage considerations. Construction of the ducts for the fiber-optic lines, CCTV cameras and poles, and dynamic message signs will likely result in minor, localized disturbances to the existing drainage flow but will be attenuated through standard design practice.

**D. Constructability**

There are no constructability issues with the ITS Alternative except the lack of right-of-way for CCTV camera and DMS placement.

**E. Right-of-Way**

Specific locations for the implementation of the St. Francis Drive ITS Corridor, such as CCTV cameras and DMS signs have not been identified; however due to the limited right-of-way in some portions of the Corridor, ideal locations likely will have a need for right-of-way acquisition. Location of these devices will consider available right-of-way prior to right-of-way acquisition.

**F. Costs**

The Santa Fe Regional ITS Architecture identifies the cost of the St. Francis Drive ITS Corridor system at \$15,000,000.00.

**G. Environmental / Mitigation**

**1. Biological Resources**

Due to the limited footprint of the proposed Transportation Management System improvements, there are no anticipated impacts to biological resources. However, more detailed investigations may be required further in project design.

**2. Air Quality/Noise**

Due to the limited footprint of the proposed Transportation Management System improvements, there are no anticipated impacts to air quality/noise.

**3. Visual**

Due to the urban setting and the limited footprint of the proposed Transportation Management System improvements, there are no anticipated impacts to visual resources. However, more detailed investigations may be required further in project design.

**4. Social**

Due to the urban setting and the limited footprint of the proposed Transportation Management System improvements, there are no anticipated impacts to the social environment.

**5. Cultural**

Due to the urban composition of the project Corridor and the limited footprint of the Transportation Management System improvements, negligible to minor impacts to cultural resources are expected. However, further cultural resource investigations would need to be completed prior to construction of any of the proposed improvements.

**6. Water Resources**







Due to the limited footprint of the proposed Transportation Management System improvements, there are no anticipated impacts to water resources. However, more detailed investigations may be required further in project design.

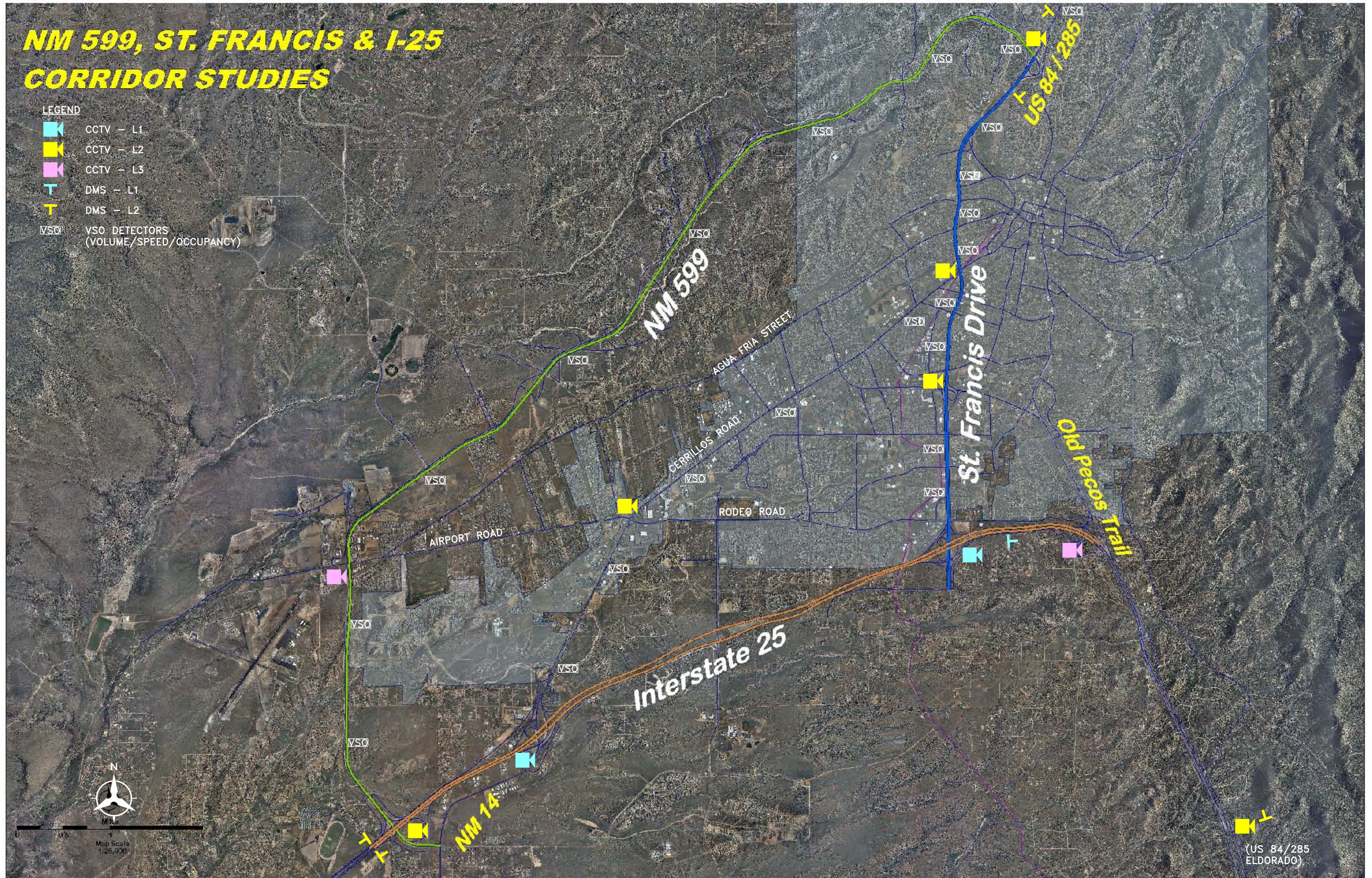
**7. Hazardous Materials**

Due to the limited footprint of the proposed Transportation Management System improvements, there are no anticipated impacts to hazardous materials. However, further investigations may be required further in project design.

# NM 599, ST. FRANCIS & I-25 CORRIDOR STUDIES

## LEGEND

-  CCTV - L1
-  CCTV - L2
-  CCTV - L3
-  DMS - L1
-  DMS - L2
-  VSO DETECTORS  
(VOLUME/SPEED/OCCUPANCY)



## **XII. ENGINEERING AND ENVIRONMENTAL EVALUATION – ACCESS CONTROL**

The Phase A Report identified several driveways and medians that were candidates for closure or modification. During Phase B additional discussions were held with the NMDOT and City of Santa Fe that identified additional locations that are candidates for modification.

The City has indicated that in an effort to reduce the conflicts and high delay that result from minor street left turn and minor street through movements that a long-term approach to addressing this issue is through the use of restricted access at minor street (unsignalized) intersections. This would result in traffic being allowed to turn left from St. Francis Drive onto the minor street, but prohibit left turn or through access from the minor street onto St. Francis Drive. These minor street left turn or through movements would be required to use the nearest upstream or downstream signalized intersection to make the left turn maneuver.

The locations identified for modification are shown in Figure 32.

### **A. Traffic**

Through the consolidation and modification of access along the Corridor, it is anticipated that minor improvements in traffic operations will result.

### **B. Safety**

The reduction in turning vehicles and decreased vehicular friction is expected resulting in improved safety due to the reduction in turning conflicts.

### **C. Drainage**

There is not expected to be any substantial changes to drainage patterns through the implementation of the Access Control Alternative.

### **D. Constructability**

There are no constructability concerns with the Access Control Alternative.

### **E. Right-of-Way**

No right-of-way will be required for this alternative however it is anticipated that local land and business owners will have concerns about the changes in access and travel patterns that will result from implementation of this alternative.

### **F. Costs**

The Access Control Alternative is a relatively low-cost option compared to the other Alternatives under consideration.



DRIVEWAY TABLE				
	STATION	OFFSET	DESCRIPTION	USED
1	137+25.78	RT	B	Y
2	143+22.81	RT	H	Y
3	147+22.27	RT	H	Y
● 4	147+76.62	RT	B	Y
5	148+35.00	RT	B	Y
6	148+93.37	RT	B	Y
7	150+00.86	RT	H	Y
● 8	150+71.22	RT	V	Y
9	151+20.56	RT	V	Y
10	152+68.93	RT	B	Y
11	153+25.60	RT	H	Y
12	153+79.84	RT	B	Y
● 13	154+24.20	RT	B	Y
14	154+66.43	RT	B	Y
15	155+04.63	RT	B	Y
16	155+48.61	RT	V	Y
17	155+76.53	RT	V	Y
18	156+06.00	RT	B	Y
19	156+76.73	RT	B	Y
20	158+60.33	RT	B	Y
21	159+61.20	RT	V	Y
22	160+24.72	RT	B-Blocked w/landscaping	N
23	161+25.25	RT	H	Y
24	173+61.64	RT	B	Y
25	175+29.21	RT	B	Y
26	176+99.65	RT	B	Y
27	180+69.68	RT	B	Y

DRIVEWAY TABLE				
	STATION	OFFSET	DESCRIPTION	USED
28	181+18.21	RT	B	Y
● 29	182+02.25	RT	B	Y
30	182+39.59	RT	B	Y
● 31	182+80.81	RT	B	Y
32	183+57.22	RT	B	Y
33	184+35.41	RT	B	Y
34	185+17.26	RT	B	Y
35	186+04.70	RT	B	Y
36	187+12.60	RT	B	Y
37	187+93.62	RT	B-Rt in/out	Y
38	189+49.24	RT	B-Rt in/out	Y
39	190+11.22	RT	B	Y
40	196+56.80	RT	B	Y
41	197+60.34	RT	B	Y
42	199+60.71	RT	V	Y
● 43	201+65.79	RT	B	Y
44	201+97.06	RT	H	Y
45	202+89.39	RT	H	Y
46	204+65.41	RT	H-Blocked w/landscaping	N
● 47	210+69.88	RT	B-Gated	Y
48	211+07.97	RT	P	N
49	211+44.32	RT	P	N
50	212+35.30	RT	P	Y
51	212+90.89	RT	P	Y
52	215+00.72	RT	B-Blocked w/landscaping	Y
● 53	215+61.52	RT	Alley	Y
54	220+93.30	RT	V-Fence/building	N

DRIVEWAY TABLE				
	STATION	OFFSET	DESCRIPTION	USED
55	221+88.68	RT	B-Blocked w/wall	N
56	224+61.72	RT	B-Circle in	Y
57	225+90.24	RT	B-Circle out	Y
58	229+34.17	RT	B	Y
59	229+89.08	RT	B	Y
60	234+32.07	RT	B	Y
61	234+87.27	RT	H	Y
● 62	281+68.56	LT	H (Viento del Norte - Not Shown)	Y
63	235+49.55	LT	B	Y
64	231+59.99	LT	B	Y
● 65	230+94.09	LT	B	Y
66	230+12.45	LT	B	Y
67	229+15.15	LT	H	Y
68	225+03.58	LT	H	Y
69	222+27.88	LT	H	Y
70	220+49.81	LT	H	Y
71	219+15.98	LT	B	Y
72	218+60.83	LT	B	Y
73	215+02.99	LT	H	Y
74	214+51.70	LT	H	Y
75	214+00.40	LT	H	Y
76	213+46.89	LT	H	Y
77	212+92.98	LT	H	Y
78	212+51.17	LT	H	Y
79	212+06.93	LT	H-B	Y
80	211+53.81	LT	H-B	Y
81	211+08.96	LT	H	Y

DRIVEWAY TABLE				
	STATION	OFFSET	DESCRIPTION	USED
82	209+99.93	LT	H	Y
83	209+56.19	LT	B	Y
84	208+66.84	LT	B	Y
85	208+10.51	LT	B-Blocked w/parking bumpers	N
86	203+48.09	LT	P-Blocked w/fence	N
87	202+21.29	LT	B	Y
88	201+75.49	LT	B	Y
89	199+76.74	LT	Alley	Y
● 90	189+77.79	LT	B	Y
91	188+70.64	LT	B	Y
92	186+47.66	LT	B	Y
● 93	185+69.23	LT	B	Y
94	184+05.59	LT	B-Rt in/out	Y
95	163+98.06	LT	B	Y
● 96	161+85.14	LT	B	Y
97	159+12.16	LT	B	Y
98	156+72.62	LT	H	N
99	155+87.40	LT	H	Y
100	145+37.20	LT	H	Y
● 101	143+37.72	LT	H	Y
102	139+53.18	LT	H-Blocked w/wall	N
● 103	138+42.84	LT	H-Rt in/out-Temp blocked	N

● POTENTIAL FOR CLOSURE

B=Business, H=Home, V=Vacant, P=Possible DOT R/W

**G. Environmental / Mitigation**

**1. Biological Resources**

Due to the limited footprint of the proposed access control improvements, there are no anticipated impacts to biological resources. However, additional investigations may be necessary further in project design.

**2. Air Quality/Noise**

As a result of the proposed access control improvements, there are no anticipated impacts to air quality/noise along St. Francis Drive Corridor.

**3. Visual**

Due to the urban setting and the limited footprint of the proposed access control improvements, there are no anticipated impacts to visual resources.

**4. Social**

Due to the components of the proposed access control improvements, there are expected to be modifications to access points and potentially travel patterns for some adjacent land owners; however, these impacts are not anticipated to be significant and will be further coordinated with such property owners. Although there will be short-term impacts to specific businesses, there is potentially long-term benefits to economic development patterns along the Corridor based on the proposed access improvements.

**5. Cultural**

Due to the urban composition of the project Corridor and the limited footprint of the access control improvements, negligible to minor impacts to cultural resources are expected. However, further cultural resource investigations would need to be completed prior to construction of any improvements.

**6. Water Resources**

Due to the limited footprint of the proposed access control improvements, there are no anticipated impacts to water resources.

**7. Hazardous Materials**

Due to the limited footprint of the proposed access control improvements, there are no anticipated impacts to hazardous materials. However, further investigations may be necessary prior to construction of any improvements.

### **XIII. ENGINEERING AND ENVIRONMENTAL EVALUATION – ENHANCED TRANSIT**

This alternative resulted in a recommendation for development of expanded transit services in the Santa Fe area. Concurrent with Phase A was the development of the Santa Fe City and County Regional Planning Authority (RPA) *Regional Transit Service Plan*. The *Regional Transit Service Plan* was created as a result of the passage of a one-eighth cent transit gross receipts tax in November 2008. The “TGRT” is dedicated to funding the ongoing operations of, and transit connections to the NM Rail Runner Express. Half of the TGRT revenue will be allocated to fund ongoing NM Rail Runner Express operations. Of the remaining 50 percent, 14 percent will be retained by the North Central Regional Transit District (NCRTD) for administrative expenses and possible enhancements to regional service connecting to the NM Rail Runner Express. The other 86 percent (of the 50 percent) will be managed and monitored by NCRTD, allocated by the RPA through the guidelines in the *Regional Transit Service Plan*, and spent by Santa Fe County and Santa Fe Trails for new and increased regional transit service.

The service plan, initially anticipated to be a 5-year plan (FY 2010-2014), was limited to 2-years (FY 2010-2011) due to the uncertainty of future revenue projections. Additionally the Plan acknowledges that the opportunities for service expansion are far greater in cost than the TGRT revenues could fund. Several of the projects in the Regional Transit Service Plan affect the St. Francis Drive Corridor: Route 2 (Cerrillos) and Route 4 (Southside) enhancements, and funding for the Santa Fe Pick-Up and the Greater Eldorado Express.

#### **A. Traffic**

The Phase A Report found that traffic growth is anticipated to be substantial over the coming years. A number of intersections along the Corridor are forecast to operate at poor levels of service with the existing geometry. As most of the improvements are on the local streets where right-of-way is generally even more constrained than St. Francis Drive, enhanced transit use is an approach that if embraced and utilized by a significant number of commuters, could improve efficiency of the transportation system.

#### **B. Safety**

The availability of additional transit service is not expected to have a material effect of safety within the Corridor.

#### **C. Drainage**

There would be no impact to drainage from this alternative.

#### **D. Constructability**

Constructability is not expected to be an issue with the enhanced transit alternative.

#### **E. Right-of-Way**

Depending on the level of enhanced transit service ultimately developed and the amenities that are provided (bus shelters, traveler and route information signs), right-of-way may be required. Evaluation of existing right-of-way will be considered for amenity locations prior to right-of-way acquisition.

**F. Costs**

Detailed cost estimates were not developed for this alternative however there would be substantial new capital costs associated with the new busses, as well as annual maintenance costs.

**G. Environmental / Mitigation**

**1. Biological Resources**

Due to the limited footprint of the proposed transit improvements, there are no anticipated impacts to biological resources.

**2. Air Quality/Noise**

As a result of the proposed transit improvements, there is potential for air quality/noise benefits as a result of options to the use of motor vehicles along the St. Francis Drive Corridor.

**3. Visual**

Due to the urban setting and the limited footprint of the proposed access improvements, there are no anticipated impacts to visual resources.

**4. Social**

Due to the components of the proposed transit improvements, there are no anticipated impacts to the social environment. Implementation of the proposed improvements could provide some social benefit by improving transit options as well as expanding access to employment centers. Ultimately increased transit opportunities could improve community health and safety.

**5. Cultural**

Due to the urban composition of the project Corridor and the limited footprint of the transit improvements, negligible to minor impacts to cultural resources are expected. However, further cultural resource investigations would need to be completed prior to construction of any of the proposed improvements.

**6. Water Resources**

Due to the limited footprint of the proposed transit improvements, there are no anticipated impacts to water resources.

**7. Hazardous Materials**

Due to the limited footprint of the proposed transit improvements, there are no anticipated impacts to hazardous materials.

#### **XIV. ENGINEERING AND ENVIRONMENTAL EVALUATION – COMPLETE STREETS CONCEPTS**

In the Phase A Report, Complete Streets was recommended as an alternative to be included in any construction project that ultimately is planned for St. Francis Drive. Complete Streets are designed and operated to enable safe access for all users. For parts of the Corridor, the addition of sidewalks and bicycle paths would be an example of enhancements that could be made to enable St. Francis Drive to become more of a Complete Street. However it must be stated that there is no project identified to re-construct St. Francis Drive as a Complete Street, therefore improvement projects that have been identified, such as at Zia Road or Cerrillos Road, should strive to include as many components to make a Complete Street as possible. This could mean reducing the curb radii at the intersections, alignment changes to reduce pedestrian crossing distances, enhanced pedestrian and bicycle signal timing and operation, as well as opportunities for enhanced street furniture and landscape amenities.

##### **A. Traffic**

Vehicular traffic operations are not expected to be impacted due to implementation of Complete Street concepts into improvement designs. Additional bicycle and pedestrian traffic may result from the increased access that can be provided.

##### **B. Safety**

Implementation of Complete Streets concepts should not impact the safety along the Corridor. Additional pedestrian and bicycle traffic may increase thereby increasing the potential of additional crashes.

##### **C. Drainage**

By itself, the implementation of Complete Street concepts into improvement designs are not expected to impact drainage patterns.

##### **D. Constructability**

Constructability of Complete Street concepts is not anticipated to be a concern, except for the limited right-of-way in many locations on the Corridor.

##### **E. Right-of-Way**

In areas of the Corridor where there is restricted right-of-way, implementation of Complete Street concepts may prove difficult. Alternative solutions (reduced lane widths, for example) should be considered as a way of possibly including additional pedestrian and bicycle access.

##### **F. Costs**

The costs for implementing the Complete Streets alternative could be quite costly if the intent was to reconstruct St. Francis Drive completely. However as proposed the approach is to implement as many of the concepts as possible into improvement projects as they arise. This will significantly reduce the cost of the improvements as the scope and extent of improvements will be more limited.

**G. Environmental / Mitigation**

**1. Biological Resources**

Due to the limited footprint of the proposed complete streets improvements, there are no anticipated impacts to biological resources. However, additional investigations may be necessary further in project design.

**2. Air Quality/Noise**

As a result of the proposed complete streets improvements, there is potential for air quality/noise benefits as a result of additional multi-modal facilities along St. Francis Drive Corridor.

**3. Visual**

Due to the urban setting and the limited footprint of the proposed complete streets improvements, there are no anticipated impacts to visual resources.

**4. Social**

Due to the components of the proposed complete streets improvements, there are no anticipated impacts to the social environment. Implementation of the proposed improvements could provide some social benefit by improving multi-modal facilities. Improved access for all modes of travel has the potential to increase economic development opportunities. Increased economic opportunities may provide increased sales tax revenue and promote new job growth and new businesses.

**5. Cultural**

Due to the urban composition of the project Corridor and the limited footprint of the complete streets improvements, negligible to minor impacts to cultural resources are expected. However, further cultural resource investigations would need to be completed prior to construction of any improvements.

**6. Water Resources**

Due to the limited footprint of the proposed complete streets improvements, there are no anticipated impacts to water resources.

**7. Hazardous Materials**

Due to the limited footprint of the proposed complete streets improvements, there are no anticipated impacts to hazardous materials.

## **XV. RECOMMENDATIONS**

A wide range of alternatives have been evaluated for the St. Francis Drive Corridor. These alternatives address a range of deficiencies and needs on the Corridor and vary substantially in cost and complexity. Due to the wide range of projects and users have been identified, traditional evaluation criterion that develops a single "preferred alternative" does not fully address the number and types of alternatives developed. In addition, the breadth and scope of the alternatives developed for the Corridor, when combined with the I-25 and NM 599 Corridor Studies currently underway, will far exceed the funding available for transportation improvements in the region. The projects identified in this Corridor Study, as well as the others, will need to be integrated into the overall transportation strategy developed for the region, the 2035 Metropolitan Transportation Plan (MTP), that is currently under development by the Santa Fe Metropolitan Planning Organization. The MTP will be the regional planning policy document for transportation improvements in the Santa Fe MPO area.

This Phase B Report will provide sufficient information to the MPO in order to assist in the development of the 2035 MTP. Although this report will develop a list of project recommendations to present to the Santa Fe MPO, inclusion of any project on the Santa Fe MPO TIP or MTP will be at the discretion of the MPO and its member governments.

To that end, the alternatives evaluated in the Phase A and Phase B St. Francis Drive Corridor Study reports will be recommended in the following format – Short-Term, Medium-Term and Long-Term. The Short-Term projects will be those that are considered to be addressed in the near-term, cognizant of the current funding limitations. Other more extensive project recommendations will also be included, but prioritization and competition for funding will require hard financial and practical decisions. Additionally, specific projects, other than those identified in the table or Appendix D, are not recommended, again due to the large number of projects and uncertain funding profiles in the current outlook. It is anticipated that the local transportation policy bodies (TCC and TPB) will prioritize the projects as funding availability and opportunities arise. As mentioned previously, the full listing of trails and intersection improvement projects are included in Appendix D.

The Medium-Term and Long-Term project recommendations include projects of significant size and scope. These projects are expected to be considered 5 or more years into the future. As such all these projects will require an engineering re-evaluation to determine if the alternatives developed in this study are still applicable and appropriate for the future condition. In addition all projects in the table will require completion of the environmental and design process prior to any construction activities.

Table 7 - Recommended Priorities and Timeframes		
Short Term Projects	Medium Term Projects	Long Term Projects
Transit Enhancement Study	Transit Enhancements/Expansion	Transit Enhancements/Expansion
Pedestrian Crossing Improvements*	Trail Connectivity Enhancements**	Trail Connectivity Enhancements**
Trail Connectivity Enhancements*	Access Control as opportunities arise	Access Control as opportunities arise
Access Control as opportunities arise	ITS Implementation District and City Traffic Management Centers Travel Monitoring CCTV's Communication Infrastructure and Integration	ITS Implementation DMS Traffic Adaptive Signal Timing?
Initial ITS Implementation Traffic Signal Upgrades Regular Signal Timing Updates	Joint NMDOT / City Zia Road Improvements**	Joint NMDOT / City Sawmill Road / Mainline St. Francis Drive Improvements** (combine with St. Francis Interchange Replacement?)
Guadalupe Interchange Replacement and EB NM 599-to-SB 84/285 Auxiliary Lane	St. Michael's Drive Improvements**	Joint NMDOT/City Cerrillos Road Improvements**
* Locations should be prioritized based on pedestrian volumes and crash history, proximity to employment centers and Rail Runner Stations ** Implement Complete Street concepts to maximum extent possible		