X. Preliminary Evaluation of Alternatives

A. Introduction

This section will provide an initial evaluation of the alternatives discussed in the previous section. In Phase B a detailed evaluation of alternatives will be performed on the alternatives that pass this Phase A evaluation screening. By design this initial evaluation is intended to identify only those alternatives that are feasible and appropriate for the corridor. The NMDOT *Location Study Procedures* Manual, the guiding document for these analyses, states that "*Alternatives are evaluated for their effectiveness in achieving the need, their engineering feasibility, and their environmental, cultural and social effects. It is important to understand that the amount of engineering detail and depth of analysis is not highly detailed in Phase A…. Decisions to eliminate alternatives that are clearly not feasible or that are impractical can generally be made with a limited amount of engineering detail and analysis*."[15]

B. Evaluation Factors

Each alternative was evaluated against eight (8) criteria. In addition, as the corridor can be generally split into three segments with different roadway and land use characteristics, each alternative was also evaluated for each of the three segments.

The three segments were defined as follows:

Segment 1 - Old Agua Fria/Rabbit Road to West San Mateo Road.

This segment has the widest right-of-way width of the corridor and is access-controlled.

Segment 2 – West San Mateo Road to Alamo Drive

This segment is characterized by restricted right-of-way (as low as 95 feet in locations) as well as substantial adjacent development to the roadway.

Segment 3 – Alamo Drive to NM 599

This segment is also primarily access controlled and is characterized by high speeds due to the continuation of St. Francis Drive as US 84/285, a freeway-type facility north to Pojoaque.

The eight (8) criteria used in the initial screening of the alternatives are:

Satisfy Purpose and Need

This criterion evaluates if the proposed alternative satisfies the purpose and need statement as defined in Section II.B on page 13. Alternatives identified for further study must substantially support the purpose and need statement in order to be considered a viable alternative.

Provides Capacity to Accommodate Future Vehicular Travel Demand

This criterion identifies if the proposed alternative provides the capacity to accommodate the projected future vehicular travel demand for the corridor.

[15] NMDOT Location Study Procedures, pages 1-5 and 1-6

Engineering Feasibility

This measure is a qualitative evaluation of the engineering feasibility of the alternative. Constructability, right-of-way impacts, drainage considerations, etc. are considered in this evaluation.

Supports General Plan Shift to Other Modes

As the City of Santa Fe General Plan has a policy objective to reduce the reliance on the automobile and give people priority over cars, this criteria is used to measure the compliance of the alternatives to this City policy goal.

Supports General Plan Community Cohesion

The City General Plan also seeks to ensure that streets do not become barriers to people crossing the street. This criterion evaluates the alternatives with regard to this policy objective.

Relative Environmental Impacts

This is a qualitative measurement of the relative environmental impact for the proposed alternative.

Incorporates Urban Design Components

This screening criteria considers whether urban design components (street furniture, bicycle and pedestrian amenities and enhancements, landscaping) can be incorporated into the alternative.

Relative Cost to Expected Funding

This factor qualitatively estimates the costs of the alternative relative to the typically expected funding stream for the Santa Fe MPO area. For the 2010-2013 Transportation Improvement Plan, the Santa Fe MPO region receives about $2.5 million a year. This analysis assumed that the St. Francis Drive Corridor would receive, on average, $1 million a year for improvements. This is not to be considered the expected funding for the corridor; it is merely a yardstick to measure the cost on an alternative to currently expected funding availability. The spreadsheets used to estimate the construction costs are included in Appendix E.

C. No Build

All alternatives must be compared against the No Build Alternative. 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.

1. Responsiveness to Purpose and Need

The No Build alternative is not responsive to the purpose and need to address the increase in traffic congestion and to enhance mobility for all modes of travel. Analysis presented in Section VI, beginning on page 81, demonstrates that improvements are needed at many intersections throughout the corridor to reduce congestion and to achieve “normally accepted

levels of service." Also the lack of a pedestrian and bicycle improvements will continue to leave mobility for those modes at the current level.

2. Engineering Factors

a) Operational Performance

Operational performance for vehicular travel would degrade over time with the No Build Alternative, particularly at the south end of the corridor at Zia Road and Sawmill Road. Traffic congestion on the minor streets would also increase in the No Build.

The lack of improvements to pedestrian and bicycle facilities would limit the utility of these modes as an alternative to motorized travel.

b) Drainage

There would be no change in drainage characteristics of the roadway as no new construction is contemplated with this alternative.

c) Engineering Feasibility and Constructability

This criterion is not applicable to the No Build alternative. It is possible that enhancement or maintenance projects could add urban design features to the existing configuration at isolated locations.

d) Safety

There would be no change in the roadway for this alternative, therefore it is likely that the safety record of the facility would be comparable to as it is today, although the number of crashes will likely increase due to the additional travel the corridor will experience in the future.

3. Environmental Factors

There would be no environmental impacts expected from the no-build alternative.

4. Responsiveness to Adopted Plans and Expectations

This alternative is not responsive to community goals as there are no improvements to pedestrian and bicycle facilities to facilitate community cohesion. This alternative does indirectly help reduce reliance on the automobile by increasing congestion and possibly encouraging alternate modes or changes in other travel behavior characteristics (shift trip out of peak hour, carpooling, etc.) due to the additional travel time that will result.

5. Right-of-Way

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

6. Estimated Construction Costs

The No Build alternative has no new construction costs, but there will be maintenance activities. District 5 estimates the annual maintenance costs at $100,000 a year for items such as

snow removal, pothole patching, sign maintenance, signal repair and pavement marking maintenance. In addition to this maintenance, ADA upgrades, crack seal and mill inlay projects are anticipated, total $14.25 million over the next 10 years.

7. Screening Matrix Evaluation

The initial screening matrix evaluation for the No Build alternative is shown in Table 32. The no build alternative is considered appropriate for further consideration.

Table 32 – Initial Screening Matrix – No Build Alternative

Initial Screening	Segment 1	Segment 2	Segment 3
Satisfy Purpose and Need	No	No	No
Provides Capacity to Accommodate Future Travel Demand	No	No	No
Engineering Feasibility	n/a	n/a	n/a
Supports General Plan Shift to Alternate Modes	Partial	Partial	Partial
Support General Plan Community Cohesion	No	No	No
Relative Environmental Impacts	Minor	Minor	Minor
Incorporates Urban Design Components	No	No	No
Relative Cost to Expected Annual Funding (est. $1M/year) 10-year estimate	2.75x	8.5x	3x*
Appropriate for Further Consideration	Yes	Yes	Yes
The No Build Alternative must be carried forward as a baseline for the Detailed Evaluation of Alternatives *-does not include potential replacement of the Guadalupe interchange			

D. Lane Conversion to Reduce Number of Lanes

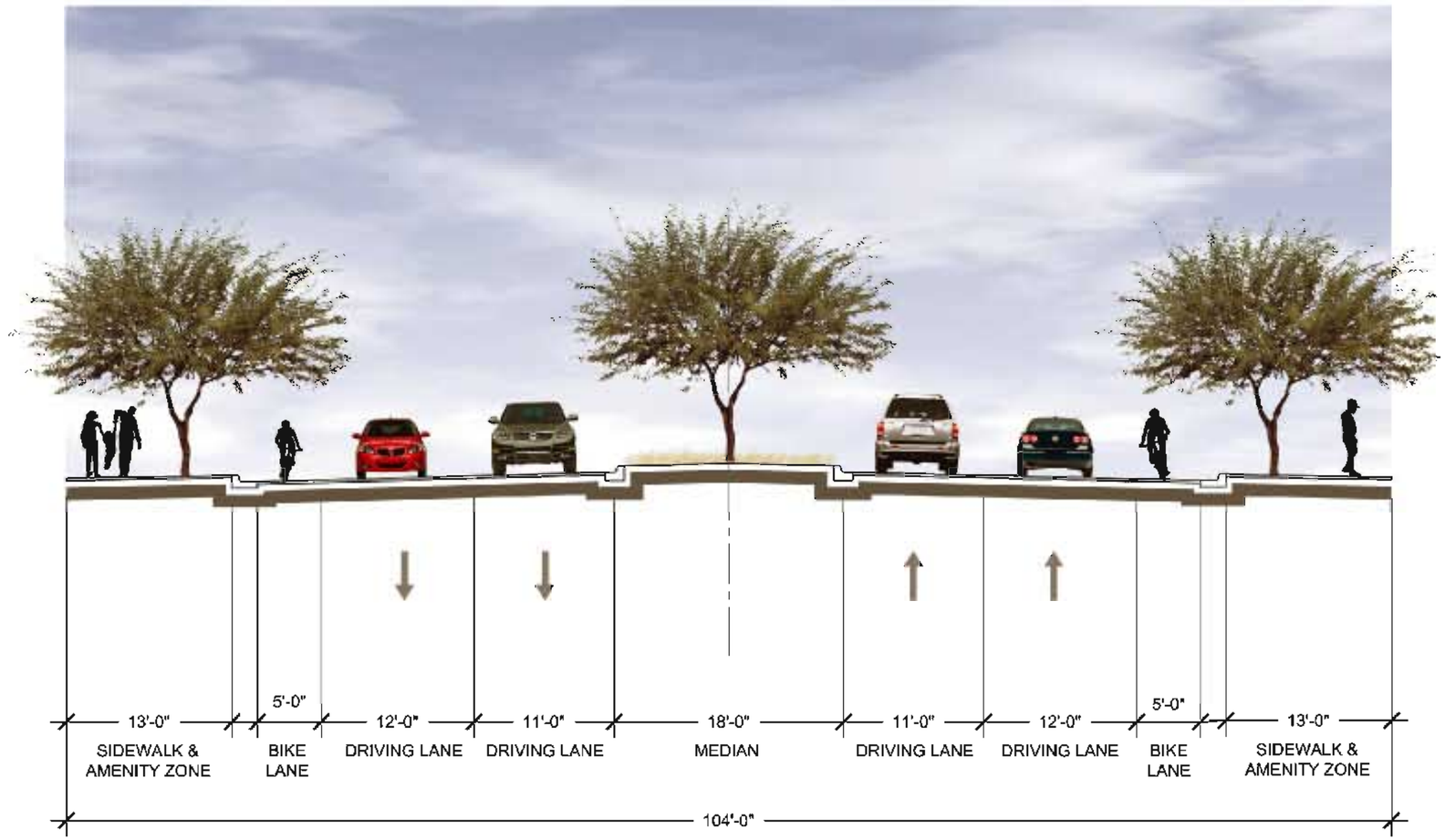
This alternative proposes a reduction in the number of lanes by one lane in each direction along the entire St. Francis Drive corridor. The reduction of one travel lane in each direction would be converted into a bike lane and an extended sidewalk and landscape area focusing on providing alternative modes of transportation. This would allow the pedestrian experience to be greatly improved, particularly north of Cerrillos Road because of the limited right-of-way.

The reduction of one lane in each direction would reduce and therefore set the capacity at a lower level than it is today. The intent of this alternative is to provide and encourage alternative modes of transportation by providing bicycle and pedestrian opportunities within the right-of-way and connecting to other trail systems within Santa Fe at the expense of traffic operations. Traffic congestion would

increase unless travel demand shifted to an alternate mode. Enhanced transit opportunities, both local and regional, would be required to accommodate the forecasted increase in travel demand.

Initial estimates of the traffic reductions required to achieve comparable delays to today traffic levels, but with 2-lanes in each direction range from a 40-50% reduction in future traffic on the south end of the corridor, to 20-40% reduction on the north end. This translates into 700 to 1,500 trips in the peak hour needing to shift to alternate roadways, rail, transit, carpooling and non-motorized travel to have comparable operation on St. Francis Drive as today. This is equivalent to 15% to 60% of today's ***daily*** ridership of all transit modes (Rail Runner, Park and Ride, SF Trails, NCRTD). It is also equivalent to 10%-35% of today's traffic on St. Francis Drive.

A representative plan view of this alternative is shown in Figure 35 on page 119. A typical section for this alternative is shown in Figure 46.



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INITIAL EVALUATION OF ALTERNATIVES

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FIGURE 46
LANE CONVERSION TO REDUCE NUMBER OF LANES
TYPCIAL SECTION

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1. Responsiveness to Purpose and Need

This alternative partially supports the purpose and need as the reduced capacity of the roadway would encourage changes in travel behavior, which likely would include increased transit ridership as well as pedestrian and bicycling commuting. However this alternative does not by itself provide the capacity to accommodate the future travel demand without a substantial shift to alternate modes and significant expansion of the local and regional transit systems.

2. Engineering Factors

a) Operational Performance

Traffic operations with this alternate would result in severe congestion throughout the corridor. Previous analysis presented in Section VI.E on page 90 show that ten of the twelve signalized intersection require improvement as a six-lane roadway in order to achieve normally accepted levels of service. Under this alternative ten of the twelve signalized intersections will operate *overall* at LOS F. See Table 33 below. Queue analysis also shows that vehicle stacking will become a concern and at some locations would spillback into adjacent signalized intersections as well as extend back substantially on the minor streets[16].

Table 33 – 2030 LOS Comparison – 6-Lane vs. 4-Lane

Intersection	Six-Lanes		Four-Lane*	
	AM	PM	NB PM	SB PM
Sawmill Road	C	F	F	F
Zia Road	F	E	F	F
Siringo Road	C	D	F	F
San Mateo Road	C	B	F	B
Alta Vista Street	B	C	F	F
Cordova Road	C	C	F	F
Cerrillos Road	D	D	F	C
Hickox Street	C	C	F	F
Agua Fria Street	C	C	F	F
Alameda Street	C	D	F	F
Paseo de Peralta	C	C	C	C
Alamo Drive	D	C	B	C
* - Only PM evaluated as is worst-case peak hour				

[16] St. Francis Drive Corridor Study Existing/Horizon Year Conditional Analysis Report, June 2009, p. 75 (Appendix C)

b) Drainage

There is not expected to be a substantial change in drainage patterns due to this alternative. Drainage inlets would be required to be extended to the new curb location.

c) Engineering Feasibility and Constructability

This alternative poses no substantial feasibility or constructability difficulties as all construction is within existing right-of-way.

d) Safety

This alternative would likely increase the amount of crashes due to the large increase in congestion that would occur if travel demand did not shift to alternate modes.

3. Environmental Factors

Due to the expected increase in congestion, this build alternative could result in noise and air quality impacts. Benefits would include enhanced pedestrian and bicycle facilities.

4. Responsiveness to Adopted Plans and Expectations

This alternative would likely satisfy the criteria for shifting to alternate modes of travel due to the increased congestion and bicycle facilities that would result. That is, traffic delays and possibly energy costs may induce travel behavior changes and increase transit use. This alternative would also improve community cohesion by expanding the sidewalk widths and providing bicycle lanes, and also reducing the crossing distance across the roadway for pedestrians.

However the increased congestion that would likely result from this alternative could have negative consequences on urban character due to the increased noise, air pollution and activity associated with the increased congestion.

5. Right-of-Way

This alternative would not need additional right-of-way.

6. Estimated Construction Costs

A limited construction cost estimate was produced for each alternative. For this alternative each segment was evaluated for removal of curb and gutter (if necessary), extension (or addition) of sidewalk, new curb and gutter, as well as bicycle signing and striping. An assumption of six drainage inlets per major intersection and two inlets for minor intersections was also assumed. Re-location of street lighting, traffic signals or utilities was not included.

7. Screening Matrix Evaluation

The initial screening matrix for this alternative is shown in Table 34. This alternative is considered appropriate for further consideration in Segments 1 and 2 due to the urban nature of these segments. Segment 3, the segment of St. Francis Drive north of Alamo Drive, operates at

acceptable levels under existing geometry, and its location and proximity to the freeway-type facility of US 84/285 makes this segment an inappropriate choice for lane removal and on-street bicycle lanes.

Table 34 – Initial Screening Matrix – Lane Conversion to Reduce Number of Lanes Alternative

Initial Screening	Segment 1	Segment 2	Segment 3
Satisfy Purpose and Need	Partial (alternative modes)	Partial (alternative modes)	Partial (alternative modes)
Provides Capacity to Accommodate Future Travel Demand	No Requires expanded transit system	No Requires expanded transit system	No Requires expanded transit system
Engineering Feasibility	Yes	Yes	Yes
Supports General Plan Shift to Alternate Modes	Yes	Yes	Yes
Support General Plan Community Cohesion	Yes	Yes	Yes
Relative Environmental Impacts	Moderate	Moderate	Moderate
Incorporates Urban Design Components	Yes	Yes	Yes
Relative Cost to Expected Annual Funding (est. $1M/year)	0.5X Plus Transit Expansion	1.25x Plus Transit Expansion	0.25x Plus Transit Expansion
Appropriate for Further Consideration	Yes	Yes	No Performance Acceptable with Existing

E. General Purpose Lane Addition

This alternative proposes widening of St. Francis Drive in order to add an additional general purpose lane throughout the entire length of the corridor.

Analysis presented in the previous sections indicates that to maintain normally accepted levels of service for vehicular operation, most intersections along the corridor would require additional general purpose traffic lanes or minor street improvements. This alternative adds a travel lane on St. Francis Drive in lieu of minor street improvements.

It is recognized that this alternative focuses primarily on the vehicular mode (car, truck and bus) and will improve traffic operations at the expense of the bicyclist and pedestrian due to additional crossing distances. This alternate also is at odds with the City of Santa Fe General plan objectives for transportation improvements which seek to promote alternative modes and discourage use of the automobile, as well as promoting development patterns that seek to bring the community together rather than adding distances between them.

A representative plan view of this alternative is shown in Figure 36 on page 120. A conceptual sketch showing this alternative throughout the corridor is shown in Figure 47 through Figure 49. A typical section for this alternative is shown in Figure 50.

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INITIAL EVALUATION OF ALTERNATIVES

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FIGURE 47
GENERAL PURPOSE LANE ADDITION
THROUGHOUT CORRIDOR
SOUTHERN PORTION

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FIGURE 48
GENERAL PURPOSE LANE ADDITION THROUGHOUT CORRIDOR CENTRAL PORTION

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FIGURE 49
GENERAL PURPOSE LANE ADDITION
THROUGHOUT CORRIDOR
NORTHERN PORTION

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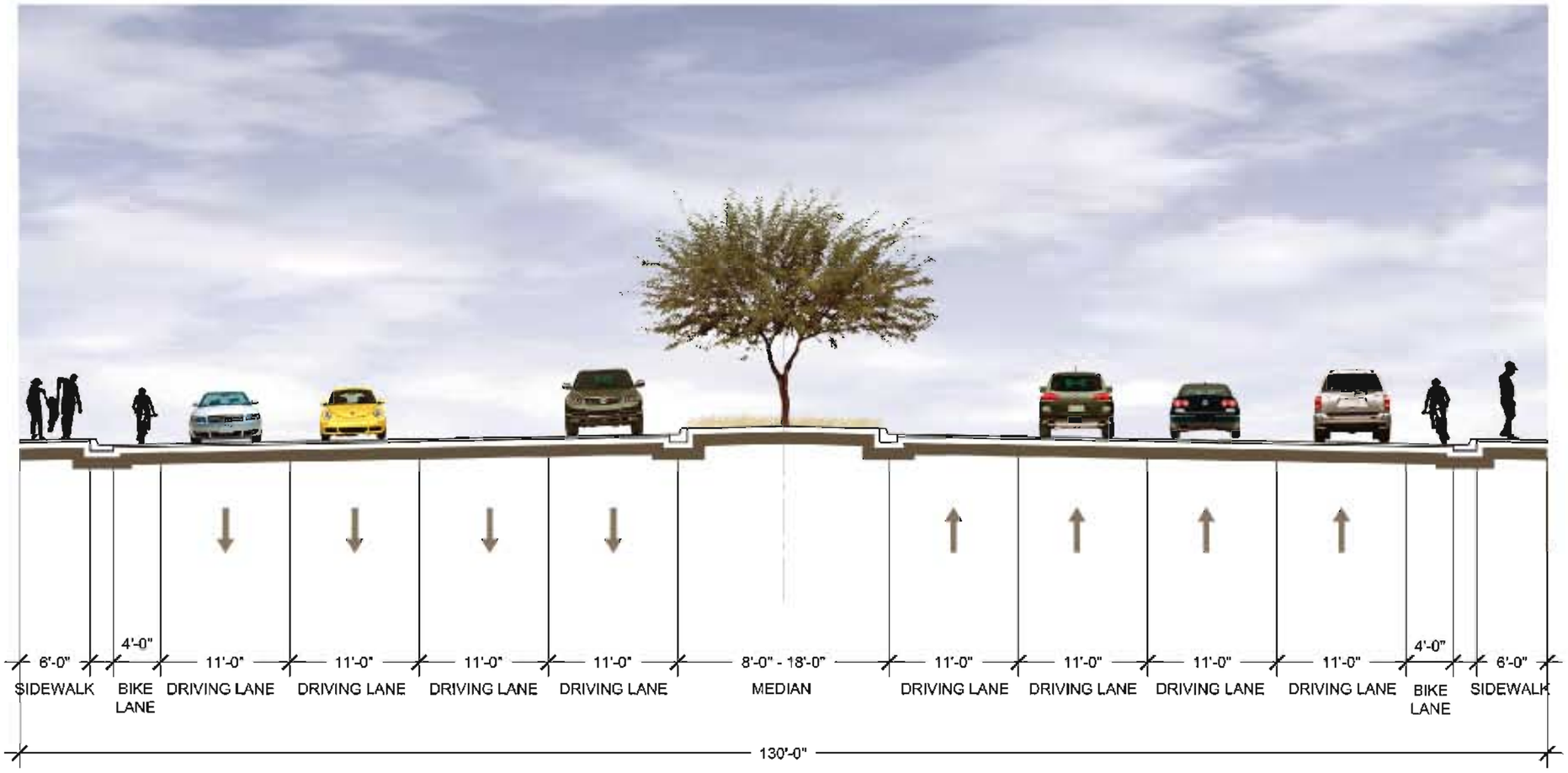

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FIGURE 50
GENERAL PURPOSE LANE ADDITION
TYPICAL SECTION

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1. Responsiveness to Purpose and Need

This alternative provides partial responsiveness to the purpose and need by providing accommodation of the future travel demand. The proposed typical section shown in Figure 50 does include an on-street bike lane and sidewalk to expand the opportunities for these modes, although the traffic volumes and additional crossing distances are likely to reduce the attractiveness of these options.

2. Engineering Factors

a) Operational Performance

Vehicular operational performance improves with the addition of a general purpose travel lane. Intersection delay decreases at all signalized intersections. A comparison of the six-lane versus eight-lane vehicular level of service is shown in Table 35 below. Full analysis is included in Appendix C.

Table 35 – 2030 LOS Comparison– 6-Lane vs. 8-Lane

Intersection	Six-Lanes		Eight-Lane	
	AM	PM	AM	PM
Sawmill Road	C	F	C	F
Zia Road	F	E	F	C
Siringo Road	C	D	B	C
San Mateo Road	C	B	B	B
Alta Vista Street	B	C	B	B
Cordova Road	C	C	C	C
Cerrillos Road	D	D	C	D
Hickox Street	C	C	B	C
Agua Fria Street	C	C	B	C
Alameda Street	C	D	B	C
Paseo de Peralta	C	C	C	C
Alamo Drive	D	C	D	C

b) Drainage

Implementation of this alternative would require that existing inlets be relocated to accommodate a wider road section. This would entail relocating inlets and adjustments to the existing laterals connecting these inlets to storm drains or to existing ditches. This alternative would likely also increase the runoff which must be conveyed due to a modification of land treatment from currently unpaved condition to an impervious roadway surface. This increase will likely be very small; however, the magnitude would have to be determined during future phases of work on the project and could possible require that additional capacity be provided for existing ditches or storm drains.

In addition, in areas where roadside ditches convey flows parallel to St. Francis,

modifications may be required to the ditch cross-section and / or material lining to accommodate the footprint needed for widened road corridor.

Finally, widening of the roadway may force some drainage infrastructure to be placed under the new driving lanes. This modification can be accommodated; however, it would have an impact on future maintenance of the drainage facilities.

c) Engineering Feasibility and Constructability

To implement this alternative, an additional lane would need to be constructed along the corridor. Existing drainage structures and bridges would require widening or modification in order to accommodate the additional travel width. In addition street lighting, traffic signals and other utilities would require re-location. Right-of-way would be required in some locations.

d) Safety

As the traffic volumes increase on the corridor, it is likely that the number of accidents will also increase, even if the crash rate stays the same. The proposed introduction of bike lanes on St. Francis Drive also may result in increased bicycle crashes due to the increase in bicycle travel along the corridor.

3. Environmental Factors

This build alternative results in potential impacts to cultural resources, property acquisition, noise, air quality, and community cohesion. Benefits include enhanced bicycle facilities.

4. Responsiveness to Adopted Plans and Expectations

During the public involvement process for this study there was limited support for widening St. Francis Drive. In addition, this alternative does not support the General Plan goals of reducing dependence on the automobile, giving people priority over cars or for removing barriers to community cohesion. This alternative would likely receive little public support.

5. Right-of-Way

A total of 1.563 acres of right-of-way is required for this alternative; however this amount is limited to the actual right-of-way needed for the roadway. As a total of approximately 91 parcels are affected by this alternative, it is likely that the ultimate right-of-way required would be higher than this amount.

6. Estimated Construction Costs

For the purposes of comparison, a simplified construction cost estimate methodology was adopted. This methodology assumed a construction cost of $5 million per mile to add the additional lane and traffic signal cost of $500,000 each. These costs were assumed to include drainage improvements as well as roadway elements.

7. Screening Matrix Evaluation

The initial screening matrix for this alternative is shown in Table 36. Due to right-of-way considerations, this alternative is only considered appropriate for further consideration in Segment 1, which is the segment from West San Mateo south to Interstate 25.

Table 36 – Initial Screening Matrix – General Purpose Lane Addition Alternative

Initial Screening	Segment 1	Segment 2	Segment 3
Satisfy Purpose and Need	Partial (travel demand)	Partial (travel demand)	Partial (travel demand)
Provides Capacity to Accommodate Future Travel Demand	Yes	Yes	Yes
Engineering Feasibility	Yes	Yes Requires ROW	Yes
Supports General Plan Shift to Alternate Modes	No	No	No
Support General Plan Community Cohesion	No	No	No
Relative Environmental Impacts	Moderate	Substantial	Moderate
Incorporates Urban Design Components	Possible, but roadway width not conducive	Possible, but roadway width not conducive	n/a (currently freeway-type facility)
Relative Cost to Expected Annual Funding (est. $1M/year)	10x 3 traffic signals	20x 8 traffic signals plus ROW costs	6x 1 traffic signal
Appropriate for Further Consideration	Yes ROW available	No ROW, Construction & Community Costs	No Performance Acceptable with Existing
Reconstruction estimated at $5M mile Traffic signals $500k each ROW not included			

F. Lane Conversion to Dedicated Bus Lane

This alternative proposes to convert one general purpose lane in each direction along the entire St. Francis Drive corridor into a dedicated bus lane. The bus lane will be restricted to buses at all times in both directions, however general purpose traffic right turns would be allowed. The dedicated bus lane would be located on the outside lane for ideal passenger loading. Transit pre-emption, which allows the bus to change the traffic signal to green in order to improve transit travel time, is an option that could be implemented with this alternative.

The intent of this alternative is to provide and encourage transit use by providing a dedicated bus lane at the expense of traffic operations. This alternative would result in increased traffic congestion until sufficient travel demand shifted to the transit alternative. Enhanced transit opportunities, both local and regional, would be required to be developed to accommodate the expected increase in travel demand.

A representative plan view of this alternative is shown in Figure 37 on page 122. A typical section for this alternative is shown in Figure 51.

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FIGURE 51
LANE CONVERSION TO DEDICATED BUS LANE TYPICAL SECTION

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1. Responsiveness to Purpose and Need

This alternative responds to the purpose and need by enhancing mobility for the transit mode. This alternative, by itself, does little to promote additional bicycle and pedestrian activity as expanded sidewalk or the addition of bike lanes is not specifically included in this alternative. Accommodation of future travel demand could be achieved if a substantial number of forecast trips shift to transit. As identified in Section X.D on page 141, anywhere from 750 to 1,500 trips in the peak hour would be required to shift to transit in order for the signalized intersections to operate at levels comparable to today's operation.

2. Engineering Factors

a) Operational Performance

The vehicular operational performance for this alternate is similar to that of the Reduce Number of Lanes alternative discussed in Section X.D on page 141. Significant traffic congestion, delay and queue impacts would result from this alternative unless a large percentage of future forecast traffic use transit. As identified in Section X.D, anywhere from 750 to 1,500 trips *in the peak hour* would be required to shift to transit in order for the signalized intersections to operate at levels comparable to today's operation. This is a change of 20%-50% of future travel demand, or 10%-35% of today's traffic shifting to transit. Assuming 40 passengers per bus as a maximum ridership level, implementation of this alternative would require 18 to 38 more buses on St. Francis Drive in the peak hour (or every 2 – 3.3 minutes) to accommodate future travel demand without excessive congestion beyond today's levels. This estimate does not include transit increases on other routes that would be necessary for traveler's to complete their trip entirely on transit.

b) Drainage

There is not expected to be a substantial change in drainage patterns due to this alternative as the roadway section is not altered.

c) Engineering Feasibility and Constructability

This alternative poses no substantial feasibility or constructability difficulties as all construction is within existing right-of-way. Bus stops may require right-of-way or negotiation of easements with adjacent property owners.

d) Safety

This alternative would likely increase the amount of crashes due to the large increase in congestion that would occur if travel demand did not shift to alternate modes.

3. Environmental Factors

Due to the expected increase in congestion, this build alternative could result in noise and air quality impacts. Benefits would include enhanced transit facilities.

4. Responsiveness to Adopted Plans and Expectations

This alternative would support the City's General Plan objectives of transit first priority over roadway improvements and with expansion of the transit system, would also decrease reliance on the automobile and promote local and regional transit. As roadway width would not be reduced, this alternative would not support the goal of ensuring that streets do not become barriers to people crossing the streets.

5. Right-of-Way

No right of way is required for this alternative, although the construction of bus stops and furniture may require right-of-way in the more constrained locations of the corridor.

6. Estimated Construction Costs

The cost for this alternative is relatively inexpensive in order to implement on the street. Only striping and signing changes are necessary. The large cost would come from expanding the local and regional transit system to accommodate the required travel demand in order to reduce congestion levels.

7. Screening Matrix Evaluation

The initial screening matrix for this alternative is shown in Table 37. This alternative is considered appropriate for further consideration for Segments 1 and 2 as these segments are more urban in nature and provide opportunities for local transit service. Segment 3 operates at acceptable performance with the existing geometry but would benefit if the regional transit system was enhanced and utilized.

Table 37 – Initial Screening Matrix - Lane Conversion to Dedicated Bus Lane Alternative

Initial Screening	Segment 1	Segment 2	Segment 3
Satisfy Purpose and Need	Yes (travel demand and alternative modes if mode shift occurs)	Yes (travel demand and alternative modes if mode shift occurs)	Yes (travel demand and alternative modes if mode shift occurs)
Provides Capacity to Accommodate Future Travel Demand	May Requires expanded transit system	May Requires expanded transit system	May Requires expanded transit system
Engineering Feasibility	Yes	Yes	Yes
Supports General Plan Shift to Alternate Modes	Yes	Yes	Yes
Support General Plan Community Cohesion	Minimal	Minimal	Minimal
Relative Environmental Impacts	Moderate	Moderate	Moderate
Incorporates Urban Design Components	Minimal	Minimal	Minimal
Relative Cost to Expected Annual Funding (est. $1M/year)	0.25x Plus Transit Expansion	0.25x Plus Transit Expansion	0.25x Plus Transit Expansion
Appropriate for Further Consideration	Yes	Yes	No Performance Acceptable with Existing

G. Transit Lane Addition

This alternative proposes the addition of transit-only lane (with permitted general purpose traffic right turn movements) along the entire length of the corridor. This alternative seeks to maintain the exiting general purpose travel lanes for vehicular traffic while adding a new lane for transit service only. The additional transit lane would be on the outside lane, in order to allow the sidewalk to serve as a passenger loading zone. Transit pre-emption could also be considered.

A representative plan view of this alternative is shown in Figure 38 on page 123. The requirement for additional geometry is the same for this alternative as it is for the General Purpose Lane Addition as shown in Figure 47 through Figure 49. The typical section for this alternative is shown in Figure 52.

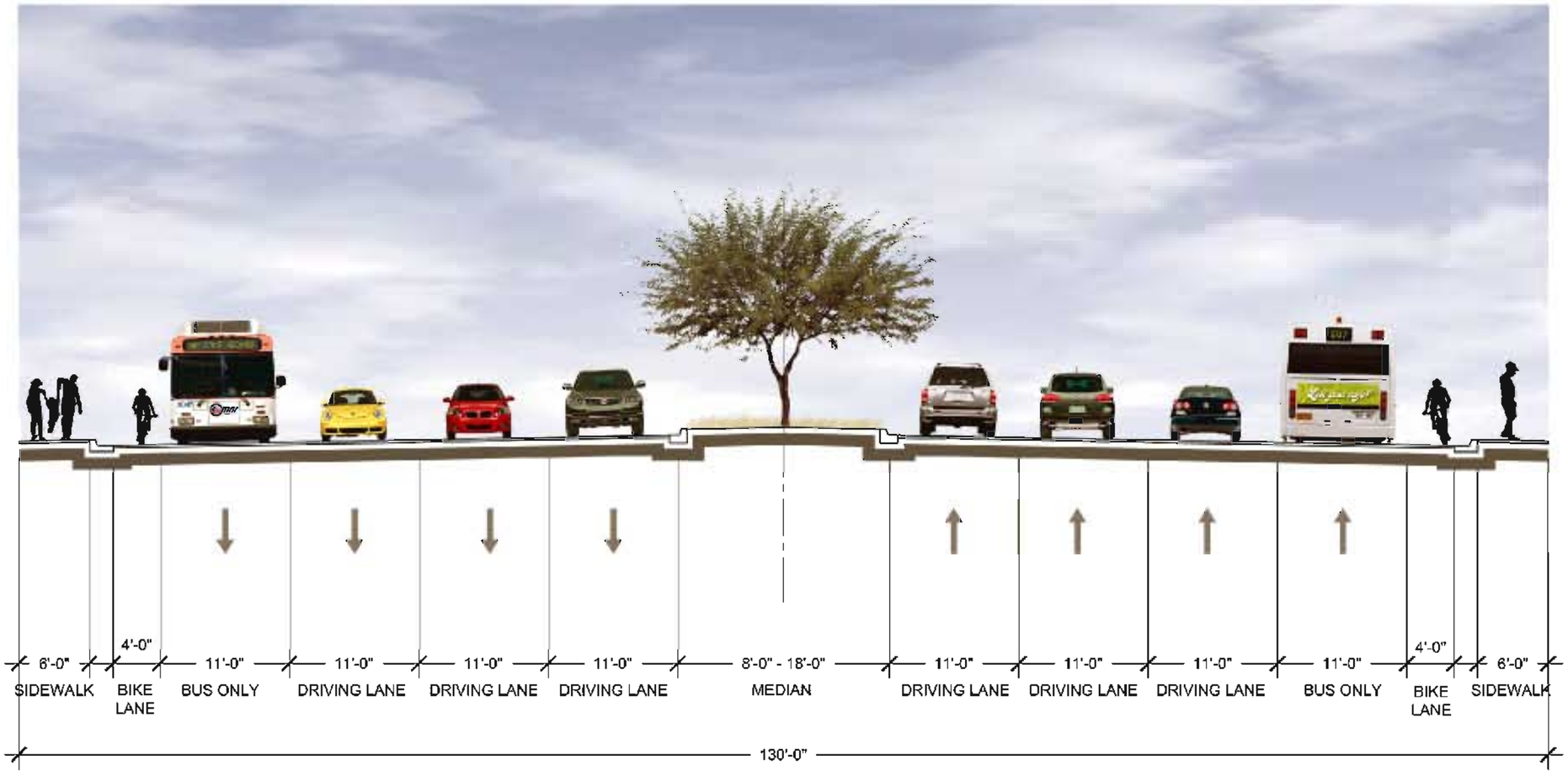

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FIGURE 52
TRANSIT LANE ADDITION
TYPICAL SECTION

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1. Responsiveness to Purpose and Need

This alternative supports the purpose and need for this corridor as it enhances the mobility for alternative modes of travel. As this alternative proposed additional travel lanes is for transit, the new construction would also add an on-street bike lane to promote bicycle usage. This alternative does not accommodate future travel demand unless a number of trips shift to transit or alternate modes.

2. Engineering Factors

a) Operational Performance

The vehicular operational performance for this alternative would be similar to the no-build scenario, as the proposed additional lane is restricted to transit. Therefore the improvements identified in Section VI.E on page 90 would still be necessary to achieve normally accepted levels of service. However with reductions of 10-30% of future forecast travel demand, traffic operations would be similar to today's level of service. This would require a reduction of 300 to 1,000 peak hour trips a day using transit or alternate modes. Using the 40-passenger per bus ridership estimate as previously would require 7 to 25 more buses in the peak hour on St. Francis Drive (every 3-8 minutes), plus the additional transit expansion throughout the local system to allow commuters to complete their trips on transit.

b) Drainage

Implementation of this alternative would require that existing inlets be relocated to accommodate a wider road section. This would entail relocating inlets and adjustments to the existing laterals connecting these inlets to storm drains or to existing ditches. This alternative would likely also increase the runoff which must be conveyed due to a modification of land treatment from currently unpaved condition to an impervious roadway surface. This increase will likely be very small; however, the magnitude would have to be determined during future phases of work on the project and could possible require that additional capacity be provided for existing ditches or storm drains.

In addition, in areas where roadside ditches convey flows parallel to St. Francis, modifications may be required to the ditch cross-section and / or material lining to accommodate the footprint needed for widened road corridor.

Finally, widening of the roadway may force some drainage infrastructure to be placed under the new driving lanes. This modification can be accommodated; however, it would have an impact on future maintenance of the drainage facilities.

c) Engineering Feasibility and Constructability

As with the General Purpose Lane Addition discussed previously, to implement this alternative, an additional lane would need to be constructed along the corridor. Existing

drainage structures and bridges would require widening or modification in order to accommodate the additional travel width. In addition street lighting, traffic signals and other utilities would require re-location. Right-of-way would be required in some locations as for the General Purpose Lane Addition alternative.

d) Safety

As the traffic volumes increase on the corridor it is likely that the number of accidents will also increase, even if the crash rate stays the same. The proposed introduction of bike lanes on St. Francis Drive also may result in increased bicycle crashes due to the increase in bicycle travel along the corridor.

3. Environmental Factors

This build alternative results in potential impacts to cultural resources, property acquisition, noise, air quality, and community cohesion. The benefits include potential for enhanced multi-modal transportation facilities.

4. Responsiveness to Adopted Plans and Expectations

During the public involvement process for this study there was limited support for widening St. Francis Drive. However, since this alternative would promote transit use and provide bicycle lanes, public support may be slightly more positive than for the General Purpose Lane Addition alternative. However right-of-way would still be required and community cohesion would be detrimentally affected by this alternative.

5. Right-of-Way

A total of 1.563 acres of right-of-way is required for this alternative; however this amount is limited to the actual right-of-way needed for the roadway. As a total of approximately 91 parcels are affected by this alternative, it is likely that the ultimate right-of-way required would be higher than this amount.

6. Estimated Construction Costs

The estimated construction costs for this alternative would be comparable to the General Purpose Lane Addition alternative.

7. Screening Matrix Evaluation

The initial screening matrix for this alternative is shown in Table 38. This alternative is not considered appropriate for further consideration due to the right-of-way impacts and the detrimental effect the additional lane width would have on community cohesion.

Table 38 – Initial Screening Matrix - Transit Lane Addition			
Initial Screening	Segment 1	Segment 2	Segment 3
Satisfy Purpose and Need	Partial (travel demand)	Partial (travel demand)	Partial (travel demand)
Provides Capacity to Accommodate Future Travel Demand	Yes With Shift to Transit	Yes With Shift to Transit	Yes With Shift to Transit
Engineering Feasibility	Yes	Yes Requires ROW	Yes
Supports General Plan Shift to Alternate Modes	Yes	Yes	Yes
Support General Plan Community Cohesion	No	No	No
Relative Environmental Impacts	Minor	Substantial	Moderate
Incorporates Urban Design Components	Possible, but roadway width not conducive	Possible, but roadway width not conducive	n/a (currently freeway-type facility)
Relative Cost to Expected Annual Funding (est. $1M/year)	10x Plus Transit Expansion	20x plus ROW costs Plus Transit Expansion	6x Plus Transit Expansion
Appropriate for Further Consideration	No Limited Utility for Only One Segment	No ROW, Construction & Community Costs	No Performance Acceptable with Existing
Reconstruction estimated at $5M mile Traffic signals $500k each ROW not included			

H. Lane Conversion to Dedicated Commuter/HOV Lane

This alternative proposes to convert one lane in each direction along the entire St. Francis Drive corridor in order to create dedicated commuter lanes. The commuter lanes will be restricted to cars with 2 or more people during peak hours. The dedicated commuter lane would be located on the inside center lane to provide best through travel access. General purpose traffic wanting to turn left at locations with a left turn lane(s) would cross the commuter lane to the turn lanes. During peak hours when the commuter lane is restricted, left turns are only allowed in areas that have dedicated turn lanes.

The intent of this alternative is to provide and encourage carpooling by providing a dedicated commuter lane at the expense of other traffic operations.

Enforcement of this alternative is considered to be problematic. Also, given the short distance of the corridor, a commuter or HOV lane would be of limited benefit unless there were also grade separations at the major intersections to significantly affect travel time through the corridor. The short block lengths also limit the utility of this alternative.

A representative plan view of this alternative is shown in Figure 39 on page 124. A typical section for this alternative is shown in Figure 53.

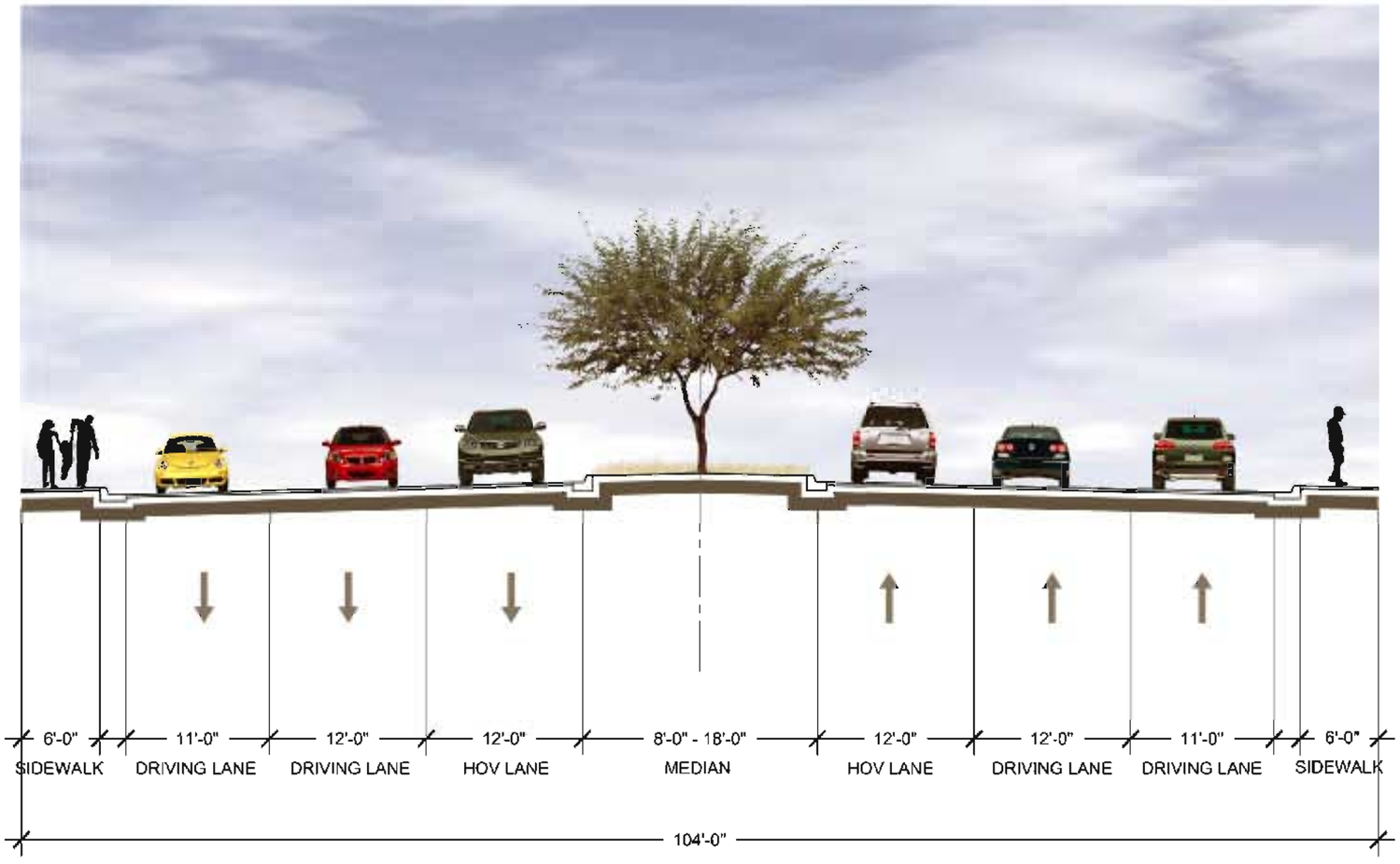

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FIGURE 53
LANE CONVERSION TO DEDICATED COMMUTER/HOV LANE
TYPICAL SECTION

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1. Responsiveness to Purpose and Need

This alternative attempts to be responsive to the purpose need by enhancing mobility for high occupancy vehicles. This alternative does not support the expansion of transit, bicycle or pedestrian opportunities. This alternative does not accommodate the forecast future travel demand.

2. Engineering Factors

a) Operational Performance

It is difficult to evaluate the impact that this alternative would have on vehicular operational performance due to uncertainties associated with the number of carpools and the destinations of those carpool trips. According to the latest Census data, 74% of the commuters in Santa Fe drive alone and 15% carpool (see Table 3). Given these values, it is likely that, without a large shift to carpools, traffic operations would be comparable to the Reduce Number of Lanes alternative discussed in Section X.D on page 141, resulting in tremendous congestion and vehicle queuing and spillback problems throughout the corridor.

In addition, the close spacing of the intersections and unsignalized minor streets would make the Dedicated Commuter/HOV lane limited in its utility due to the general purpose traffic use of these lanes to access the left turn lanes at the intersections. The Dedicated Commuter/HOV lane would have substantial amounts of general purpose traffic utilizing the lane due to number of intersections along the corridor.

It is not considered feasible or practical to prohibit left turns for non-HOV traffic.

b) Drainage

There would be no change in drainage patterns for this alternative.

c) Engineering Feasibility and Constructability

This alternative would require re-striping of the roadway in order to identify the Dedicated Commuter/HOV lane. Due to the close spacing of intersections and minor street unsignalized intersections, enforcement would be problematic and likely ineffective.

d) Safety

Due to the additional congestion that would result from this alternative, it is likely that crashes would increase if this alternative were implemented. In addition, the increase weaving that would result from general purpose traffic merging into the HOV lane near intersections in order to make a left turn, would also likely result in increased sideswipe crashes near intersections.

3. Environmental Factors

Due to the expected increase in congestion, this build alternative could result in noise and air quality impacts. Benefits would include enhanced multi-modal transportation facilities.

4. Responsiveness to Adopted Plans and Expectations

This alternative would likely increase carpooling along the corridor and therefore support the City's General Plan goal of reducing reliance on the automobile and promoting alternate modes to the single occupancy vehicle. There would be no increased opportunities for transit, bicycle or pedestrian use with this alternative as the existing street typical section would remain.

5. Right-of-Way

No additional right-of-way would be required for this alternative.

6. Estimated Construction Costs

The estimated construction cost for this alternative is comparable to the Lane Conversion to Dedicated Bus Lane alternative. Re-striping of the roadway with signing would be required.

7. Screening Matrix Evaluation

The initial screening matrix for this alternative is shown in Table 39. Due to the limited utility that would result from this alternative because of the large number of intersections and minor street unsignalized intersections, this alternative is not considered appropriate for any of the segments on the corridor.

Table 39 - Initial Screening Matrix - Lane Conversion to Dedicated Commuter/HOV Lane

Initial Screening	Segment 1	Segment 2	Segment 3
Satisfy Purpose and Need	Partial (alternate mode)	Partial (alternate mode)	Partial (alternate mode)
Provides Capacity to Accommodate Future Travel Demand	No	No	No
Engineering Feasibility	Yes	Yes	Yes
Supports General Plan Shift to Alternate Modes	Yes	Yes	Yes
Support General Plan Community Cohesion	No	No	No
Relative Environmental Impacts	Minor	Minor	Minor
Incorporates Urban Design Components	Minimal	Minimal	Minimal
Relative Cost to Expected Annual Funding (est. $1M/year)	0.25x	0.25x	0.25x
Appropriate for Further Consideration	No Large left turn movements limit utility	No Short block lengths limit gains in travel time	No Performance Acceptable with Existing

I. Expressway with Frontage Roads

This alternative proposes the construction of a limited access expressway along the entire corridor. This alternative provides a pair of one-way frontage roads to connect the existing street network to the major interchanges.

The alternative would address the congestion that is expected to result from the increased travel demand, however would exacerbate and extend the division that St. Francis Drive has brought to the community.

It is recognized that this alternative focuses primarily on the vehicular mode (car, truck and bus) and will improve traffic operations at the expense of the bicyclist and pedestrian due to additional crossing distances. This alternate is also at odds with the City of Santa Fe General plan objectives for transportation improvements which seek to promote alternative modes, as well as promoting development patterns that seek to bring the community together rather than adding distances between them.

A representative plan view of this alternative is shown in Figure 40 on page 127. A conceptual layout of this alternative through the south end of the corridor is shown in Figure 54. The typical section for this alternative is shown in Figure 56.

A sub-alternative for the expressway alternative is to provide interchanges at all signalized intersections, thus removing the need for a frontage road. A spacing diagram showing the south end of the corridor is shown in Figure 55.

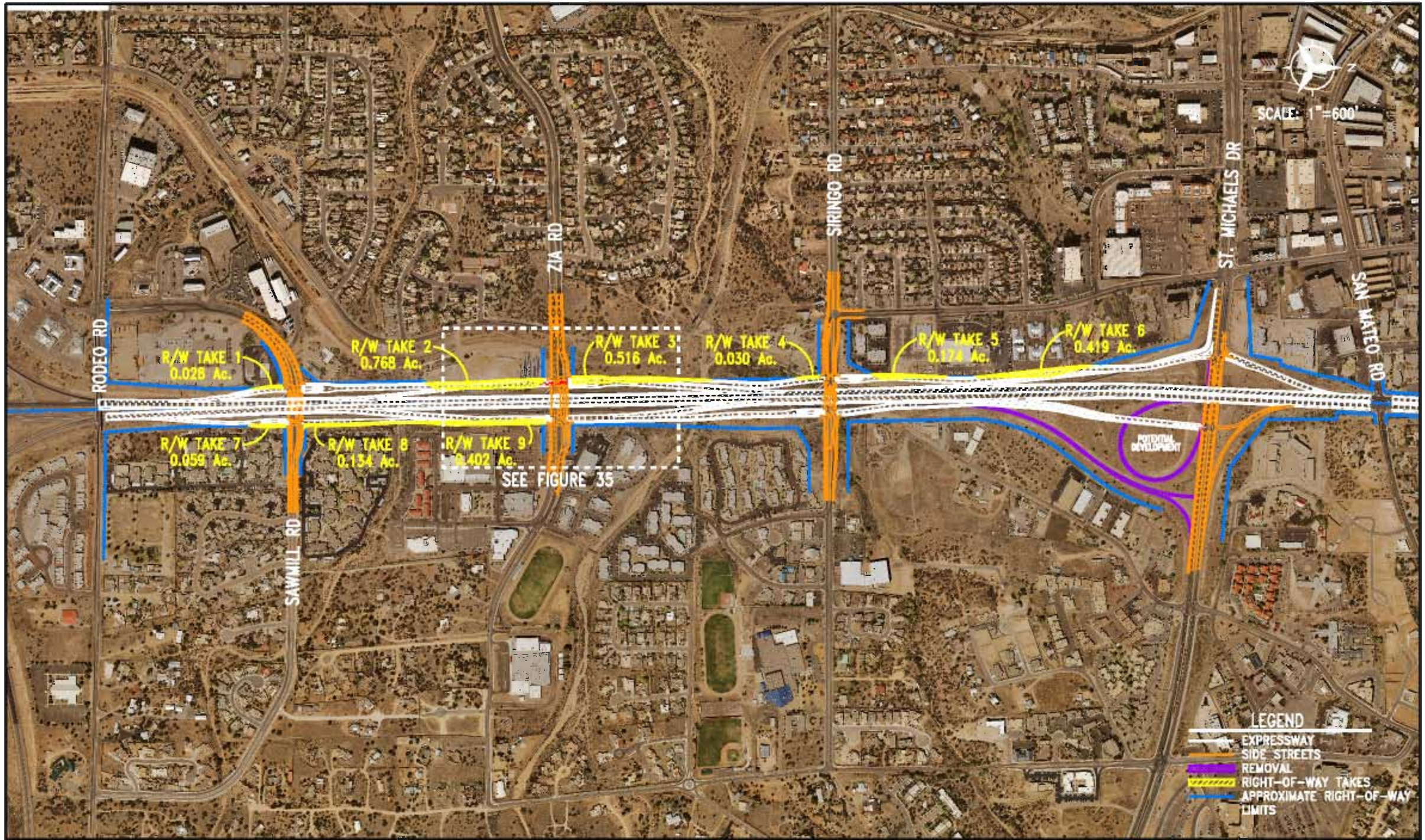

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FIGURE 54
EXPRESSWAY WITH FRONTAGE ROAD THROUGHOUT SOUTH END OF CORRIDOR

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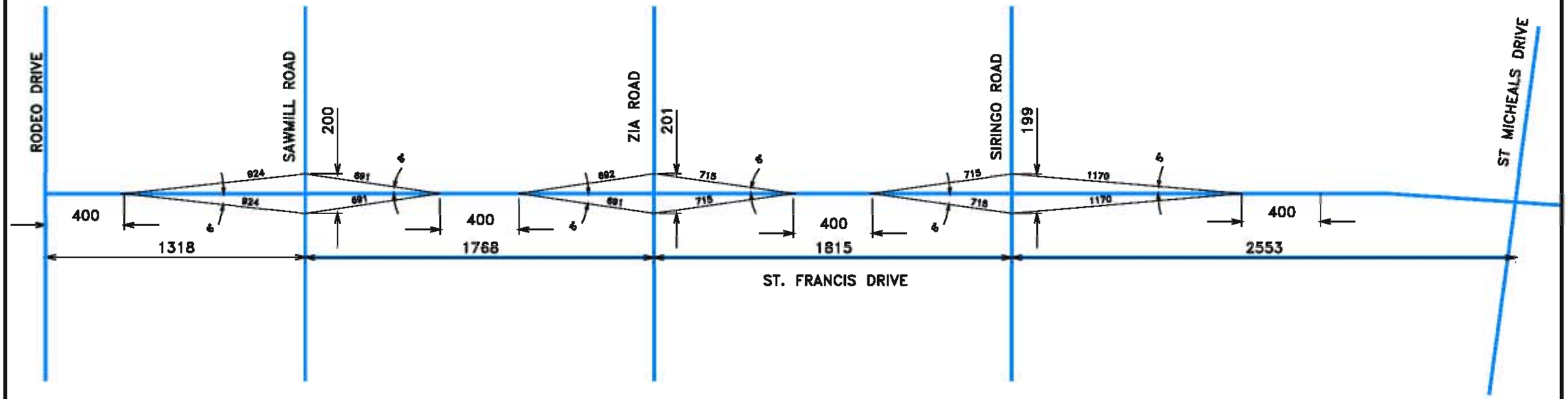

NOTES:

1. THE MINIMUM LENGTH MEASURED BETWEEN THE SUCCESSIVE RAMP TERMINALS, EXIT FOLLOWED BY AN ENTRANCE CONDITION, FREEWAY OR COLLECTOR DISTRIBUTOR ROAD IS 400' (AASHTO–A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS).
2. THE TYPICAL RANGE OF RAMP DIVERGANCE IS 2–5° (AASHTO–A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS).

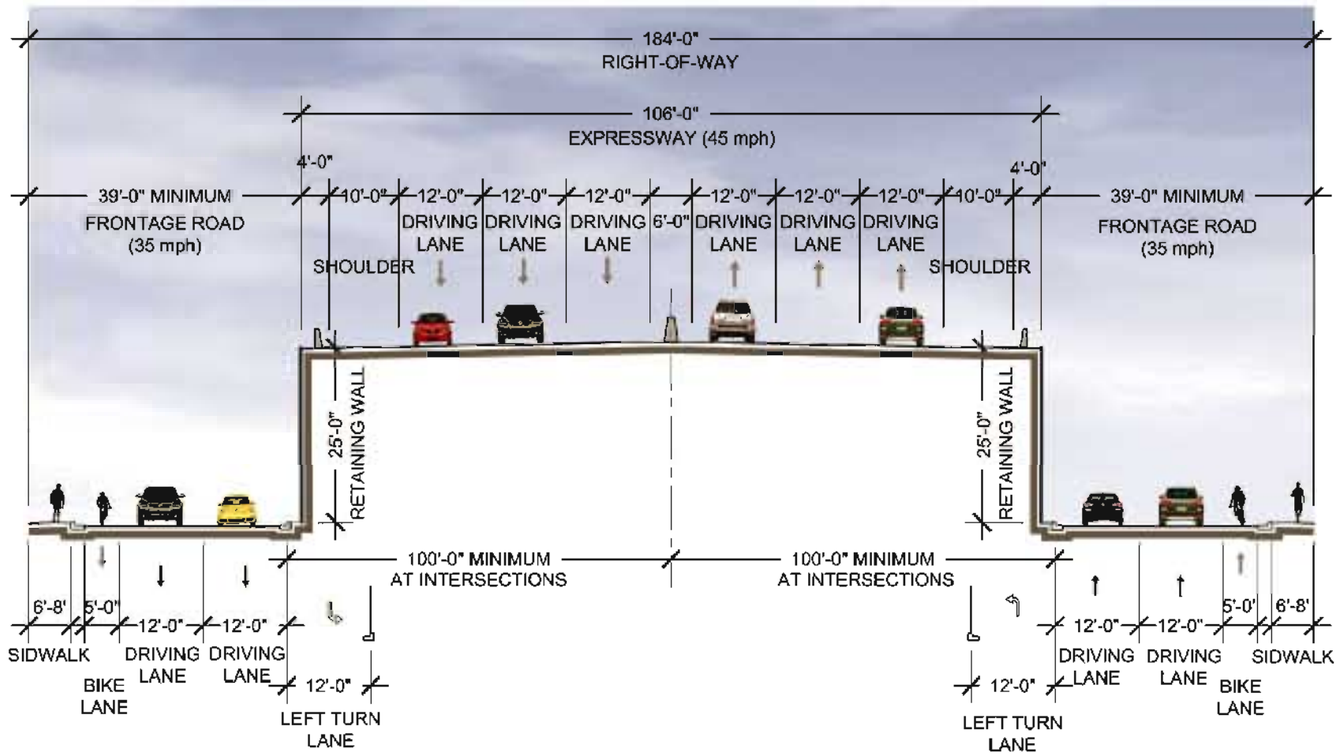

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FIGURE 56
EXPRESSWAY WITH FRONTAGE ROADS
TYPICAL SECTION

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1. Responsiveness to Purpose and Need

This alternative responds to the future forecast travel demand and provides a better level of service for vehicular traffic by removing the St. Francis Drive through traffic from the traffic stream. In addition, the frontage roads provide routes for pedestrian and bicycle traffic.

2. Engineering Factors

a) Operational Performance

Detailed traffic analysis of this alternative was not conducted for Phase A, however it is expected that vehicular traffic operations would improve due to the removal of the St. Francis Drive through traffic from the signalized intersections.

The sub-alternate that considers interchanges without frontage roads does not conform to AASHTO standards for interchange ramp length or ramp divergence angles. Interchange ramp lengths of 1,000 feet are considered to be the minimum, with 400-feet minimum length between successive ramp terminals. Due to the spacing of the major intersections along the corridor, these spacing criteria cannot be satisfied.

b) Drainage

Implementation of this alternative would have major effects on the existing drainage infrastructure. It would also require extensive modifications to existing structures as well as multiple new drainage structures and changes to the existing runoff flow patterns of the area.

The proposed alternative would create several new low spots in the vertical profile of St. Francis. This would require new inlets and associated laterals to drain these areas. Depending on the final design, some of these laterals may be required to convey flows for several hundred feet before discharging to existing arroyos or roadside ditches.

In addition, the construction of new lanes to serve as a frontage road system would increase the impervious area in the corridor. This would increase the flow rate of storm water which must be accommodated. Furthermore, the additional lanes would likely impact the existing drainage infrastructure. For example, in areas that currently collect and convey runoff via roadside ditches, new storm drain systems may need to be designed and constructed to allow for the expansion of the roadway. This expansion may also affect wetlands, if they exist, in the existing roadside ditches. Finally, this alternative would require additional Operations and Maintenance activities in the future due to the increased quantity of drainage facilities.

c) Engineering Feasibility and Constructability

This alternative would create tremendous impacts, both during construction and with right-of-way acquisition. In addition, the reduced travel delay resulting from the expressway

would likely create significant induced travel demand, increasing traffic congestion on the adjacent cross-streets.

d) Safety

This alternative would likely reduce the crash rate along the corridor due to the separation of St. Francis Drive through traffic from the traffic flow.

3. Environmental Factors

This build alternative results in potential impacts to cultural resources, property acquisition, noise, air quality, visual resources, and community cohesion. The benefits include potential for enhanced multi-modal transportation facilities.

4. Responsiveness to Adopted Plans and Expectations

This alternative does not support any of the City's General Plan goals with regard to transportation, although there would be an increase in the number of bike lanes and sidewalks along the corridor due to them being included on the Frontage Road system. This alternative is likely to gain little public support due to right-of-way, visual, and quality of life impacts.

5. Right-of-Way

This alternative requires 275-300 feet of right-of-way in order to accommodate the frontage road intersections. This would require right-of-way throughout almost the entire length of the corridor, certainly at the interchange locations, in some locations almost three times the existing right-of-way. This is likely politically unacceptable to achieve.

6. Estimated Construction Costs

A simplified construction cost estimation technique was used for this alternative. Expressway construction was estimated at $10 million per mile, with interchanges also estimated at $10 million each. Traffic signals were estimated at $500,000 each, with two traffic signals per interchange.

7. Screening Matrix Evaluation

The initial screening matrix for this alternative is shown in Table 40. Due to the high cost, both in construction cost and community impacts, this alternative is not considered appropriate for further consideration for any segment of the corridor.

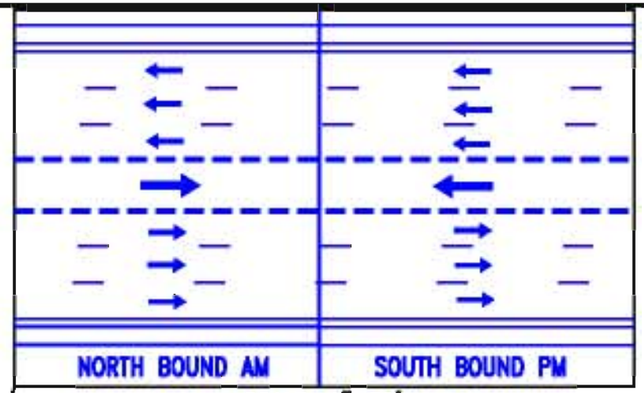
Table 40 – Initial Screening Matrix -– Expressway With Frontage Roads			
Initial Screening	Segment 1	Segment 2	Segment 3
Satisfy Purpose and Need	Partial (travel demand)	Partial (travel demand)	Partial (travel demand)
Provides Capacity to Accommodate Future Travel Demand	Yes	Yes	Yes
Engineering Feasibility	Yes Requires ROW	Yes Requires ROW	Yes Requires ROW
Supports General Plan Shift to Alternate Modes	Partial Frontage Roads provide ped and bike lanes	Partial Frontage Roads provide ped and bike lanes	Partial Frontage Roads provide ped and bike lanes
Support General Plan Community Cohesion	No	No	No
Relative Environmental Impacts	Substantial	Substantial	Substantial
Incorporates Urban Design Components	Minimal	Minimal	Minimal
Relative Cost to Expected Annual Funding (est. $1M/year)	85x plus ROW 5 interchanges I-25, Sawmill, Zia, Siringo, St. Michael's	85x plus ROW 4 interchanges Alta Vista, Cerrillos, Agua Fria, Paseo de Peralta North	37x plus ROW 2 interchanges Guadalupe, NM 599
Appropriate for Further Consideration	No ROW, Cost	No ROW, Construction & Community Costs	No Performance Acceptable with Existing
Expressway construction estimated at $10M mile Interchanges $10M each Traffic signals $500k each- 2 at each interchange (except I-25 and NM 599 – none) ROW not included			

J. Lane Conversion to Single Reversible Lane (Through Commuter Traffic)

This alternative proposes to convert the median into a lane that is directional and reversible during peak hours and dedicated to serve the needs of commuters trying to get through Santa Fe from I-25 to NM 599 and beyond. The single reversible lane would be located in the middle of the right-of-way. The median would be removed to allow for this lane. The reversible lane would serve northbound through traffic in the AM peak period and southbound through traffic in the PM peak period.

During peak hours when the reversible lane is restricted, left turns are only allowed at intersections. During off-peak hours the reversible lane would function as a two-way left turn lane. The intent of this alternative is to achieve traffic efficiency by providing an extra traffic lane during peak times.

A representative plan view of this alternative is shown in Figure 41 on page 128. A figure showing how the reversible lanes would operate in this alternative is shown in Figure 57. A typical section for this alternative is shown in Figure 58.



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LEGEND

APPROXIMATE RIGHT-OF-WAY LIMITS

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FIGURE 57
LANE CONVERSION TO REVERSIBLE LANE (THROUGH COMMUTER TRAFFIC) THROUGH CORRIDOR

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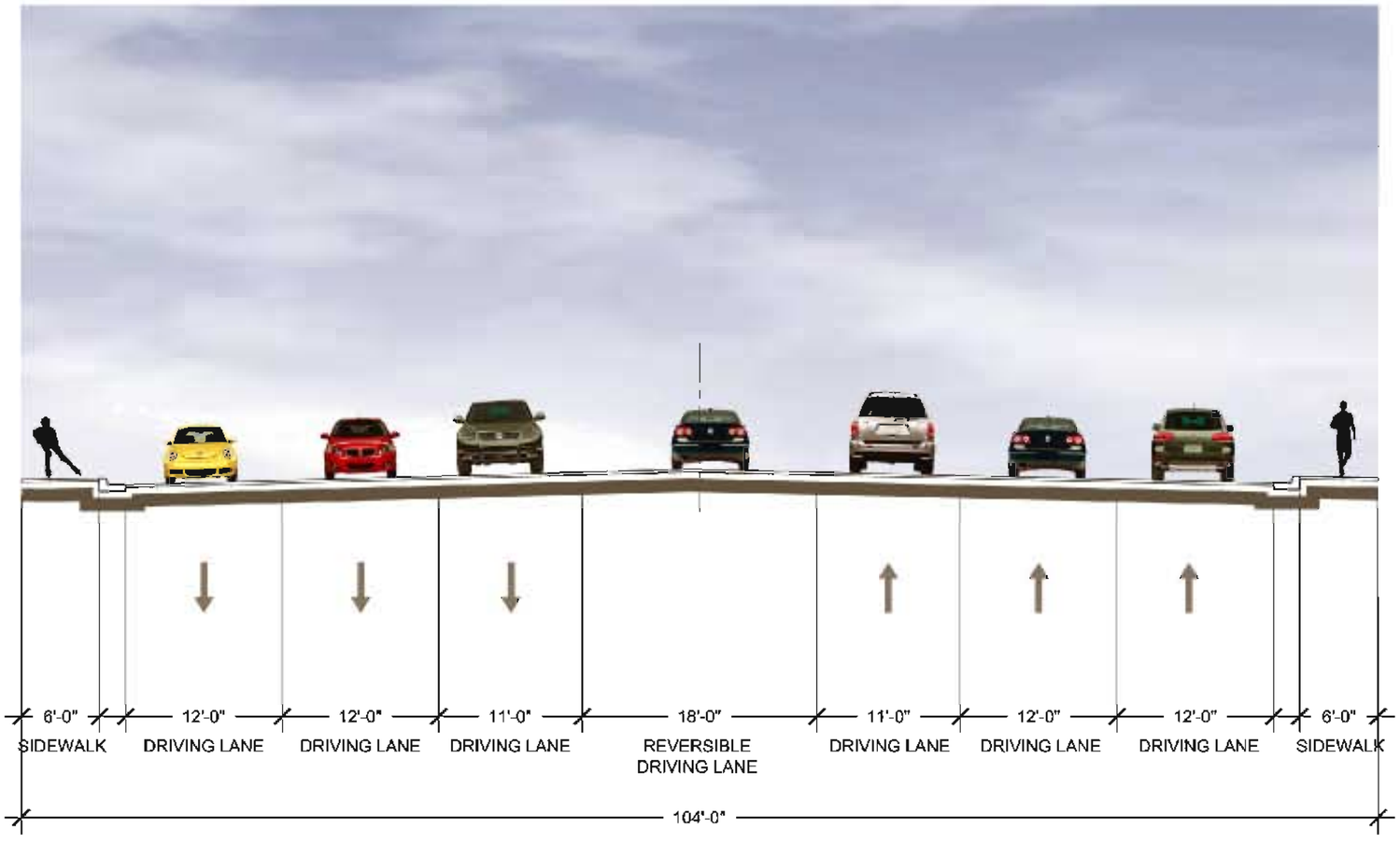

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FIGURE 58
LANE CONVERSION TO SINGLE REVERSIBLE LANE
TYPICAL SECTION

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1. Responsiveness to Purpose and Need

This alternative seeks to respond to the purpose and need by addressing the traffic congestion for providing additional capacity for through commuters. As this alternative proposes to only modify the median of the roadway, no additional capacity is added for bicycle or pedestrian traffic.

2. Engineering Factors

a) Operational Performance

This alternative seeks to provide additional through capacity for the corridor. However as many of the intersections along the corridor have high left-turn movements, this alternative would necessitate a change in traffic signal operation in order to gain full advantage of the through movement capacity. As this alternative allows the left turn lane in the dominant direction to operate as a through and left turn lane simultaneously, traffic signal operations would necessarily change to split phase operation or allow left turn movements from a through lane under permissive conditions. Theoretically this alternative provides the opportunity for vehicular operational improvements due to additional through lane capacity at the intersection. However in practice this potential improvement may be offset by long queues of through traffic waiting behind left turning traffic. Over time these through movement motorists will likely discover that the reversible lane is primarily a left turn lane at the intersections and choose to use a general purpose lane instead, thereby eliminating any benefit from the additional through lane capacity upstream of the intersections.

b) Drainage

As the outer edge of the roadway is not proposed to be altered with this alternative, no major changes in the drainage system are anticipated for this alternative. The additional roadway surface created by converting the median to a reversible travel lane would result in slightly increased roadway flows, which may require minor additional infrastructure.

c) Engineering Feasibility and Constructability

This alternative would require reconstruction of the roadway to remove the median for the reversible lane. Also, substantial additional and overhead signage and lighting would be required in order to properly sign this alternate so motorist would know when the reversible lane is available for through traffic use. Right-of-way would likely be required at some locations in order for the overhead signs to be located.

d) Safety

An increase in head-on collisions would be expected with this alternative due to the alternating nature of the reversible lane operation.

3. Environmental Factors

This build alternative is expected to have minor environmental impacts.

4. Responsiveness to Adopted Plans and Expectations

This alternative does not support any of the City's General Plan goals with regard to transportation. In addition the reversible operation of the median travel lanes could cause confusion for many motorists.

5. Right-of-Way

Although no additional right-of-way would be required for this alternative in order to construct the reversible lane it is likely that right-of-way would be required at some locations for the required overhead sign structures.

6. Estimated Construction Costs

The estimated construction cost for this alternative was determined by estimating the cost to remove the median, pave and stripe the median, and provide the signing and overhead structures.

7. Screening Matrix Evaluation

The initial screening matrix for this alternative is shown in Table 41. Due to the large left turn movements at major intersections and the close spacing of these intersections, combined with the potential of introducing a new traffic control operational technique to an established area, this alternative is not considered appropriate for any segment of the corridor.

Table 41 – Initial Screening Matrix -– Lane Conversion to Reversible Lane -– Through Commuter Traffic

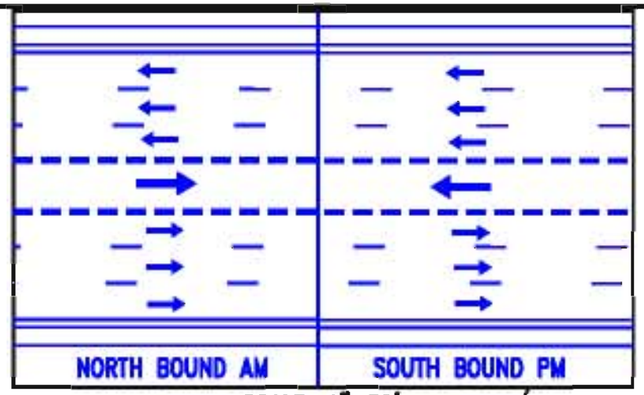
Initial Screening	Segment 1	Segment 2	Segment 3
Satisfy Purpose and Need	Partial (travel demand)	Partial (travel demand)	Partial (travel demand)
Provides Capacity to Accommodate Future Travel Demand	No	No	No
Engineering Feasibility	Yes	Yes	Yes
Supports General Plan Shift to Alternate Modes	No	No	No
Support General Plan Community Cohesion	Minimal	Minimal	Minimal
Relative Environmental Impacts	Minor	Minor	Minor
Incorporates Urban Design Components	Minimal	Minimal	Minimal
Relative Cost to Expected Annual Funding (est. $1M/year)	2.25x	3.5x	1.25x
Appropriate for Further Consideration	No Large left turn movements limit utility	No Short block lengths limit gains in travel time	No Performance Acceptable with Existing

K. Lane Conversion to Single Reversible Lane (City Commuter Traffic)

This alternative proposes to convert the median into a lane that is directional and reversible to serve the needs of commuters trying to get to South Capitol or downtown during peak hours. The single reversible lane would be located in the middle of the right-of-way. The median would be removed to allow for this lane. Traffic from the north would utilize the reversible lane as a southbound through lane in the AM Peak Hour and as a northbound through lane in the PM Peak Hour. The converse would be true for the commuters from the south. The reversible lane would be utilized as a northbound through lane in the AM Peak Hour and a southbound through lane in the PM Peak Hour. .

During peak hours when the reversible lane is restricted, left turns are only allowed at intersections. The intent of this alternative is to achieve traffic efficiency by providing an extra traffic lane during peak travel times.

A representative plan view of this alternative is shown in Figure 41. The typical section for this alternative is the same as that for the Lane Conversion to Reversible Lane (Through Commuter Traffic) shown in Figure 58. A figure showing the operation of this alternative is shown in Figure 59.



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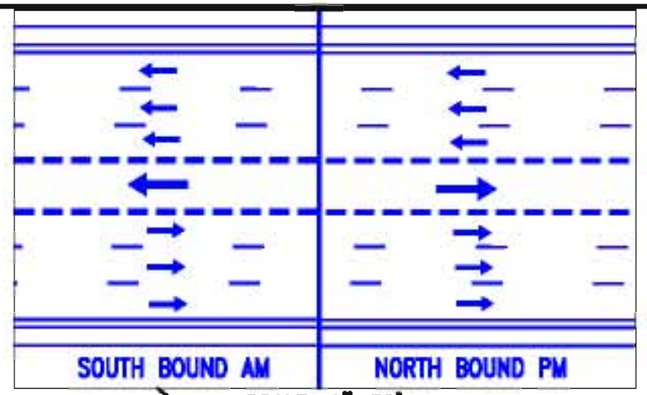

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LEGEND

APPROXIMATE RIGHT-OF-WAY LIMITS

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FIGURE 59
LANE CONVERSION TO REVERSIBLE LANE (CITY COMMUTER TRAFFIC) THROUGH CORRIDOR

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1. Responsiveness to Purpose and Need

This alternative seeks to respond to the purpose and need by addressing the traffic congestion for providing additional capacity for city commuters traveling to the major employment centers, the South Capitol Complex and Downtown. As this alternative proposes to only modify the median of the roadway, no additional capacity is added for bicycle or pedestrian traffic.

2. Engineering Factors

a) Operational Performance

This alternative seeks to provide additional through capacity for the corridor. However as many of the intersections along the corridor have high left-turn movements, this alternative would necessitate a change in traffic signal operation in order to gain full advantage of the through movement capacity. As this alternative allows the left turn lane in the dominant direction to operate as a through and left turn lane, traffic signal operations would necessarily change to split phase operation or allow left turn movements from a through lane under permissive conditions. Theoretically this alternative provides the opportunity for vehicular operational improvements due to additional through lanes at the intersection. However in practice this potential improvement may be offset by long queues of through traffic waiting behind left turning traffic. Over time these through movement motorists will likely discover that the reversible lane is primarily a left turn lane at the intersections and choose to use a general purpose lane instead, thereby eliminating any benefit from the additional through lane capacity upstream of the intersections.

b) Drainage

As the outer edge of the roadway is not proposed to be altered with this alternative, no major changes in the drainage system are anticipated for this alternative. The additional roadway surface created by converting the median to a reversible travel lane would result in slightly increased roadway flows, which may require minor additional infrastructure.

c) Engineering Feasibility and Constructability

This alternative would require reconstruction of the roadway to remove the median for the reversible lane. Also, substantial additional signage and lighting would be required in order to properly sign this alternate so motorist would know when the reversible lane is available for through traffic use.

d) Safety

An increase in head-on collisions would be expected with this alternative due to the alternating nature of the reversible lane operation.

3. Environmental Factors

This build alternative is expected to have minor environmental impacts.

4. Responsiveness to Adopted Plans and Expectations

This alternative does not support any of the City's General Plan goals with regard to transportation. In addition the reversible operation of the median travel lanes could cause confusion for many motorists.

5. Right-of-Way

Although no additional right-of-way would be required for this alternative in order to construct the reversible lane it is likely that right-of-way would be required at some locations for the required overhead sign structures.

6. Estimated Construction Costs

The estimated construction cost for this alternative is very similar to that for the Lane Conversion to Reversible Lane for Through Commuter Traffic. The difference lies in that the section of Francis Drive between Alta Vista and Hickox would not be included as a reversible section in this alternative.

7. Screening Matrix Evaluation

The initial screening matrix for this alternative is shown in Table 42. Due to the large left turn movements at major intersections and the close spacing of these intersections, combined with the potential of introducing a new traffic control operational technique to an established area, this alternative is not considered appropriate for any segment of the corridor.

Table 42 -– Initial Screening Matrix -– Lane Conversion to Reversible Lane -– City Commuter Traffic

Initial Screening	Segment 1	Segment 2	Segment 3
Satisfy Purpose and Need	Partial (travel demand)	Partial (travel demand)	Partial (travel demand)
Provides Capacity to Accommodate Future Travel Demand	No	No	No
Engineering Feasibility	Yes	Yes	Yes
Supports General Plan Shift to Alternate Modes	No	No	No
Support General Plan Community Cohesion	No	No	No
Relative Environmental Impacts	Minor	Minor	Minor
Incorporates Urban Design Components	Minimal	Minimal	Minimal
Relative Cost to Expected Annual Funding (est. $1M/year)	2.25x	2.5x	1.5x
Appropriate for Further Consideration	No Large left turn movements limit utility	No Short block lengths limit gains in travel time	No Performance Acceptable with Existing

L. Split-Level Expressway

This alternative proposes the construction of a limited access split-level expressway located above the existing roadway. The existing St. Francis Drive could be reduced in section as the upper level expressway would remove a large amount of through traffic. This alternative provides just five interchanges along the corridor, in addition the I-25 and NM 599. These locations would be Zia Road, St. Michael's Drive, Alta Vista, Alameda and Guadalupe.

The reduced requirement for through traffic lanes on St. Francis Drive would allow for expanded urban design, pedestrian, and bicyclist opportunities on the existing roadway prism.

It is recognized that this alternative focuses primarily on the vehicular mode (car, truck and bus) and will improve traffic operations at the expense of the bicyclist and pedestrian due to additional crossing distances. This alternate also is at odds with the City of Santa Fe General plan objectives for transportation improvements which seek to promote alternative modes, as well as promoting development patterns that seek to bring the community together rather than adding distances between them.

A representative plan view of this alternative is shown in Figure 43 on page 131. A conceptual layout of the Split-Level Expressway from San Mateo Road through Paseo de Peralta is shown in Figure 60 and Figure 61. A typical section for this alternative is shown in Figure 62.

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FIGURE 60
SPLIT LEVEL EXPRESSWAY FROM SAN MATEO ROAD TO PASEO DE PERALTA – SOUTHERN PORTION

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FIGURE 61
SPLIT LEVEL EXPRESSWAY FROM SAN MATEO ROAD TO PASEO DE PERALTA – NORTH

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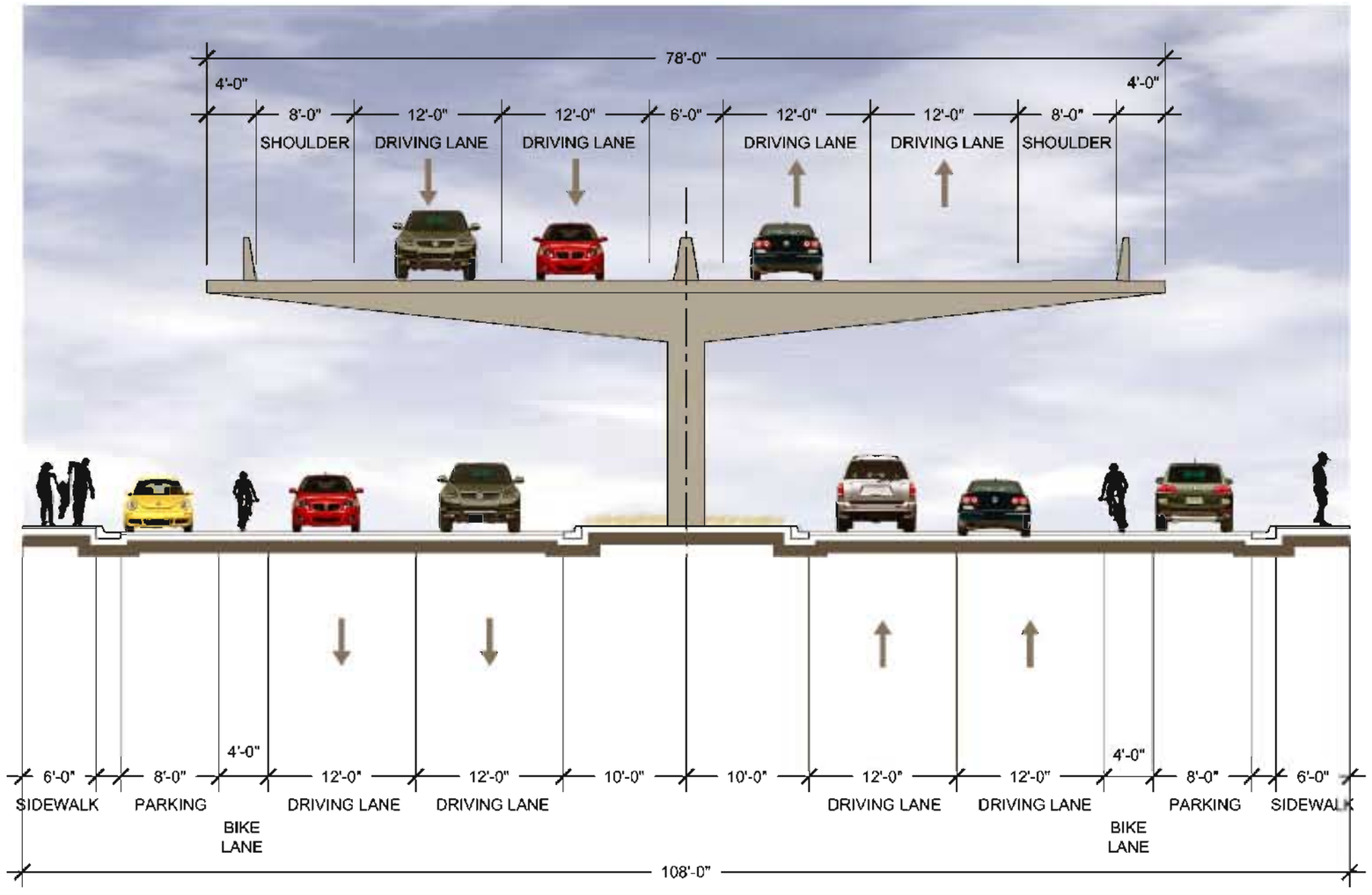

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FIGURE 62
SPLIT LEVEL EXPRESSWAY
TYPICAL SECTION

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1. Responsiveness to Purpose and Need

This alternative responds to the future forecast travel demand and provides a better level of service for vehicular traffic by removing the St. Francis Drive through traffic from the traffic stream. In addition, the reduced section on St. Francis Drive would allow routes for pedestrian and bicycle traffic within the lower level existing roadway.

2. Engineering Factors

a) Operational Performance

Detailed traffic analysis of this alternative was not conducted for Phase A, however it is expected that vehicular traffic operations would improve due to the removal of the St. Francis Drive through traffic from the signalized intersections.

b) Drainage

Drainage infrastructure modifications for this alternative would be complex. This option would require an entire drainage system to collect runoff from the upper level and safely convey it to existing conveyance structures at the lower level. Given that the single pier supporting the upper level is located in the median the flows would most likely be conveyed to the lower level via pipes connected to the pier. This would then require storm drains to further convey the runoff from the median to existing drainage infrastructure on either side of the existing roadway. Most likely this would require design and construction of storm drain laterals across the existing lanes of traffic. This would impact multiple locations along the St. Francis Corridor.

Alternatively, the runoff could be conveyed from the piers to a new storm drain system within the median of St. Francis. This system could then be conveyed to existing crossing structures. The existing crossing structures may need to be modified to accept the increased flows.

In addition to the modifications required by the changed typical section for this alternative, there would be major modifications required at the locations of on- and off-ramps to the elevated expressway. New ramps would require additional footprint, increase the runoff, and may negatively impact current drainage infrastructure.

c) Engineering Feasibility and Constructability

This alternative would create tremendous impacts, both during construction and with right-of-way acquisition. In addition, the reduced travel delay resulting from the expressway would likely create significant induced travel demand, increasing the traffic congestion on the adjacent cross-streets. In addition to right-of-way acquisition, a number of parcels would lose access to St. Francis Drive in the vicinity of the on- and off-ramps to the elevated expressway.

d) Safety

This alternative would likely reduce the crash rate along the corridor due to the separation of St. Francis Drive through traffic from the traffic flow. The short weaving distances that would result from the off-ramps to the adjacent intersections would likely lead to an increased number of sideswipe crashes as motorists exiting the expressway cross the travel lanes in order to perform a left turn maneuver.

3. Environmental Factors

This build alternative results in potential impacts to cultural resources, property acquisition, noise, air quality, visual resources, and community cohesion. The benefits include potential for enhanced multi-modal transportation facilities.

4. Responsiveness to Adopted Plans and Expectations

This alternative does not support any of the City's General Plan goals with regard to transportation. This alternative is likely to gain little public support due to right-of-way, visual, business and quality of life impacts.

5. Right-of-Way

Substantial right-of-way would be required for this alternative, particularly at the interchange locations. In addition, near the interchanges access to St. Francis Drive would be removed.

6. Estimated Construction Costs

A simplified construction cost methodology was used for this alternative. Due to the elevated expressway, an estimate of $70 million a mile was used, in addition to the $10 million an interchange and $500,000 per traffic signal.

7. Screening Matrix Evaluation

The initial screening matrix for this alternative is shown in Table 43. Due to the high cost, both in construction cost and community impacts, this alternative is not considered appropriate for further consideration for any segment of the corridor.

Table 43 – Initial Screening Matrix – Split-Level Expressway Alternative			
Initial Screening	Segment 1	Segment 2	Segment 3
Satisfy Purpose and Need	Yes	Yes	Yes
Provides Capacity to Accommodate Future Travel Demand	Yes	Yes	Yes
Engineering Feasibility	Yes Requires ROW	Yes Requires ROW	Yes Requires ROW
Supports General Plan Shift to Alternate Modes	Partial Frontage Roads provide ped and bike lanes	Partial Frontage Roads provide ped and bike lanes	Partial Frontage Roads provide ped and bike lanes
Support General Plan Community Cohesion	No	No	No
Relative Environmental Impacts	Substantial	Substantial	Substantial
Incorporates Urban Design Components	Minimal	Minimal	Minimal
Relative Cost to Expected Annual Funding (est. $1M/year)	160x plus ROW 3 interchanges I-25, Zia, St. Michael's	250x plus ROW 3 interchanges Alta Vista, Agua Fria, Paseo de Peralta North	100x plus ROW 2 interchanges Guadalupe, NM 599
Appropriate for Further Consideration	No ROW, Cost	No ROW, Construction & Community Costs	No Performance Acceptable with Existing
Expressway construction estimated at $70M per mile ($60M per mile for bridge structure at $150 per sq. ft.) Interchanges $10M each Traffic signals $500k each- 2 at each interchange (except I-25 and NM 599 – none) ROW not included			

M. Reduced Lane Width

This alternative proposes to keep all existing travel lanes and to make all lanes a consistent width of 11'-0". Any right-of-way gained through the reduction of lane width will be replaced by bike lanes, sidewalks and landscape focusing on providing alternative modes of transportation. The addition of bike lanes, sidewalks and landscape will allow the pedestrian experience to be improved especially north of Cerrillos Road because of the limited right-of-way.

Although the capacity will remain the same, the intent of this alternative is to provide and encourage alternative modes of transportation by providing bike lanes, sidewalks and/or multi-use paths within the right-of-way and connecting to other trails within Santa Fe.

A representative plan view of this alternative is shown in Figure 44 on page 132. A typical section for this alternate is shown in Figure 63.

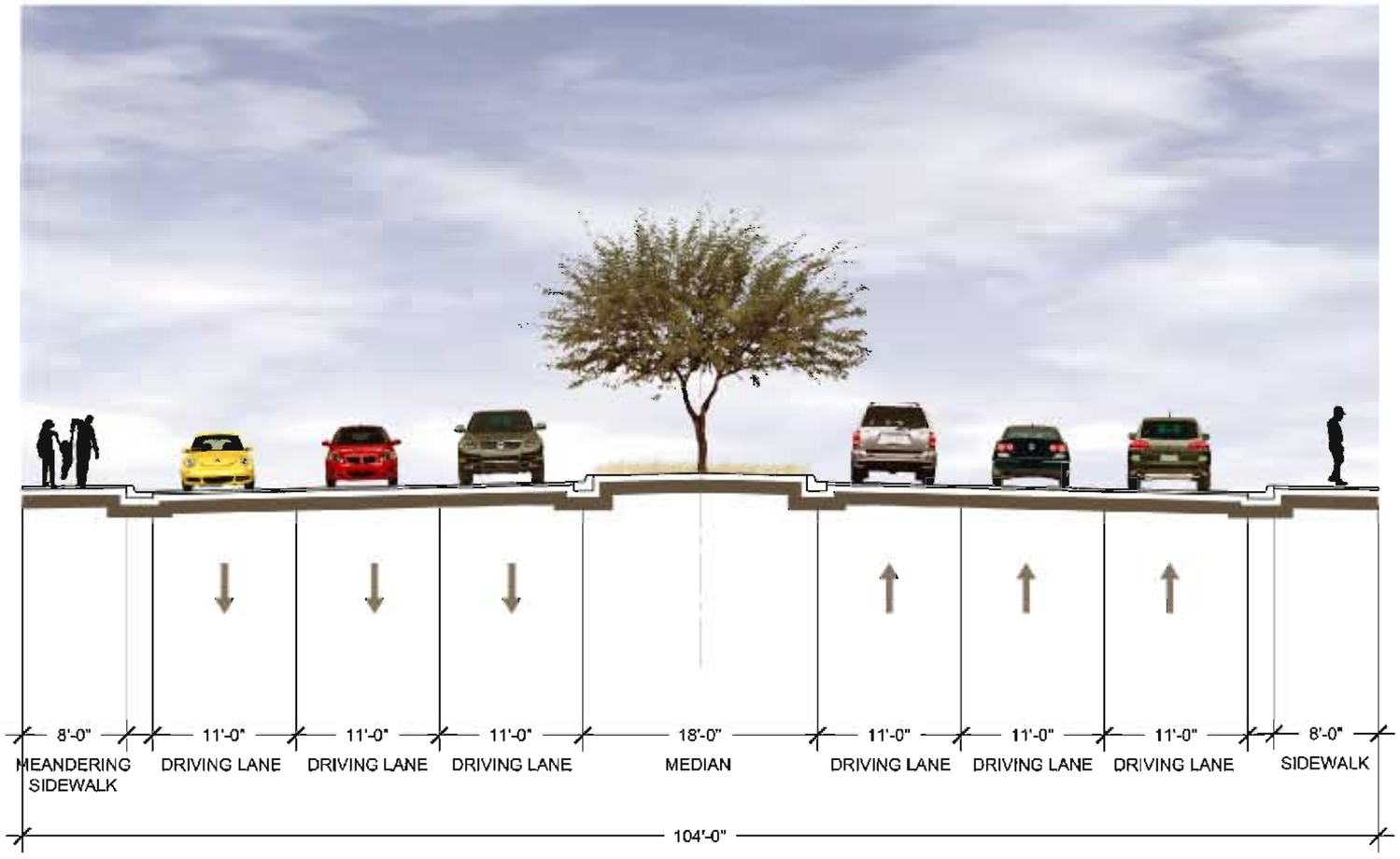

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FIGURE 63
REDUCED LANE WIDTH
TYPICAL SECTION

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1. Responsiveness to Purpose and Need

This alternative seeks to respond to the purpose and need by seeking to enhance the mobility of the bicycle and pedestrian commuter. The ability to accommodate future travel demand is similar to the No Build.

2. Engineering Factors

a) Operational Performance

The vehicular operational performance of this alternative is considered to be very close to that of the No Build, as no additional travel lanes are included. Recent research has found that lane widths of 10.5 to 11-feet do not reduce capacity substantially.

b) Drainage

No drainage impacts will result from this alternative unless curb and gutter is removed to expand the sidewalk. In that case drainage inlets would need to be relocated to accommodate the changed condition.

c) Engineering Feasibility and Constructability

This alternative is feasible from an engineering and construction perspective.

d) Safety

The reduced lane widths may improve pedestrian safety due to the possibility of lower vehicular speeds; however there may be an increase in vehicular sideswipe crashes due the reduced lane width.

3. Environmental Factors

This build alternative is expected to result in minor environmental impacts.

4. Responsiveness to Adopted Plans and Expectations

This alternative provides limited support of the City's General Plan objectives. There will a minimal change for improved pedestrian mobility.

5. Right-of-Way

No additional right-of-way would be required for this alternative.

6. Estimated Construction Costs

There is minimal cost associated with the implementation of this alternative as it is a matter of re-striping the roadway to the new reduced lane width.

7. Screening Matrix Evaluation

The initial screening matrix for this alternative is shown in Table 44. It is considered appropriate to include this alternative within other alternatives that move forward. Reduced lane widths can be considered within other alternatives.

Table 44 – Initial Screening Matrix – Reduced Lane Width Alternative			
Initial Screening	Segment 1	Segment 2	Segment 3
Satisfy Purpose and Need	Partial (alternative modes)	Partial (alternative modes)	Partial (alternative modes)
Provides Capacity to Accommodate Future Travel Demand	No	No	No
Engineering Feasibility	Yes	Yes	Yes
Supports General Plan Shift to Alternate Modes	Partial	Partial	Partial
Support General Plan Community Cohesion	Minimal	Minimal	Minimal
Relative Environmental Impacts	Minor	Minor	Minor
Incorporates Urban Design Components	Minimal	Minimal	Minimal
Relative Cost to Expected Annual Funding (est. $1M/year)	0.25x	0.25x	0.25x
Appropriate for Further Consideration	Yes, within other alternatives	Yes, within other alternatives	No Performance Acceptable with Existing

N. Intersection Improvements

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 a turn lane, to additional turn or through lanes at the intersection, to complete intersection reconstruction to roundabouts or isolated grade separated interchanges.

This alternative responds to the future expected travel demand while seeking to limit the impacts 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 will improve traffic operations at the expense of the bicyclist and pedestrian due to additional crossing distances. However portions of the improvement alternatives would improve pedestrian and bicycle visibility.

Figures showing the locations of possible isolated improvements are shown in Figure 64 through Figure 73.

The number of Intersection improvement locations is quite extensive due to the high forecast traffic volumes. The future conditions traffic analysis presented in Section VI.E, beginning on page 90, list the intersections that require geometric improvements in order to achieve normally accepted levels of service.

Those improvements are listed below:

Sawmill Road at St. Francis Drive (Figure 64):

EB Sawmill Road – install third left turn lane and exclusive right turn only lane

NB St. Francis Drive – install second left turn lane

SB St. Francis Drive - install additional (fourth) through lane

SB St. Francis Drive – extend southbound right turn lane

Zia Road at St. Francis Drive (Figure 64):

EB West Zia Road – install third left turn lane and third through lane

WB West Zia Road – install third left turn lane

NB St. Francis Drive – install fourth through lane

Siringo Road at St. Francis Drive (Figure 65):

WB Siringo Road - construct an additional (second) right turn lane

NB St. Francis Drive - construct a second left turn lane

West San Mateo Road at St. Francis Drive (Figure 66):

WB West San Mateo Road – install a second through lane

Cordova Road at St. Francis Drive (Figure 67):

WB Cordova Road – install a second left-turn lane

Cerrillos Road at St. Francis Drive (Figure 68):

EB Cerrillos Road - install third left turn lane and a third through lane

WB Cerrillos Road - install a third left turn lane and a third through lane

Hickox Street at St. Francis Drive (Figure 69):

EB Hickox Street - install a second left turn lane

WB Hickox Street - install a second through lane

Agua Fria Street at St. Francis Drive (Figure 69):

WB Agua Fria Street – install a second through lane

Alameda Street at St. Francis Drive (Figure 70):

EB Alameda Street – install a second left turn lane

WB Alameda Street - install a second through lane

Paseo de Peralta (North) at St. Francis Drive (Figure 70):

EB Paseo de Peralta – install a second through lane

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FIGURE 64
INTERSECTION IMPROVEMENT LOCATIONS
SAWMILL RD AND ZIA RD

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FIGURE 65
INTERSECTION IMPROVEMENT LOCATIONS
SIRINGO RD AND ST. MICHAEL'S DR

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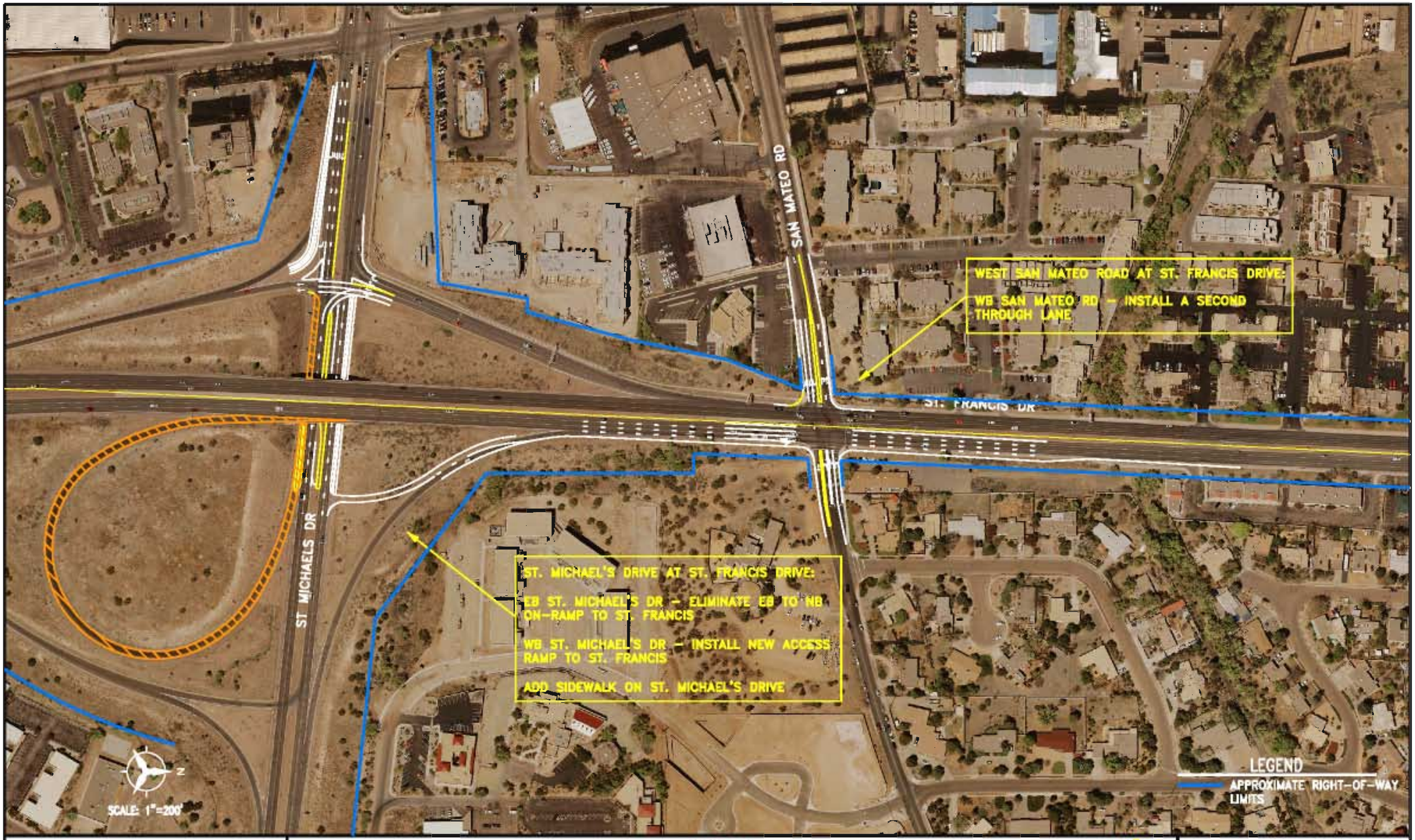

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FIGURE 66
INTERSECTION IMPROVEMENT LOCATIONS
ST. MICHAEL'S AND SAN MATEO

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FIGURE 67
INTERSECTION IMPROVEMENT LOCATIONS
CORDOVA RD

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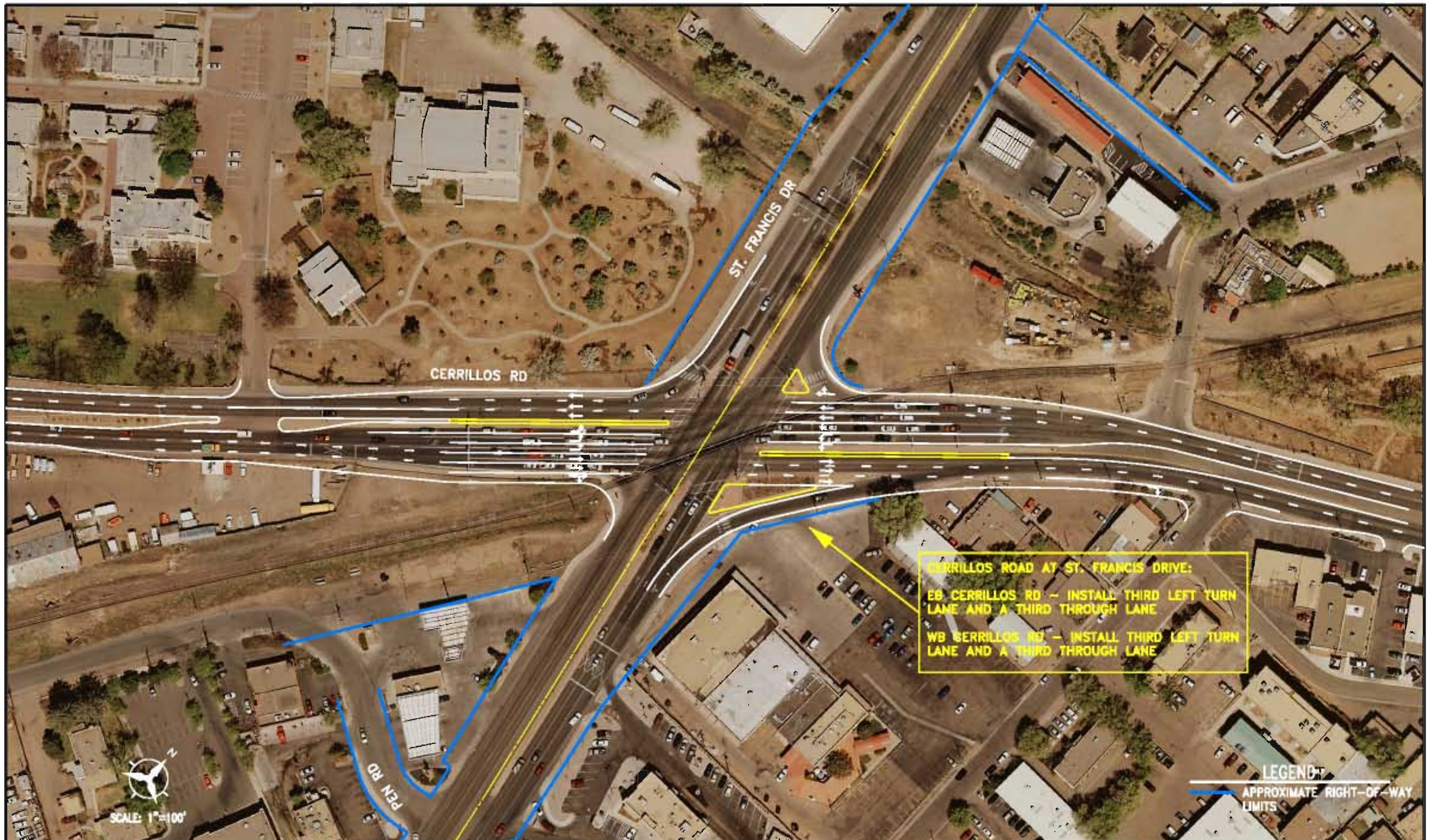

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FIGURE 68
INTERSECTION IMPROVEMENT LOCATIONS
CERRILLOS RD

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FIGURE 69
INTERSECTION IMPROVEMENT LOCATIONS
HICKOX ST AND AGUA FRIA ST

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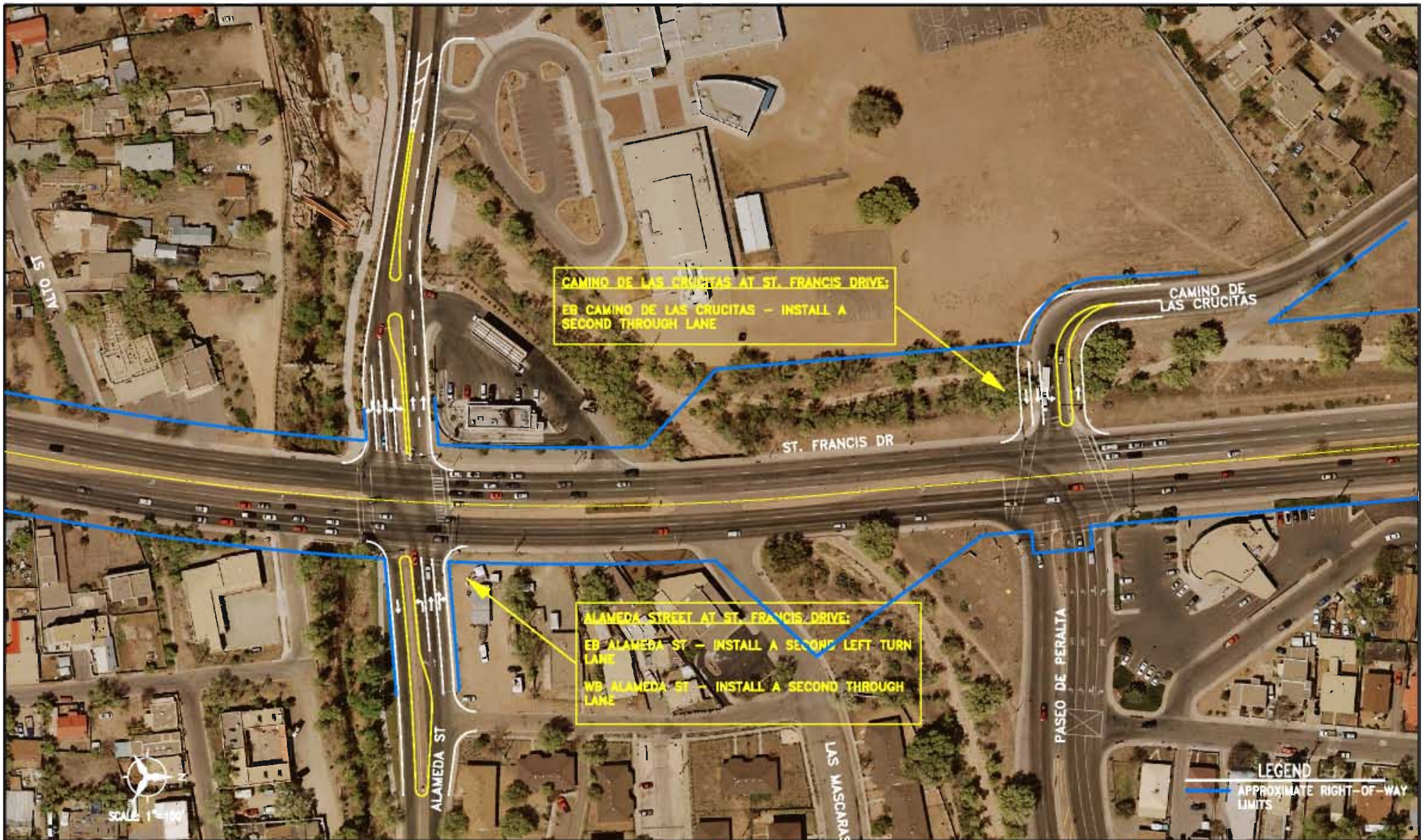

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FIGURE 70
INTERSECTION IMPROVEMENT LOCATIONS
ALAMEDA AND PASEO DE PERALTA

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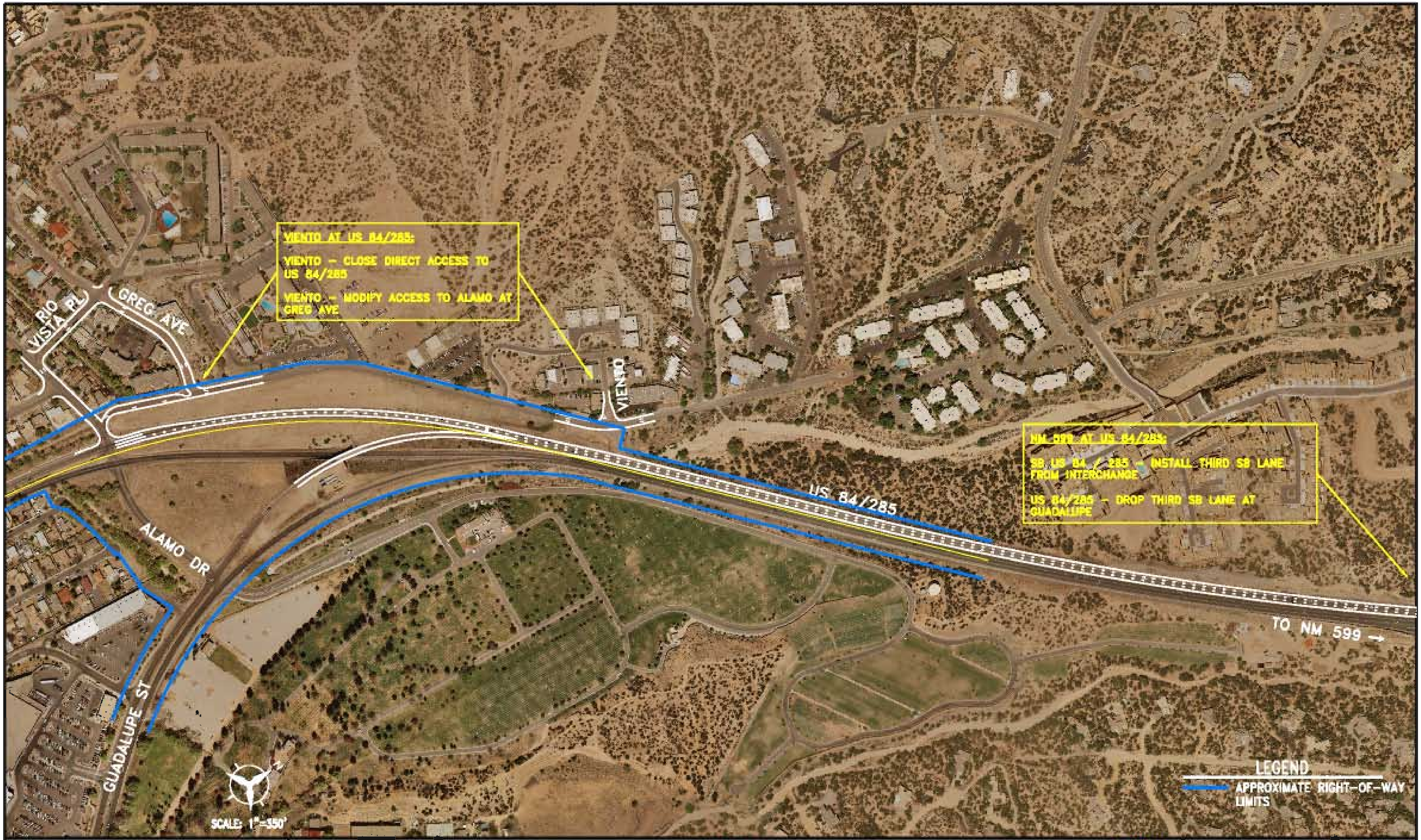

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FIGURE 71
INTERSECTION IMPROVEMENT LOCATIONS
ALAMO AND NM 599 INTERCHANGE

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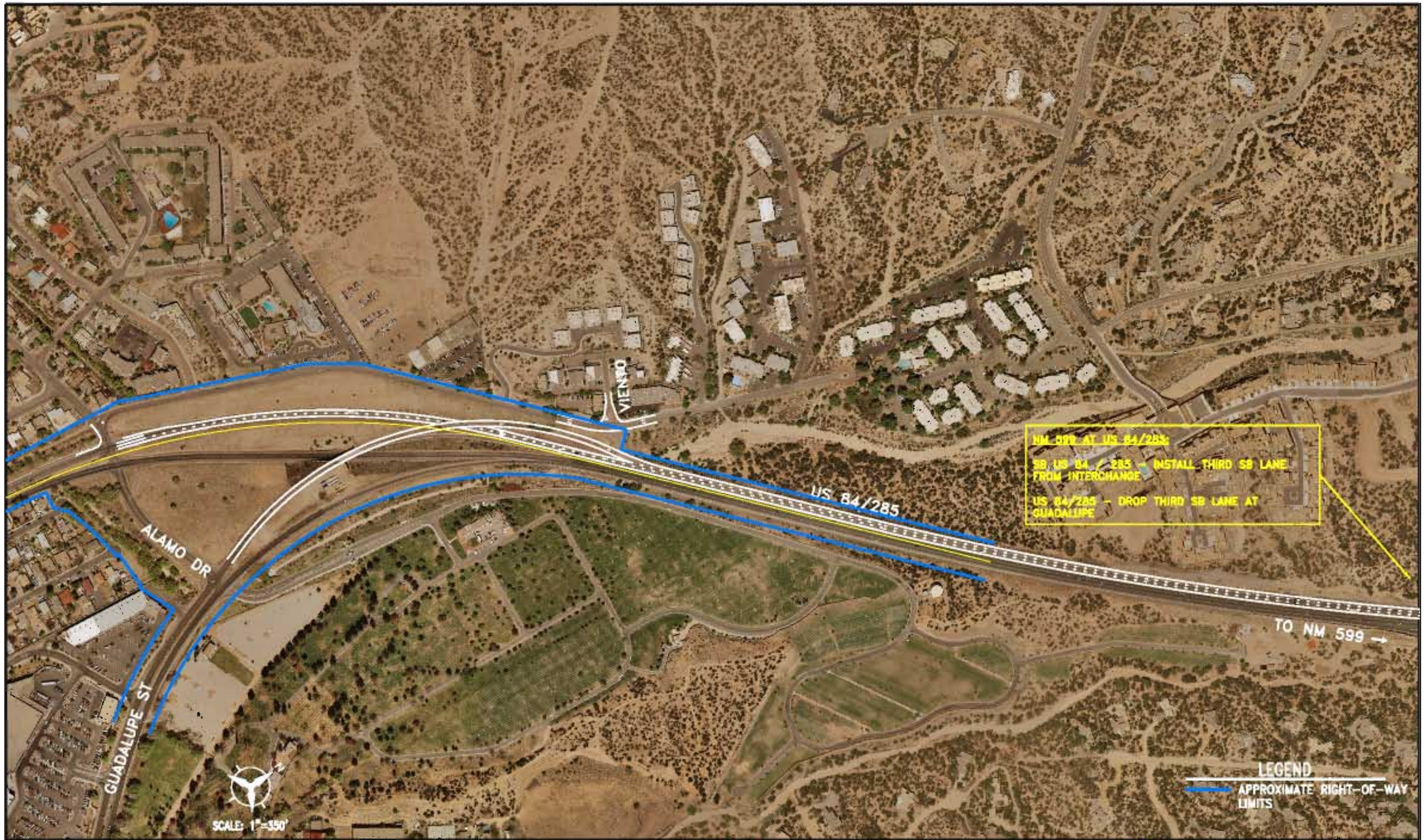

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FIGURE 72
INTERSECTION IMPROVEMENT LOCATIONS
GUADALUPE RIGHT-SIDE OFF RAMP

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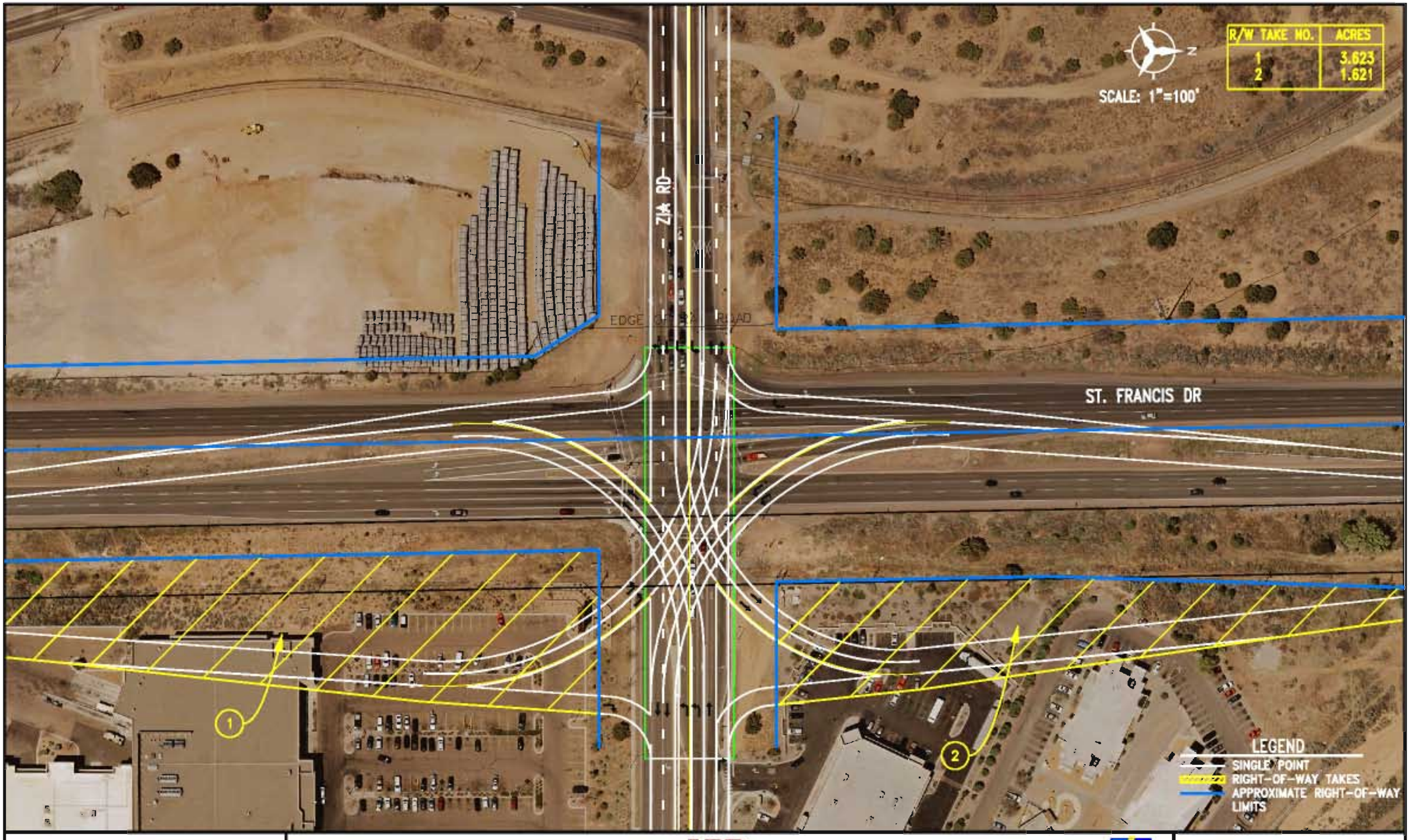

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FIGURE 73
ISOLATED IMPROVEMENT LOCATIONS
SINGLE POINT AT ZIA RD

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FIGURE 74
ISOLATED IMPROVEMENTS
CERRILLOS ROAD
GRADE SEPARATION

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In addition to the intersection improvements listed above, additional isolated improvements are proposed at the following locations:

- Construct an auxiliary lane from the southbound St. Michael's Drive on-ramp to the southbound right turn lane at Siringo Road (Figure 65). This is to improve the merge operations from St. Michael's Drive to southbound St. Francis Drive.
- Evaluate the possibility of removing the eastbound-to-northbound loop on-ramp from St. Michael's Drive (Figure 66) and replace with an eastbound left turn to merge with the existing westbound-to-northbound on-ramp. This is to improve the merge operations from St. Michael's Drive to northbound St. Francis Drive. This option would also allow for the possibility of adding in sidewalk on St. Michael's Drive, providing additional pedestrian options and connectivity in the area.
- Construct an auxiliary lane for the northbound St. Michael's Drive on-ramp through the San Mateo intersection. The auxiliary lane would merge north of San Mateo (Figure 66). This is to improve the merge operations from St. Michael's Drive to northbound St. Francis Drive.
- Close the Viento/Calle Mejia right-in/right-out onto US 84/285 / St. Francis Drive (Figure 71). The high-speed of traffic on US 84/285 raises this intersection as a safety concern due to speed differential.
- Construct a southbound auxiliary lane from the eastbound-to-southbound NM 599 on-ramp to Guadalupe (Figure 71). Re-stripe lanes so that the outside southbound lane drops at the Guadalupe interchange. This is to improve merge operations from NM 599 onto US 84/285. An option at this location is to convert the left-hand side off-ramp to a traditional right-hand side ramp. In order to reduce the height of the re-configured Guadalupe interchange, this would require lowering the grade of the southbound lanes of US 84/285 to allow for the Guadalupe interchange off-ramp to go over the southbound lanes, similar to the current configuration for the northbound lanes.
- Restrict Calle Mejia to right-in only from Alamo Drive (Figure 71). Divert southbound Calle Mejia traffic to Alamo Drive via Greg Avenue and Rio Vista Place. This is to provide more eastbound queuing distance on Alamo Drive while balancing existing business and property owner access.
- Potential interchanges at Sawmill and Zia Roads. An initial attempt at a single-point urban interchange at Zia Road is shown in Figure 73. As demonstrated in the figure, standard single-point design criteria, such as continuous left turn curves, cannot be achieved within the available right-of-way. Design variances would likely be required at either location if interchanges are to be considered at these locations and stay within the

right-of-way. Further study of this option is required to determine if an interchange is feasible at this location.

- A grade separated interchange at Cerrillos Road is also shown in Figure 74. This concept, originally proposed by Roy Wroth, a local urban designer, has St. Francis Drive going under Cerrillos and the railroad track, with a roundabout intersection at grade level. This alternative would need further evaluation to determine if this is a feasible alternative. There are a substantial number of utilities through the intersection that may preclude this concept from actual construction. In addition right-of-way will be necessary. However if this improvement were implemented traffic operations at this busy intersection would improve, along with bicycle and pedestrian access in the vicinity. An alternative to this concept is to grade separate the train track underneath St. Francis Drive and Cerrillos Road. Further study of this option is required to determine if an interchange (whether for vehicular or train traffic) is feasible at this location.

1. Responsiveness to Purpose and Need

These isolated improvements seek to respond to the purpose and need by addressing the increase in traffic congestion created by the forecast traffic volumes. These improvements would be able to incorporate some features (reduced curb radii, improved pedestrian crossings, etc.) that would enhance mobility for other travel modes; however those would not be the primary objective of these improvements.

2. Engineering Factors

a) Operational Performance

The resultant improvement in vehicular traffic operations for the improvements shown in Figure 64 through Figure 70 are discussed in Section VI.E, on page 90. The roadway improvements shown in those figures improve the traffic operations of the intersection, particularly for the minor street.

The auxiliary lane improvements will improve the merging operation from St. Michael's Drive onto St. Francis Drive, an item of concern expressed in the public meetings.

The removal of access from Viento/Calle Mejia onto US 84/285 is anticipated to improve the perception of safety in the area.

The restriction of access onto Calle Mejia from Alamo Drive will improve the operations of the intersection (by eliminating exiting traffic from Calle Mejia onto Alamo Drive) and eliminate potential lane blockages for exiting traffic.

The interchange improvement options for Sawmill, Zia and Cerrillos Roads will improve vehicular traffic operations by removing the St. Francis Drive through traffic from the traffic stream.

b) Drainage

Drainage modifications for individual intersections will need to be addressed on a case by case basis depending on the specific components of each alternative. However, in general it is likely that interchange modifications would require relocation of existing inlets and associated laterals. It is assumed that interchange modifications would entail addition of turning lanes, which would increase the runoff rates at a given area. The expansion of the pavement may also require modifications to existing roadside ditches or storm drains in an area.

c) Engineering Feasibility and Constructability

Due to the relatively limited nature of most of the intersection improvements, the engineering feasibility of constructing this alternative is very high. It is likely that utilities, driveways, street lighting and traffic signals would have to be re-located at most of these improvement locations.

The interchange improvement options will require additional resources and will also create more impacts to adjacent property owners, utilities, street lighting, etc. However from an engineering feasibility perspective these items can be overcome.

d) Safety

The proposed alternative will reduce traffic congestion and improve traffic flow, therefore there could be a decrease in minor accidents and "fender-benders" as congestion and driver impatience is reduced. However the corresponding decrease in travel delay and additional pavement width may also lead to higher speeds during the off-peak hours, potentially increasing the safety threat during those times.

3. Environmental Factors

This build alternative is expected to result in minor environmental impacts, although the interchange alternates may result in moderate to major impacts.

4. Responsiveness to Adopted Plans and Expectations

This alternative is generally considered to not be responsive to the goals of the adopted plans as all the options involve the construction of additional roadway width to accommodate the automobile at the expense of the bicyclist and pedestrian. However it would be possible to include improvements for these modes in the construction of the roadway improvements contemplated by this alternative. But any additional lane width will limit the desirability of the intersection for pedestrian activity.

5. Right-of-Way

Detailed right-of-way information for the minor streets was not evaluated to determine the right-of-way impacts that would result from these improvements; however it is likely that most of

these improvements as presented would require right-of-way acquisition to construct.

6. Estimated Construction Costs

Due to the large number of improvements within this alternative a simplified range of construction costs were identified for each segment. As segment 1 could include options from as simple as adding a left or right turn lane up to a grade separated interchange, a range of estimated construction costs of $1 million to $15 million was used. Similarly for segment 2, however the grade separated underpass at Cerrillos Road was estimated at $30 million. As segment 3 has limited improvement options, these were estimated at between $1 million to $3 million, although the option that includes lowering the grade of southbound US 84/285 would be substantially more.

It is important to note that these estimates are ***per*** improvement, not the total for ***all*** improvements for the segment. In Phase B, as the improvements are prioritized and evaluated further, additional cost information can be developed for those options which are carried forward.

7. Screening Matrix Evaluation

The initial screening matrix for this alternative is shown in Table 45. This alternative is considered appropriate for further consideration.

Table 45 – Initial Screening Matrix – Intersection Improvements Alternative

Initial Screening	Segment 1	Segment 2	Segment 3
Satisfy Purpose and Need	Partial (limited travel demand and limited connectivity)	Partial (limited travel demand and limited connectivity)	Partial (limited travel demand and limited connectivity)
Provides Capacity to Accommodate Future Travel Demand	Yes	Yes	Yes
Engineering Feasibility	Yes	Yes May require ROW	Yes
Supports General Plan Shift to Alternate Modes	No	No	No
Support General Plan Community Cohesion	No	No	No
Relative Environmental Impacts			Minor to Moderate
Incorporates Urban Design Components	Minimal	Minimal	Minimal
Relative Cost to Expected Annual Funding (est. $1M/year)	Varies 1x to 15x	Varies 1x to 30x	Varies 1x to 3x
Appropriate for Further Consideration	Yes	Yes	Yes

O. Access Control

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

Analysis presented in the previous sections indicates that there are a significant number of driveways onto St. Francis Drive. 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.

The proposed locations recommended for further study for closure are shown in Figure 19 on page 48. A total of 15 driveways and six median breaks are recommended for further study.

1. Responsiveness to Purpose and Need

This alternative seeks to respond to the purpose and need for addressing the increase in traffic congestion by reducing the number of driveways and median breaks; so as to improve through traffic flow and reduce traffic conflicts that result from the turning traffic at these locations. This alternative makes no change in pedestrian or bicycle features, although there may be some minor benefit to these modes due to the decrease in traffic crossing the travel path.

2. Engineering Factors

a) Operational Performance

It is difficult to accurately determine the change in vehicular operational performance that would result from this alternative, although it is not considered to be substantial. Changes in performance for the pedestrian and bicyclist is also seen as minimal.

b) Drainage

There is not expected to be any substantial change to drainage patterns under this alternative.

c) Engineering Feasibility and Constructability

There is no engineering feasibility of constructability concerns with this alternative.

d) Safety

Due to the reduction of traffic turning into driveways or across the traffic lanes via median breaks, there likely is a small increase in safety (reduced crashes or near-misses) that would result from this alternative. However the increase in traffic flow could result in an increase in traffic speeds, although the number of driveways and medians proposed to be eliminated is rather small compared to the number that would remain, suggesting that travel speeds on the corridor will likely be comparable to what it would be without the closures.

3. Environmental Factors

This build alternative has the potential to result in economic impacts based on access modification to existing businesses along the corridor.

4. Responsiveness to Adopted Plans and Expectations

This alternative is not seen as promoting the goals of the City's General Plan.

5. Right-of-Way

No right-of-way is required for this alternative, however the property or business owner may consider the driveway or median closure to be a taking and request compensation for perceived damages.

6. Estimated Construction Costs

Segments 2 and 3 are the only locations where this alternative would be applicable. An estimate of the removal of the existing driveway or median with reconstruction was estimated.

7. Screening Matrix Evaluation

The initial screening matrix for this alternative is shown in Table 46. This alternative is considered appropriate for further consideration as it would have a minor to positive impact on traffic flow and may slightly improve the safety at those areas where the access is controlled.

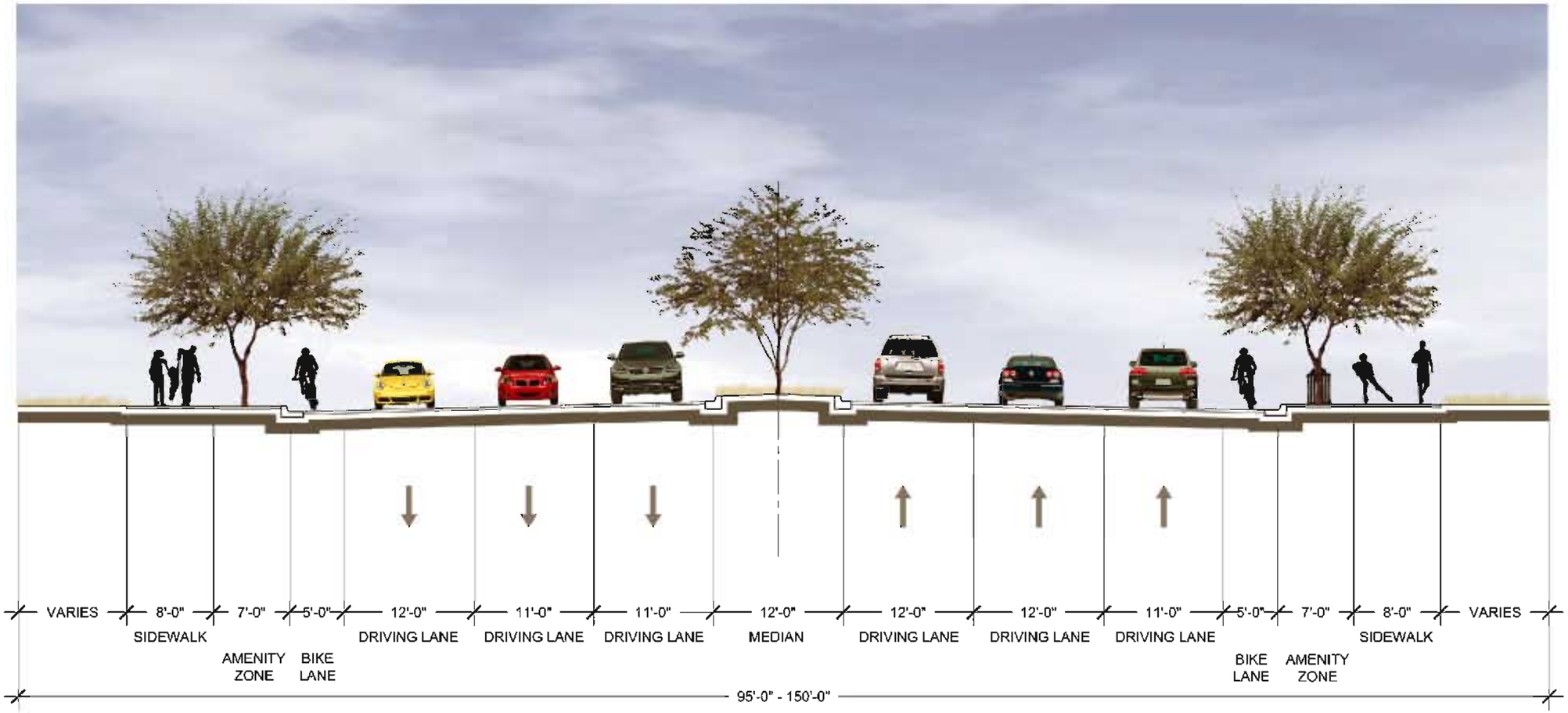
Table 46 – Initial Screening Matrix – Access Control Alternative			
Initial Screening	Segment 1	Segment 2	Segment 3
Satisfy Purpose and Need	Partial (safety)	Partial (safety)	Partial (safety)
Provides Capacity to Accommodate Future Travel Demand	No	No	No
Engineering Feasibility	Yes	Yes	Yes
Supports General Plan Shift to Alternate Modes	No	No	No
Support General Plan Community Cohesion	No	No	No
Relative Environmental Impacts	Moderate	Moderate	Moderate
Incorporates Urban Design Components	No	No	No
Relative Cost to Expected Annual Funding (est. $1M/year)	0	1.5x plus Business interests may demand compensation	0.25x
Appropriate for Further Consideration	No Currently Access Controlled	Yes	Yes

P. Complete Streets

This alternative proposes to create *Complete Streets* along the entire St. Francis Drive corridor through the addition of landscaped medians, landscaped shoulders, multi-use paths, site furnishings, pedestrian lighting and modified intersections (roundabouts). It is recognized that this concept primarily focuses on pedestrian connectivity and street aesthetics and has no impact on capacity. Capacity would not increase or change unless combined with other alternatives. This alternative allows for St. Francis Drive to act as a more cohesive community element and entrance into Santa Fe seeking to bring the neighborhoods and community together rather than separating them.

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 Road. *The Complete Street concept* could, and should, be incorporated with other alternatives, specifically the lane conversion or lane removal allowing the focus to be on alternative modes of transportation.

A representative plan view of this alternative is shown in Figure 45 on page 135. The typical section for this alternative is shown in Figure 75.



NOT TO SCALE

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FIGURE 75
COMPLETE STREETS
TYPICAL SECTION

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1. Responsiveness to Purpose and Need

This alternative is responsiveness to the purpose and need by seeking to enhance the mobility of the pedestrian and bicyclist while improving aesthetics of the corridor. This alternative does not propose to increase the vehicular capacity of the roadway and therefore does not accommodate the future vehicular travel demand.

2. Engineering Factors

a) Operational Performance

The vehicular performance for this alternative is comparable to that of the no-build alternative. In the event that additional pedestrian and bicycle facilities could be incorporated into the existing roadway prism, this alternative would improve the performance of these modes.

b) Drainage

This alternative is not seen as creating substantial additional drainage infrastructure as the amount of impervious surface will not increase. Adjustments to drainage inlets and other infrastructure may be required.

c) Engineering Feasibility and Constructability

This alternative is considered feasible for construction.

d) Safety

This alternative is not anticipated to result in a substantial change in safety along the corridor. Any additional sidewalk width is likely to increase the perception of safety of the pedestrian due to the additional distance from the traveled way that would result. The provision of bike lanes would likely improve safety for bicycle users.

3. Environmental Factors

This build alternative has the potential to result in environmental impacts based on right-of-way requirements. Benefits include enhanced pedestrian / bicycle facilities, visual resources, and community cohesion.

4. Responsiveness to Adopted Plans and Expectations

This alternative is considered to be mildly supportive of local adopted plans as it may increase the bicycle and pedestrian mode. There is also the possibility that at some locations the crossing distance across the street will reduce, slightly reducing the separation across the corridor.

5. Right-of-Way

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

6. Estimated Construction Costs

A simplified estimating technique was used determine the costs for the additional streetscape elements: multi-use paths, landscaping, irrigation, furnishings and pedestrian lighting.

Screening Matrix Evaluation

The initial screening matrix for this alternative is shown in Table 47. This alternative is considered appropriate for further consideration as it may improve roadway for pedestrian and bicyclists as well as improve the aesthetics of the corridor.

Table 47 – Initial Screening Matrix – Complete Streets Alternative

Initial Screening	Segment 1	Segment 2	Segment 3
Satisfy Purpose and Need	Partial (Alternate Modes)	Partial (Alternate Modes)	Partial (Alternate Modes)
Provides Capacity to Accommodate Future Travel Demand	No	No	No
Engineering Feasibility	Yes	Yes, may require ROW	Yes
Supports General Plan Shift to Alternate Modes	Yes	Yes	Yes
Support General Plan Community Cohesion	Yes	Yes	Yes
Relative Environmental Impacts	Minor	Moderate	Minor
Incorporates Urban Design Components	Yes	Yes	Yes
Relative Cost to Expected Annual Funding (est. $1M/year)	3.2x	3.5x Does not include ROW costs	1.3x
Appropriate for Further Consideration	Yes	Yes	Yes

Assumptions:
ROW not included
Costs include the following streetscape elements: multi-use paths, trees, planting, irrigation, site furnishings, and pedestrian lighting. ($315 to $329 per linear foot)

Q. Trail Connectivity

This alternative proposes to create and enhance the trail and path connectivity along the corridor and linkages to other trails in Santa Fe and the surrounding neighborhoods. A continuous multi-use path either in the median or along the edges of the roadway would be added and/or enhanced for the entire length of the corridor. New trail connections will also link east/west crossings along the entire corridor. This multi-use path is intended mainly for pedestrians and bicycles. 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 crossing proposed just north of Zia on St. Francis Drive

and the Acequia Trail north of Cerrillos Road. A new pedestrian overpass located at Alameda, parallel to the Santa Fe River, is proposed for further consideration.

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. 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 has no impact on capacity. Capacity would not increase or change unless combined with other alternatives.

This alternative could be incorporated with other alternatives, specifically the lane conversion or lane removal allowing the focus to be on the alternative modes of transportation.

The proposed trail connections throughout the corridor are shown in Figure 76, including the completion of the Rail Trail between Alta Vista and Alarid Streets.

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FIGURE 76
TRAIL CONNECTIVITY IMPROVEMENT LOCATIONS

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1. Responsiveness to Purpose and Need

This alternative responds to the purpose and need by enhancing the pedestrian and bicycle modes. The improved connectivity to the local trail system may result in an increased use of these modes as an alternative for the automobile. This alternative does not address the future travel demand other than improving the pedestrian and bicycle modes.

2. Engineering Factors

a) Operational Performance

This alternative should improve the performance of the bicycle and pedestrian mode. Vehicular performance will be comparable to the no-build unless substantial numbers shift to bicycle and walking.

b) Drainage

The drainage requirements for this alternative will require analysis to ensure that flow from the proposed trails or additional sidewalk is contained within existing drainage conveyances.

c) Engineering Feasibility and Constructability

Initial analysis indicates that the proposed multi-use paths can be constructed to interconnect with the City and County trails network.

d) Safety

Providing a parallel trail network that is not on St. Francis Drive is considered to result in a safer pedestrian and bicycle trip than an on-street system, due to the volume and speed of traffic on St. Francis Drive.

3. Environmental Factors

This build alternative is expected to result in minor environmental impacts.

4. Responsiveness to Adopted Plans and Expectations

This alternative is responsive to the locally adopted plans as it promotes and provides additional opportunities for pedestrian and bicycle travel and allow for the possibility of reduced dependence on the automobile.

5. Right-of-Way

No additional right-of-way would be used to construct the proposed trails in this alternative.

6. Estimated Construction Costs

The cost for a 12-foot multi-use path was assumed in developing the preliminary cost estimates. In areas where a sidewalk currently exists, an estimate for expanding that sidewalk was included.

7. Screening Matrix Evaluation

The initial screening matrix for this alternative is shown in Table 48. The Trail Connectivity alternative is considered appropriate for further consideration for all segments due to the expansion of opportunities for alternate modes it would provide.

Table 48 – Initial Screening Matrix – Trail Connectivity Alternative

Initial Screening	Segment 1	Segment 2	Segment 3
Satisfy Purpose and Need	Partial (System Connectivity /Alternate Modes)	Partial (System Connectivity /Alternate Modes)	Partial (System Connectivity /Alternate Modes)
Provides Capacity to Accommodate Future Travel Demand	No	No	No
Engineering Feasibility	Yes	Yes	Yes
Supports General Plan Shift to Alternate Modes	Yes	Yes	Yes
Support General Plan Community Cohesion	Yes	Yes	Yes
Relative Environmental Impacts	Minor	Minor	Minor
Incorporates Urban Design Components	Yes	Yes	Yes
Relative Cost to Expected Annual Funding (est. $1M/year)	1.5x	1.5x	Limited opportunity
Appropriate for Further Consideration	Yes	Yes	Yes
Assumptions: ROW not included Costs include a 12' multi-use path on both sides of St. Francis Drive only			

R. Enhanced Transit Service

This alternative proposes a project to study local rail service from NM 599 to the Santa Fe Depot to accommodate local Santa Fe residents and commuters and to evaluate expansion of the local and regional transit systems.

According to the 2000 census data, 84.01% of jobs in Santa Fe are worked by people living in Santa Fe County (Table 2). With the strong local workforce, a local Rail Runner service could provide an alternative mode of transportation, possibly decreasing traffic congestion along St. Francis Drive and other routes in the City and County, while also reducing the parking demands downtown. This service would be provided using the same track as the NM Rail Runner Express service to Albuquerque. The new local rail service would run during off-peak express service times and require additional trains. Coordination with the NM Rail Runner Express would be required for this alternative to move forward.

In addition to the local rail service, the alternative proposes consideration of an additional Santa Fe Trails bus route servicing Eldorado. This route would exit off of I-25 onto St. Francis Drive with stops

at key locations including Zia and Siringo Roads, the South Capitol area and rail station, the Railyard, Downtown Transit Mall, and De Vargas Mall. An alternative route to downtown could also use Old Pecos Trail.

In addition to the local rail and expanded local and regional transit, the possibility of Express Commuter Routes should be considered. Additional items to evaluate would be the possibility of remote parking and expanded Park and Ride service for peak commuting routes and times.

According to the 2005-2007 American Community Survey data, only 1.5% of the people in the City of Santa Fe and the Santa Fe Metro area used public transportation as a means to get to work (Table 3). Additionally, only 2.9% of the people walked to work and only 2.0% of the people took a taxicab, motorcycle, bicycle or other means as a way to get to work. 89% of people drove a car, truck or van to work with 74% of the total number of people commuting to work driving alone. The intent of this alternative is to provide additional means of alternative modes of transportation to help entice Santa Fe residents and commuters to utilize public transportation, decrease dependence on the automobile and balance the need for expanded transportation capacity while enhancing the character of the community.

This alternative focuses on decreasing the number of vehicles using St. Francis Drive by providing alternative modes of transportations and therefore improving traffic operations due to the reduced number of commuter vehicles travelling downtown.

The initial set of expanded transit stops are shown in Figure 77.

LEGEND

- EXISTING RAIL RUNNER ROUTE
- PROPOSED SANTA FE TRAILS ROUTE
- EXISTING RAIL RUNNER STOP - COMMUTER AND LOCAL
- PROPOSED RAIL RUNNER STOP - COMMUTER AND LOCAL
- SANTA FE TRAILS STOP

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FIGURE 77
EXPANDED TRANSIT STOP LOCATIONS

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1. Responsiveness to Purpose and Need

This alternative is responsive to the purpose and need by enhancing alternative modes. This alternative addresses the increase in traffic congestion through the additional use of transit.

2. Engineering Factors

a) Operational Performance

In order for the vehicular performance on St. Francis Drive to operate at comparable levels of congestion as today, Section X.G.2.a) on page 159 identifies that 10-30% of future forecast travel demand on St. Francis would need to use the Enhanced Transit system. This would require a reduction of 300 to 1,000 peak hour trips a day using transit or alternate modes. Using the 40-passenger per bus ridership estimate as previously would require 7 to 25 more buses in the peak hour on St. Francis Drive, plus the additional transit expansion throughout the local system to allow commuters to complete their trips on transit.

b) Drainage

No drainage impacts to St. Francis Drive would result from this alternative.

c) Engineering Feasibility and Constructability

This alternative does not result in construction activity on St. Francis Drive, except perhaps for bus stops. Construction of new local rail stations would be required under this alternative if the local rail service was implemented.

d) Safety

This alternative is not expected to reduce the crash rate on St. Francis Drive, although if a substantial amount of travel demand is shifted to transit it could be expected that the number of crashes would be reduced.

3. Environmental Factors

This build alternative is expected to result in minor environmental impacts but would result in additional transit service for the region.

4. Responsiveness to Adopted Plans and Expectations

This alternative supports the local adopted plans as it provides for additional transit opportunities and seeks to reduce dependence on the automobile.

5. Right-of-Way

No additional right-of-way would be required for the rail line or traveled way for the bus routes; however right-of-way may be required for the new rail stations and bus stops.

6. Estimated Construction Costs

The construction costs for this alternative will be limited to any new stations along the rail line or for new bus stops. Capital costs for expansion of the rail system and bus system will be substantial, as well as the operating costs for the additional rail and bus routes. An estimate of

$400,000 per bus for capital acquisition, and $1.2 million for operations and maintenance (per bus) was assumed. For the estimated additional buses required mentioned above (7 to 25) indicates a capital cost of between $2.8 million to $10 million, with annual operating costs of $8.4 million to $30 million. Please bear in mind that these are the approximate costs for service on St. Francis Drive only. An Enhanced Transit System alternative would not be effective if additional service is provided only on St. Francis Drive. A complete local and regional transit system expansion would be required in order to result in substantial changes to travel behavior on St. Francis Drive.

It is also should be noted that operations and maintenance costs of local bus systems are generally the responsibility of the local government, in this case Santa Fe Trails and the City of Santa Fe.

7. Screening Matrix Evaluation

The initial screening matrix for this alternative is shown in Table 49. This alternative is considered appropriate for further consideration for all segments due to the alternative modes that it enables.

Table 49 – Initial Screening Matrix – Enhanced Transit Service Alternative

Initial Screening	Segment 1	Segment 2	Segment 3
Satisfy Purpose and Need	Partial (System Connectivity /Alternate Modes)	Partial (System Connectivity /Alternate Modes)	Partial (System Connectivity /Alternate Modes)
Provides Capacity to Accommodate Future Travel Demand	Yes	Yes	Yes
Engineering Feasibility	Yes May Require ROW	Yes, May Require ROW	Yes
Supports General Plan Shift to Alternate Modes	Yes	Yes	Yes
Support General Plan Community Cohesion	Yes	Yes	Yes
Relative Environmental Impacts	Moderate	Moderate	Moderate
Incorporates Urban Design Components	Possible	Possible	Possible
Relative Cost to Expected Annual Funding (est. $1M/year)	0.4x per bus (capital cost) 1.2 x per bus (O&M) Plus rail expansion	0.4x per bus (capital cost) 1.2 x per bus (O&M) Plus rail expansion	0.4x per bus (capital cost) 1.2 x per bus (O&M) Plus rail expansion
Appropriate for Further Consideration	Yes	Yes	Yes
Additional railroad engines and cars and operations not included			

S. 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 a regional Intelligent Transportation System network may also result in improvements in operation without the investment of constructing 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. Implementation of Transportation Demand Management strategies should be developed on a regional level to be effective.

1. Responsiveness to Purpose and Need

This alternative seeks to address the increase in traffic congestion anticipated for the corridor. This alternative makes no changes in the viability of alternate modes, although signal timing changes and improved traffic flow may result in a more pleasant pedestrian experience.

2. Engineering Factors

a) Operational Performance

Transportation systems management attempts to maximize the operational efficiency of a corridor through the use of improved signal timing and intelligent transportation system applications (traveler notification, rapid incident response, real-time traffic signal adjustment due to incidents, etc.). This alternative would still be limited to the capacity of the roadway; perhaps slightly better, therefore it is likely that congestion levels will still be substantial under this alternative.

b) Drainage

There is not expected to be any substantial changes in drainage patterns due to this alternative.

c) Engineering Feasibility and Constructability

As the Intelligent Transportation System infrastructure is developed for the Santa Fe region, improvements can be incorporated into the St. Francis Drive corridor.

d) Safety

The introduction of assistance patrols, traveler notification, and rapid incident response should also contribute to the removal and avoidance of incidents on the roadway.

3. Environmental Factors

This build alternative is expected to result in minor environmental impacts.

4. Responsiveness to Adopted Plans and Expectations

This alternative is not considered supportive of the adopted plans for the region as it seeks to improve traffic flow for the automobile.

5. Right-of-Way

Depending on what measures are implemented in support of the regional ITS architecture, right-of-way may be required for overhead signs and notification equipment (changeable message signs, interconnect, etc.).

6. Estimated Construction Costs

Estimates are pending coordination with the NMDOT ITS department.

7. Screening Matrix Evaluation

The initial screening matrix for this alternative is shown in Table 50. This alternative is considered appropriate for further consideration due to the alternatives potential to reduce traffic congestion within the existing roadway.

Table 50 – Initial Screening Matrix – Transportation Systems Management Alternative

Initial Screening	Segment 1	Segment 2	Segment 3
Satisfy Purpose and Need	Partial (Relieve Congestion)	Partial (Relieve Congestion)	Partial (Relieve Congestion)
Provides Capacity to Accommodate Future Travel Demand	Minimal	Minimal	Minimal
Engineering Feasibility	Yes	Yes	Yes
Supports General Plan Shift to Alternate Modes	No	No	No
Support General Plan Community Cohesion	No	No	No
Relative Environmental Impacts	Minor	Minor	Minor
Incorporates Urban Design Components	No	No	No
Relative Cost to Expected Annual Funding (est. $1M/year)			
Appropriate for Further Consideration	Yes	Yes	Yes
ROW not included			