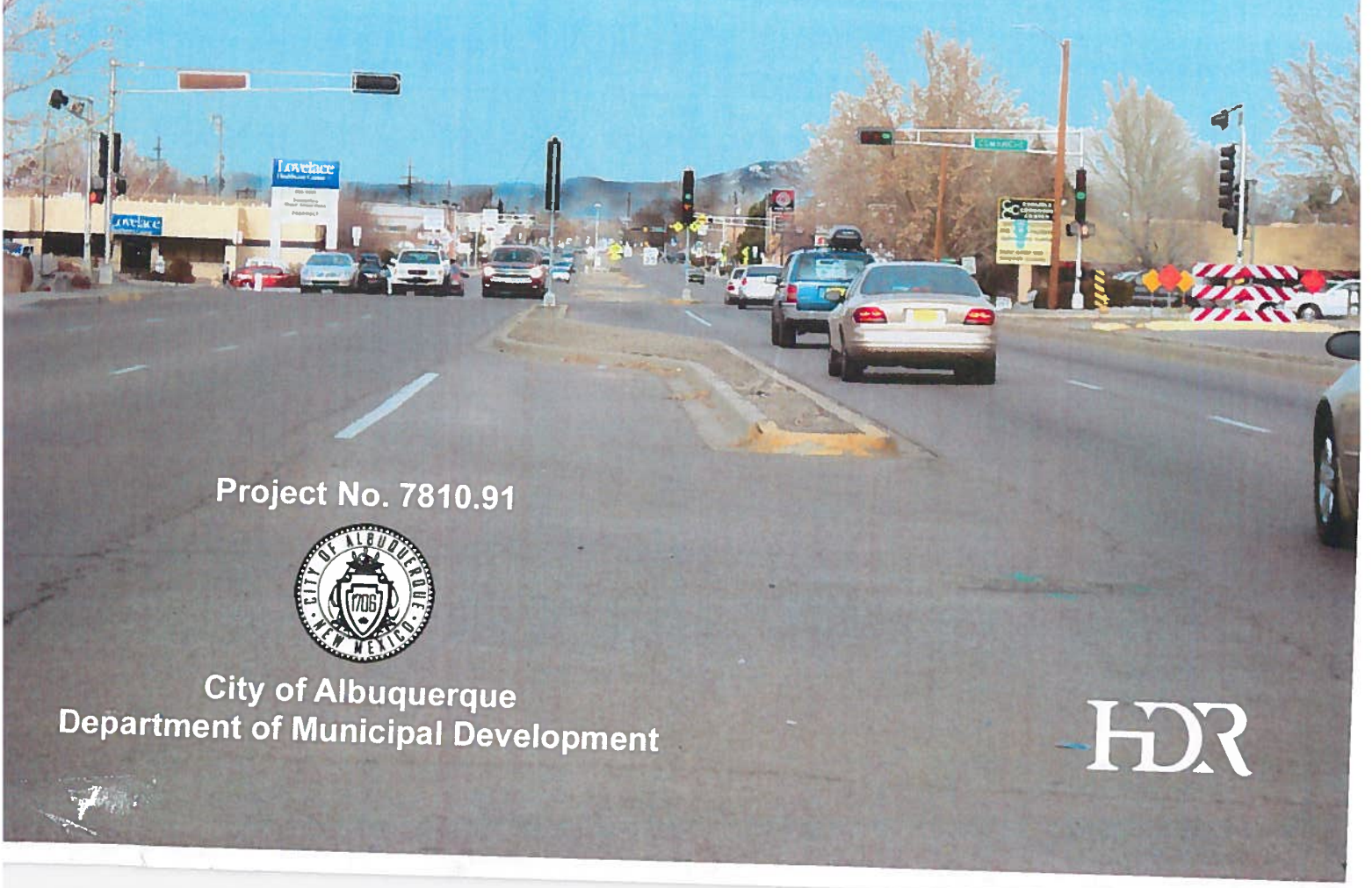
Carlisle Boulevard Corridor Study

Interstate 40 to Montgomery Boulevard

Final Report

Book 1 of 2

July 2008



Project No. 7810.91

City of Albuquerque
Department of Municipal Development

HDR

HDR Engineering, Inc.

Carlisle Boulevard Corridor Study
FINAL REPORT

City of Albuquerque, New Mexico

July 2008

CARLISLE BOULEVARD CORRIDOR STUDY

FINAL REPORT

PREPARED FOR:

CITY OF ALBUQUERQUE
DEPARTMENT OF MUNICIPAL DEVELOPMENT
TRANSPORTATION DEVELOPMENT DIVISION

The technical material and data contained in this document were prepared under the supervision and direction of the undersigned, whose seal as a Professional Engineer, licensed to practice in the State of New Mexico, is affixed below:

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License No. 13660

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I. PROJECT HISTORY

In 2005, the City of Albuquerque (COA) received several complaints about the need for improvements along Carlisle Boulevard between Menaul Boulevard and Montgomery Boulevard. The primary complaint was the separation of Carlisle Boulevard's northbound lanes and the frontage road from Candelaria Road to Comanche Road. The signing and markings on northbound Carlisle Boulevard from Candelaria Road to Comanche Road are in need of improvements. Traffic driving northbound was confused about the separation of northbound lanes and the frontage road. Residents complained about traffic driving at high rates of speed along the frontage road and causing accidents by running into parked cars along the frontage road.

After receiving written and verbal comments, the COA conducted a public meeting in February 2006 to compile these comments and solicit input from the public on how to solve the problems along the corridor.

Because of citizen concerns about the corridor, in May 2006, the COA advertised a Request for Proposals for a consulting engineering firm to evaluate existing conditions and develop alternatives and solutions for the corridor. HDR Engineering, Inc. (HDR) was selected by the COA to conduct the study. Two books have been created for the corridor study. Book One consists of the corridor study report and Book Two consists of the Traffic Analysis Report, Public Information Meeting Minutes and Citizen Task Force Meeting Minutes.

II. EXECUTIVE SUMMARY

The Carlisle Boulevard Corridor from Interstate 40 to Montgomery Boulevard is an urban minor arterial which currently carries approximately 28,980 vehicles per day (vpd) based on the Mid Region Council of Governments (MRCOG) 2006 Traffic Flow Maps. Over the years numerous concerns have been voiced by residents to City Council members and COA staff about the operations, and need for improvements along the corridor. The areas of focus for the corridor were Carlisle Boulevard from Candelaria Road to Comanche Road and the intersection of Carlisle Boulevard and Claremont Avenue.

The first public information meeting was held on February 1, 2006 to obtain input and opinions regarding Carlisle Boulevard improvements from those who reside in the area as well as those who operate businesses in the area. Written comments and verbal comments were received regarding geometric improvements within the corridor.

The second public information meeting was held on April 4, 2007 at the beginning of the corridor study phase to allow residents to voice problems, concerns and issues of the corridor. At this public meeting, HDR solicited residents of each of the neighborhoods within the study area to be a part of a Citizens Task Force (CTF).

The purpose of the CTF was to allow neighborhood residents to summarize problems of the corridor, identify goals of the corridor and be an integral part in the development of alternatives for northbound Carlisle Boulevard between Candelaria Road and Comanche Road and for the intersections in the corridor. After detailed analysis, design and discussion of four (4) Carlisle Boulevard alternatives and an alternative at Carlisle Boulevard and Claremont Road, the CTF recommended (by polling of all CTF members) Alternative D for design improvements to the corridor.

Alternative D includes the following improvements:

- Construct 3-11' driving lanes on northbound Carlisle Boulevard from Candelaria Road to Comanche Road;
- Construct a 24" wide, 36" high wall barrier between northbound Carlisle Boulevard lanes and the frontage road;
- Construct a 19' frontage road;
- Maintain a 18.7' raised median between southbound and northbound Carlisle Boulevard lanes;
- Construct a 24" wide, 36" high concrete wall barrier along northbound Carlisle Boulevard from just north of Candelaria Road to Comanche Road. With the construction of this wall barrier, residential traffic will be allowed access to side streets from Candelaria Road and Comanche Road;
- Construct median improvements at the intersection of Carlisle Boulevard and Aztec Road to allow only northbound traffic to turn left onto Aztec Road. All other traffic movements would be prohibitive;

- Improve roadway lighting along the entire corridor to meet current American Association of State Highway and Transportation Officials (AASHTO) Roadway Lighting Design Guide standards and current COA Development Process Manual (DPM) standards;
- Improve ADA ramps at all intersections along the corridor to current ADA standards and current COA DPM standards;
- Improve sidewalks along the corridor;
- Construct median landscaping along the corridor;
- Offer traffic signal interconnection during the Final Design phase of the project of all traffic signals along the corridor to provide more efficient flow of traffic through the corridor;
- Median cut for easy access to Lovelace clinic north of Comanche Road;
- Improve location of ABQ Ride stops along the corridor;
- Improve signing and striping along the corridor;
- Reconstruct the intersections of Carlisle Boulevard and Candelaria Road, Carlisle Boulevard and Comanche Road to be ADA compliant;
- Realign/reconstruct intersection of Carlisle Boulevard and Claremont Avenue;
- Improve signal timing at the intersection of Carlisle Boulevard and Claremont Avenue as soon as possible.

This alternative brings the following improvements to the corridor:

- Reduce traffic from entering the neighborhood frontage road just north of Candelaria Road;
- Elimination of cut-through traffic on neighborhood streets east of Carlisle Boulevard;
- Improved traffic operations along Carlisle Boulevard between Candelaria Road and Comanche Road;
- Improved lighting along the corridor;
- Improved pedestrian access along the corridor.

Additional improvements recommended along the corridor are the realignment of the west leg of Claremont Avenue at the intersection of Carlisle Boulevard.

III. INTRODUCTION

Carlisle Boulevard is a major north-south thoroughfare for those that travel in Albuquerque. This roadway has been a significant corridor in Albuquerque for decades. During the middle of the 20th century, Carlisle Boulevard became an approximate boundary between "old" and "new" Albuquerque. Carlisle Boulevard has evolved into a mixture of residential and commercial properties.

HDR worked with the following team of consultants since the contract began in early 2007:

- Karpoff & Associates, Inc., Public Involvement, Agency Coordination, Context-Sensitive Design
- T.R. Mann & Associates, Inc., Mapping
- Surveying Control, Inc., Location Surveys

The goal of a corridor study is to evaluate existing conditions, develop alternatives to improve the corridor, to evaluate those alternatives and to provide recommendations. This corridor study examines Carlisle Boulevard between Interstate 40 and Montgomery Boulevard. The study includes an investigation into the addition of a third northbound lane on Carlisle Boulevard between Candelaria Road and Comanche Road. Specific attention was paid to the intersections of Carlisle Boulevard and Claremont Avenue, Carlisle Boulevard and Candelaria Road as well as Carlisle Boulevard and Comanche Road. Overall, the recommended improvements will propose changes to the geometry and signals of the corridor. The location map is shown in Figure 1 and the study area is shown in Figure 2.

FIGURE 1 – LOCATION MAP

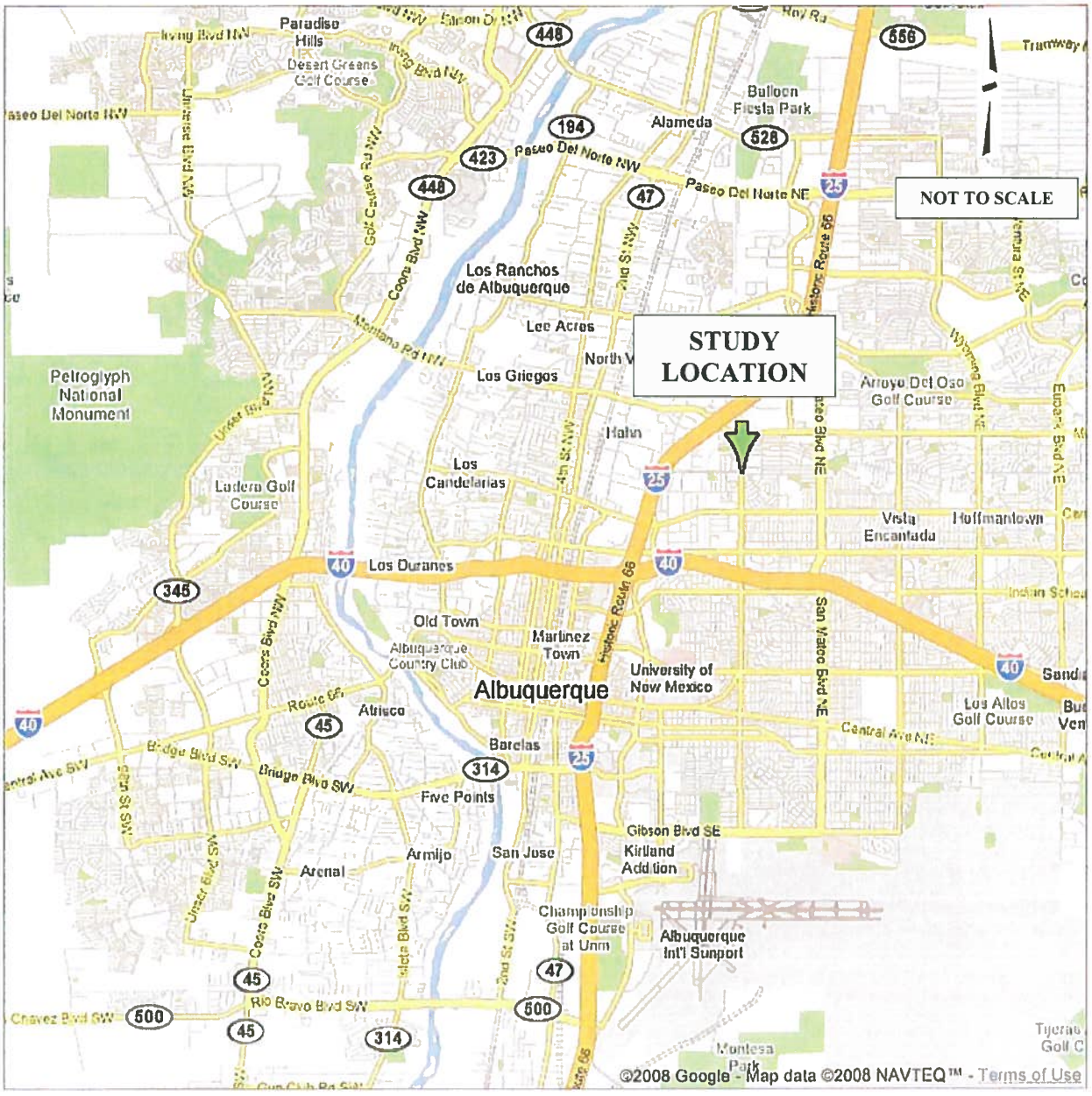
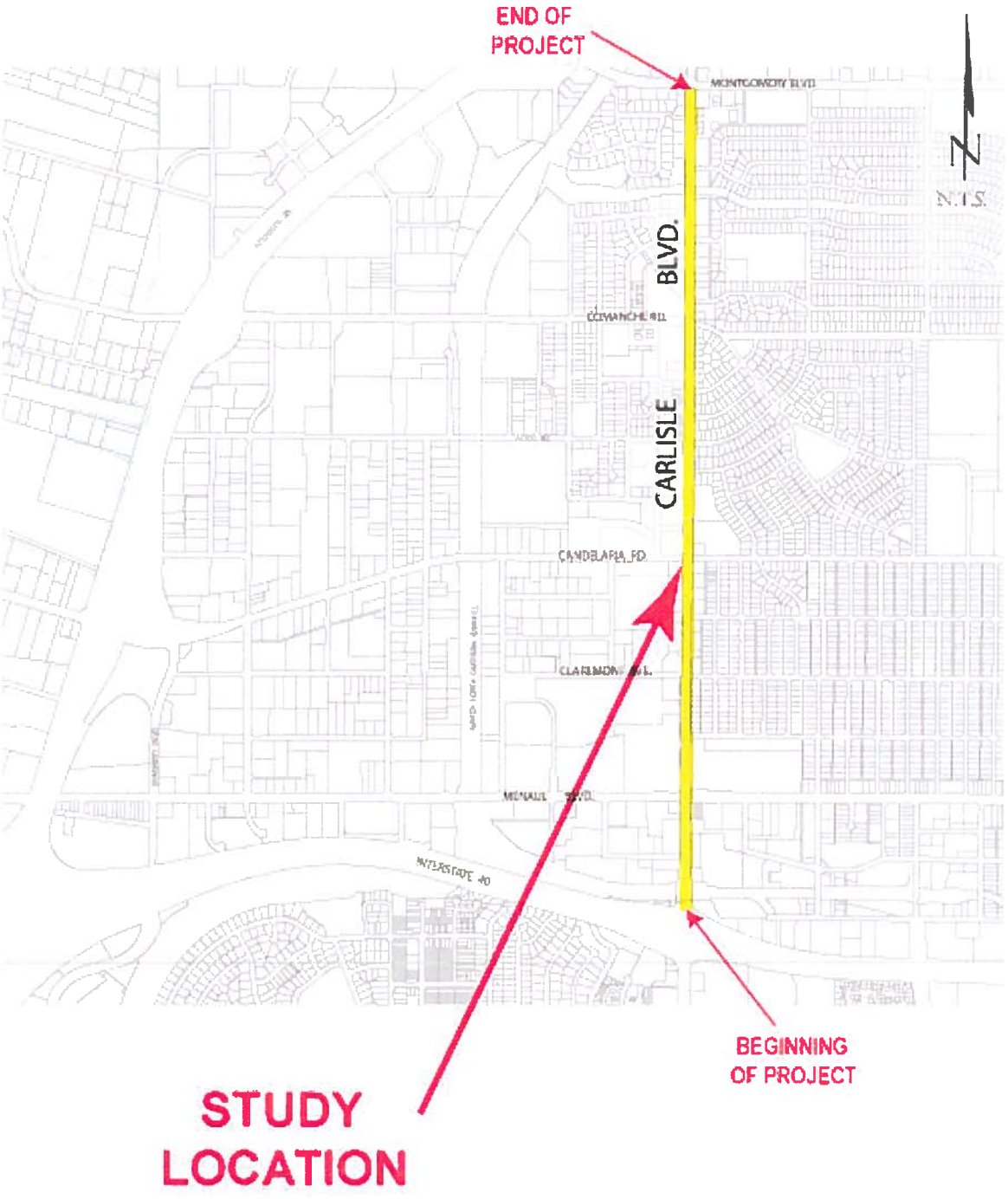


FIGURE 2 – VICINITY MAP



IV. PURPOSE AND NEED

The purpose of the Carlisle Boulevard project is to identify improvements that will enhance traffic flow for motorists and pedestrians while providing relief from current congestion from Menaul Boulevard to Montgomery Boulevard. The corridor study also includes improving the signalized intersection of Carlisle Boulevard and Claremont Avenue as well as Carlisle Boulevard at Candelaria Road and Comanche Road.

A. Existing Transportation System

The functional classification of Carlisle Boulevard, functional classification of surrounding roadways, bicycle facilities and public transit routes were inventoried to determine the needs of the Carlisle Boulevard study area. Information regarding functional classification was obtained through Mid-Region Council of Governments (MRCOG).

Carlisle Boulevard, a north-south roadway, is classified as an urban minor arterial. Carlisle Boulevard has numerous intersections and commercial driveway access points. Most of Carlisle Boulevard within the study area is bordered by commercial businesses; the posted speed limit is 35 mph.

Menaul Boulevard is an east-west roadway and is classified as an urban principal arterial. Menaul Boulevard acts as a passageway for traffic from the east part of Albuquerque to Interstate 25 and Interstate 40.

Montgomery Boulevard (north of the Carlisle Boulevard project area), an east-west roadway, is classified as an urban principal arterial. Like Menaul Boulevard, Montgomery Boulevard acts as a more northern passageway from the east part of Albuquerque to Interstate 25.

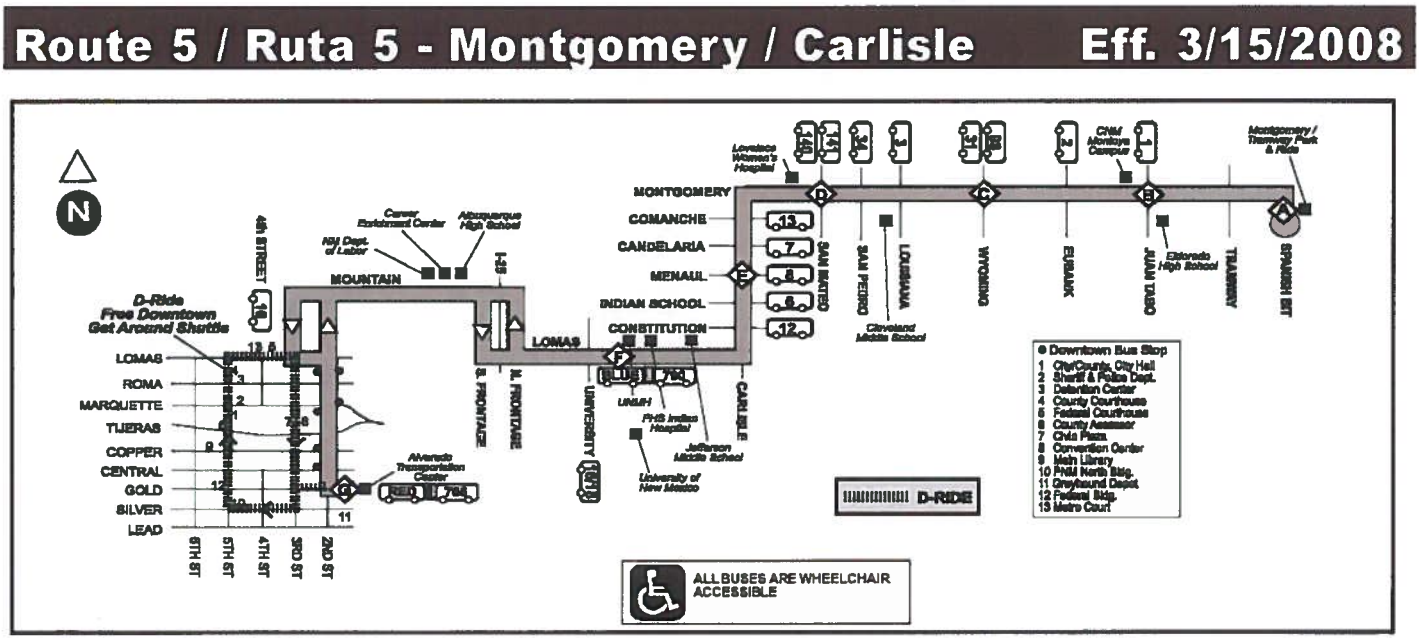
At Carlisle Boulevard, Comanche Road, an east-west roadway, is classified as an urban minor arterial to the west and an urban collector to the east. Comanche Road east of Carlisle Boulevard is primarily residences while Comanche Road to the west serves residences and businesses.

Candelaria Road, an east-west roadway, is classified as an urban principal arterial. Candelaria Road serves residences and businesses alike.

Carlisle Boulevard does not contain bicycle lanes. Currently, a dedicated trail crosses Carlisle Boulevard approximately 1,500 feet north of Comanche Road. MRCOG's 2030 Metropolitan Transportation Plan (MTP) currently does not indicate a plan for the addition of bicycle lanes on Carlisle Boulevard. Menaul Boulevard, Candelaria Road and Montgomery Boulevard currently do not have dedicated bicycle trails, lanes or routes. MRCOG's MTP shows Candelaria Road becoming a bikeway corridor in the future.

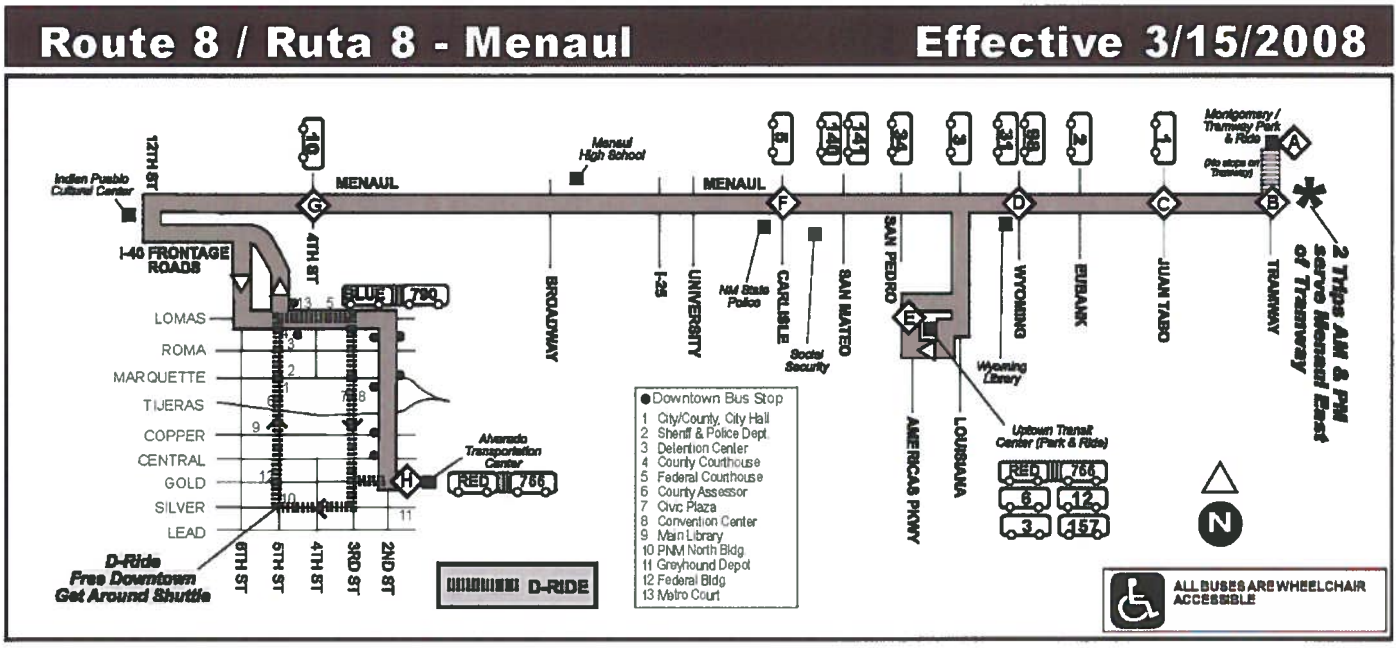
A source of public transit for Albuquerque is ABQ RIDE, a bus system that includes Park and Ride facilities and Rapid Ride, an express service for its riders. ABQ RIDE's Route 5 travels along Carlisle Boulevard and Montgomery Boulevard. For northbound Carlisle Boulevard riders there are stops north of Menaul Boulevard, south of Phoenix Avenue, north of Claremont Avenue, north of Los Arboles Avenue, south of Candelaria Road, north of Candelaria Road, north of Aztec Road, south of Mescalero Court, north of Comanche Road, north of San Andres Drive and north of Hilton Avenue. Southbound riders along Carlisle Boulevard are able to stop north of Hendrix Road, north of the Hahn Arroyo, north of San Andres Drive, north of Comanche Road at Lovelace, south of Comanche Road, north of Aztec Road, north of Candelaria Road, south of Candelaria Road, south of Claremont Avenue at a bulb-out and north of Menaul Boulevard. Those traveling east on Montgomery Boulevard are able to stop just east of Carlisle Boulevard. Likewise, those traveling west along Montgomery Boulevard are able to stop east of Carlisle Boulevard at the Sun Pointe apartment complex and just west of Carlisle Boulevard. See Figure 3 for an ABQ RIDE Route 5 Map.

FIGURE 3 – ABQ RIDE ROUTE 5 MAP



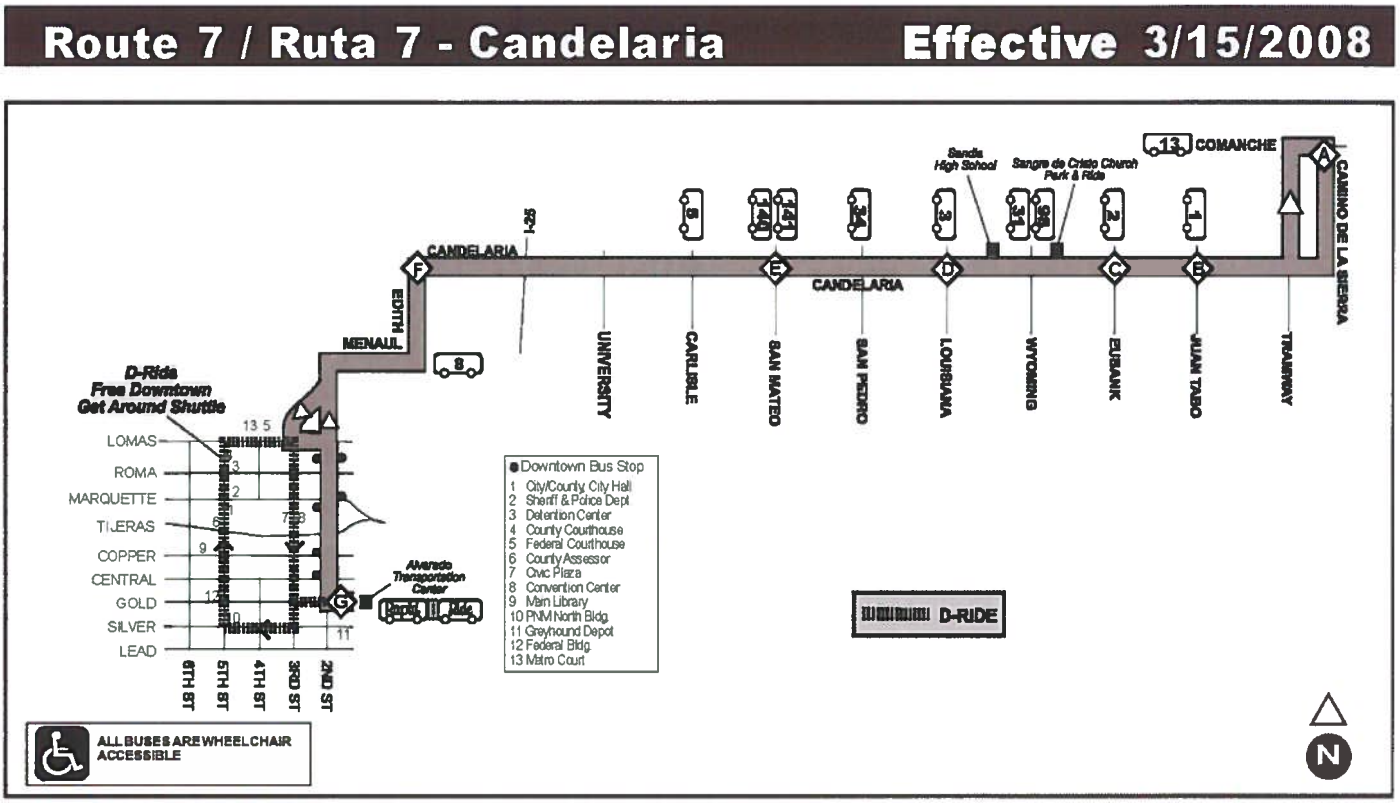
Route 8 travels along Menaul Boulevard. Those traveling eastbound on Menaul Boulevard are able to stop just west of Carlisle Boulevard as well as east of Carlisle Boulevard. For westbound Menaul Boulevard riders, they are able to stop west of Carlisle Boulevard at a bulb-out and just east of Carlisle Boulevard. See Figure 4 for an ABQ RIDE Route 8 Map.

FIGURE 4 – ABQ RIDE ROUTE 8 MAP



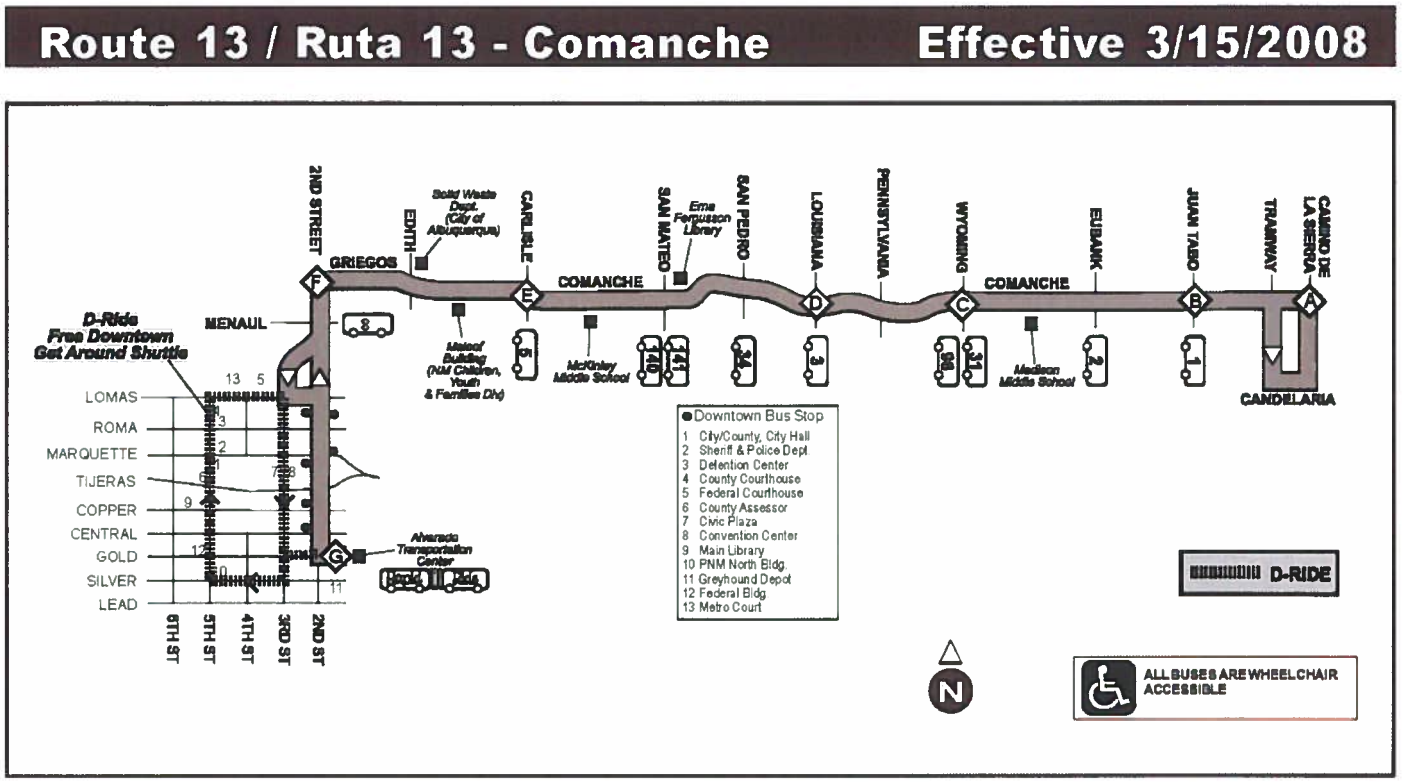
Route 7 operates along Candelaria Road only during peak commuting hours. For riders traveling east on Candelaria Road, they are able to stop west of Carlisle Boulevard and just east of Carlisle Boulevard. Those that are traveling westbound are able to stop just west of Carlisle Boulevard and east of Carlisle Boulevard. See Figure 5 for an ABQ RIDE Route 7 Map.

FIGURE 5 – ABQ RIDE ROUTE 7 MAP



Lastly, Route 13 travels along Comanche Road only during peak commuting hours. Riders traveling eastbound on Comanche Road are able to stop west of Carlisle Boulevard at Wellesley Drive and east of Carlisle Boulevard at Cherokee Road. Likewise, those traveling westbound are able to stop to the east or to the west of Carlisle Boulevard. See Figure 6 for an ABQ RIDE Route 13 Map.

FIGURE 6 – ABQ RIDE ROUTE 13 MAP



B. Physical Condition of Existing Facility

An inventory of the study area's existing physical conditions was conducted and items noted include geometry of the study area, signal timing, posted speed, design speed (where applicable) and pavement condition.

1. Carlisle Boulevard

Carlisle Boulevard south of Candelaria Road is a six-lane divided roadway.

Carlisle Boulevard north of Candelaria Road to Comanche Road is a five-lane divided roadway. Southbound traffic utilizes three lanes while northbound traffic utilizes two lanes. The sixth lane is adjacent to northbound Carlisle Boulevard and is the frontage road that serves the neighborhoods to the east of Carlisle Boulevard.

Carlisle Boulevard north of Comanche Road is a six-lane divided roadway.

2. Menaul Boulevard (South of Carlisle Boulevard Project Area)

Menaul Boulevard is a six-lane divided facility. It travels in an east-west direction and connects several major north-south roadways across Albuquerque. At the intersection of Menaul Boulevard and Carlisle Boulevard, two left-turn lanes serve each direction of Menaul Boulevard and Carlisle Boulevard.

3. Candelaria Road

Candelaria Road is a five-lane facility at its intersection with Carlisle Boulevard. East of the intersection, Candelaria Road becomes a four-lane facility. This east-west roadway includes 2 driving lanes in each direction and a left-turn lane at the intersection. The median of Candelaria Road is a continuous left turn lane.

4. Comanche Road

Comanche Road serves commercial properties west of Carlisle Boulevard and residential properties east of Carlisle Boulevard. West of the intersection, Comanche Road is currently a five-lane facility. Three lanes serve eastbound traffic with two of those lanes dedicated to turning left and right. One lane travels westbound through the intersection as the second westbound lane is added as a result of a southbound to westbound turning movement from Carlisle Boulevard. East of Carlisle Boulevard, Comanche Road includes three lanes, two of which are for westbound traffic; one lane is a left-turn lane. Westbound Comanche Road to southbound Carlisle Boulevard traffic is impeded by a very short left turn lane. Traffic queues back to Cherokee Road at the peak hours. There are plans to improve this intersection in the near future.

5. Montgomery Boulevard (North of Carlisle Boulevard Project Area)

Montgomery Boulevard, like Menaul Boulevard is a six-lane divided facility. It also travels in an east-west direction and connects several major north-south roadways across Albuquerque. At the intersection of Montgomery Boulevard and Carlisle Boulevard, two left-turn lanes serve westbound Montgomery Boulevard and northbound Carlisle Boulevard. One left-turn lane serves eastbound Montgomery Boulevard and southbound Carlisle Boulevard. A dedicated right-turn lane is included in the northbound Carlisle Boulevard typical section.

6. Carlisle Boulevard and Claremont Avenue Intersection

Similar to Comanche Road, Claremont Avenue serves commercial properties west of Carlisle Boulevard and residential properties east of Carlisle Boulevard. Currently, Claremont Avenue is skewed on both sides of Carlisle Boulevard which residents have stated causes confusion when driving through the intersection. Claremont Avenue, west of Carlisle Boulevard includes one lane in each direction with some parking allowed. However, at the western leg of the intersection, there are four lanes, three of

which serve outbound or eastbound traffic. East of Carlisle Boulevard, Claremont Avenue is a two-lane facility without delineation of lanes that serves residential neighborhoods. At the intersection, three lanes have developed over time although they are not delineated. Two of those lanes serve westbound Claremont Avenue traffic. Eastbound Claremont Avenue has a dual left-turn lane; there is no protected left-turn signal for that movement. This causes confusion for eastbound and westbound Claremont Avenue traffic. Some motorists appear to assume that the eastbound dual left turn lane have a protected left turn. Further inventory, analysis and recommendations are included in Appendix A, Traffic Analysis Report, of Book Two.

7. ADA Ramps/Sidewalks

The ramps and sidewalks along Carlisle Boulevard between Menaul Boulevard and Montgomery Boulevard were inventoried and assessed for their compliance with current ADA standards and COA DPM standards. Of the 17 intersections evaluated, five of those intersections have deficient ADA curb ramps. See Table 1 for an inventory of Existing ADA Ramps.

INVENTORY OF EXISTING ADA RAMPS				
INTERSECTION	NE CORNER	NW CORNER	SE CORNER	SW CORNER
Prospect Avenue	--	y	--	y
Menaul Boulevard	y	y	y	y
Phoenix Avenue	y	y	y	X
Claremont Avenue	y	y	y	y
Los Arboles Avenue	y	--	y	--
Candelaria Avenue	X	X	X	X
Altamonte Avenue	y	--	y	--
Aztec Road	y	X	y	X
Headingly Avenue	y	--	y	--
Cherokee Road	y	--	y	--
Mescalero Court	y	--	y	--
Comanche Road	y	X	y	X
Palo Duro Avenue	y	--	y	--
San Andres Drive	y	y	y	y
Delamar Avenue	--	y	--	y
Hilton Avenue	y	--	y	--
Hendrix Road	--	X	--	y
Montgomery Boulevard	y	y	y	y

y - existing ramp is in adequate condition
X - existing ramp is to be improved
-- - no street corner

TABLE 1

The sidewalks in the corridor meet the criteria for adequate width, 5 to 6 feet. However, there are 11 areas where the sidewalk is in need of improvements. See Table 2 for an inventory of existing sidewalk conditions.

INVENTORY OF EXISTING SIDEWALK CONDITIONS			
STREET SEGMENT	EAST SIDE	WEST SIDE	REMARKS
I-40 to Prospect Avenue			Acceptable condition
Prospect Avenue to Menaul Boulevard	X		Areas with panels separated/lifted
Menaul Boulevard to Phoenix Avenue			Acceptable condition
Phoenix Avenue to Claremont Avenue	X	X	Areas with panels separated/lifted
Claremont Avenue to Los Arboles Avenue			Acceptable condition
Los Arboles Avenue to Candelaria Road			Acceptable condition
Candelaria Road to Altamonte Avenue			Acceptable condition
Altamonte Avenue to Aztec Road	X		Narrow sidewalk on frontage road on east side
Aztec Road to Headingly Avenue	X		Narrow sidewalk on frontage road on east side
Headingly Avenue to Cherokee Road	X		Narrow sidewalk on frontage road on east side
Cherokee Road to Comanche Road	X	X	Narrow sidewalk on frontage road on east side
Comanche Road to Palo Duro Avenue			Acceptable condition
Palo Duro Avenue to San Andres Drive	X		Areas with panels separated/lifted
San Andres Drive to Delamar Avenue			Acceptable condition
Delamar Avenue to Hilton Avenue		X	Areas with panels separated/lifted
Hilton Avenue to Hendrix Road	X		Areas with panels separated/lifted
Hendrix Road to Montgomery Boulevard			Acceptable condition

X - existing sidewalk to be improved

TABLE 2

Appendix A, Traffic Analysis Report, in Book Two contains additional details regarding ADA ramps and sidewalks.

8. Signalized and Unsignalized Intersections

The study area of Carlisle Boulevard contains 17 intersections; five of which are signalized. Some intersections intersect Carlisle Boulevard on only the east side or the west side of the street. Beginning at the southern part of the corridor, the following is a list of the connecting streets along Carlisle Boulevard within the study area:

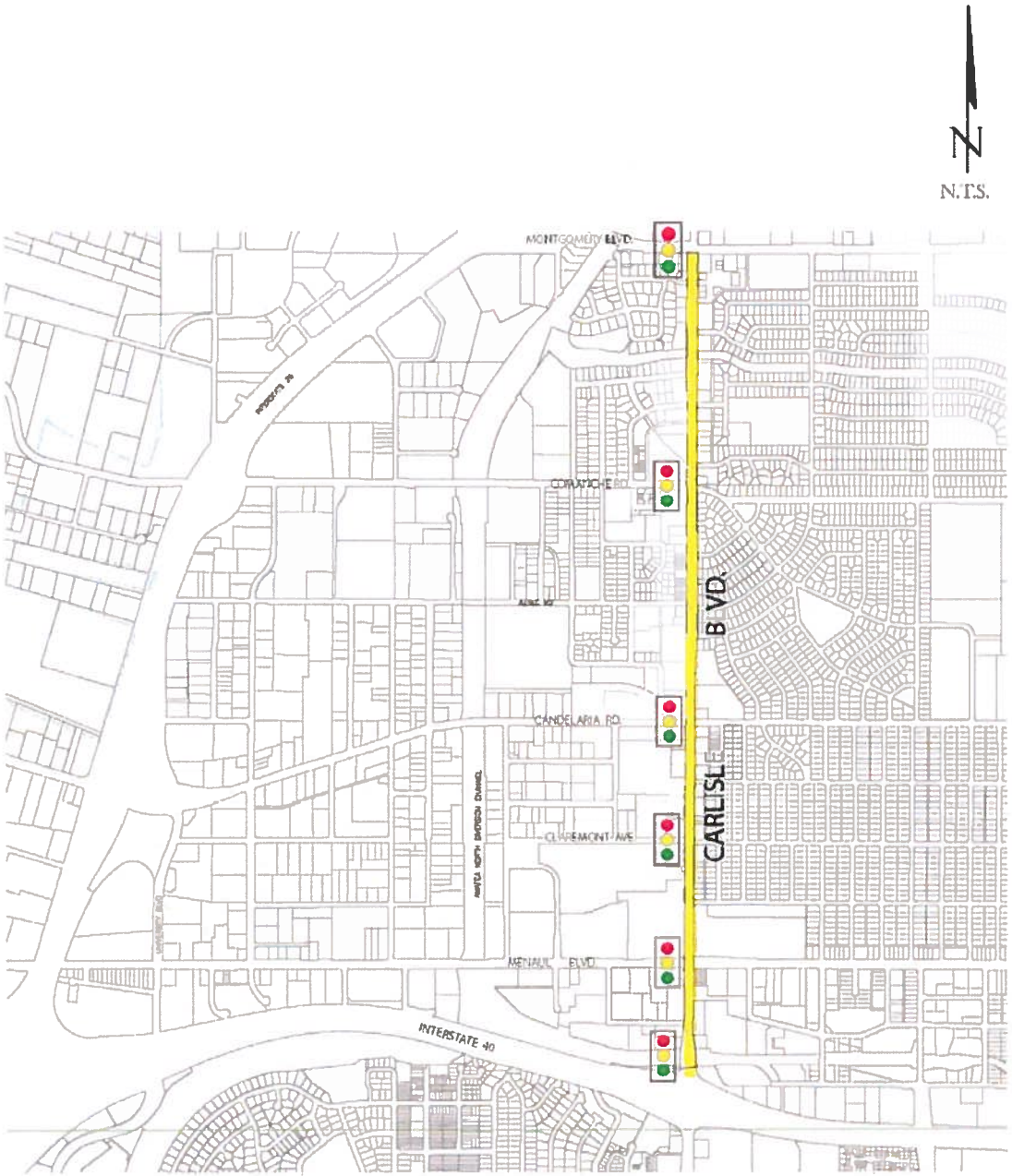
- Menaul Boulevard - signalized
- Phoenix Avenue
- Claremont Avenue - signalized
- Los Arboles Avenue (T-intersection, east side)
- Candelaria Road - signalized
- Altamonte Avenue (T-intersection, east side)
- Aztec Road (Skewed intersection, both sides)
- Headingly Avenue (T-intersection, east side)
- Cherokee Road (T-intersection, east side)
- Mescalero Court (T-intersection, east side)
- Comanche Road - signalized
- Palo Duro Avenue (T-intersection, east side)
- Tulane Drive (T-intersection, west side)
- San Andres Drive
- Delamar Avenue (T-intersection, west side)
- Hilton Avenue (T-intersection, east side)
- Hendrix Road (T-intersection, west side)
- Montgomery Boulevard – signalized

See Figure 7 for the location of traffic signals throughout the corridor.

9. Lighting

There is existing lighting on Carlisle Boulevard from Menaul Boulevard to Montgomery Boulevard. Based on field visits, from Menaul Boulevard to Candelaria Road, lighting is evenly spaced and sufficient. From Candelaria Road to Montgomery Boulevard, lighting exists but is limited. See the Traffic Analysis Report in Appendix A of Book Two for further discussion regarding roadway lighting along the Carlisle Boulevard Corridor.

FIGURE 7 – TRAFFIC SIGNAL LOCATIONS



10. Horizontal and Vertical Alignment

HDR staff obtained as-built drawings of the corridor to determine if the horizontal alignment and vertical alignment meet current design standards. Carlisle Boulevard does not have any horizontal curves within the corridor. All vertical curves within the study area show no deficiencies and meet current AASHTO and COA design criteria.

C. Analysis of Land Use and Growth Needs

1. Land Use

As discussed earlier in the report, the Carlisle Boulevard Corridor is a mix of both commercial and residential land uses. From Interstate 40 to Candelaria Road, the land use is predominantly commercial. From Candelaria Road to Comanche Road, land use is a mix of residential and commercial. Along Carlisle Boulevard, residential homes are located from Altamonte Avenue to Comanche Road. North of Comanche Road, the land use is commercial along Carlisle Boulevard.

Land use along the corridor is not anticipated to see any substantial growth. Based on discussions with Tierra West, hired by Wal-Mart, development is only anticipated on the southwest corner of the Carlisle Boulevard and Claremont Avenue intersection. It is anticipated that a 10,000 square foot strip mall development will be constructed by the end of 2008.

D. Analysis of Existing and Future Traffic Conditions

1. EXISTING CONDITIONS ANALYSIS

To adequately describe Carlisle Boulevard within the study area, it is beneficial to break the corridor down into four (4) segments:

a. SEGMENT 1: INTERSTATE 40 TO CLAREMONT AVENUE

This segment of the corridor is a six-lane urban minor arterial, with lanes of varying width in each direction and traffic separated by a raised median of varying width. The adjacent land use is commercial, with numerous driveways on both sides of the street. There are median breaks to allow for access in and out of the commercial driveways. The reported average daily traffic (ADT) within this segment of Carlisle Boulevard is approximately 28,980 vehicles per day (VPD) reported by MRCOG's 2007 Traffic Flow Map. The posted speed limit is 35 mph.

As part of this corridor study, existing street lights have been evaluated. Within this segment, there is adequate street lighting for this roadway classification (minor arterial). Signalized intersections within this segment have luminaries,

and the street lights along the corridor are spaced approximately 175 to 200 feet apart with staggered spacing. The spacing of the street lights is fairly consistent throughout this roadway segment; there are some deviations based on driveway and intersection locations.

b. SEGMENT 2: CLAREMONT AVENUE TO CANDELARIA ROAD

Carlisle Boulevard between Claremont Avenue and Candelaria Road is a divided, six-lane urban minor arterial, with lanes of varying width in each direction and traffic separated by a raised median of varying width. The adjacent land use is commercial, with numerous driveways on both sides of the street. There are median breaks to allow for access in and out of the commercial driveways. The approximate ADT within this segment of Carlisle Boulevard is 27,900 VPD reported by MRCOG's 2007 Traffic Flow Map. The posted speed limit is 35 mph.

The street lighting characteristics within this segment of Carlisle Boulevard are the same as those in segment 1, as described above. In summary, adequate street lighting is provided in this segment.

c. SEGMENT 3: CANDELARIA ROAD TO COMANCHE ROAD

Southbound Carlisle Boulevard has three through lanes of varying width between Candelaria Road and Comanche Road, whereas northbound Carlisle Boulevard within this segment has two through lanes of varying width. Adjacent to northbound Carlisle Boulevard lanes is a frontage road that is separated from traffic by a raised curb and gutter median. The signing and markings on northbound Carlisle Boulevard from Candelaria Road to Comanche Road are confusing and inadequate. Vehicles occasionally mistake the frontage road for northbound Carlisle Boulevard lanes. Most of this segment of Carlisle Boulevard is divided by a varying width raised median between northbound and southbound traffic; however between Altamonte Avenue and Aztec Road the directions of travel are divided by a continuous two-way left turn lane. The adjacent land uses are commercial on the west side of the street and residential on the east side. The ADT for this segment is approximately 28,200 VPD reported by MRCOG's 2007 Traffic Flow Map.

From the intersection of Carlisle Boulevard and Candelaria Road, there is a northbound trap lane on Carlisle Boulevard which extends from Altamonte Avenue to Comanche Road. The lane reduction allows for a frontage road parallel to and on the east side of Carlisle Boulevard. This frontage road allows for access to the residences along the east side of Carlisle Boulevard as well as on-street parking.

Along this segment of Carlisle Boulevard there are few existing street lights. The existing street lights are on wood poles and appear to be temporary. Most of the street lights along the east side of Carlisle Boulevard face onto the frontage road, adjacent to the residential neighborhood east of Carlisle Boulevard.

d. SEGMENT 4: COMANCHE ROAD TO MONTGOMERY BOULEVARD

Within this segment of the Carlisle Boulevard corridor, three through lanes of varying width for northbound Carlisle Boulevard have been restored. As with the other segments of the corridor, this portion of Carlisle Boulevard is bordered by commercial businesses, and is divided by a raised median of varying width with numerous openings to allow access to the commercial driveways. The approximate reported ADT for this segment of Carlisle Boulevard is 19,300 VPD reported by MRCOG's 2007 Traffic Flow Map.

Along this segment of Carlisle Boulevard there are very few existing street lights. The spacing of the existing street lights is too sporadic to provide adequate street lighting for this segment of Carlisle Boulevard.

An inventory of all existing street lights for the Carlisle Boulevard corridor will be discussed in detail in the street lighting section of this report.

e. CARLISLE BOULEVARD CORRIDOR OPERATIONS

The Carlisle Boulevard corridor was analyzed for three scenarios:

- Existing (2007) Conditions
- Horizon Year (2030) – No-Build Condition
- Horizon Year (2030) – Build Condition

EXISTING CORRIDOR CONDITIONS

The existing conditions (2007) for the Carlisle Boulevard corridor were analyzed for this study. The AM, mid-day and PM peak periods were analyzed for the corridor for comparison purposes. The results of the capacity analyses are summarized in Table 3. Highway Capacity Software (HCS) arterial segment capacity analysis runs for existing conditions have been provided in Traffic Analysis Report Sub-Appendix B of Book Two.

Carlisle Boulevard Corridor Segment Existing Conditions	NB LOS			SB LOS		
	AM	MID	PM	AM	MID	PM
I-40 to Claremont Avenue	A	A	B	A	B	B
Claremont Avenue to Candelaria Road	A	B	B	A	A	A
Candelaria Road to Comanche Road	A	B	B	A	A	A
Comanche Road to Montgomery Boulevard	A	A	A	A	A	A

TABLE 3

HORIZON YEAR (2030) – NO-BUILD CONDITION

An analysis of the Carlisle Boulevard corridor has been prepared using 2030 horizon year volumes under the scenario that no improvements along the corridor take place. The purpose of this analysis is to show the impact to future roadway conditions if improvements are not implemented in the near future. Figure IV.D.1 in the Traffic Analysis Report in Appendix A of Book Two shows the projected percentage increases for each segment of Carlisle Boulevard within the study area, based on MRCOG projections for the 2030 horizon year. Figure IV.D.2 of the Traffic Analysis Report in Appendix A of Book Two shows the horizon year (2030) ADT's based on the MRCOG projections.

The AM, mid-day and PM peak hour conditions for the Carlisle Boulevard corridor were analyzed for the 2030 No-Build scenario; the results are summarized in Table 4 and are attached as part of the Traffic Analysis Report Sub-Appendix B of Book Two.

Carlisle Boulevard Corridor Segment Horizon Year (2030) No-Build Condition	NB LOS			SB LOS		
	AM	MID	PM	AM	MID	PM
I-40 to Claremont Avenue	A	B	B	B	C	C
Claremont Avenue to Candelaria Road	A	B	C	B	B	B
Candelaria Road to Comanche Road	B	B	C	A	B	B
Comanche Road to Montgomery Boulevard	A	A	B	A	A	A

TABLE 4

As shown on Table 4, the LOS for some most segments along Carlisle Boulevard decreases under a Horizon Year 2030 No-Build condition, but remains at acceptable levels.

HORIZON YEAR (2030) BUILD CONDITION

An analysis of the Carlisle Boulevard corridor has been prepared using 2030 horizon year volumes under the scenario that improvements along the corridor take place. The primary improvement assumed under the 2030 Build scenario is that a third northbound through lane is restored on Carlisle Boulevard between Candelaria Road and Comanche Road.

AM, mid-day and PM peak hour conditions for the Carlisle Boulevard corridor were analyzed for the 2030 Build scenario. The results of the capacity analyses are summarized in Table 5. All HCS arterial segment capacity analysis runs have been provided in the Traffic Analysis Report Sub-Appendix B of Book Two.

Carlisle Boulevard Corridor Horizon Year (2030) Build Condition	NB LOS			SB LOS		
	AM	MID	PM	AM	MID	PM
I-40 to Claremont Avenue	A	B	B	B	C	C
Claremont Avenue to Candelaria Road	A	B	C	B	B	B
Candelaria Road to Comanche Road	A	B	B	A	B	B
Comanche Road to Montgomery Boulevard	A	A	B	A	A	A

TABLE 5

As shown on Table 5, the LOS, while still decreased from existing conditions, remains at acceptable levels for all segments in each peak period. For northbound Carlisle Boulevard, the roadway segment between Candelaria Road and Comanche Road under a horizon year (2030) Build condition improves compared to the 2030 No-Build condition.

LEVEL OF SERVICE (LOS) COMPARISON FOR THREE SCENARIOS

Table 6 shows the average LOS for the overall Carlisle Boulevard corridor for each of the respective scenarios: Existing Conditions, Horizon Year (2030) No-Build and (2030) Build Conditions:

Carlisle Boulevard Corridor Level of Service (LOS) Comparison	NB LOS			SB LOS		
	AM	MID	PM	AM	MID	PM
Existing Conditions	A	A	B	A	A	A
Horizon Year (2030) No-Build Condition	A	B	C	A	B	B
Horizon Year (2030) Build Condition	A	B	B	A	B	B

TABLE 6

f. CARLISLE BOULEVARD AND CLAREMONT AVENUE INTERSECTION

Claremont Avenue is a local street that serves a residential area east of Carlisle Boulevard and a commercial area west of Carlisle Boulevard. The intersection with Carlisle Boulevard is controlled by a 5-phase traffic signal and has protected/permissive left turns on Carlisle Boulevard. Claremont Avenue for both eastbound and westbound traffic is controlled by a single signal phase, with left turns from either side yielding to through traffic.

Claremont Avenue is skewed on both sides of Carlisle Boulevard. This offset in the intersection causes the Claremont Avenue approach lanes on each side of Carlisle Boulevard not to line up. The existing lane configurations (as shown on Figure IV.E.1 of the Traffic Analysis Report in Appendix A of Book Two) for Carlisle Boulevard are as follows:

Northbound Carlisle Boulevard: 1 left turn lane, 2 thru lanes, 1 shared right turn/thru lane
Southbound Carlisle Boulevard: 1 left turn lane, 2 thru lanes, 1 shared right turn/thru lane
Eastbound Claremont Avenue: 2 left turn lanes, 1 shared right turn/thru lane
Westbound Claremont Avenue: 1 left turn lane, 1 shared right turn/thru lane

It should be noted that although eastbound Claremont Avenue has a dual left-turn lane, there is no protected left-turn phase for that movement. Claremont Avenue is controlled by a single phase of the traffic signal, with both directions receiving green indications simultaneously and left turns yielding to through traffic.

Although there are not high volumes from the westbound through movement on Claremont Avenue, it is not recommended practice to have dual left-turn lanes yielding to opposing through traffic. During field evaluation of this intersection, eastbound vehicles turning left from the dual left turn lanes have been observed to enter the intersection as though there was a protected left-turn phase – some motorists seemed to assume that the eastbound dual left turn lane had a protected left turn phase.

As with the Carlisle Boulevard corridor, the Carlisle Boulevard/Claremont Avenue intersection was analyzed for the AM, mid-day and PM peak hours for the three scenarios:

- Existing (2007) Conditions
- Horizon Year (2030) – No-Build Condition
- Horizon Year (2030) – Build Condition

EXISTING INTERSECTION CONDITIONS

Operational analyses were completed for the current 2007 AM, mid-day and PM peak hours of a typical weekday. Table 7 summarizes the existing traffic operations for this intersection. The Synchro analyses runs for AM, mid-day and PM peak hours can be found in Traffic Analysis Report Sub-Appendix C of Book Two.

EXISTING CONDITIONS (2007) FOR CARLISLE BOULEVARD AND CLAREMONT AVENUE – PEAK HOURS

INTERSECTION	PEAK PERIOD	LEVEL OF SERVICE & DELAY BY APPROACH MOVEMENT															INTERSECTION	
		EB			WB			NB			SB			DELAY (sec/veh)	LOS			
		L	T	R	L	T	R	L	T	R	L	T	R					
Carlisle Blvd. at Claremont Blvd.	AM	C	B	B	C	B	B	A	A	A	A	A	A	7.5	A			
	Mid-Day	C	B	B	C	B	B	A	A	A	A	A	A	11.4	B			
	PM	D	B	B	D	C	C	A	C	C	A	C	C	27.9	C			

TABLE 7

Because of the relatively light traffic volumes from the east side of the intersection, Carlisle Boulevard receives lengthy green time during normal cycle lengths. Therefore, this location maintains very acceptable levels of service in the peak periods.

HORIZON YEAR (2030) NO-BUILD CONDITION

An analysis of the Carlisle Boulevard/Claremont Avenue intersection has been prepared using 2030 horizon year volumes under the scenario that no improvements along the corridor take place. There is a slight change to delay times and intersection LOS; however, the intersection will still operate at very acceptable LOS under the 2030 No-Build condition. Because little volume increases are expected for Claremont Avenue, mostly uninterrupted flow along Carlisle Boulevard will be experienced as shown in Table 8.

HORIZON YEAR (2030) NO-BUILD CONDITION FOR CARLISLE BOULEVARD AND CLAREMONT AVENUE

INTERSECTION	PEAK PERIOD	LEVEL OF SERVICE & DELAY BY APPROACH MOVEMENT															INTERSECTION	
		EB			WB			NB			SB			DELAY (sec/veh)	LOS			
		L	T	R	L	T	R	L	T	R	L	T	R					
Carlisle Blvd. at Claremont Ave.	AM	D	B	B	D	C	C	B	A	A	A	A	A	10.2	B			
	Mid-Day	D	B	B	D	C	C	C	A	A	B	B	B	14.4	B			
	PM	E	B	B	D	C	C	B	D	D	A	C	C	40.5	D			

TABLE 8

HORIZON YEAR (2030) BUILD CONDITION

For this analysis, the horizon year 2030 Build condition will include re-establishing a third northbound through lane on Carlisle Boulevard between Candelaria Road and Comanche Road. The proposed improvement results in no impacts to the Carlisle Boulevard/Claremont Avenue intersection, as shown in Table 9.

HORIZON YEAR (2030) CONDITIONS FOR CARLISLE BOULEVARD AND CLAREMONT AVENUE – PEAK HOURS

INTERSECTION	PEAK PERIOD	LEVEL OF SERVICE & DELAY BY APPROACH MOVEMENT																INTERSECTION DELAY (sec/veh)	LOS
		EB			WB			NB			SB								
		L	T	R	L	T	R	L	T	R	L	T	R						
Carlisle Blvd. at Claremont Ave.	AM	D	B	B	D	C	C	B	A	A	A	A	A					10.2	B
	Mid-Day	D	B	B	D	C	C	C	A	A	B	B	B					14.4	B
	PM	E	B	B	D	C	C	B	D	D	A	C	C					40.5	D

TABLE 9

PHASING OF SIGNALIZATION AT CARLISLE BOULEVARD AND CLAREMONT AVENUE INTERSECTION

It is recommended that the eastbound and westbound movements on Claremont Avenue be "split" – meaning that each direction of traffic on Claremont Avenue has a separate assigned phase on the traffic signal: during each cycle length, eastbound traffic receives a green light first, then westbound traffic. The split-phasing would eliminate conflict between each direction of Claremont Avenue.

Although split phases typically eliminate potential intersection conflicts, under certain conditions split-phasing can lead to decreased LOS for signalized for intersections, sometimes significantly. A Synchro analysis (included in Traffic Analysis Report Sub-Appendix C of Book Two) has been completed for the Carlisle Boulevard and Claremont Avenue intersection to determine if split-phasing the traffic signal would cause a significant decrease to the levels of service at this location, as shown on Table 10:

EXISTING CONDITIONS FOR CARLISLE BOULEVARD AND CLAREMONT AVENUE WITH SPLIT PHASING OF TRAFFIC SIGNAL – PEAK HOURS

INTERSECTION	PEAK PERIOD	LEVEL OF SERVICE & DELAY BY APPROACH MOVEMENT																INTERSECTION DELAY (sec/veh)	LOS
		EB			WB			NB			SB								
		L	T	R	L	T	R	L	T	R	L	T	R						
Carlisle Blvd. at Claremont Ave.	AM	D	C	C	D	C	C	A	A	A	A	A	A					10.4	B
	Mid-Day	D	B	B	D	C	C	A	A	A	A	A	A					13.8	B
	PM	E	B	B	E	D	D	A	C	C	A	C	C					31.4	C

TABLE 10

The split phasing of the Carlisle Boulevard/Claremont Avenue traffic signal leads to just a slight change in overall intersection delay per cycle length - approximately 3 seconds during each of the peak periods. The slight increase in intersection delay leads to a change in LOS during the

AM peak hour; however, as with the existing timing the intersection remains at very acceptable LOS. The results of the existing condition versus the 2030 condition are compared in Table 11:

COMPARISON – CARLISLE BOULEVARD AND CLAREMONT AVENUE INTERSECTION WITH AND WITHOUT SPLIT-PHASING OF TRAFFIC SIGNAL

PEAK PERIOD	EXISTING TIMING		SPLIT-PHASING	
	DELAY (sec/veh)	LOS	DELAY (sec/veh)	LOS
AM	7.5	A	10.4	B
Mid-day	11.4	B	13.8	B
PM	27.9	C	31.4	C

TABLE 11

E. Crash Analysis

1. CRASH ANALYSIS DESCRIPTION

a. REQUIREMENTS AND DESCRIPTION

The purpose of collecting and analyzing historic traffic crash data for a project during consecutive periods is to identify possible crash patterns and to determine the probable causes of those crashes. The crash analysis includes patterns related to roadway conditions, time of day, weather conditions, type of crash, locations, i.e. roadway, intersection, etc.; crash severity and driver characteristics.

Utilizing crash data also assists with determining expected values of a specific type of crash and ultimately identifying benefit costs and estimated Rate of Return (ROR) for improving roadway segments or intersection locations with the study boundary. These "estimated" ROR values should not be construed as "True" values, but more as approximated for planning purposes.

b. CRASH DATA

Crash data for 2003, 2004 and 2005 was requested from the New Mexico Department of Transportation (NMDOT) Traffic Safety Bureau. The crash reports can be found in Traffic Analysis Report, Sub-Appendix D of Book Two.

c. CRASH ANALYSIS AND RATE OF RETURN (ROR)

In order to create a comparison between crashes from one location to the other, crash rates are used. These rates are based on data such as traffic volume, length of road sections considered and period of time in years. Typical crash rate equations for intersections are rates per million of entering vehicles (RMEV) and for roadway segments are rates per 100 million vehicle miles (RMVM), as shown below:

$$RMEV = \frac{C \times 1{,}000{,}000}{n \times 365 \times v} \qquad RMVM = \frac{C \times 100{,}000{,}000}{n \times 365 \times l \times v}$$

where:

RMEV = Roadway Crash Rate per million entering vehicles
C = Total Crashes in an n-year period
n = year period of study (minimum 3 years)
v = total entering volume in vehicles per day

Where:

RMVM = Roadway Crash Rate per 100,000,000 veh-mi
C = Total Crashes in an n-year period
n = year period of study (minimum 3 years)
l = length of roadway in miles
v = Average Daily Traffic (ADT) in vehicles per day

The NMDOT crash information presented yearly is based on a modified formula of the crash rate per 100-million vehicle miles (MVM.) Their reports show a crash rate (CR) = total crashes/100 MVM. It could be assumed that the state crash rate calculation is a derivation of a methodology typically used by the medical profession, where infection and mortality rates for various diseases are expressed in relation to population. This assumption can be made due to the inclusion of licensed drivers and population data in the crash summary report. Since the state crash rate is significantly higher than typical crash rate calculations, it can be concluded that comparing the state, county or city crash rates to the crash rates developed within this analysis will result in inconsistent comparisons due to the discriminating factors. Also noted, is that state crash rates are only calculated for roadway crashes (RMVM) not intersection crashes. An intersection crash may be included in a roadway crash, but are not provided in a separate calculation (RMEV). This analysis also includes a Critical Rate calculation for segment locations (C_{RI}). The critical rate analysis helps to identify locations with observed crash rates higher than would be expected due to normal variation. The critical rate is calculated as follows:

$C_{RI} = R_{AR} + k \times \text{sq rt}(R_{AI}/m) + 1/(2 \times m)$

where:

R_{AR} = *Average Roadway Crash Rate*
k = *statistical confidence level (typically 1.645 for a = 0.05)*
m = *travel on a particular section in million vehicle miles*

If R_{AR} is greater than C_{RI}, then the location should be investigated further for problems associated with geometric or environmental factors.

2. CRASH ANALYSIS FOR THE CARLISLE BOULEVARD CORRIDOR

Accidents included in this analysis occurred at midblock locations or at unsignalized intersections. Those collisions that occurred at signalized intersections were not included in this evaluation, because those accidents are most effectively analyzed as part of an intersection analysis. For example, the Carlisle Boulevard and Claremont Avenue intersection has been reviewed as part of this report, and a separate crash analysis for that location will be provided later in this portion of the study.

It should be noted that some of the reported accidents did not list a specific location along Carlisle Boulevard. In those cases, because of the incomplete description of the accident location, such accidents could not be included in the analysis. Also, the reported accidents obtained for this analysis were along the Carlisle Boulevard corridor, and do not include intersection-related accidents that occurred on the side streets.

Table 12 on Page 29 summarizes mid-block accident activity along the corridor:

THREE-YEAR (2003-2005) CRASH HISTORY CARLISLE BLVD. BETWEEN I-40 AND MONTGOMERY BLVD.												
Carlisle Boulevard	2003			2004			2005			THREE-YEAR TOTAL		
ROADWAY SEGMENT	PDO	INJ	TOT	PDO	INJ	TOT	PDO	INJ	TOT	PDO	INJ	TOT
I-40 to Claremont Ave.	4	3	7	7	3	10	7	5	12	18	11	29
Claremont to Candelaria	1	2	3	2	1	3	0	0	0	3	3	6
Candelaria to Comanche	3	1	4	2	1	3	1	2	3	6	4	10
Comanche to Montgomery	6	3	9	4	6	10	5	1	6	15	10	25
TOTALS	14	9	23	15	11	26	13	8	21	42	28	70

PDO – Property Damage Only
INJ - Injury
TOT - Total

TABLE 12

Crash rates for mid-block areas are shown below in Table 13:

CRASH RATES FOR UNSIGNALIZED INTERSECTIONS AND MID-BLOCK LOCATIONS

Roadway Segment	Begin Intersection	End Intersection	Segment Length (Miles)	Number of Reported Crashes	Daily Entering Vehicles (VPD)	Crash Rate (Cr/100-MVM)
1	I-40 Interchange	Claremont Ave.	0.5	29	34098	155.3
2	Claremont Ave.	Candelaria Rd.	0.3	6	30740	59.4
3	Candelaria Rd.	Comanche Rd.	0.5	10	25475	71.7
4	Comanche Rd.	Montgomery Blvd.	0.5	25	21625	211.2
	AVERAGE CORRIDOR RATES		1.8	70	27985	126.9

TABLE 13

The statewide crash rate for New Mexico is 148.0 accidents per 100 MVM, and the average crash rate for the Albuquerque Metropolitan Planning Area (AMPA), which includes Southern Sandoval, Bernalillo and Los Lunas, is 1.349 crashes per million miles (or 134.9 crashes per 100 million vehicle miles). As shown in Table 13, the crash rate for the overall corridor is slightly less than the state and regional averages for this roadway classification. Also, the crash rate for each of the midblock segments of Carlisle Boulevard is near or below the statewide rate, except for the portion of the corridor between Comanche Road and Montgomery Boulevard. The crash rate is higher in that segment in part because this section of the corridor has the least amount of traffic.

3. CRASH ANALYSIS FOR THE CARLISLE BOULEVARD AND CLAREMONT AVENUE INTERSECTION

Table 14 is a summary of reported collisions at the Carlisle Boulevard and Claremont Avenue intersection.

THREE-YEAR (2003-2005) CRASH HISTORY CARLISLE BLVD./CLAREMONT AVE.											
2003 CRASHES			2004 CRASHES			2005 CRASHES			THREE-YEAR TOTAL CRASHES		
PDO	INJ	TOT	PDO	INJ	TOT	PDO	INJ	TOT	PDO	INJ	TOT
2	5	7	6	2	8	7	1	8	15	8	23

TABLE 14

Figure V.D.1 in the Traffic Analysis Report in Appendix A, Page 25 of Book Two provides a collision diagram illustrating the accident history at this intersection.

The Carlisle Boulevard/Claremont Avenue intersection has a crash rate of 0.5789 per million vehicle miles. Other signalized intersection crash rates per million vehicle miles for 2003-2006 (as reported by MRCOG) are as follows:

Carlisle Blvd. at Menaul Blvd: 1.8373
Carlisle Blvd. at Candelaria Rd: 1.9418
Carlisle Blvd. at Comanche Rd: 1.5967
Carlisle Blvd. at Montgomery Blvd: 2.8799

The rates at these intersections are higher than the AMPA average rate of 1.349 crashes per million vehicle miles; however, it should be noted that the AMPA average rate includes both urban and rural areas.

V. PUBLIC INVOLVEMENT PROCESS

Public involvement is a crucial component of any roadway project. It solicits input from the public and aids in clarifying the purpose and the need for the project. Public input has been and will continue to be considered, along with engineering and environmental issues, in developing the alternatives and recommendations. As a part of the project development process, three (3) public meetings were held. The first meeting was a public information meeting for the COA to listen to residents' concerns and ideas for improvements along the corridor. The second public information meeting was held as a project kick-off meeting. The third meeting was held after the alternatives were chosen. The findings were presented as well as proposed recommendations for the project as approved by members of the CTF. Details of each meeting follow.

A. Pubic Information Meeting #1 (February 1, 2006)

On February 1st, 2006 the public was invited to a Public Meeting hosted by the COA to obtain input about the existing conditions of Carlisle Boulevard as well as possible solutions to its issues. The meeting consisted of an open house, a short presentation and a question and answer period. Those in attendance were asked to submit comments on provided aerial photos, comments forms and by e-mail.

Comments were received from the public at the meeting and they are as follows:

- More breaks in the medians along the corridor are desired for increased turning opportunities;
- The frontage road along Carlisle Boulevard between Candelaria Road and Comanche Road is a perceived by the public to be a safety concern as there have been many accidents in this area;
- More street lighting is desired as is maintenance of existing lighting;
- Vegetation should be trimmed to increase safety;
- Bicyclists desire a bridge over the Hahn Arroyo;
- Two left turn lanes should be constructed from westbound Montgomery Boulevard to southbound Carlisle Boulevard as well as from northbound Carlisle Boulevard to westbound Montgomery Boulevard;
- Increased access to Lovelace is desired;
- New pavement markings and signing is desired to eliminate confusion and increase safety, especially south of the Carlisle Boulevard intersection with Montgomery Boulevard intersection;
- Keep the frontage road in place and increase the extent of signing and pavement markings at the end of the frontage road just north of Comanche Road;
- There are too many bus stops along the corridor;
- Eastbound Claremont Avenue to northbound Carlisle Boulevard is a difficult turn movement. The same issues apply for westbound Claremont Avenue to southbound Carlisle Boulevard. Please modify the signal at this intersection;

- Expand the intersection of Carlisle Boulevard and Comanche Road. Large trucks are demolishing the curb and gutter at that intersection;

- A third lane traveling north should be added to the intersection of Carlisle Boulevard and Comanche Road;
- Add a right-turn lane to westbound Comanche Road to northbound Carlisle Boulevard;
- Do not add a third lane to northbound Carlisle Boulevard between Candelaria Road and Comanche Road;
- If more lanes are added, what are the impacts? Will there be more or less noise? Will there be more or less traffic? Will there be more or less safety? Who will be paying for these improvements?
- The removal of the frontage road is not desired. It will make it more difficult for vehicles to ingress and egress their homes along Carlisle Boulevard if it is removed. However, providing a third northbound lane only brings traffic closer to the homes and compromises safety of the residents;
- Provide a speed bump at the beginning of the frontage road for added safety. Many errant vehicles access the frontage road and cause damage to the properties (yards, cars, homes);
- The sidewalk should have a 30' buffer;
- A noise wall is desired between northbound Carlisle Boulevard lanes and the frontage road between Candelaria Road and Comanche Road;
- A bike lane is needed on Carlisle Boulevard;
- A right turn lane is needed for northbound Carlisle Boulevard to eastbound Candelaria Road;
- Landscaping is desired for the medians of Carlisle Boulevard;
- A right turn lane is desired from westbound Los Arboles Avenue to northbound Carlisle Boulevard.

Those in attendance were shown preliminary plans for the reconstruction of the intersection of Carlisle Boulevard and Montgomery Boulevard.

Two hundred and fifty six people signed a petition circulated by a resident along Carlisle Boulevard requesting improvements from Interstate 40 to Montgomery Boulevard on Carlisle Boulevard. The petition was presented at this meeting.

Overall, there was strong support for a study of the Carlisle Boulevard corridor between Interstate 40 and Montgomery Boulevard. Many attendees supported the addition of a third northbound lane between Candelaria Road and Comanche Road. Those that opposed the third lane were those that live along Carlisle Boulevard in that vicinity.

B. Public Kick-Off Meeting's Public Input Summary

Numerous issues and concerns were raised at the Public Kick-Off Meeting through written comments and verbal comments. Many of the comments received were in reference to the

addition of a third northbound lane on Carlisle Boulevard between Candelaria Road and Comanche Road.

Comments were also received from the CTF regarding additional lighting, additional signalization and improvements to the Carlisle Boulevard and Claremont Avenue intersection. They are as follows:

Additional Lane on Northbound Carlisle Boulevard between Candelaria Road and Comanche Road

- If a third lane is added, the property values of those living along Carlisle Boulevard will be diminished. In addition, access to driveways and backyards will be compromised;
- The COA should consider acquiring the homes along Carlisle Boulevard where the frontage road currently exists if a third lane is added;
- Please leave the frontage road in place;
- Adding the third lane on Carlisle Boulevard could increase traffic and make the situation worse;
- A noise wall would be appreciated between a potential third lane and the homes along Carlisle Boulevard.

Lighting

- Lighting needs improvement throughout the corridor.

Signalization

- Consider adding a signal at Hendrix Road and Carlisle Boulevard to improve access to Montgomery Heights.

Carlisle Boulevard and Claremont Avenue Intersection

- Improve the intersection to eliminate the current confusion during turning movements;
- Improve the signal timing to eliminate confusion;
- Protected left turns for eastbound traffic would be greatly appreciated.

Additional Comments

- Extend Carlisle Boulevard north to Interstate 25;
- Pedestrian access is limited on the north end of the corridor;
- Motorists are making risky turning movements to cross Carlisle Boulevard;
- Additional curb cuts in the median of Carlisle Boulevard for turning movements would be helpful;
- A dedicated right turn lane is needed for northbound Carlisle Boulevard to eastbound Comanche Road;
- Aztec Road is offset at its intersection with Carlisle Boulevard on the west and the east sides. A signal or another traffic measure would be helpful to alleviate the confusion and accident potential at this intersection.

Please refer to Appendix B of Book Two for detailed meeting minutes from this Public Information Meeting.

C. Public Information Meeting #2 (April 4, 2007)

In late March 2007, 1000 flyers regarding a Public Information Meeting were hand delivered to individuals associated with this corridor. They were invited to attend a Public Kick-Off Meeting on Wednesday, April 4th, 2007 at McKinley Middle School in Albuquerque, New Mexico. An advertisement was also posted in the Albuquerque Journal and Albuquerque Tribune. In addition, a flyer was delivered to the president of each neighborhood association. The neighborhood associations included in this corridor study are: Bel Aire, Hodgen, McKinley, Montgomery Heights and Altamonte. Included were those that live along Carlisle Boulevard but are not part of a formal neighborhood association.

Twenty-nine people, not including the study team, attended the Public Kick-Off Meeting. The meeting opened with a discussion on background of the project and introductions of the design team. Those in attendance were asked to form groups based on neighborhood association affiliation. The groups were asked to make a list of their concerns and comments on the project as well as provide the name(s) of a volunteer(s) for the CTF. The CTF will act as advisors on the project, meet with the study team to provide input and communicate with their associations regarding the decisions and progress being made. Following the smaller group discussion, the floor was opened to combine those comments and outline the CTF guidelines and its members.

D. Citizen Task Force Meetings

1. PURPOSE

The purpose of the CTF was to allow members of the community an opportunity to be a part of the development and selection of proposed alternatives for the corridor. The goal of the CTF was to create a 10 to 15 person task force that will not only represent the citizens of the corridor but also be chosen by them. By including residents on the study team, it allows them the opportunity to be an active participant and a sense of involvement in the project development process. At the Public Information Meeting, Neighborhood Associations with the study area were asked to select two (2) residents to be representatives of each neighborhood on the CTF, who would be the voice of their respective neighborhoods.

Once the task force was formed, members of the CTF acted as a go-between with the neighborhood residents and the project team (COA and HDR staff). The task force met a minimum of four (4) times during the course of the project study. The project team presented the option that if additional CTF meetings were necessary and would benefit the final product, then more would be scheduled.

2. MEETINGS HELD

The four (4) CTF meetings were held on the following dates:

- May 9, 2007
- July 17, 2007
- August 22, 2007
- September 9, 2007

The purpose of each CTF meeting was to help refine citizen values and suggestions developed at the stakeholder kick-off meeting as well as the following:

- Review preliminary and developing work of the engineer;
- Work collaboratively with the COA and HDR to incorporate neighborhood perspectives and values in the study;
- Communicate to neighborhood associations about the progress of the corridor study and communicate to the design team about neighborhood reactions and suggestions;
- Recommend the prototype landscaping as selected by citizen input.

Please refer to Appendix C of Book Two for detailed meeting minutes of topics discussed from all CTF Meetings.

E. Final Public Meeting Input Summary

In early September 2007, 1000 flyers regarding a Public Kick-Off Meeting were hand delivered to individuals associated with this corridor. They were invited to attend a Public Information Meeting on September 27, 2007 at McKinley Middle School in Albuquerque, New Mexico. An advertisement was also posted in the Albuquerque Journal and Albuquerque Tribune. In addition, a flyer was delivered to the president of each neighborhood association.

Twenty-two people, not including the study team, attended the Public Information Meeting. Those in attendance were asked to form groups based on neighborhood association affiliation. The purpose of this Public Information Meeting was to present the proposed alternatives and recommendations of the CTF and project team.

The meeting commenced with the introduction of the project team, the CTF, as well as dignitaries, Councilor Debbie O'Malley and Kelly Sanchez-Pare, assistant to Councilor Debbie O'Malley. The task force was comprised of two individuals from each neighborhood association along the corridor, along with a team of two individuals who live along Carlisle Boulevard.

The project team restated that the study addressed concerns all along Carlisle Boulevard from Menaul Boulevard to Montgomery Boulevard:

- Should there be a third lane on northbound Carlisle Boulevard from Candelaria Road to Comanche Road?
- What should be done to improve the intersection at Claremont Avenue and Carlisle Boulevard?
- What other changes need to be made from Menaul Boulevard to Montgomery Boulevard?

Some recommendations were made by CTF members that were outside of the scope of the study. Although these recommendations will not be studied, they will be included in the corridor study report.

It was noted that the CTF met four times during the course of the project to discuss issues which were made part of the study. Recommendations of the CTF have been agreed upon by the majority as discussed in this report.

After this overview, the statement of project scope and the purpose of the CTF, HDR discussed the alternatives that were presented to and recommended by the CTF to the public. Those alternatives are:

- Third Northbound Lane Alternatives:
  - Three alternatives for adding third lane were discussed:
    - Add the third lane, remove the existing median barrier curb and gutter and add striping between the northbound lanes and frontage road;
    - Add the third lane and reconstruct curb and gutter between the northbound lanes and frontage road;
    - Add the third lane and construct a wall barrier to separate the northbound lanes and frontage road;
  - Barrier Wall Access Alternatives:
    - Access at all streets, as is the existing condition of median curb and gutter;
    - Allow access at one or two intersections; or
    - Restrict all access off Carlisle Boulevard so that access to the neighborhoods east of Carlisle Boulevard is only via Comanche Road or Candelaria Road. Wall barrier will be continuous, with no access points along the length of the wall. It will taper from its full height down to become flush with the curb and gutter south of Altamonte Avenue. This would eliminate the ability for northbound traffic to access the frontage road unintentionally. It would also eliminate the potential for traffic to access Comanche Road from the frontage road and neighborhood side streets. The CTF expressed concern for the safety of the residents in the area due to this type of traffic movement. During the CTF meetings it was stated that the main reason for adding a third lane is to move the vehicular traffic. By creating breaks in the barrier wall, it will only slow traffic down when right turning movements occur.

- The CTF recommendation was to include concrete wall barrier and to restrict all access off Carlisle Boulevard. No vehicles would be permitted through the barrier, thereby adding extra protection to the homes along Carlisle Boulevard. This option eliminates on-street parking along the frontage road.
  - This was not by unanimous vote, but the majority did want to go forward with the third lane. The task force was confronted with the fact that the people who live along the frontage road felt they would be impacted the most.
- Barrier wall would start at the northeast quadrant of the intersection of Carlisle Boulevard and Candelaria Road, approximately 200 yards north of the intersection. The barrier wall would terminate at the southeast quadrant of the intersection of Carlisle Boulevard and Comanche Road.
- Those who live along the corridor met and had a unanimous stance that the COA should buy the houses along Carlisle Boulevard and make it three lanes and eliminate the frontage road. However, it is outside the scope as the COA Council does not want to take peoples homes due to the costs. This solution would only be considered as a last resort. Concerns that were brought up if the third lane with the barrier wall is constructed include:
  - Two cars will not be able to go through the frontage road. The project team stated that the design will be done to accommodate the three northbound lanes and a frontage road where two cars can pass;
  - Comanche Road and Shepard Road is an extremely busy area.

- Temporary improvements suggestions along Carlisle Boulevard are:
  - Additional and updated signage along the corridor;
  - Speed bumps;
  - Additional and updated pavement markings along the corridor.
- Minority Presentation:
  - This presentation represented some of the homeowners' views who reside along Carlisle Boulevard between Candelaria Road and Comanche Road. This group of homeowners do not agree with the CTF majority's decision to recommend a third northbound lane;
  - Felt outnumbered, and that the addition of the third lane would impact the neighborhoods negatively;
  - The presentation stated that the study of the third lane looked at the level of service in the year 2030. At this point, delays are no worse along the study area than anywhere else;
  - The frontage road will be one-way traffic, and residents will not be able to get in or out of the neighborhood on Carlisle Boulevard;
  - This will decrease property value and access;
  - Too early to add a third lane because the study area will not fail, using COA's own traffic data until 2030;
  - It is unknown as to how traffic through the larger neighborhood be affected;
  - It was recommended that until there is a greater demand, the third lane be added only when the need develops.

- The intersection at Claremont Avenue and Carlisle Boulevard is a major intersection for the Bel Air neighborhood.
  - After the CTF discussed this intersection and came up with issues, an analysis was performed by the COA and HDR. The intersection is skewed. Retail and a fast food restaurant are expected to go onto the existing, vacant pads. It will be near the end of 2008 before the new space is constructed. Based on trip generation/distribution and traffic data, no additional lanes should be required. The project team has requested COA Traffic Engineering modify the signal timing and phasing on this intersection;
  - A request for an evaluation of the left turn phasing by the COA, and recommendation that the COA consider realigning the intersection will be included in the study report.
- Public safety: It should be noted how dangerous it is for pedestrian traffic to cross the six lanes of traffic on Carlisle Boulevard. How will restricting access on Carlisle Boulevard into the neighborhoods affect the delivery of public safety services (fire department, emergency medical services, police, etc)?
- Pedestrian crossing at Aztec Road:
  - School nearby kids crossing Carlisle Boulevard;
  - Pedestrian Bridge: The placement of a pedestrian bridge over Carlisle Boulevard is a costly solution. Since ADA accessible ramps will not fit within the right-of-way (ROW,) elevators will need to be installed to meet ADA requirements. A fence must also be built to force people to use the bridge;
  - Pedestrian Crossing: Dedicated crossing with signs, striping and flashers. A study would be required to determine the need;
  - Request to Albuquerque Public School (APS) and COA Traffic Engineering for dedicated school crossing;
  - A resident of the area indicated that in 25 years, APS has not put in crossing guards along the Carlisle Boulevard corridor;
  - It was brought up that the pedestrians crossing mid-block are not just kids, there are others who are crossing to get to the buses;
  - The CTF recommended the pedestrian crossing with warning lights be investigated.
- Roadway lighting is a design related issue and will be addressed during the final design phases to adequately light the roadway. Lighting will be designed so as not to give a runway effect but instead provide a safe place for motorists and pedestrian traffic. Likewise, the lighting will not be a nuisance for the residents of the area;
- Sidewalks along the corridor need improvements;
- Landscaping: The COA's Landscape design consultant spoke to the CTF and showed prototypes of design.

- General
  - Access improvements should take place at the Lovelace clinic north of Comanche Road, additional median cut(s) should be considered where businesses are located along the corridor;

  - Councilor Debbie O'Malley asked the group to consider multi-modal streets – pedestrians, transit, bikes and traffic. She suggested that if a street is built for cars, it will only get cars. The COA must look at the design to determine who will be using this corridor.

Please refer to Appendix B of Book Two for detailed meeting minutes from the Final Public Information Meeting.

VI. DESCRIPTION OF ALTERNATIVES

In order to determine the solution that best serves the purpose and need of the study area, a series of alternatives have been developed for Carlisle Boulevard between Candelaria Road and Comanche Road. The alternatives will be analyzed later in this report for their effectiveness in serving the project's purpose and need and a recommendation will be made.

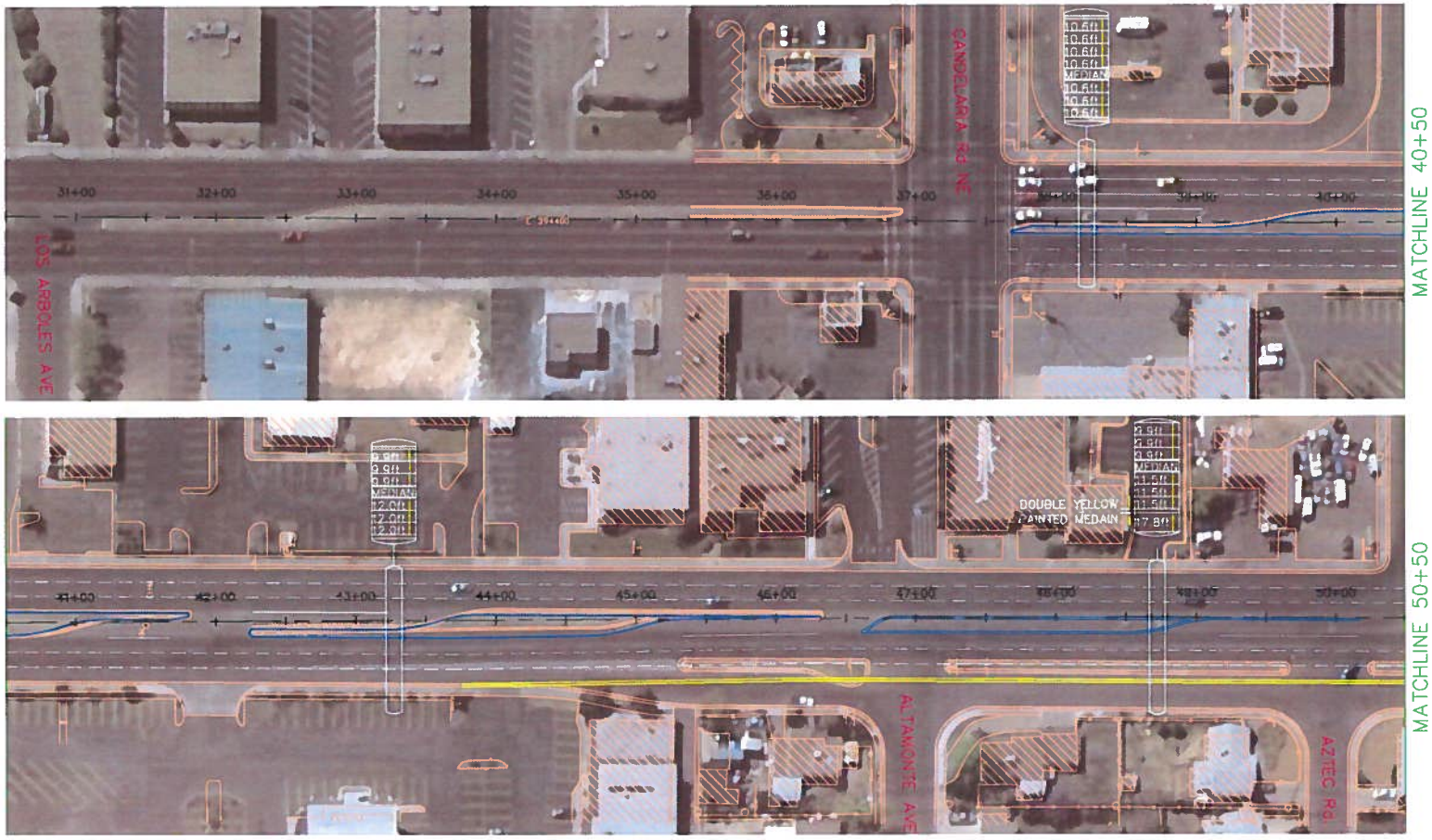
A. Alternative A: No Build

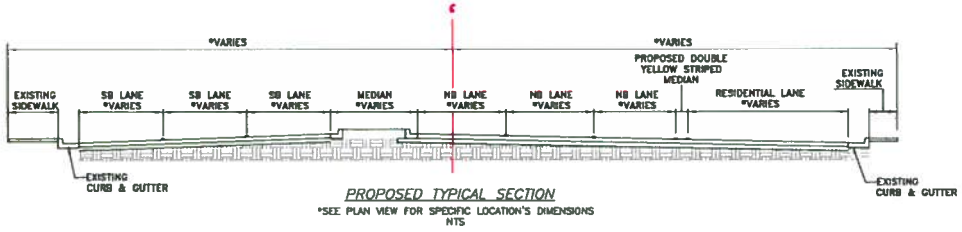
Improvements to Carlisle Boulevard would not be performed nor would any modifications be made to the intersections with the implementation of this alternative. Sidewalk and ADA ramps would not be improved or added where needed. The timing of signals would not be changed and lighting would not be improved.

B. Alternative B: Add a Third Northbound Lane, Maintain Frontage Road with Striping

This alternative adds a third northbound driving lane on Carlisle Boulevard between Candelaria Road and Comanche Road. The frontage road, although narrower, would be maintained through striping along this stretch of roadway. This alternative would include the following components:

- The proposed 7-lane typical section would include 3-10' southbound driving lanes, 18.7' raised median between northbound and southbound traffic, 3-11.5' northbound driving lanes, a double yellow stripe between northbound traffic and the frontage road, 1-17.8' frontage road, 2-7 ½" curb and gutter and 6' sidewalks. The driving lane width and raised median width may be refined during the final design phase of the project to allow for wider driving lanes and a narrower median. See Figure 8 on pages 41 and 42 for the proposed roadway layout section.
- All ADA ramps between Candelaria Road and Comanche Road on Carlisle Boulevard will be evaluated. If an ADA ramp does not exist at a particular corner, it will be added. A ramp will be rebuilt if it is in poor condition, if it does not meet current ADA criteria or if sidewalk or curb and gutter modifications are needed adjacent to the ramp.
- The existing signal equipment and its timing will be evaluated for upgrades and changes at the intersections of Carlisle Boulevard and Candelaria Road as well as Carlisle Boulevard and Comanche Road.





PROPOSED TYPICAL SECTION

*SEE PLAN VIEW FOR SPECIFIC LOCATION'S DIMENSIONS

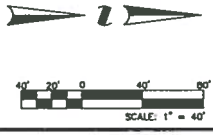
NTS

LEGEND

BLUE LINES = PROPOSED MEDIAN

PEACH LINES = EXISTING

YELLOW LINES = DOUBLE YELLOW STRIPED MEDIAN



AS BUILT INFORMATION

BENCH MARKS

SURVEY INFORMATION

FIELD NOTES

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CITY OF ALBUQUERQUE

MUNICIPAL DEVELOPMENT DEPARTMENT

TRANSPORTATION DEVELOPMENT DIVISION

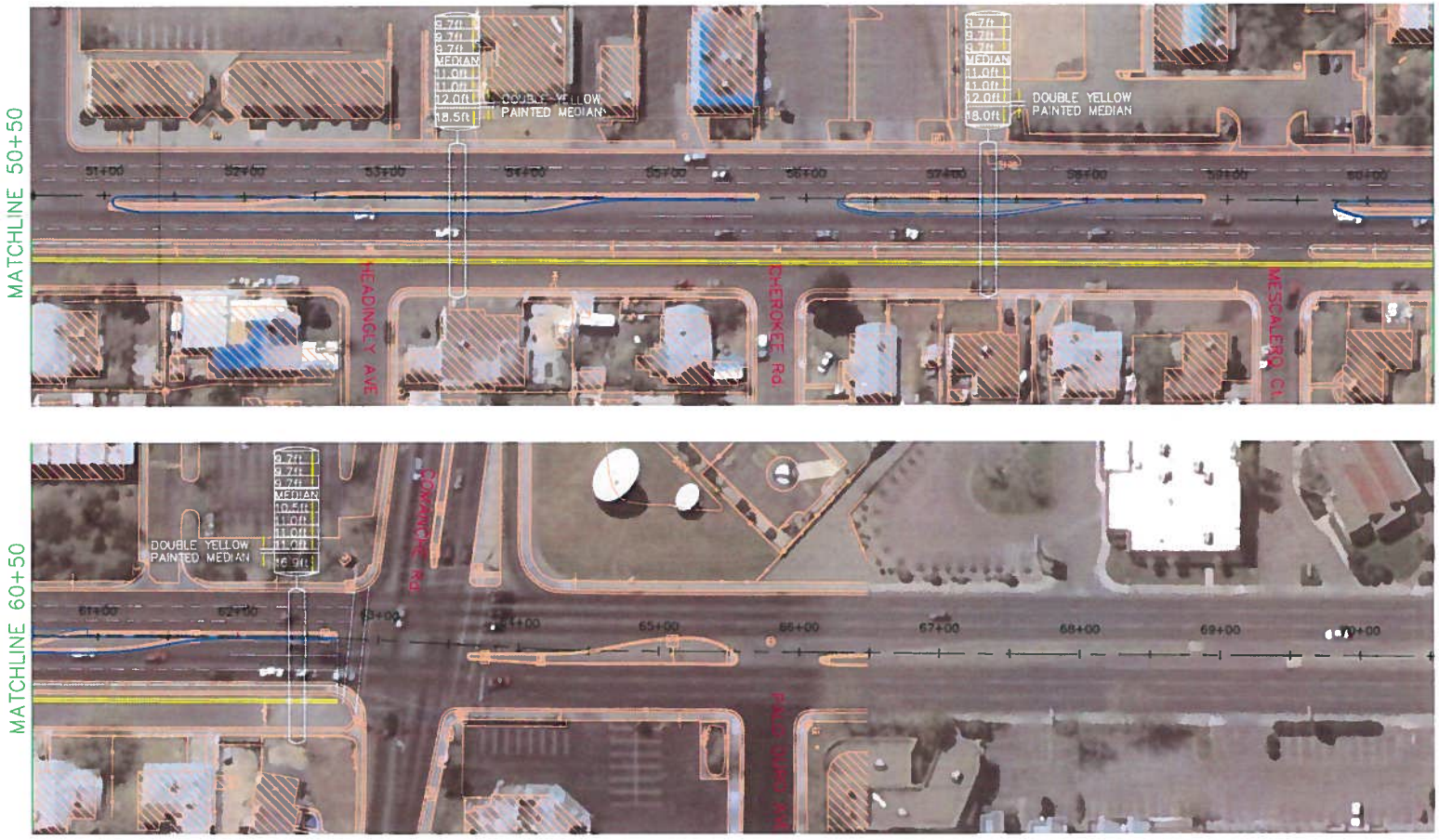
TITLE: CARLISLE BOULEVARD CORRIDOR STUDY

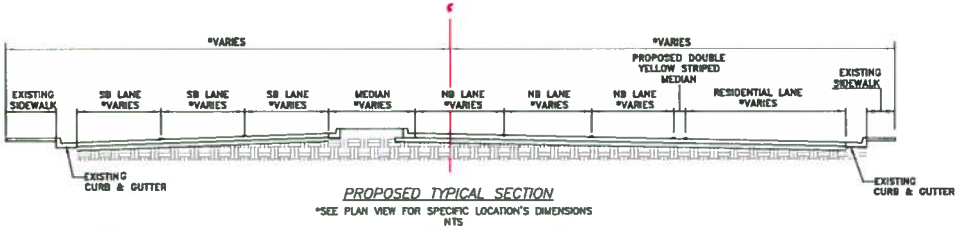
ALTERNATIVE B—THREE LANES WITH STRIPED MEDIAN

FIGURE 8

Design Review Committee | City Engineer Approval | Last Design Update

City Project No. — | Zone Map No. —





PROPOSED TYPICAL SECTION

*SEE PLAN VIEW FOR SPECIFIC LOCATION'S DIMENSIONS

NTS

LEGEND

BLUE LINES = PROPOSED MEDIAN
PEACH LINES = EXISTING
YELLOW LINES = DOUBLE YELLOW STRIPED MEDIAN

SCALE: 1" = 40'

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TITLE: CARLISLE BOULEVARD CORRIDOR STUDY
ALTERNATIVE B–THREE LANES WITH STRIPED MEDIAN
FIGURE 8

Design Review Committee | City Engineer Approval | Last Design Update

City Project No. — | Zone Map No. —

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AS BUILT INFORMATION
BENCH MARKS
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FIELD NOTES BY DATE
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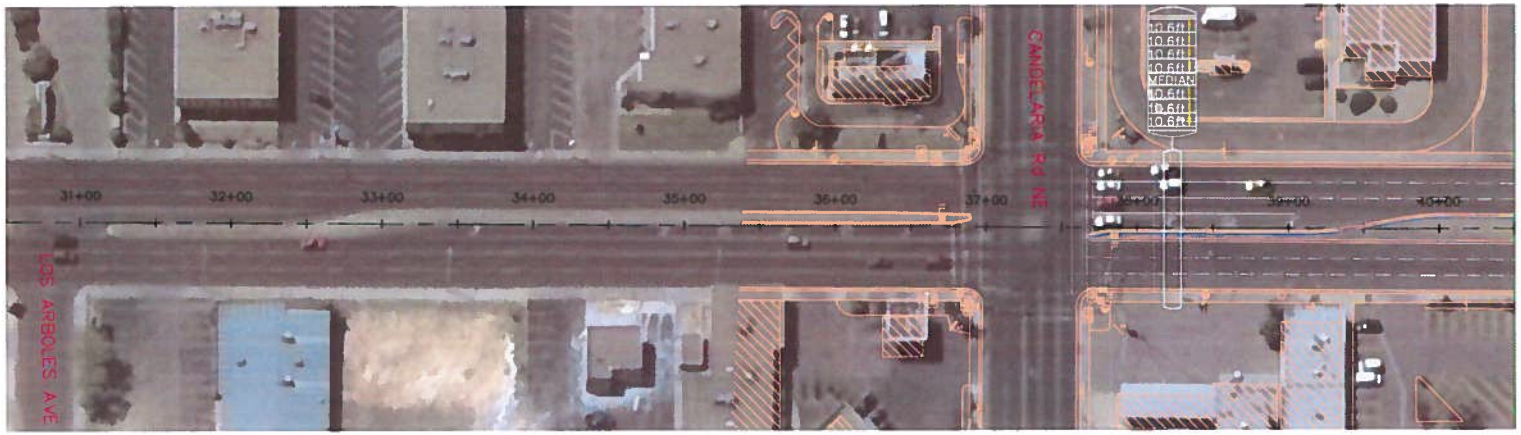
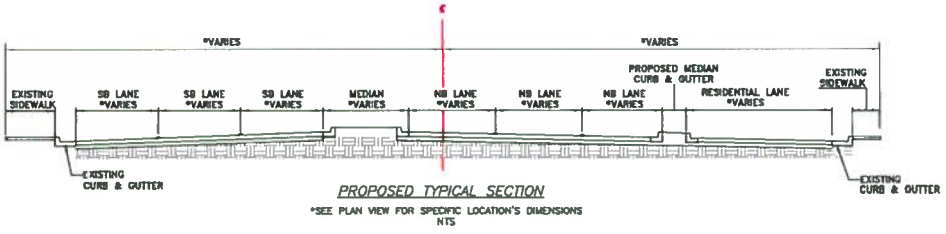
C. Alternative C: Add a Third Northbound Lane, Protect Frontage Road with Curbed Median

Alternative C would include a third northbound lane on Carlisle Boulevard between Candelaria Road and Comanche Road and allow the frontage road to remain in place although narrower. The frontage road would be separated from the northbound driving lanes by a raised median that includes curb and gutter. This alternative would include the following components:

- The proposed 7-lane typical section would include 3-10.5' southbound driving lanes, 18.7' raised median between northbound and southbound traffic, 2-10.5' and 1-11' northbound driving lanes, 3' raised median (18" back-to-back curb & gutter) between northbound traffic and the frontage road, 1-15' frontage road, 2-7 ½" curb and gutter and 6' sidewalks. The driving lane width and raised median width may be refined during the final design phase of the project to allow for wider driving lanes and a narrower median. See Figure 9 on pages 44 and 45 for the proposed roadway layout section.
- All ADA ramps between Candelaria Road and Comanche Road on Carlisle Boulevard will be evaluated. If an ADA ramp does not exist at a particular corner, it will be added. A ramp will be rebuilt if it is in poor condition, if it does not meet current ADA criteria or if sidewalk or curb and gutter modifications are needed adjacent to the ramp.
- The existing signal equipment and its timing will be evaluated for upgrades and changes at the intersections of Carlisle Boulevard and Candelaria Road as well as Carlisle Boulevard and Comanche Road.





PROPOSED TYPICAL SECTION

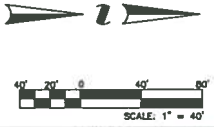
*SEE PLAN VIEW FOR SPECIFIC LOCATION'S DIMENSIONS

NTS

LEGEND

BLUE LINES = PROPOSED MEDIAN

PEACH LINES = EXISTING



AS BUILT INFORMATION

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TRANSPORTATION DEVELOPMENT DIVISION

TITLE: CARLISLE BOULEVARD CORRIDOR STUDY

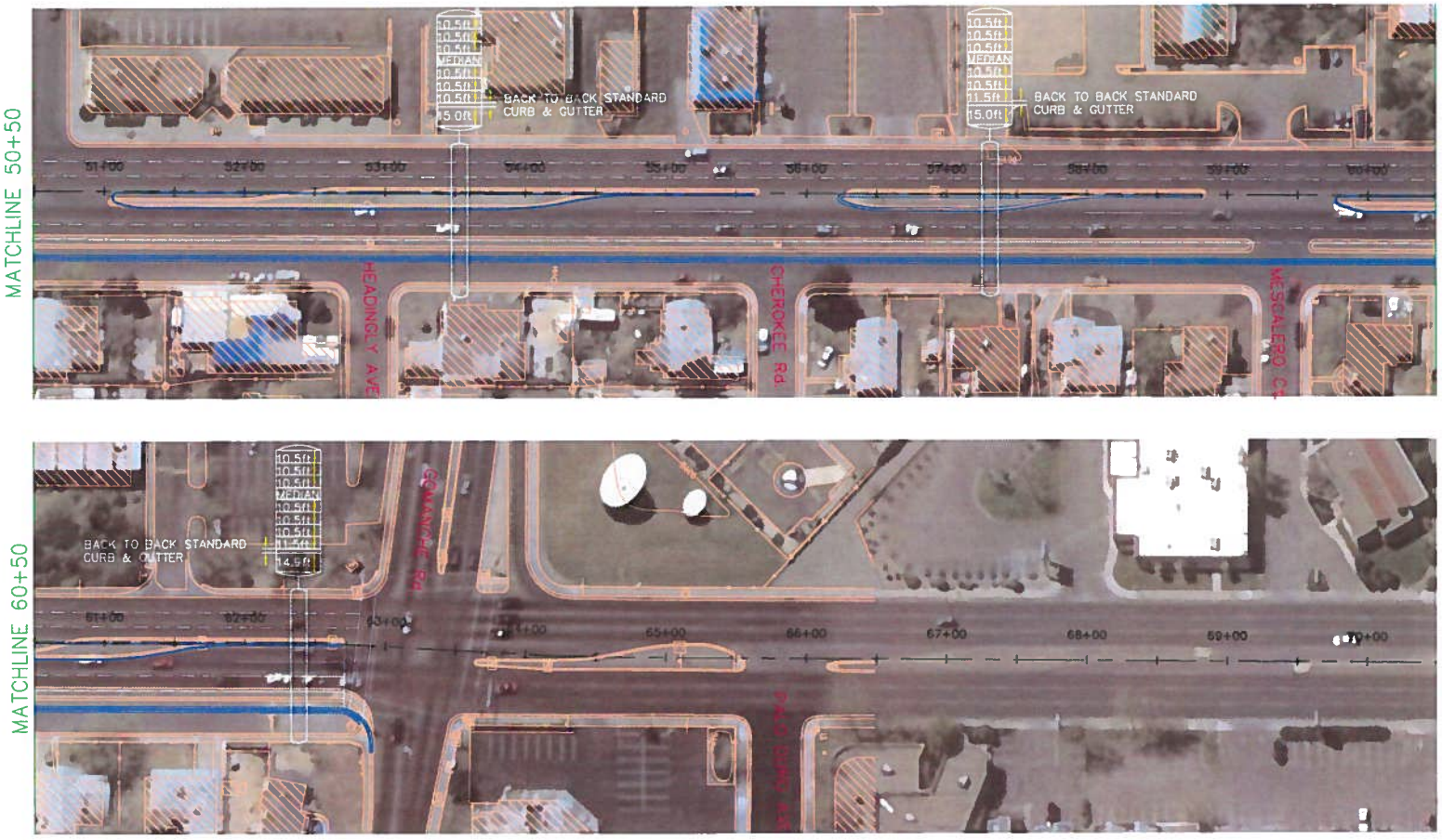
ALTERNATIVE C-THREE LANES WITH MEDIAN CURB & GUTTER

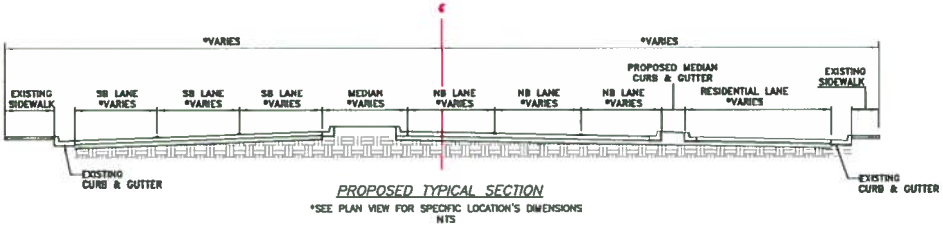
FIGURE 9

Design Review Committee | City Engineer Approval

City Project No. —

Zone Map No. —





PROPOSED TYPICAL SECTION

*SEE PLAN VIEW FOR SPECIFIC LOCATION'S DIMENSIONS

NTS

LEGEND

BLUE LINES = PROPOSED MEDIAN

PEACH LINES = EXISTING

SCALE: 1" = 40'

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TITLE: CARLISLE BOULEVARD CORRIDOR STUDY

ALTERNATIVE C-THREE LANES WITH MEDIAN CURB & GUTTER

FIGURE 9

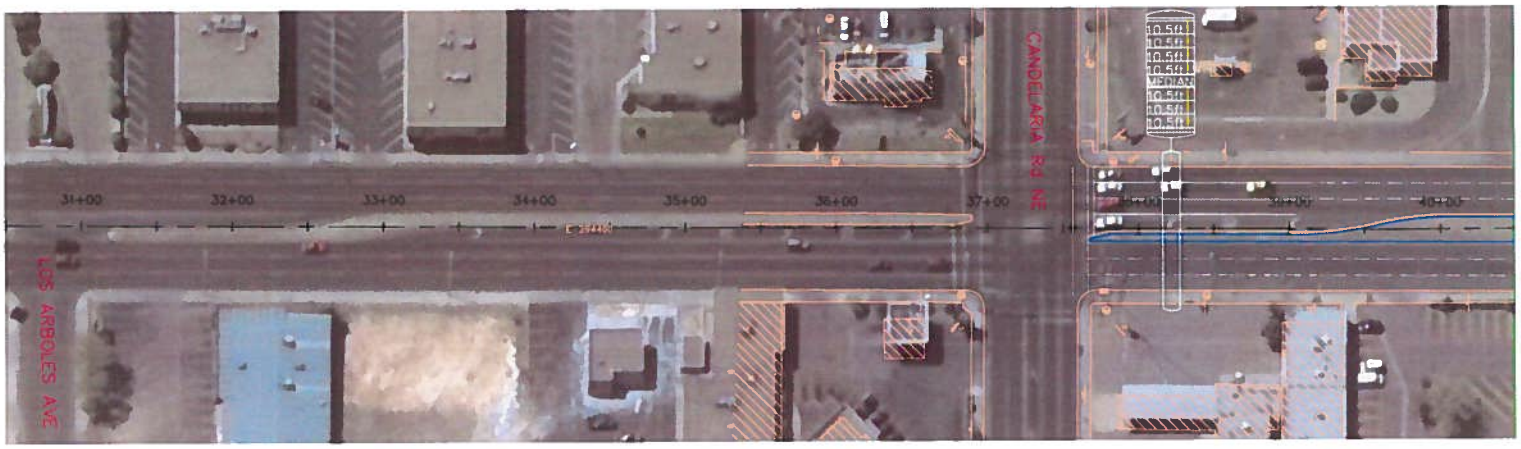
Design Review Committee | City Engineer Approval | Last Design Update

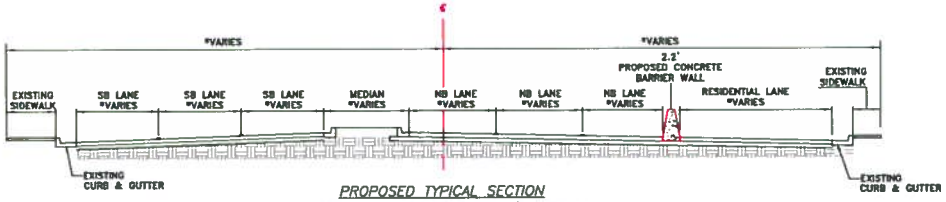
City Project No. — | Zone Map No. —

D. Alternative D: Add a Third Northbound Lane, Protect Frontage Road with Wall Barrier Median

This alternative is similar to Alternative C. Like Alternative C, this would include a third northbound lane on Carlisle Boulevard between Candelaria Road and Comanche Road. The frontage road would be narrower but would still be in place. The frontage road would be separated from the northbound driving lanes by a median of wall barrier. This alternative would include the following components:

- The proposed 7-lane typical section would include 3-10' southbound driving lanes, 18.7' raised median between northbound and southbound traffic, 3-11' northbound driving lanes, 2' median wall barrier between northbound traffic and the frontage road, 1-19' frontage road, 2-7 ½" curb and gutter and 6' sidewalks. The driving lane width and raised median width may be refined during the final design phase of the project to allow for wider driving lanes and a narrower median. See Figure 10 on pages 47 and 48 for the proposed roadway layout section.
- All ADA ramps between Candelaria Road and Comanche Road on Carlisle Boulevard will be evaluated. If an ADA ramp does not exist at a particular corner, it will be added. A ramp will be rebuilt if it is in poor condition, if it does not meet current ADA criteria or if sidewalk or curb and gutter modifications are needed adjacent to the ramp.
- The existing signal equipment and its timing would be evaluated for upgrades and changes at the intersections of Carlisle Boulevard and Candelaria Road as well as Carlisle Boulevard and Comanche Road.





PROPOSED TYPICAL SECTION

*SEE PLAN VIEW FOR SPECIFIC LOCATION'S DIMENSIONS

NTS

LEGEND

BLUE LINES = PROPOSED MEDIAN

PEACH LINES = EXISTING

RED LINES = WALL BARRIER

SCALE: 1" = 40'

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TRANSPORTATION DEVELOPMENT DIVISION

TITLE: CARLISLE BOULEVARD CORRIDOR STUDY
ALTERNATIVE D-THREE LANES WITH BARRIER WALL
FIGURE 10

Design Review Committee | City Engineer Approval

City Project No. —

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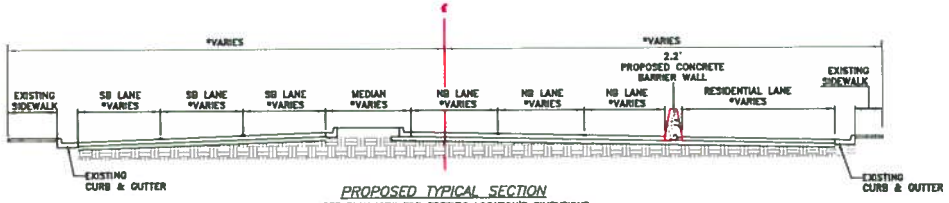

PROPOSED TYPICAL SECTION
*SEE PLAN VIEW FOR SPECIFIC LOCATION'S DIMENSIONS
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LEGEND

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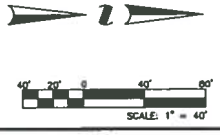
PEACH LINES = EXISTING
RED LINES = WALL BARRIER



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TITLE: CARLISLE BOULEVARD CORRIDOR STUDY
ALTERNATIVE D-THREE LANES WITH BARRIER WALL
FIGURE 10

Design Review Committee | City Engineer Approval | Last Design Update

City Project No. — | Zone Map No. — | PAGE 48

SURVEY INFORMATION
FIELD NOTES BY DATE
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BENCH MARKS

ENGINEER'S SEAL

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CONTRACTOR DATE
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VII. INTERSECTION IMPROVEMENTS

A. Carlisle Boulevard and Claremont Avenue Intersection Improvements

Improvements at this intersection will be challenging. At the present time, overall operations at this intersection are at acceptable levels of service. Concerns brought up during the study included the fact that the east leg and west leg of Claremont Avenue do not line up properly. That misalignment has created difficult driving conditions for westbound traffic trying to cross the intersection due to poor sight distance.

To help remove this problem, it is recommended that the west leg of Claremont Avenue be realigned. This will require some ROW purchase on the southwest corner of the intersection. Overall, traffic flow and safety through this intersection will improve under this configuration. One (1) traffic signal pole at the southwest corner will have to be removed and reset with the updated geometry. No other geometric improvements will be necessary at this intersection. For a detailed layout of the proposed improvements at this intersection, please refer to Figure 11, on pages 50 and 51.

Traffic signal timing alternatives were discussed with the City Traffic Engineer. Alternatives such as protected left turn and split phasing alternatives were discussed but at the present time determined would not improve overall operations at the intersection but might cause more problems. By providing protected left turn phases for Claremont could potentially have a negative impact on traffic progression for Carlisle Boulevard traffic. Split-phasing the traffic signal would make it more difficult for pedestrians to safely cross Carlisle Boulevard.

With anticipated development in the Wal-Mart property that may have an impact on the overall operation of this intersection, it is recommended that COA Planning Department should have the developer address traffic operations at this location. It is recommended that a re-evaluation of pedestrian and traffic operations be conducted during the design phase to provide the most efficient configuration.

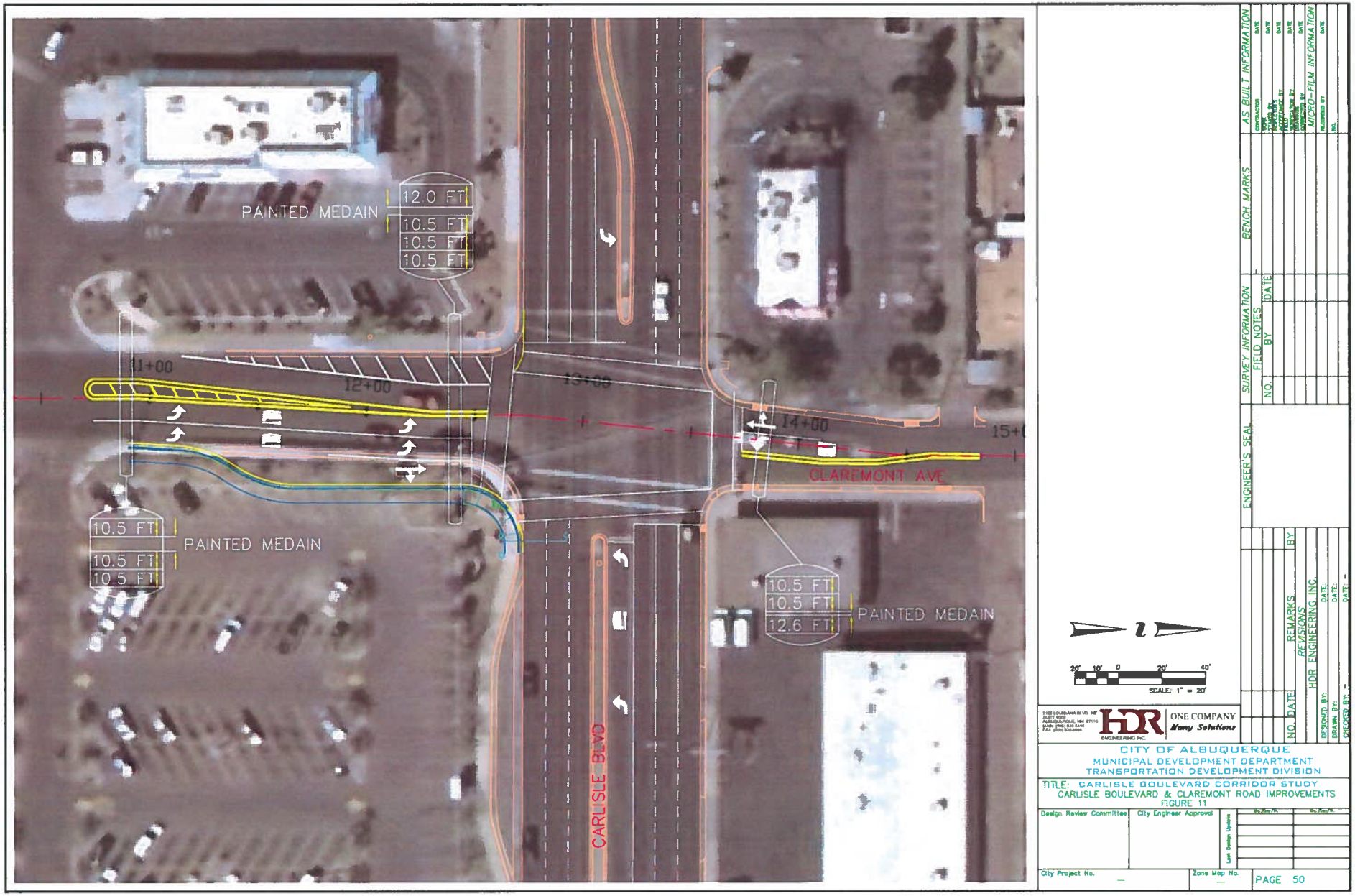
These improvements listed above should be constructed with any of the previous described alternatives for the corridor.

B. Carlisle Boulevard and Candelaria Road Intersection Improvements

No alternatives for this intersection will be presented at this time. This intersection does not have geometric or traffic operational deficiencies. A detailed evaluation of the intersection will be conducted during the design phase of the project.

C. Carlisle Boulevard and Comanche Road Intersection Improvements

No alternatives for this intersection will be presented at this time. Improvements to the bikeways system will be implemented at a future date in the western leg of the intersection. A detailed evaluation of the entire intersection will be conducted during the design phase of the project.



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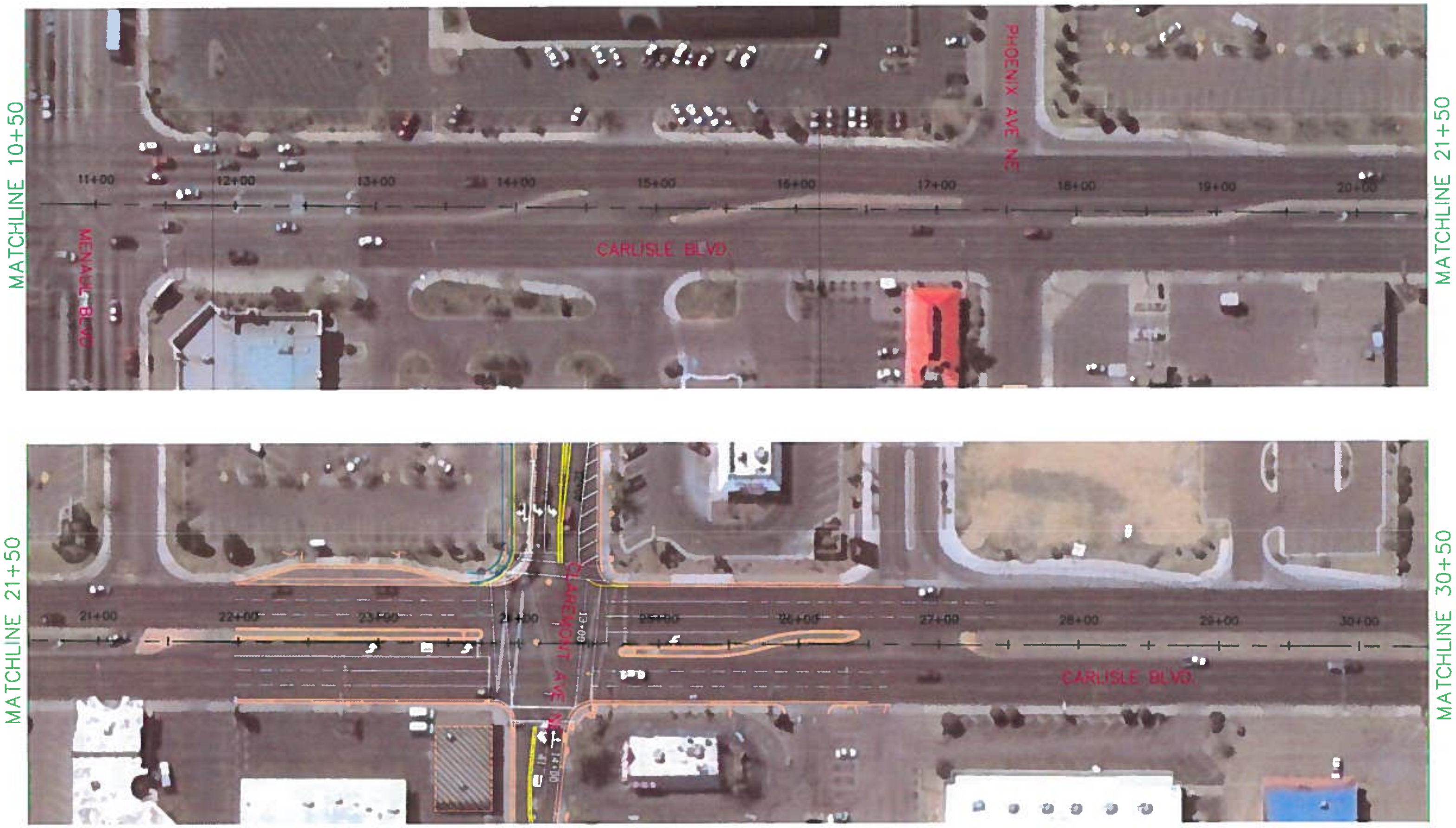
TITLE: CARLISLE BOULEVARD CORRIDOR STUDY
CARLISLE BOULEVARD & CLAREMONT ROAD IMPROVEMENTS
FIGURE 11

Design Review Committee | City Engineer Approves | Last Design Update

City Project No. — | Zone Map No. —



SCALE: 1" = 40'

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TITLE: CARLISLE BOULEVARD CORRIDOR STUDY
CARLISLE BOULEVARD & CLAREMONT ROAD IMPROVEMENT
FIGURE 11

Design Review Committee | City Engineer Approval | Last Design Update

City Project No. — | Zone Map No. — | PAGE 51

AS BUILT INFORMATION | BENCH MARKS | SURVEY INFORMATION | ENGINEER'S SEAL

FIELD NOTES: NO. | BY | DATE

REVISIONS: NO. | DATE | REMARKS | BY

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MICRO-FILM INFORMATION

VIII. ENGINEERING FACTORS AND ANALYSIS

A. Traffic Operations and Safety

The Traffic Analysis Report was prepared and is included in Appendix A of Book Two. The report included functional classification of the roadways in the study area, an inventory and analysis of existing and future traffic conditions, an inventory and analysis of existing and future intersection operations, a lighting analysis, a sidewalk and ADA ramp analysis, an inventory and analysis of accidents in the study area and an analysis of the study area's traffic operations in 2030 if no improvements were made as well as if improvements were made to the area.

Currently, the level of service (LOS) for Carlisle Boulevard for northbound traffic during the AM Peak is an "A" while the Midday Peak and the PM Peak LOS vary between an "A" and a "B." The southbound LOS for the AM Peak is an "A" while the remaining peak times vary between an "A" and a "B." If no improvements are made to the study area, the northbound and southbound AM Peak LOS' begin to decline with the worst LOS being a "B." The LOS for northbound and southbound deteriorate with the No-Build alternative but the worst LOS attained is a "C." If a third lane is added for northbound Carlisle Boulevard, the LOS rankings decline over the current rankings but are better than the No-Build alternative in 2030. A detailed listing of the LOS' of the area can be seen in Table 3 on page 20, Table 4 on page 21 and Table 5 on page 21.

The average LOS for the Carlisle Boulevard and Claremont Avenue intersection during the AM Peak and the Midday Peak is an "A." For the PM Peak, the LOS is a "C." If no improvements are made in the future, the AM Peak LOS changes to a "B' and the PM Peak LOS changes to a "D." The Midday Peak LOS remains the same at a "B."

A more extensive summary of the findings and supporting information can be found in the Traffic Analysis Report in Appendix A of Book Two.

B. Access

There are numerous access points along the corridor for commercial and residential properties. Likewise, there are numerous access points within the raised median to allow for crossing movements.

Alternative A would not require the alteration of any access points as no improvements would be made to the corridor.

Alternative B would remove the curb and gutter and replace with a double yellow stripe separating the frontage road from northbound lanes on Carlisle Boulevard from Candelaria Road to Comanche Road. This would not alter the access points on Carlisle Boulevard but it would alter how several residences are accessed. There are private residences on the east side of Carlisle Boulevard that would not have a protected ingress and egress; this would make it difficult for those residents to access their home.

Alternative C and Alternative D retain the frontage road on Carlisle Boulevard but it becomes narrower. Alternative C will allow for protected ingress and egress but less maneuverability. Alternative D would eliminate all access to the neighborhood east of Carlisle Boulevard from the frontage road. Access would be obtained via neighborhood streets off of Comanche Road and Candelaria Road.

C. Constructability

During this phase of the study, several assumptions must be made in order to evaluate the constructability of the alternatives. Once the study progresses into the design phase, these assumptions will be verified or nullified by the project team. The goals of any construction project are to minimize the impact of the construction on the public and minimize the cost of the work.

Most projects require maintenance of traffic through a corridor under construction with the use of shoulder closures, lane closures, drums, barricade and signage. The No Build Alternative, Alternative A, does not require traffic control in order to be completed as no work will need to be performed.

Alternative B would require traffic control measures to remove the median separating northbound Carlisle Boulevard from the frontage road as well as re-striping the roadway. This would require a minimum of a one lane closure on Carlisle Boulevard and a closure of the frontage road. The overall duration of the construction of this alternative would be less than Alternative C or Alternative D.

Alternative C and Alternative D would have the same impacts with regard to traffic control measures. This alternative would require a minimum of a one lane closure and a closure of the frontage road to remove the median and replace the median; whether the median be reinforced with concrete wall barrier or curb and gutter. The duration of construction of these alternatives would be approximately 12 weeks.

D. Right-of-Way Impacts

ROW has an important role in the planning stages of any project. It is crucial to minimize the amount of ROW required so as not to displace residences or businesses or increase the cost of the project. Alternatives that do not require acquisition of ROW are preferred over alternatives that require the acquisition of ROW. ROW in the vicinity of Carlisle Boulevard is commercially owned as well as privately owned. As a general rule, costs for commercially owned ROW are higher per square foot than privately owned ROW.

A summary of the ROW impacts for the four roadway alternatives are as follows:

- Alternative A, the No-Build alternative, requires no improvements in the study area. This alternative does not require the acquisition of ROW.

- Alternative B is the maintaining of the frontage road on Carlisle Boulevard through striping. This alternative provides for a third northbound lane on Carlisle Boulevard between Candelaria Road and Comanche Road. Additional improvements would include sidewalk replacement and ADA ramp modifications.

  Alternative B does not require the acquisition of ROW as all work would be performed between ROW boundaries. This is shown on the layout sheets, Figure 8, pages 41 and 42.

- Alternative C is the narrowing of the frontage road to include a third northbound lane with protection of the frontage road with median curb and gutter. Additional improvements would include sidewalk replacement and ADA ramp modifications. Alternative C does not require the acquisition of ROW as all work would be performed between ROW boundaries. This is shown on the layout sheets, Figure 9, pages 44 and 45.

- Alternative D is the narrowing of the frontage road to include a third northbound lane with protection of the frontage road with wall barrier. Additional improvements would include sidewalk replacement and ADA ramp modifications. Alternative D does not require the acquisition of ROW as all work would be performed between ROW boundaries. This is shown on the layout sheets, Figure 10, pages 47 and 48.

- The Carlisle Boulevard and Claremont Avenue improvements will realign the west leg of Claremont Avenue. As stated previously, this will require some ROW purchase on the southwest corner of the intersection. This is shown on the layout sheets, Figure 11, pages 50 and 51.

E. Utility Impacts

A surface utility survey was completed by HDR's sub-consultant, Surveying Control, Inc.

Water lines are under Carlisle Boulevard from Menaul Boulevard to Montgomery Boulevard.

Storm drain facilities are present adjacent to Carlisle Boulevard for a short stretch at the beginning of the project and again for another short stretch at the end of the project. Storm drain is present on Claremont Avenue and it crosses Carlisle Boulevard. Candelaria Road also includes storm drain which crosses Carlisle Boulevard. Comanche Road east of Carlisle Boulevard has storm drain. Palo Duro Avenue ends at Carlisle Boulevard to the east and also has storm drain that intersects with the arterial. From the Hahn Arroyo north to Montgomery Boulevard there is storm drain/arroyo that travels adjacent to Carlisle Boulevard on its east side.

Sanitary sewer services are present throughout the corridor with the exception of a short stretch between Phoenix Avenue and Los Arboles Avenue and another short stretch just north of Comanche Road.

Gas lines are on the east side of Carlisle Boulevard from Menaul Boulevard to Montgomery Boulevard.

A summary of the utility impacts for the four roadway alternatives are as follows:

- Alternative A is the No-Build alternative; requiring no work in the study area. This alternative does not present any conflicts with utilities.

- Alternative B, the maintenance of the frontage through striping, presents small conflicts to utilities. Subsurface utilities should not be affected as the depth of construction will not be extensive, unless water lines are unusually shallow. Sanitary sewer lines and gas lines are not of concern with the construction of Alternative B as they are generally located deeper than the proposed construction. Storm drain is located in various locations under Carlisle Boulevard north of Comanche Road and is, therefore, not affected by the proposed improvements. Lighting that is currently on the median curb and gutter between northbound Carlisle Boulevard lanes and the frontage will need to be removed and relocated elsewhere. This will likely affect the electrical conduit currently serving this area of lighting greatly.

- Alternative C, the protection of the frontage road with curbed median, presents small conflicts to utilities. Subsurface utilities should not be affected as the depth of construction will not be extensive, unless water lines are unusually shallow. Sanitary sewer lines and gas lines are not of concern with the construction of Alternative C as they are generally located deeper than the proposed construction. Storm drain is located in various locations under Carlisle Boulevard north of Comanche Road and is, therefore, not affected by the proposed improvements. Lighting that is currently on the median curb and gutter between northbound Carlisle Boulevard lanes and the frontage will need to be removed and relocated to the new median curb and gutter. This will affect the electrical conduit currently serving this area of lighting minimally as the new median curb and gutter is very close to the existing median curb and gutter.

- Alternative D, the protection of the frontage road with wall barrier median, presents small conflicts to utilities. Subsurface utilities should not be affected as the depth of construction will not be extensive, unless water lines are unusually shallow. Sanitary sewer lines and gas lines are not of concern with the construction of Alternative D as they are generally located deeper than the proposed construction. Storm drain is located in various locations under Carlisle Boulevard north of Comanche Road and is, therefore, not affected by the proposed improvements. Lighting that is currently on the median curb and gutter between northbound Carlisle Boulevard lanes and the frontage will need to be removed and relocated to the new median wall barrier. This will affect

the electrical conduit currently serving this area of lighting minimally as the new median wall barrier is very close to the existing median curb and gutter.

- The Carlisle Boulevard and Claremont Avenue improvements will realign the west leg of Claremont Avenue. Overall, these improvements present small conflicts to utilities. Subsurface utilities should not be affected as the depth of construction will not be extensive, unless water lines are unusually shallow. Storm drain, sanitary sewer lines and gas lines are not of concern with these improvements as they are generally located deeper than the proposed construction. The greatest impact is that one (1) traffic signal pole and their respective conduit on the southwest corner will have to be removed and reset with the updated geometry.

IX. OPINION OF PROBABLE COST

A. Alternative A: No Build

Under this alternative, no detailed cost estimate was provided as no improvements will be constructed. Only costs associated with the No-Build option are operations & maintenance costs for existing facilities along with driver delay costs due to increased travel times.

Opinion of Probably Costs for Alternative A: $0

B. Alternative B: Add a Northbound Third Lane, Maintain Frontage Road with Striping

Opinion of Probable Costs for Alternative B: $1,775,200.00

C. Alternative C: Add a Northbound Third Lane, Protect Frontage Road with Curbed Median

Opinion of Probable Costs for Alternative C: $1,831,900.00

D. Alternative D: Add a Northbound Third Lane, Protect Frontage Road with Wall Barrier Median

Opinion of Probable Costs for Alternative D: $2,049,600.00

E. Carlisle Boulevard & Claremont Avenue Intersection Improvements

Opinion of Probable Costs: $245,600.00

F. Recommended Improvements to the Corridor

Alternative D + Carlisle Boulevard & Claremont Avenue Intersection Improvements

Opinion of Probable Costs: $2,295,200.00

Please refer to Figures 12, 13, 14 and 15 for detailed estimates for each alternative.

CARLISLE BOULEVARD CORRIDOR STUDY - ALTERNATIVE B

PROJECT NUMBER: 7810.91
CONTROL NUMBER:
ROUTE NUMBER:
PROJECT LENGTH:

COUNTY: Bernalillo

PREPARED BY: HDR Engineering, Inc. - AR
PRICED BY: HDR Engineering, Inc. - AR
CHECKED BY: HDR Engineering, Inc. - EJH
DATE PREPARED: February 14, 2008
SUBMITTAL DATE: February 14, 2008

SUBMITTAL: Preliminary

TYPE OF PROJECT: ROADWAY IMPROVEMENTS
ROUTE TYPE: Urban Minor Arterial

PAVEMENT WIDTH: VARIES

CATEGORY: **COST ESTIMATE SUMMARY**

SHORT DESCRIPTION	*TOTAL ESTIMATE AMOUNT*
CONSTRUCTION ENGINEERING	$68,000.00
CONSTRUCTION SIGNING	$55,000.00
ROADWAY	$620,116.60
PERMANENT SIGNING & STRIPING	$16,086.50
SIGNALIZATION	$1,961.45
PROJECT ALLOWANCE (PROJECT CONSTRUCTION SIGN SCREEN 2 @ $500.00)	$1,000.00
LANDSCAPING	$300,000.00
DESIGN COSTS	$167,000.00
CONSTRUCTION MANAGEMENT & MATERIALS TESTING	$170,000.00
SUBTOTAL	$1,399,164.55
NMGR TAX @ 6.875%	$96,192.56
PROJECT SUBTOTAL	$1,495,357.11
CONTINGENCIES @ 20%	$279,832.91
PROJECT TOTAL	**$1,775,190.02**
USE	***$1,775,200.00***

CARLISLE BOULEVARD CORRIDOR STUDY - ALTERNATIVE B

CATEGORY: **CONSTRUCTION ENGINEERING**

COA ITEM NO.	SHORT DESCRIPTION	UNIT	TOTAL ESTIMATE QUANTITY	ESTIMATE UNIT PRICE	TOTAL ESTIMATE AMOUNT
4.010	Construction Staking, compl.	L.S.	1	$25,000.00	$25,000.00
6.050	Construction Mobilization, compl. (5% of Base Bid)	L.S.	1	$30,000.00	$30,000.00
6.060	Construction Demobilization, compl. (2% of Base Bid)	L.S.	1	$10,500.00	$10,500.00
30.020	NPDES Permitting, compl	L.S.	1	$2,500.00	$2,500.00
		SUBTOTAL:			$68,000.00
		NMGR TAX @		6.8750%	$4,675.00
		CONST. ENG. TOTAL:			***$72,675.00***

CATEGORY: **CONSTRUCTION SIGNING**

COA ITEM NO.	SHORT DESCRIPTION	UNIT	TOTAL ESTIMATE QUANTITY	ESTIMATE UNIT PRICE	TOTAL ESTIMATE AMOUNT
19.010	Construction Traffic Control & Barricading, compl.	L.S.	1	$55,000.00	$55,000.00
		SUBTOTAL:			$55,000.00
		NMGR TAX @		6.8750%	$3,781.25
		CONST. SIGNING TOTAL:			***$58,781.25***

CATEGORY: **ROADWAY**

COA ITEM NO.	SHORT DESCRIPTION	UNIT	TOTAL ESTIMATE QUANTITY	ESTIMATE UNIT PRICE	TOTAL ESTIMATE AMOUNT
116.016	Placement of Arterial Asphalt Concrete, 3 inch lift, cip	SQ. YD.	4,050	$3.50	$14,175.00
202.011	Excavate & Dispose of unsuitable material, compl.	CU.YD..	450	$10.00	$4,500.00
205.010	Borrow, Hauling & Compaction of suitable fill material when not obtained from within limits of construction, compl.	CU.YD.	500	$7.75	$3,875.00
301.020	Subgrade Prep. 12" at 95% compaction, cip.	SQ.YD.	4,050	$1.75	$7,087.50
302.010	Aggregate Base Course, crushed, 6" at 95% compaction, cip. SD 2408	SQ.YD.	4,050	$6.00	$24,300.00
336.010	Prime Coat, Emulsified Asphalt, cip.	SQ.YD.	4,050	$0.75	$3,037.50
336.039	Arterial Asphalt Concrete, Type SP III, 3 inch thick, machine laydown, cip.	SQ.YD.	4,050	$11.00	$44,550.00
336.120	Tack Coat, Cationic Emulsified Asphalt, cip. (1 Application)	SQ.YD.	20,887	$0.30	$6,266.10
340.060	Curb & Gutter, Median, Portland Cement Concrete, cip. SD 2408	LIN.FT.	1487	$23.00	$34,201.00
343.030	Existing Pavement, Asphalt Concrete, more than 4" thick, sawcut, remove & dispose, compl	SQ. YD.	4,050	$5.00	$20,250.00
343.080	Existing Curb & Gutter or Valley Gutter, PC Concrete, remove & dispose, compl.	LIN.FT.	3,300	$5.30	$17,490.00
344.040	Cold Milling, Asphalt Concrete Pavement, 2" thickness, incl. dispoal of millings, compl.	SQ. YD.	204,830	$2.15	$440,384.50
		SUBTOTAL:			$620,116.60
		NMGR TAX @		6.8750%	$42,633.02
		ROADWAY TOTAL:			***$662,749.62***

CARLISLE BOULEVARD CORRIDOR STUDY - ALTERNATIVE B

CATEGORY: **PERMANENT SIGNING & STRIPING**

NMDOT ITEM NO.	SHORT DESCRIPTION	UNIT	TOTAL ESTIMATE QUANTITY	ESTIMATE UNIT PRICE	TOTAL ESTIMATE AMOUNT
441.001	Reflectorized Plastic Pavement Markings, 4" width, cip.	LIN.FT.	5,510	$1.90	$10,469.00
441.005	Reflectorized Plastic Markings, 24" width, cip.	LIN.FT.	300	$8.40	$2,520.00
441.011	Reflectorized Plastic Arrow, Left, cip.	EACH	10	$155.00	$1,550.00
441.020	Reflectorized Plastic Word, Only, cip.	EACH	6	$160.00	$960.00
450.001	Aluminum Panel Sign, cip.	SQ. FT.	25	$16.00	$400.00
450.010	Square Tube Steel Posts & Base Posts for Aluminum Panel Sign, cip.	LIN.FT.	25	$7.50	$187.50
		SUBTOTAL:			$16,086.50
		NMGR TAX @		6.8750%	$1,105.95
		PERM. SIGNING/STRIPING TOTAL:			***$17,192.45***

CATEGORY: **SIGNALIZATION**

COA ITEM NO.	SHORT DESCRIPTION	UNIT	TOTAL ESTIMATE QUANTITY	ESTIMATE UNIT PRICE	TOTAL ESTIMATE AMOUNT
422.102	Traffic Signal Pedestal Pole, any size, Remove & Relocate, compl.	EACH	1	$485.00	$485.00
423.001	Traffic Signal Foundation for Pedestal Pole, cip.	EACH	1	$350.00	$350.00
423.102	Traffic Signal Foundation for Pedestal Pole & Splice Cabinet, Remove & Dispose, compl., cip.	EACH	1	$410.00	$410.00
425.102	Electrical Pull Box, any type, Remove & Relocate, cip.	EACH	1	$275.00	$275.00
422.112	Traffic signal Mastarm, any size, Remove and Relocate	EACH	1	$441.45	$441.45
		SUBTOTAL:			$1,961.45
		NMGR TAX @		6.8750%	$134.85
		SIGNALIZATION TOTAL:			***$2,096.30***

CARLISLE BOULEVARD CORRIDOR STUDY - ALTERNATIVE C

PROJECT NUMBER: 7810.91
CONTROL NUMBER:
ROUTE NUMBER:
PROJECT LENGTH:

COUNTY: Bernalillo

PREPARED BY: HDR Engineering, Inc. - AR
PRICED BY: HDR Engineering, Inc. - AR
CHECKED BY: HDR Engineering, Inc. - EJH
DATE PREPARED: February 14, 2008
SUBMITTAL DATE: February 14, 2008

SUBMITTAL: Preliminary

TYPE OF PROJECT: ROADWAY IMPROVEMENTS
ROUTE TYPE: Urban Minor Arterial

PAVEMENT WIDTH: VARIES

CATEGORY: **COST ESTIMATE SUMMARY**

SHORT DESCRIPTION	*TOTAL ESTIMATE AMOUNT*
CONSTRUCTION ENGINEERING	$68,000.00
CONSTRUCTION SIGNING	$55,000.00
ROADWAY	$660,801.60
PERMANENT SIGNING & STRIPING	$16,086.50
SIGNALIZATION	$1,961.45
PROJECT ALLOWANCE (PROJECT CONSTRUCTION SIGN SCREEN 2 @ $500.00)	$1,000.00
LANDSCAPING	$300,000.00
DESIGN COSTS	$171,000.00
CONSTRUCTION MANAGEMENT & MATERIALS TESTING	$170,000.00
SUBTOTAL	$1,443,849.55
NMGR TAX @ 6.875%	$99,264.66
PROJECT SUBTOTAL	$1,543,114.21
CONTINGENCIES @ 20%	$288,769.91
PROJECT TOTAL	**$1,831,884.12**
USE	***$1,831,900.00***

CARLISLE BOULEVARD CORRIDOR STUDY - ALTERNATIVE C

CATEGORY: **CONSTRUCTION ENGINEERING**

COA ITEM NO.	SHORT DESCRIPTION	UNIT	TOTAL ESTIMATE QUANTITY	ESTIMATE UNIT PRICE	TOTAL ESTIMATE AMOUNT
4.010	Construction Staking, compl.	L.S.	1	$25,000.00	$25,000.00
6.050	Construction Mobilization, compl. (5% of Base Bid)	L.S.	1	$30,000.00	$30,000.00
6.060	Construction Demobilization, compl. (2% of Base Bid)	L.S.	1	$10,500.00	$10,500.00
30.020	NPDES Permitting, compl	L.S.	1	$2,500.00	$2,500.00
		SUBTOTAL:			$68,000.00
		NMGR TAX @		6.8750%	$4,675.00
		CONST. ENG. TOTAL:			***$72,675.00***

CATEGORY: **CONSTRUCTION SIGNING**

COA ITEM NO.	SHORT DESCRIPTION	UNIT	TOTAL ESTIMATE QUANTITY	ESTIMATE UNIT PRICE	TOTAL ESTIMATE AMOUNT
19.010	Construction Traffic Control & Barricading, compl.	L.S.	1	$55,000.00	$55,000.00
		SUBTOTAL:			$55,000.00
		NMGR TAX @		6.8750%	$3,781.25
		CONST. SIGNING TOTAL:			***$58,781.25***

CATEGORY: **ROADWAY**

COA ITEM NO.	SHORT DESCRIPTION	UNIT	TOTAL ESTIMATE QUANTITY	ESTIMATE UNIT PRICE	TOTAL ESTIMATE AMOUNT
116.016	Placement of Arterial Asphalt Concrete, 3 inch lift, cip	SQ. YD.	4,050	$3.50	$14,175.00
202.011	Excavate & Dispose of unsuitable material, compl.	CU.YD..	450	$10.00	$4,500.00
205.010	Borrow, Hauling & Compaction of suitable fill material when not obtained from within limits of construction, compl.	CU.YD.	500	$7.75	$3,875.00
301.020	Subgrade Prep. 12" at 95% compaction, cip.	SQ.YD.	4,050	$1.75	$7,087.50
302.010	Aggregate Base Course, crushed, 6" at 95% compaction, cip. SD 2408	SQ.YD.	4,050	$6.00	$24,300.00
336.010	Prime Coat, Emulsified Asphalt, cip.	SQ.YD.	4,050	$0.75	$3,037.50
336.039	Arterial Asphalt Concrete, Type SP III, 3 inch thick, machine laydown, cip.	SQ.YD.	4,050	$11.00	$44,550.00
336.120	Tack Coat, Cationic Emulsified Asphalt, cip. (1 Application)	SQ.YD.	20,887	$0.30	$6,266.10
340.050	Curb & Gutter, Standard, Portland Cement Concrete,incl subgrade preparation, cip. SD 2415	LIN.FT.	3,950	$10.30	$40,685.00
340.060	Curb & Gutter, Median, Portland Cement Concrete, cip. SD 2408	LIN.FT.	1487	$23.00	$34,201.00
343.030	Existing Pavement, Asphalt Concrete, more than 4" thick, sawcut, remove & dispose, compl	SQ. YD.	4,050	$5.00	$20,250.00
343.080	Existing Curb & Gutter or Valley Gutter, PC Concrete, remove & dispose, compl.	LIN.FT.	3,300	$5.30	$17,490.00
344.040	Cold Milling, Asphalt Concrete Pavement, 2" thickness, incl. dispoal of millings, compl.	SQ. YD.	204,830	$2.15	$440,384.50
		SUBTOTAL:			$660,801.60
		NMGR TAX @		6.8750%	$45,430.11
		ROADWAY TOTAL:			***$706,231.71***

CARLISLE BOULEVARD CORRIDOR STUDY - ALTERNATIVE C

CATEGORY: **PERMANENT SIGNING & STRIPING**

NMDOT ITEM NO.	SHORT DESCRIPTION	UNIT	TOTAL ESTIMATE QUANTITY	ESTIMATE UNIT PRICE	TOTAL ESTIMATE AMOUNT
441.001	Reflectorized Plastic Pavement Markings, 4" width, cip.	LIN.FT.	5,510	$1.90	$10,469.00
441.005	Reflectorized Plastic Markings, 24" width, cip.	LIN.FT.	300	$8.40	$2,520.00
441.011	Reflectorized Plastic Arrow, Left, cip.	EACH	10	$155.00	$1,550.00
441.020	Reflectorized Plastic Word, Only, cip.	EACH	6	$160.00	$960.00
450.001	Aluminum Panel Sign, cip.	SQ. FT.	25	$16.00	$400.00
450.010	Square Tube Steel Posts & Base Posts for Aluminum Panel Sign, cip.	LIN.FT.	25	$7.50	$187.50
		SUBTOTAL:			$16,086.50
		NMGR TAX @		6.8750%	$1,105.95
		PERM. SIGNING/STRIPING TOTAL:			***$17,192.45***

CATEGORY: **SIGNALIZATION**

COA ITEM NO.	SHORT DESCRIPTION	UNIT	TOTAL ESTIMATE QUANTITY	ESTIMATE UNIT PRICE	TOTAL ESTIMATE AMOUNT
422.102	Traffic Signal Pedestal Pole, any size, Remove & Relocate, compl.	EACH	1	$485.00	$485.00
423.001	Traffic Signal Foundation for Pedestal Pole, cip.	EACH	1	$350.00	$350.00
423.102	Traffic Signal Foundation for Pedestal Pole & Splice Cabinet, Remove & Dispose, compl., cip.	EACH	1	$410.00	$410.00
425.102	Electrical Pull Box, any type, Remove & Relocate, cip.	EACH	1	$275.00	$275.00
422.112	Traffic signal Mastarm, any size, Remove and Relocate	EACH	1	$441.45	$441.45
		SUBTOTAL:			$1,961.45
		NMGR TAX @		6.8750%	$134.85
		SIGNALIZATION TOTAL:			***$2,096.30***

CARLISLE BOULEVARD CORRIDOR STUDY - ALTERNATIVE D

PROJECT NUMBER: 7810.91
CONTROL NUMBER:
ROUTE NUMBER:
PROJECT LENGTH:

COUNTY: Bernalillo

PREPARED BY: HDR Engineering, Inc. - AR
PRICED BY: HDR Engineering, Inc. - AR
CHECKED BY: HDR Engineering, Inc. - EJH
DATE PREPARED: February 14, 2008
SUBMITTAL DATE: February 14, 2008

SUBMITTAL: Preliminary

TYPE OF PROJECT: ROADWAY IMPROVEMENTS
ROUTE TYPE: Urban Minor Arterial

PAVEMENT WIDTH: VARIES

CATEGORY: **COST ESTIMATE SUMMARY**

SHORT DESCRIPTION	*TOTAL ESTIMATE AMOUNT*
CONSTRUCTION ENGINEERING	$68,000.00
CONSTRUCTION SIGNING	$55,000.00
ROADWAY	$798,345.96
PERMANENT SIGNING & STRIPING	$16,086.50
SIGNALIZATION	$1,961.45
PROJECT ALLOWANCE (PROJECT CONSTRUCTION SIGN SCREEN 2 @ $500.00)	$1,000.00
LANDSCAPING	$300,000.00
DESIGN COSTS	$185,000.00
CONSTRUCTION MANAGEMENT & MATERIALS TESTING	$190,000.00
SUBTOTAL	$1,615,393.91
NMGR TAX @ 6.875%	$111,058.33
PROJECT SUBTOTAL	$1,726,452.24
CONTINGENCIES @ 20%	$323,078.78
PROJECT TOTAL	**$2,049,531.02**
USE	***$2,049,600.00***

CARLISLE BOULEVARD CORRIDOR STUDY - ALTERNATIVE D

CATEGORY: **CONSTRUCTION ENGINEERING**

COA ITEM NO.	SHORT DESCRIPTION	UNIT	TOTAL ESTIMATE QUANTITY	ESTIMATE UNIT PRICE	TOTAL ESTIMATE AMOUNT
4.010	Construction Staking, compl.	L.S.	1	$25,000.00	$25,000.00
6.050	Construction Mobilization, compl. (5% of Base Bid)	L.S.	1	$30,000.00	$30,000.00
6.060	Construction Demobilization, compl. (2% of Base Bid)	L.S.	1	$10,500.00	$10,500.00
30.020	NPDES Permitting, compl	L.S.	1	$2,500.00	$2,500.00
			SUBTOTAL:		$68,000.00
			NMGR TAX @	6.8750%	$4,675.00
			CONST. ENG. TOTAL:		***$72,675.00***

CATEGORY: **CONSTRUCTION SIGNING**

COA ITEM NO.	SHORT DESCRIPTION	UNIT	TOTAL ESTIMATE QUANTITY	ESTIMATE UNIT PRICE	TOTAL ESTIMATE AMOUNT
19.010	Construction Traffic Control & Barricading, compl.	L.S.	1	$55,000.00	$55,000.00
			SUBTOTAL:		$55,000.00
			NMGR TAX @	6.8750%	$3,781.25
			CONST. SIGNING TOTAL:		***$58,781.25***

CATEGORY: **ROADWAY**

COA ITEM NO.	SHORT DESCRIPTION	UNIT	TOTAL ESTIMATE QUANTITY	ESTIMATE UNIT PRICE	TOTAL ESTIMATE AMOUNT
116.016	Placement of Arterial Asphalt Concrete, 3 inch lift, cip	SQ. YD.	4,050	$3.50	$14,175.00
202.011	Excavate & Dispose of unsuitable material, compl.	CU.YD..	450	$10.00	$4,500.00
205.010	Borrow, Hauling & Compaction of suitable fill material when not obtained from within limits of construction, compl.	CU.YD.	500	$7.75	$3,875.00
301.020	Subgrade Prep. 12" at 95% compaction, cip.	SQ.YD.	4,050	$1.75	$7,087.50
302.010	Aggregate Base Course, crushed, 6" at 95% compaction, cip. SD 2408	SQ.YD.	4,050	$6.00	$24,300.00
336.010	Prime Coat, Emulsified Asphalt, cip.	SQ.YD.	4,050	$0.75	$3,037.50
336.039	Arterial Asphalt Concrete, Type SP III, 3 inch thick, machine laydown, cip.	SQ.YD.	4,050	$11.00	$44,550.00
336.120	Tack Coat, Cationic Emulsified Asphalt, cip. (1 Application)	SQ.YD.	20,887	$0.30	$6,266.10
340.060	Curb & Gutter, Median, Portland Cement Concrete, cip. SD 2408	LIN.FT.	1487	$23.00	$34,201.00
343.030	Existing Pavement, Asphalt Concrete, more than 4" thick, sawcut, remove & dispose, compl	SQ. YD.	4,050	$5.00	$20,250.00
343.080	Existing Curb & Gutter or Valley Gutter, PC Concrete, remove & dispose, compl.	LIN.FT.	3,300	$5.30	$17,490.00
344.040	Cold Milling, Asphalt Concrete Pavement, 2" thickness, incl. dispoal of millings, compl.	SQ. YD.	204,830	$2.15	$440,384.50
XXX.XXX	CONCRETE WALL BARRIER 32"	L.F.	1972	$90.38	$178,229.36
			SUBTOTAL:		$798,345.96
			NMGR TAX @	6.8750%	$54,886.28
			ROADWAY TOTAL:		***$853,232.24***

CARLISLE BOULEVARD CORRIDOR STUDY - ALTERNATIVE D

CATEGORY: **PERMANENT SIGNING & STRIPING**

NMDOT ITEM NO.	SHORT DESCRIPTION	UNIT	TOTAL ESTIMATE QUANTITY	ESTIMATE UNIT PRICE	TOTAL ESTIMATE AMOUNT
441.001	Reflectorized Plastic Pavement Markings, 4" width, cip.	LIN.FT.	5,510	$1.90	$10,469.00
441.005	Reflectorized Plastic Markings, 24" width, cip.	LIN.FT.	300	$8.40	$2,520.00
441.011	Reflectorized Plastic Arrow, Left, cip.	EACH	10	$155.00	$1,550.00
441.020	Reflectorized Plastic Word, Only, cip.	EACH	6	$160.00	$960.00
450.001	Aluminum Panel Sign, cip.	SQ. FT.	25	$16.00	$400.00
450.010	Square Tube Steel Posts & Base Posts for Aluminum Panel Sign, cip.	LIN.FT.	25	$7.50	$187.50
		SUBTOTAL:			$16,086.50
		NMGR TAX @		6.8750%	$1,105.95
		PERM. SIGNING/STRIPING TOTAL:			***$17,192.45***

CATEGORY: **SIGNALIZATION**

COA ITEM NO.	SHORT DESCRIPTION	UNIT	TOTAL ESTIMATE QUANTITY	ESTIMATE UNIT PRICE	TOTAL ESTIMATE AMOUNT
422.102	Traffic Signal Pedestal Pole, any size, Remove & Relocate, compl.	EACH	1	$485.00	$485.00
423.001	Traffic Signal Foundation for Pedestal Pole, cip.	EACH	1	$350.00	$350.00
423.102	Traffic Signal Foundation for Pedestal Pole & Splice Cabinet, Remove & Dispose, compl., cip.	EACH	1	$410.00	$410.00
425.102	Electrical Pull Box, any type, Remove & Relocate, cip.	EACH	1	$275.00	$275.00
422.112	Traffic signal Mastarm, any size, Remove and Relocate	EACH	1	$441.45	$441.45
		SUBTOTAL:			$1,961.45
		NMGR TAX @		6.8750%	$134.85
		SIGNALIZATION TOTAL:			***$2,096.30***

CARLISLE BOULEVARD CORRIDOR STUDY - CARLISLE & CLAREMONT INTERSECTION IMPROVEMENTS

PROJECT NUMBER: 7810.91
CONTROL NUMBER:
ROUTE NUMBER:
PROJECT LENGTH:

COUNTY: Bernalillo

PREPARED BY: HDR Engineering, Inc. - AR
PRICED BY: HDR Engineering, Inc. - AR
CHECKED BY: HDR Engineering, Inc. - EJH
DATE PREPARED: February 14, 2008
SUBMITTAL DATE: February 14, 2008

SUBMITTAL: Preliminary

TYPE OF PROJECT: ROADWAY IMPROVEMENTS
ROUTE TYPE: Urban Minor Arterial

PAVEMENT WIDTH: VARIES

CATEGORY: **COST ESTIMATE SUMMARY**

SHORT DESCRIPTION	*TOTAL ESTIMATE AMOUNT*
CONSTRUCTION ENGINEERING	$17,140.00
CONSTRUCTION SIGNING	$25,000.00
ROADWAY	$31,439.08
PERMANENT SIGNING & STRIPING	$10,059.00
SIGNALIZATION	$6,860.00
PROJECT ALLOWANCE (PROJECT CONSTRUCTION SIGN SCREEN 2 @ $500.00)	$1,000.00
RIGHT OF WAY COSTS (2700 SQUARE FEET AT $20 PER SQUARE FOOT)	$54,000.00
DESIGN COSTS	$30,000.00
CONSTRUCTION MANAGEMENT	$18,000.00
SUBTOTAL	$193,498.08
NMGR TAX @ 6.875%	$13,302.99
PROJECT SUBTOTAL	$206,801.08
CONTINGENCIES @ 20%	$38,699.62
PROJECT TOTAL	**$245,500.69**
USE	***$245,600.00***

CARLISLE BOULEVARD CORRIDOR STUDY - CARLISLE & CLAREMONT INTERSECTION IMPROVEMENTS

CATEGORY: **CONSTRUCTION ENGINEERING**

COA ITEM NO.	SHORT DESCRIPTION	UNIT	TOTAL ESTIMATE QUANTITY	ESTIMATE UNIT PRICE	ESTIMATE AMOUNT
					$6,100.00
4.010	Construction Staking, compl.	L.S.	1	$6,100.00	$6,100.00
6.050	Construction Mobilization, compl. (5% of Base Bid)	L.S.	1	$6,100.00	$2,440.00
6.060	Construction Demobilization, compl. (2% of Base Bid)	L.S.	1	$2,440.00	$2,500.00
30.020	NPDES Permitting, compl	L.S.	1	$2,500.00	
					$17,140.00
		SUBTOTAL:			$1,178.38
		NMGR TAX @		6.8750%	
		CONST. ENG. TOTAL:			***$18,318.38***

CATEGORY: **CONSTRUCTION SIGNING**

COA ITEM NO.	SHORT DESCRIPTION	UNIT	TOTAL ESTIMATE QUANTITY	ESTIMATE UNIT PRICE	TOTAL ESTIMATE AMOUNT
					$25,000.00
19.010	Construction Traffic Control & Barricading, compl.	L.S.	1	$25,000.00	
					$25,000.00
		SUBTOTAL:			$1,718.75
		NMGR TAX @		6.8750%	
		CONST. SIGNING TOTAL:			***$26,718.75***

CATEGORY: **ROADWAY**

COA ITEM NO.	SHORT DESCRIPTION	UNIT	TOTAL ESTIMATE QUANTITY	ESTIMATE UNIT PRICE	TOTAL ESTIMATE AMOUNT
					$859.44
116.016	Placement of Arterial Asphalt Concrete, 3 inch lift, cip	SQ. YD.	246	$3.50	$2,000.00
202.011	Excavate & Dispose of unsuitable material, compl.	CU.YD..	200	$10.00	$775.00
205.010	Borrow, Hauling & Compaction of suitable fill material when not obtained from within limits of construction, compl.	CU.YD.	100	$7.75	$429.72
301.020	Subgrade Prep. 12" at 95% compaction, cip.	SQ.YD.	246	$1.75	$1,473.33
302.010	Aggregate Base Course, crushed, 6" at 95% compaction, cip. SD 2408	SQ.YD.	246	$6.00	$184.17
336.010	Prime Coat, Emulsified Asphalt, cip.	SQ.YD.	246	$0.75	$2,701.11
336.039	Arterial Asphalt Concrete, Type SP III, 3 inch thick, machine laydown, cip.	SQ.YD.	246	$11.00	$532.83
336.120	Tack Coat, Cationic Emulsified Asphalt, cip. (1 Application)	SQ.YD.	1,776	$0.30	$6,360.00
340.010	Sidewalk 4" thick PCCC, incl.subgrade compaction. Cip. SD 2425	SQ.YD.	265	$24.00	$9,775.00
340.060	Curb & Gutter, Median, Portland Cement Concrete, cip. SD 2408	LIN.FT.	425	$23.00	$937.78
343.030	Existing Pavement, Asphalt Concrete, more than 4" thick, sawcut, remove & dispose, compl	SQ. YD.	188	$5.00	$2,120.00
343.080	Existing Curb & Gutter or Valley Gutter, PC Concrete, remove & dispose, compl.	LIN.FT.	400	$5.30	$3,290.69
344.040	Cold Milling, Asphalt Concrete Pavement, 2" thickness, incl. dispoal of millings, compl.	SQ. YD.	1,531	$2.15	
					$31,439.08
		SUBTOTAL:			$2,161.44
		NMGR TAX @		6.8750%	
		ROADWAY TOTAL:			***$33,600.52***

CARLISLE BOULEVARD CORRIDOR STUDY - CARLISLE & CLAREMONT INTERSECTION IMPROVEMENTS

CATEGORY: **PERMANENT SIGNING & STRIPING**

NMDOT ITEM NO.	SHORT DESCRIPTION	UNIT	TOTAL ESTIMATE QUANTITY	ESTIMATE UNIT PRICE	TOTAL ESTIMATE AMOUNT
					$1,900.00
441.001	Reflectorized Plastic Pavement Markings, 4" width, cip.	LIN.FT.	1,000	$1.90	$5,964.00
441.005	Reflectorized Plastic Markings, 24" width, cip.	LIN.FT.	710	$8.40	$1,395.00
441.011	Reflectorized Plastic Arrow, Left, cip.	EACH	9	$155.00	$800.00
441.020	Reflectorized Plastic Word, Only, cip.	EACH	5	$160.00	
					$10,059.00
		SUBTOTAL:			$691.56
		NMGR TAX @		6.8750%	
					$10,750.56

PERM. SIGNING/STRIPING TOTAL:

CATEGORY: **SIGNALIZATION**

COA ITEM NO.	SHORT DESCRIPTION	UNIT	TOTAL ESTIMATE QUANTITY	ESTIMATE UNIT PRICE	TOTAL ESTIMATE AMOUNT
					$1,000.00
422.102	Traffic Signal Pedestal Pole, any size, Remove & Relocate, compl.	EACH	2	$500.00	$350.00
423.001	Traffic Signal Foundation for Pedestal Pole, cip.	EACH	1	$350.00	$410.00
423.102	Traffic Signal Foundation for Pedestal Pole & Splice Cabinet, Remove & Dispose, compl., cip.	EACH	1	$410.00	$1,100.00
425.102	Electrical Pull Box, any type, Remove & Relocate, cip.	EACH	4	$275.00	$4,000.00
422.112	Traffic signal Mastarm, any size, Remove and Relocate	EACH	2	$2,000.00	
					$6,860.00
		SUBTOTAL:			$471.63
		NMGR TAX @		6.8750%	
					$7,331.63

SIGNALIZATION TOTAL:

X. RECOMMENDATIONS

After lengthy discussion and technical evaluation of the four (4) proposed alternatives for the corridor, the CTF voted on and the project team agrees to recommend Alternative D. However, it should be noted that the traffic analysis for the design year, 2030, does not necessitate a third through lane for northbound traffic on Carlisle Boulevard between Candelaria Road to Comanche Road. The LOS found through traffic analysis for the design year is an acceptable LOS of "D." The majority of the CTF members were in favor of a third northbound lane to enhance traffic oerations. Likewise, the CTF and project team recommends improvements at the intersections of Carlisle Boulevard and Claremont Avenue, Carlisle Boulevard and Candelaria Road and Carlisle Boulevard and Comanche Road.

Alternative D, shown in Figure 10, includes the following improvements:

- Construct a 3-11' driving lanes on northbound Carlisle Boulevard from Candelaria Road to Comanche Road;
- Construct a 24" wide, 36" high concrete wall barrier along northbound Carlisle Boulevard from just north of Candelaria Road to Comanche Road. With the construction of this wall barrier, residential traffic will have access from Candelaria Road and Comanche Road;
- Construct median improvements at the intersection of Carlisle Boulevard and Aztec Road to allow only northbound traffic to turn left onto Aztec Road. All other traffic movements would be prohibitive;
- Construct roadway lighting along the corridor from Candelaria Road to Montgomery Boulevard to meet current AASHTO Roadway Lighting Design Guide standards and current COA DPM standards. Remove and replace roadway lighting along Carlisle Boulevard from I-40 to Candelaria Road that meets the current New Mexico Dark Skies Act. Please refer to page 37 of Appendix A, Book 2 for description of roadway lighting improvements;
- Improve ADA ramps along the corridor to meet current ADA standards and current COA DPM standards. Of seventeen (17) intersections evaluated, 5 of those intersections have ADA ramps that do not meet current design standards. Please refer to Table 1 on page 13 describing which intersections need improvements.
- Improve sidewalks along the corridor to meet current ADA standards and current COA DPM standards. Please refer to Table 2 on page 14 describing locations where sidewalk improvements are needed;
- Construct prototype median landscaping along the corridor where sufficient median is available;
- Provide traffic signal interconnection of all traffic signals along the corridor;
- Median cuts at Lovelace Clinic for access on Carlisle Boulevard approximately 450' (+/-) north of Comanche Road;
- ABQ Ride was requested to evaluate the transit corridor. At this time ABQ Ride has stated that the current number of bus stops along Carlisle Boulevard within the study area is sufficient. However, ABQ Ride will re-evaluate bus stop locations once the third northbound lane is constructed.

Improvements to the intersection of Carlisle Boulevard and Claremont Avenue include the following:

- Realignment of the west leg of Claremont Avenue to align with the east leg, please refer to Figure 11 on pages 50 and 51 for graphical representation of the proposed improvements at this intersection;
- With anticipated development in the Wal-Mart property that may have an impact on the overall operation of this intersection, it is recommended that COA Planning Department should have the developer address traffic operations at this location. It is recommended that a re-evaluation of pedestrian and traffic operations be conducted during the design phase to provide the most efficient configuration.

Improvements to the intersection of Carlisle Boulevard and Candelaria Road include the following:

- No improvements are recommended at this time through this study.

Improvements to the intersection of Carlisle Boulevard and Comanche Road include the following:

- No improvements are recommended at this time through this study;
- Improvements to the bikeways system will be implemented at a future date in the western leg of the intersection.

XI. REFERENCES

A. *A Policy of Geometric Design of Highways and Streets, 4th Edition.* Washington D.C.: American Associations of State Highway and Transportation Officials, 2001.

B. *Highway Capacity Manual, HCM2000.* Washington D.C.: Transportation Research Board, National Research Council, 2000 and *Highway Capacity Software 2000, Version 4.1c*, McTrans, University of Florida, Federal Highway Administration, 2000.

C. *NCHRP Report 457 – Engineering Study Guide for Evaluating Intersection Improvements*, Washington D.C.: Transportation Research Board – National Research Council, 2001.

D. *Safety Study Guidelines*, Columbus, OH: Ohio Department of Transportation, 2002.

E. *Fundamentals of Traffic Engineering*, 15th Edition, 2001, Institute of Transportation Studies – University of California, Berkeley.

F. *Traffic and Highway Engineering*, 2nd Edition, 1999, Nicholas J. Garber & Lester A. Hoel. Revised Second Edition. Brooks/Cole Publishing, Pacific Grove, California.

G. *Traffic Engineering Handbook*, 5th Edition. ISBN: 0-935403-32-9, Prentice Hall Inc., Washington D.C., 1999. Institute of Transportation Engineers (ITE).

H. *New Mexico Traffic Crash Information*, 2004 Edition. Santa Fe, New Mexico, 2005. New Mexico Department of Transportation Traffic Safety Bureau.

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