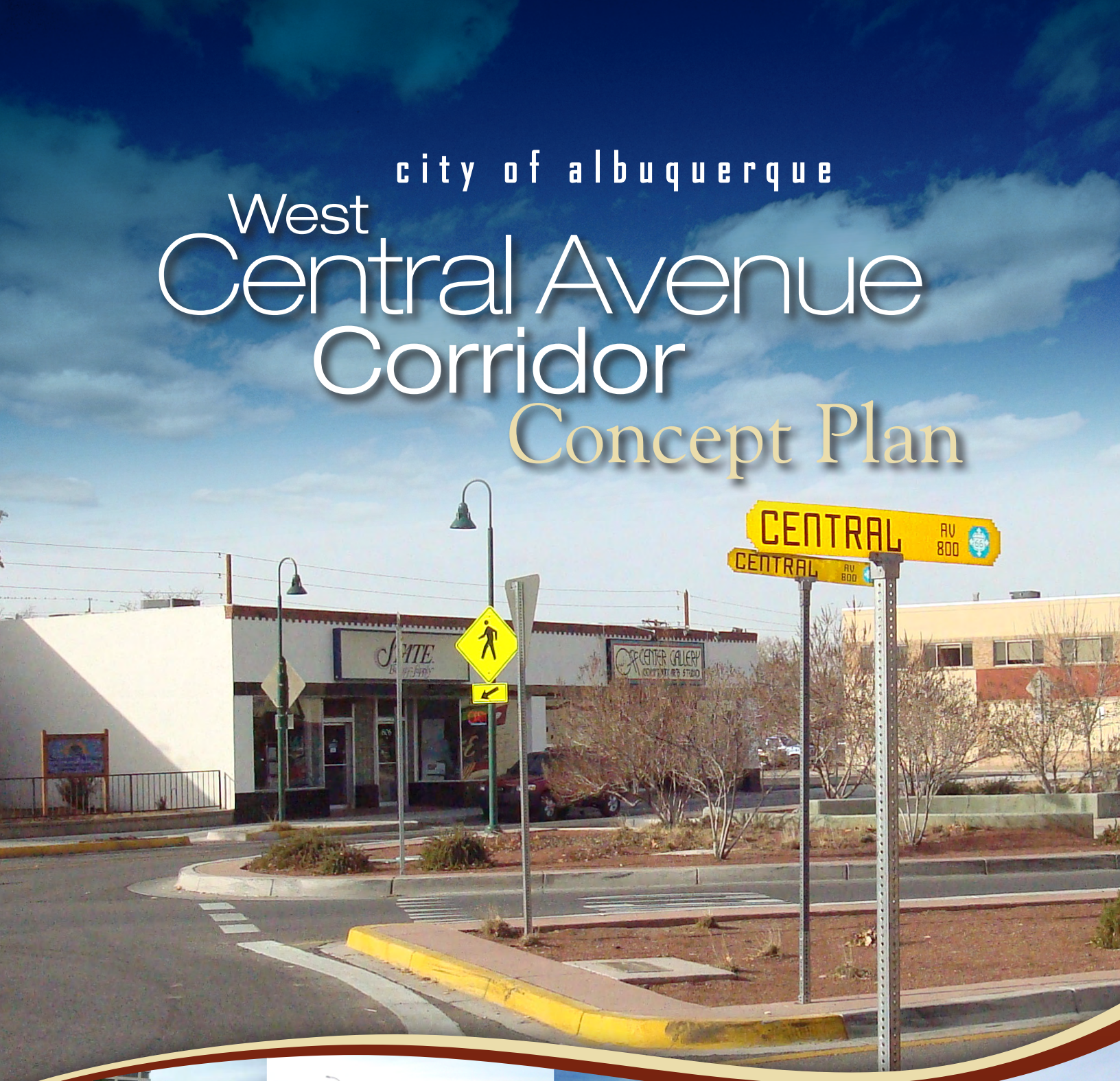
city of albuquerque

West Central Avenue Corridor Concept Plan



Prepared for

CITY OF ALBUQUERQUE · 1706 · NEW MEXICO

Prepared by

Kimley-Horn and Associates, Inc.

city of albuquerque

West Central Avenue Corridor Concept Plan

Contents

INTRODUCTION 4

PROJECT GOALS 4
CONSTRAINTS AND CHALLENGES 4
PROJECT DESCRIPTION 5

A. CENTRAL AVENUE ROAD DIET 6

BACKGROUND AND EXISTING CONFIGURATION 6
ROAD DIET GENERAL DESIGN ELEMENTS 6
SPECIFIC DESIGN ELEMENTS 9
DEMONSTRATION PROJECT (NEAR-TERM) STREET CONCEPTS 14
ULTIMATE CONFIGURATION STREET CONCEPTS 20
IMPLICATIONS FOR TRANSIT 26
ROAD DIET DEMONSTRATION PROJECT – ONE YEAR MONITORING PLAN 26

B. CENTRAL AVENUE / LOMAS BOULEVARD INTERSECTION CONCEPTS 28

BACKGROUND AND PROPOSED INTERSECTION ALTERNATIVES 28
THE PREFERRED ALTERNATIVE 29
ALTERNATIVES CONSIDERED BUT REJECTED 30

C. CENTRAL AVENUE IMPROVEMENTS WEST OF LOMAS BOULEVARD 35

CENTRAL AVENUE / RIO GRANDE BOULEVARD INTERSECTION RECOMMENDATIONS 35
CENTRAL AVENUE CORRIDOR PEDESTRIAN ENHANCEMENTS – 47TH STREET TO RIO GRANDE BLVD 36
BICYCLE CONNECTIVITY WITH PROPOSED IMPROVEMENTS 36

APPENDIX 41

TRAFFIC OPERATIONAL ANALYSIS 41
Central Avenue Road Diet Operational Impacts 42
Central Avenue / Lomas Boulevard Intersection Operational Impacts 53
Central Avenue / Rio Grande Boulevard Intersection Operational Impacts 56
CENTRAL AVENUE ROAD DIET PLANNING-LEVEL OPINION OF PROBABLE COSTS 58
DETAILED ROAD DIET MONITORING PLAN 59

List of Figures

FIGURE 1: CENTRAL AVENUE ROAD DIET – PROJECT VICINITY AND STUDY INTERSECTION LOCATIONS 7
FIGURE 2: CENTRAL AVENUE ROAD DIET – EXISTING CONDITIONS TYPICAL STREET CONFIGURATION 11
FIGURE 3: CENTRAL AVENUE ROAD DIET – NEAR-TERM TYPICAL STREET CROSS SECTION 12
FIGURE 4: CENTRAL AVENUE ROAD DIET – ULTIMATE TYPICAL STREET CROSS SECTION 13
FIGURE 5: CENTRAL AVENUE ROAD DIET CONCEPTS – NEAR-TERM STREET LAYOUT (SAN PASQUALE AVENUE TO RANCHO SECO ROAD) 14
FIGURE 6: CENTRAL AVENUE ROAD DIET CONCEPTS – NEAR-TERM STREET LAYOUT (RANCHO SECO ROAD TO MANZANO SCHOOL ENTRANCE) 15
FIGURE 7: CENTRAL AVENUE ROAD DIET CONCEPTS – NEAR-TERM STREET LAYOUT (MANZANO SCHOOL ENTRANCE TO 15TH STREET) 16
FIGURE 8: CENTRAL AVENUE ROAD DIET CONCEPTS – NEAR-TERM STREET LAYOUT (15TH STREET TO 12TH STREET) 17
FIGURE 9: CENTRAL AVENUE ROAD DIET CONCEPTS – NEAR-TERM STREET LAYOUT (12TH STREET TO 10TH STREET) 18
FIGURE 10: CENTRAL AVENUE ROAD DIET CONCEPTS – NEAR-TERM STREET LAYOUT (10TH STREET TO 8TH STREET) 19
FIGURE 11: CENTRAL AVENUE ROAD DIET CONCEPTS – ULTIMATE STREET LAYOUT (SAN PASQUALE AVENUE TO RANCHO SECO ROAD) 20
FIGURE 12: CENTRAL AVENUE ROAD DIET CONCEPTS – ULTIMATE STREET LAYOUT (RANCHO SECO ROAD TO MANZANO SCHOOL ENTRANCE) 21
FIGURE 13: CENTRAL AVENUE ROAD DIET CONCEPTS – ULTIMATE STREET LAYOUT (MANZANO SCHOOL ENTRANCE TO 15TH STREET) 22
FIGURE 14: CENTRAL AVENUE ROAD DIET CONCEPTS – ULTIMATE STREET LAYOUT (15TH STREET TO 12TH STREET) 23
FIGURE 15: CENTRAL AVENUE ROAD DIET CONCEPTS – ULTIMATE STREET LAYOUT (12TH STREET TO 10TH STREET) 24
FIGURE 16: CENTRAL AVENUE ROAD DIET CONCEPTS – ULTIMATE STREET LAYOUT (10TH STREET TO 8TH STREET) 25
FIGURE 17: CENTRAL AVENUE / LOMAS BOULEVARD INTERSECTION CONCEPTS – ALTERNATIVE 1 32
FIGURE 18: CENTRAL AVENUE / LOMAS BOULEVARD INTERSECTION CONCEPTS – ALTERNATIVE 2 33
FIGURE 19: CENTRAL AVENUE / LOMAS BOULEVARD INTERSECTION CONCEPTS – PREFERRED ALTERNATIVE 34
FIGURE 20: CENTRAL AVENUE / RIO GRANDE BOULEVARD RECOMMENDED INTERSECTION IMPROVEMENTS 38
FIGURE 21: CENTRAL AVENUE CORRIDOR IMPROVEMENTS: RIO GRANDE BOULEVARD WEST TO 47TH STREET 39
FIGURE 22: BICYCLE CONNECTIVITY WITH PROPOSED IMPROVEMENTS 40
FIGURE 23: EXISTING CONDITIONS INTERSECTION LANE GEOMETRY AND TRAFFIC CONTROL 43
FIGURE 24: ROAD DIET CONFIGURATION INTERSECTION LANE GEOMETRY AND TRAFFIC CONTROL 44
FIGURE 25: EXISTING CONDITIONS PEAK HOUR INTERSECTION TURNING MOVEMENT VOLUMES 45
FIGURE 26: FUTURE (2030) PEAK HOUR INTERSECTION TURNING MOVEMENT VOLUMES 46

List of Tables

TABLE 1: PROPOSED ROAD DIET DESIGN ELEMENTS 8
TABLE 2: SPECIFIC ROAD DIET DESIGN ELEMENTS 10
TABLE 2: ROAD DIET MONITORING PLAN SUMMARY 27
TABLE 3: CENTRAL AVENUE AVERAGE DAILY TRAFFIC (ADT) VOLUMES 42
TABLE 4: CENTRAL AVENUE FUTURE VOLUME FORECASTS (AM PEAK HOUR) 47
TABLE 5: CENTRAL AVENUE FUTURE VOLUME FORECASTS (PM PEAK HOUR) 48
TABLE 6: EXISTING CONDITIONS – INTERSECTION LOS 49
TABLE 7: EXISTING CONDITIONS WITH ROAD DIET – INTERSECTION LOS 49
TABLE 8: FUTURE (2030) CONDITIONS – INTERSECTION LOS 51
TABLE 9: FUTURE (2030) CONDITIONS WITH ROAD DIET – INTERSECTION LOS 52
TABLE 10: CENTRAL AVENUE CORRIDOR – QUEUING SUMMARY 52
TABLE 11: CENTRAL AVENUE ARTERIAL ANALYSIS (RIO GRANDE BOULEVARD TO 10TH STREET) 53
TABLE 12: CENTRAL AVE / LOMAS BLVD / SAN PASQUALE AVE INTERSECTION LOS COMPARISON 54
TABLE 13: CENTRAL AVE / LOMAS BLVD / SAN PASQUALE AVE INTERSECTION QUEUING SUMMARY 55
TABLE 14: CENTRAL AVE / RIO GRANDE BLVD RECOMMENDATIONS – INTERSECTION LOS 56
TABLE 15: CENTRAL AVE / RIO GRANDE BLVD RECOMMENDATIONS – INTERSECTION QUEUING 57
TABLE 16: ESTIMATED OPINION OF PROBABLE COST FOR NEAR-TERM CENTRAL AVENUE ROAD DIET IMPROVEMENTS (DEMONSTRATION PROJECT) 58
TABLE 17: ESTIMATED OPINION OF PROBABLE COST FOR ULTIMATE CENTRAL AVENUE ROAD DIET IMPROVEMENTS 58

INTRODUCTION

Project Goals

The West Central Avenue Corridor Plan presents recommendations and preliminary design concepts for the 2.5-mile segment of Central Avenue from 8th Street to 47th Street in Albuquerque, New Mexico. The goal of the project is to improve the pedestrian and bicycle environment along Central Avenue through easily implementable capital and operational improvements that will enhance the viability of anticipated redevelopment. Redevelopment in the study segment of West Central is envisioned as compact mixed-use pedestrian and transit-oriented buildings combining high density residential or offices above ground floor retail or services. Another goal is to encourage pedestrians and bicyclists to use of West Central Avenue to connect downtown and Old Town. The conceptual design process for the West Central Avenue Corridor begins with identifying the objectives and ultimate vision for the corridor and the concepts included in this plan were developed with the following in mind:

1. Improve connectivity and safety of the Central Avenue Corridor for all users;
2. Improve traffic and pedestrian operations at problem intersections (confusing, indirect pedestrian crossings, pedestrian safety issues);
3. Accommodate bicyclists within the corridor to close a gap in bicycle connectivity between downtown and the rest of the City's bikeway and trail system;
4. Support the ultimate vision for the revitalization of Central Avenue as a vibrant, higher-density, mixed-use multi-modal corridor; and
5. Improve quality of life and create a sense of neighborhood through the design of safe and attractive streets.

Constraints and Challenges

In addressing the above, the concept plan acknowledges the following constraints and requirements:

1. Central Avenue is currently classified as an urban principal arterial, and therefore, is intended to serve as a primary vehicular thoroughfare. Any design recommendations should avoid significant impacts to traffic operations.
2. The West Central Avenue Corridor serves as an existing route for ABQ Rides Rapid Ride and local bus service. Further, the Mid-Region Council of Governments (MRCOG) 2030 Metropolitan Transportation Plan and the City of Albuquerque's *Great Streets Facility Plan (2009)* identifies Central Avenue as a potential High-Capacity/Major Transit Corridor, with a possibility for future streetcar service. For this reason, any design changes must avoid diverting or significantly impeding transit service.

3. Right-of-way is limited along the corridor. Design concepts avoid acquisition of additional right-of-way, which may be difficult to acquire and costly.
4. Sidewalks are as narrow as three feet six inches at various points, and the corridor lacks compliance with the Americans with Disabilities Act (ADA) in some areas. West Central Avenue must incorporate current ADA compliant facilities where existing facilities are reconstructed.

Project Description

The West Central Avenue Corridor is located east of the Rio Grande River and west of Downtown, comprising a key segment of Historic Route 66 through the City of Albuquerque. The Central Avenue Corridor study area extends from 47th Street east to 8th Street. The 35 mph street travels through a mix of commercial, civic and residential uses and currently serves as a key link to downtown Albuquerque and other local destinations such as Old Town, the Albuquerque Aquarium and Biological Park and Manzano Day School. The City has expressed a desire to improve the pedestrian and bicycle environment along the corridor as part of the vision for Central Avenue as a "complete street" providing for all modes of travel. To accomplish this, the recommendations and design concepts prepared in this plan are focused on the following components:

A. Central Avenue "Road Diet"
   - Travel lanes reduced to one in each direction with a center turn lane from Lomas Boulevard to 8th Street
   - Width gained by reducing lanes is used to increase on-street parking, provide bike lanes and improve pedestrian facilities

B. Central Avenue / Lomas Boulevard Intersection Improvements
   - Simplify intersection through development of three intersection alternatives
   - Improve pedestrian crossings

C. Pedestrian and Bicycle Improvements from 47th Street to Lomas Boulevard
   - Pedestrian improvements at Central Avenue / Rio Grande Intersection
   - Improve pedestrian and bicycle safety and connectivity between downtown and the Rio Grande River

The specific strategies, potential issues, opportunities, and recommended design elements for each of these project components are presented in the following sections. The appendix contains a summary of the existing and future traffic conditions along Central Avenue and presents an analysis of the potential traffic impacts with implementation of the recommended roadway and intersection improvements.

A. Central Avenue Road Diet

Background and Existing Configuration

Between Lomas Boulevard and 8th Street, Central Avenue features two travel lanes in either direction, left turn lanes at most intersections and an approximate curb-to-curb width of 66 feet. The speed limit for this segment is 30 mph and on-street parking is provided in several areas. In order to improve the pedestrian and bicycle environment conforming to the vision for Central Avenue as a multi-modal corridor, preliminary plans were prepared for a "road diet" of Central Avenue between Lomas Boulevard and 8th Street. The proposed road diet project vicinity and key study intersections are presented in Figure 1.

A road diet typically involves a reduction in travel lanes to provide width for on-street parking, bicycle facilities and pedestrian improvements such as widened sidewalks, pedestrian refuges, curb extensions or "bulbouts" to shorten crossings, and landscaping. The benefits of a road diet include reduced conflicts at intersections, a reduction in certain types of crashes, improved visibility, and enhanced street activity for pedestrian-oriented businesses.

Reducing lanes on West Central Avenue was recommended in the West Central Streetscape Urban Design Master Plan (March 2001) which was adopted by the City Council in April of 2002. The resolution adopting the Master Plan (Council Bill No. R-02-24) required the lane reduction to be implemented in stages beginning with a low cost test (Demonstration Project) followed by the ultimate buildout of the plan when funding became available.

Road Diet General Design Elements

The design concepts are presented in the form of Near-Term Improvements and Ultimate Improvements. Near-Term improvements include new roadway striping along the entire corridor and intersection improvements at a few priority locations that could be implemented immediately with minor modifications to the street and intersections at relatively low cost. The Near-Term improvements meet the requirements for the "Demonstration Project" as discussed above. As a demonstration project the Near-Term improvements can be implemented, monitored and assessed without a significant long-term investment. The Near-Term improvements can be implemented entirely with paint restriping and relatively minor signalized intersection modifications. Lane striping will be in its ultimate location (reflecting future changes to curbs and bulbouts) to fully test the geometry of the street and reduce rework when implementing the ultimate improvements. Table 1 provides an overview of the proposed design elements for the Central Avenue road diet.

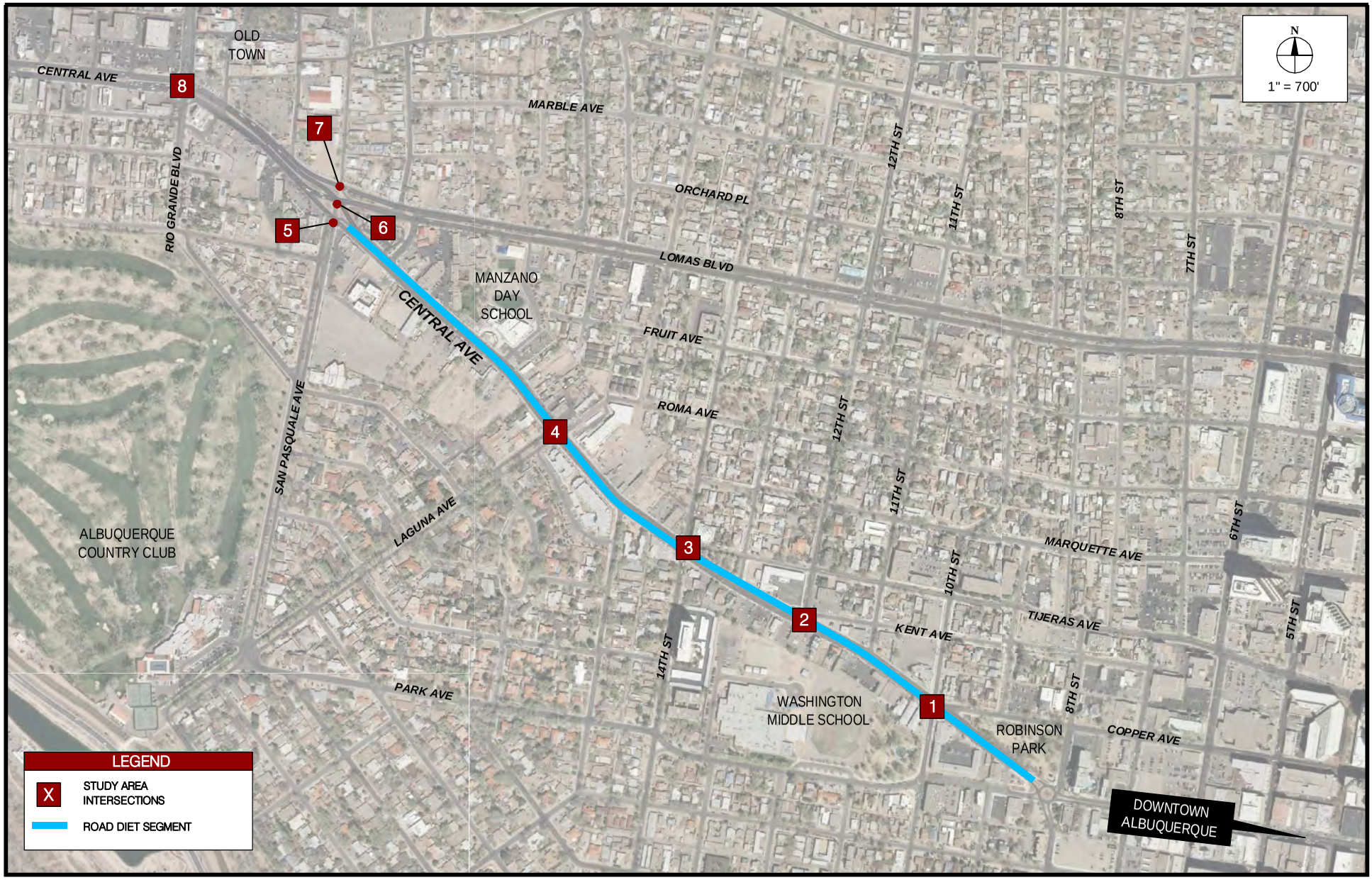


FIGURE 1

CENTRAL AVENUE ROAD DIET - LOMAS BOULEVARD TO 8TH STREET

PROJECT VICINITY AND STUDY INTERSECTION LOCATIONS

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Table 1: Proposed Road Diet Design Elements

Proposed Design Elements	Near-Term Improvements (NT); Ultimate Improvements (ULT)
Travel Lanes	**Current**: 2 lanes in each direction with left turn lanes at most intersections **Proposed**: 1 lane in each direction with two-way left turn lane and left turn lanes at intersections (NT)
Travel Lane Width	**Current**: 12 feet (inside lane and outside lane w/o parking); 16 to 22 feet (outside lane with shoulder/parking) **Proposed**: 11 feet (NT)
Bike Lanes	**Current designation**: Not designated as bicycle facility **Proposed**: 6 foot bike lanes in both directions (NT)
Parking	**Current condition**: Parallel on-street parking provided within shoulder along some segments of street **Proposed**: 7 foot parallel parking lane provided along majority of street (NT)
Bulbouts	**Definition**: Bulbouts are extensions of the curbline at intersections that extend into the parking lane **Benefits**: • Reduce roadway width from curb to curb • Shorten crossing distance for pedestrians • Improves motorist/pedestrian visibility • Create protected parking bays for on-street parking • Tighten curb radii at the corners reducing the speeds of turning vehicles • Provide space for landscaping **Proposed**: bulbouts proposed in several locations (ULT).
Sidewalks	**Current Conditions**: Sidewalks typically range from 5 feet to 6 feet in width. In some locations, sidewalks are a narrow as 3½ feet **Proposed**: Sidewalks widened by 4 feet along several segments of the corridor – see **Figure 3** for list of locations (ULT)
Landscaping	**Current condition**: Some landscaping treatments near Robinson Park and plaza at Central Ave / Lomas Blvd intersection; however, the majority of the corridor lacks landscaping **Proposed condition**: Landscaping and street trees along majority of corridor where there is sufficient right-of-way. Landscaping elements are incorporated into the proposed bulbouts. (ULT)
Curb Ramps	**Proposed**: New ADA compliant curb ramps where curb reconstruction is proposed for bulbouts. (ULT)
Bus Stops	**Current conditions:** There are 12 existing ABQ Ride stops between Lomas Boulevard and 8th Street **Proposed**: Retain existing stops and relocate some stops to far side of intersections where feasible. Explore opportunity for curb extension bus stops, or "bus bulbs" where space allows.(ULT)

The existing, Near-Term and Ultimate cross-sections for the proposed concept are presented in Figure 2, Figure 3 and Figure 4, respectively. An operational analysis for existing and future conditions with and without implementation of the road diet is included in the Appendix.

Specific Design Elements

In preparing the Central Avenue road diet design concepts, particular attention was given to evaluating options for the following locations:

1. Manzano Day School Pedestrian Crossing
2. Central Avenue / 15th Street Intersection
3. Central Avenue / 13th Street Intersection
4. Central Avenue / 11th Street Intersection
5. Central Avenue / 10th Street / Copper Avenue
6. Central Avenue segment from 10th Street to 8th Street roundabout

The recommended design elements for these locations are described in Table 2. Design concepts for Near-Term (Demonstration Project) implementation of the Central Avenue road diet are presented in Figures 5-10. The design concepts for Ultimate construction of the Central Avenue road diet are presented in Figures 11-16.

Table 2: Specific Road Diet Design Elements

Near-Term Improvements (NT); Ultimate Improvements (ULT)

Manzano Day School Pedestrian Crossing	
▪ Relocate existing crosswalk with painted pedestrian refuge islands to the west side of the bus turnaround (see Figure 6). (NT)	▪ Add curb extensions at the alternative crosswalk location to shorten crossing distance (see Figure 12). (ULT)
Central Avenue / 15th Street Intersection	
▪ Provide new high-visibility pedestrian crosswalk with ladder style striping and a striped pedestrian refuge island (see Figure 7).(NT)	▪ Construct raised pedestrian refuge island with low landscaping at proposed crossing. (ULT) ▪ Add bulbouts at proposed crossing to shorten crossing distance (see Figure 13). (ULT)
Central Avenue / 13th Street Intersection	
▪ Provide new high-visibility pedestrian crosswalk with ladder style striping and a striped pedestrian refuge island (see Figure 8).(NT)	▪ Construct raised pedestrian refuge island with landscaping at proposed crossing. (ULT) ▪ Add bulbouts at proposed crossing to shorten crossing distance (see Figure 14). (ULT)
Central Avenue / 11th Street Intersection	
▪ Provide new high-visibility pedestrian crossing with ladder style striping and a striped pedestrian refuge island (see Figure 9).(NT)	▪ Construct raised pedestrian refuge island with landscaping at proposed crossing. (ULT) ▪ Add bulbouts at proposed crossing to shorten crossing distance (see Figure 15). (ULT)
Central Avenue / 10th Street Intersection	
▪ Relocate stop bar at southeast leg of intersection and add pedestrian crosswalk with ladder style striping. Requires modification of the signal phasing to include protected left turn phasing for eastbound and westbound approaches of Central Avenue (see Figure 16) (ULT)	▪ Add bulbouts with landscaping at north-south crosswalks to shorten crossing distance (see Figure 16). (ULT)
Central Avenue Segment from 10th Street to 8th Street Roundabout	
▪ Widen sidewalk by approximately 6 feet and provide tree wells approx. 25 feet on center along south side of Central Avenue. (see Figure 16) (ULT) ▪	▪ Construct raised median with landscaping between 10th Street and the approach to the 8th Street roundabout. Provide median break for access to existing driveways along south side of Central Avenue (see Figure 16). (ULT)

Typical Existing Lane Configuation
(Where Left Turn Lanes Exist)

Approximate Cross Section Dimensions

- Roadway Width = 64'-66'
- Inside Travel Lane = 12'
- Outside Travel Lane (narrow shoulder/no parking) = 12'
- Outside Travel Lane (with shoulder/parking) = 16'-18'
- Left Turn Lane = 12'

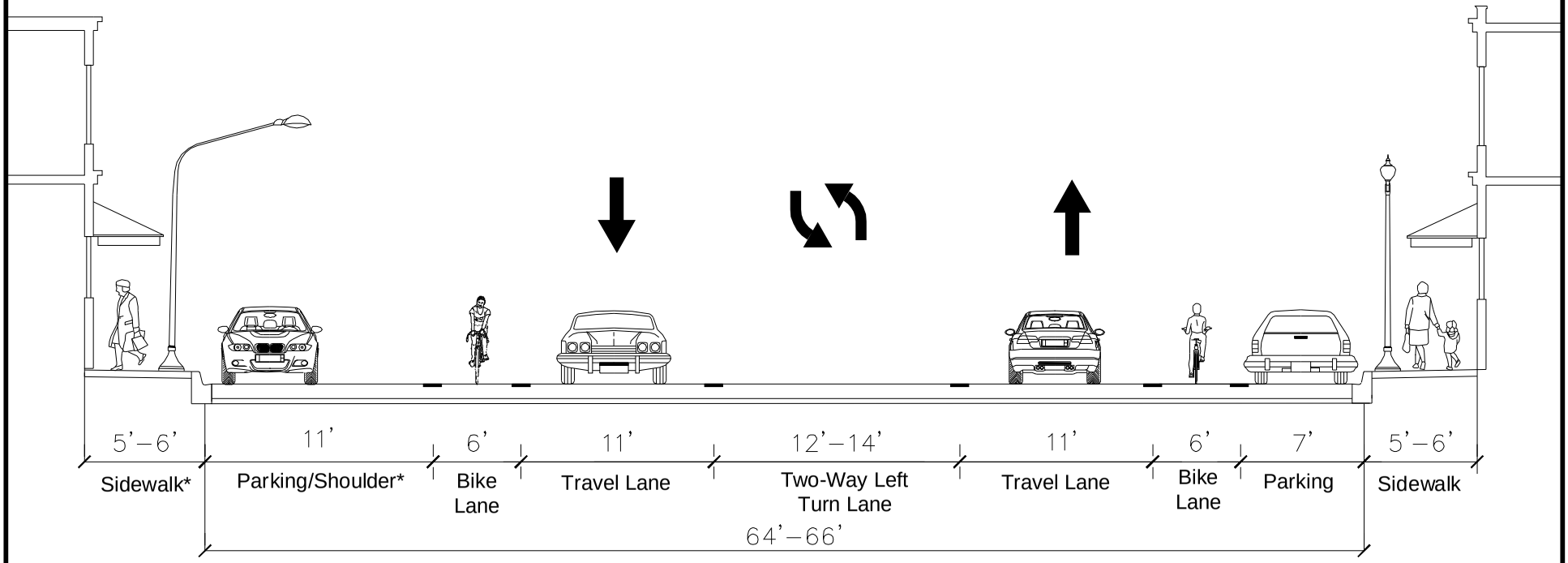
Typical Existing Lane Configuation
(Without Left Turn Lanes)

Approximate Cross Section Dimensions

- Roadway Width = 64'-66'
- Inside Travel Lane = 12'
- Outside Travel Lane (with shoulder/parking) = 18'-22'

FIGURE 2

CENTRAL AVENUE ROAD DIET - LOMAS BOULEVARD TO 8TH STREET
EXISTING CONDITIONS TYPICAL STREET CONFIGURATION



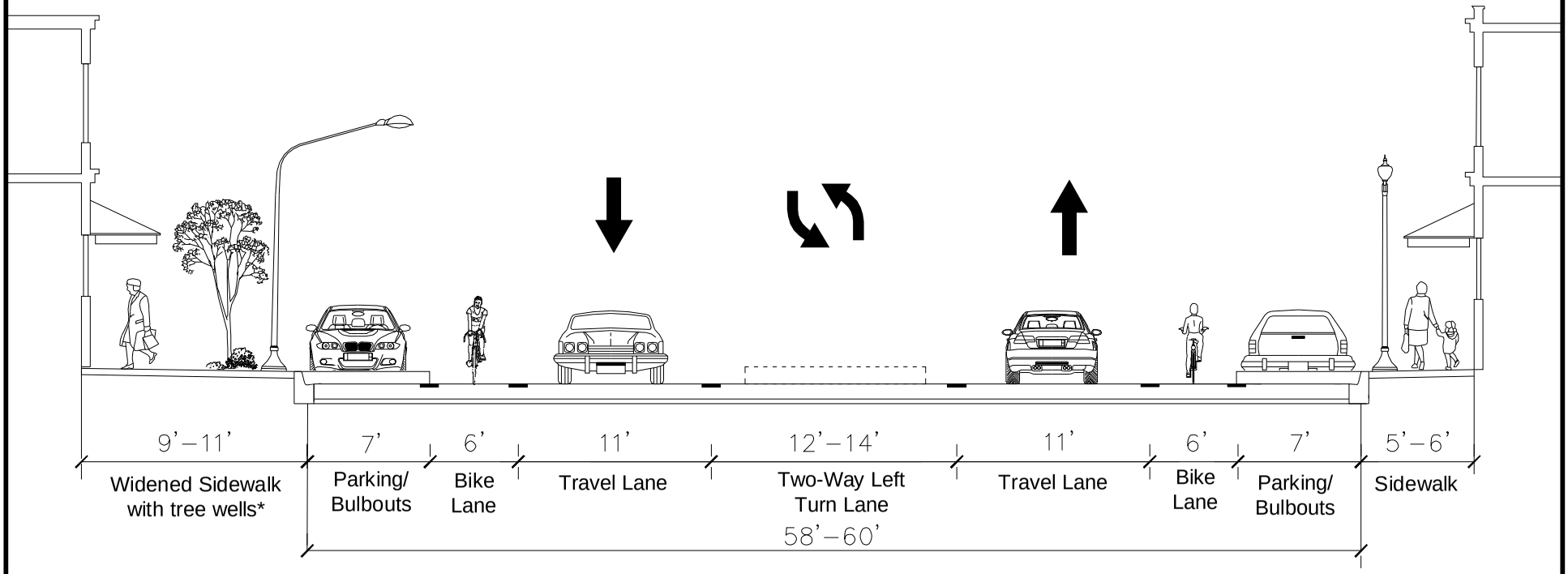
*Wide parking lane/shoulder reserves width for sidewalk widening to accomodate future ground floor activity, streetscape features, and landscaping.

Proposed Sidewalk Widening (sidewalk width to be increased approximately 4 feet)

A. San Pasquale Ave/Lomas Blvd to Mazano Day School (north side of street)
B. Manzano Day School to 15th St (north side of street)
C. 15th St to 10th St (south side of street)
D. 10th St to 8th St Roundabout (south side of street)

FIGURE 3

CENTRAL AVENUE ROAD DIET - LOMAS BOULEVARD TO 8TH STREET
NEAR-TERM TYPICAL STREET CROSS SECTION



*Sidewalk widened into street traveled way using wide parking lane reserved in near-term conditions. (see Figure 3)

Proposed Sidewalk Widening (sidewalk width to be increased approximately 4 feet)

A. San Pasquale Ave/Lomas Blvd to Mazano Day School (north side of street)
B. Manzano Day School to 15th St (north side of street)
C. 15th St to 10th St (south side of street)
D. 10th St to 8th St Roundabout (south side of street)

FIGURE 4

CENTRAL AVENUE ROAD DIET - LOMAS BOULEVARD TO 8TH STREET
ULTIMATE TYPICAL STREET CROSS SECTION

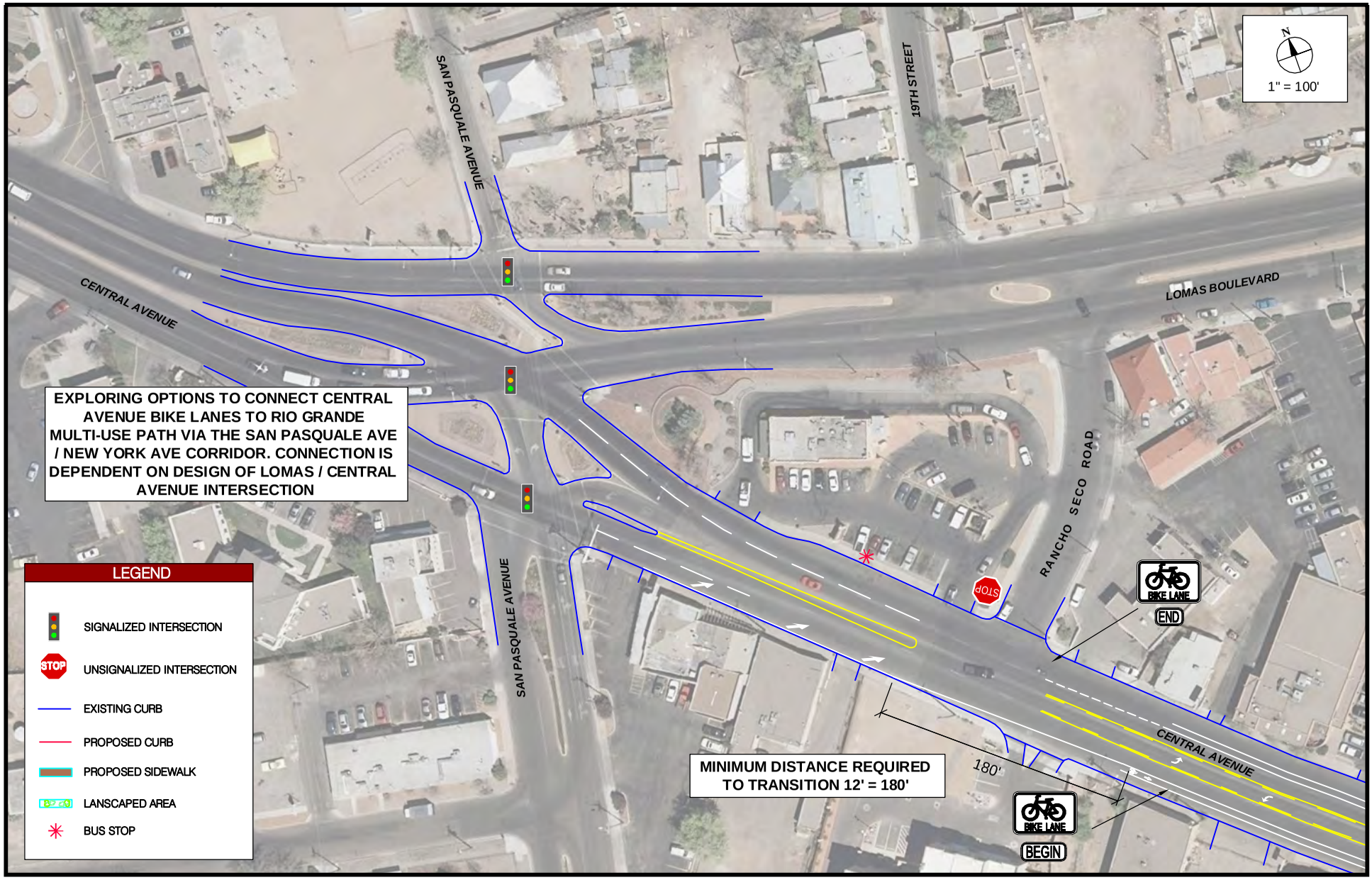


FIGURE 5

CENTRAL AVENUE ROAD DIET CONCEPTS

NEAR-TERM STREET LAYOUT (SAN PASQUALE AVENUE TO RANCHO SECO ROAD)

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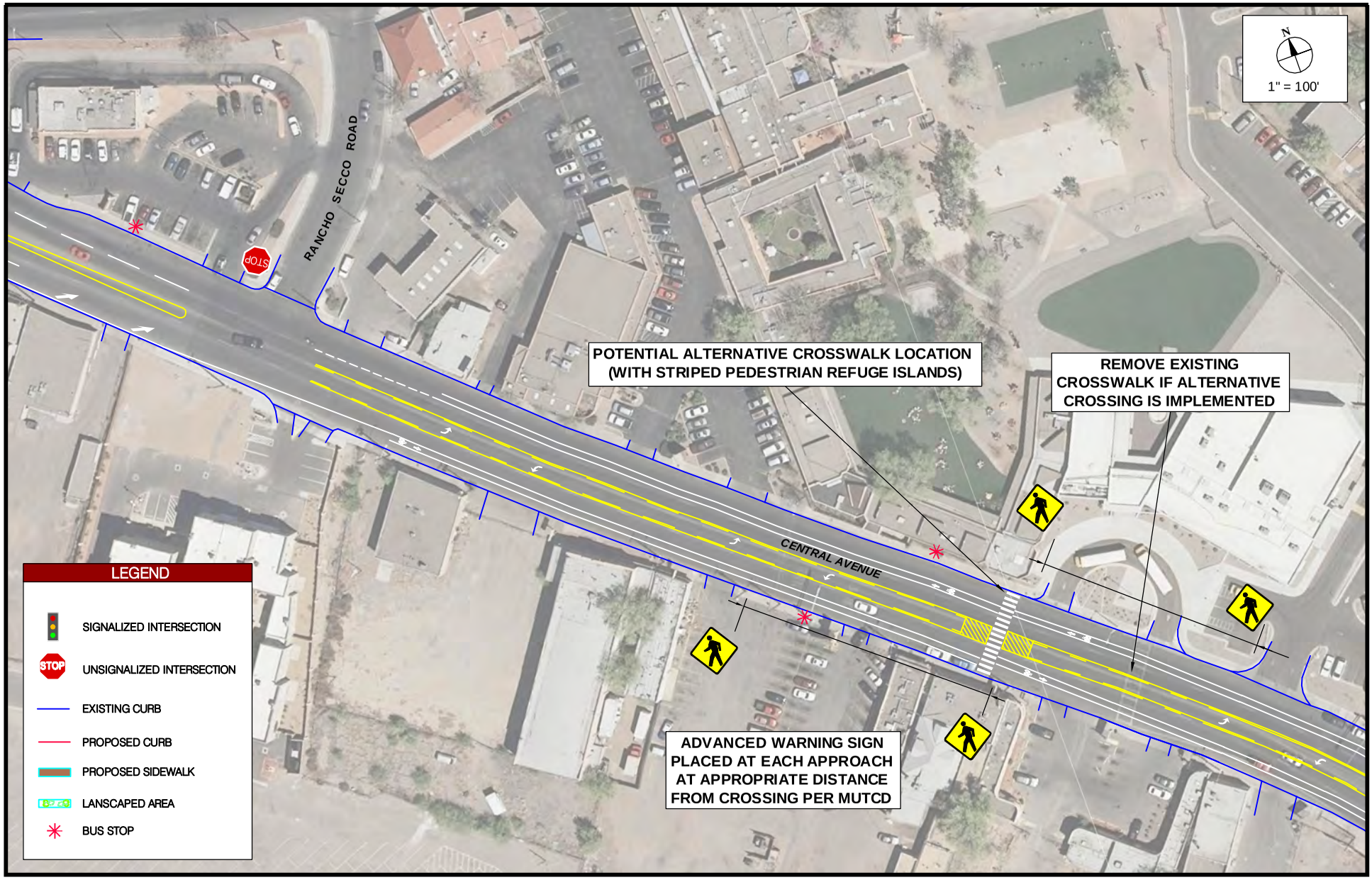

FIGURE 6

CENTRAL AVENUE ROAD DIET CONCEPTS

NEAR-TERM STREET LAYOUT (RANCHO SECO ROAD TO MANZANO SCHOOL ENTRANCE)

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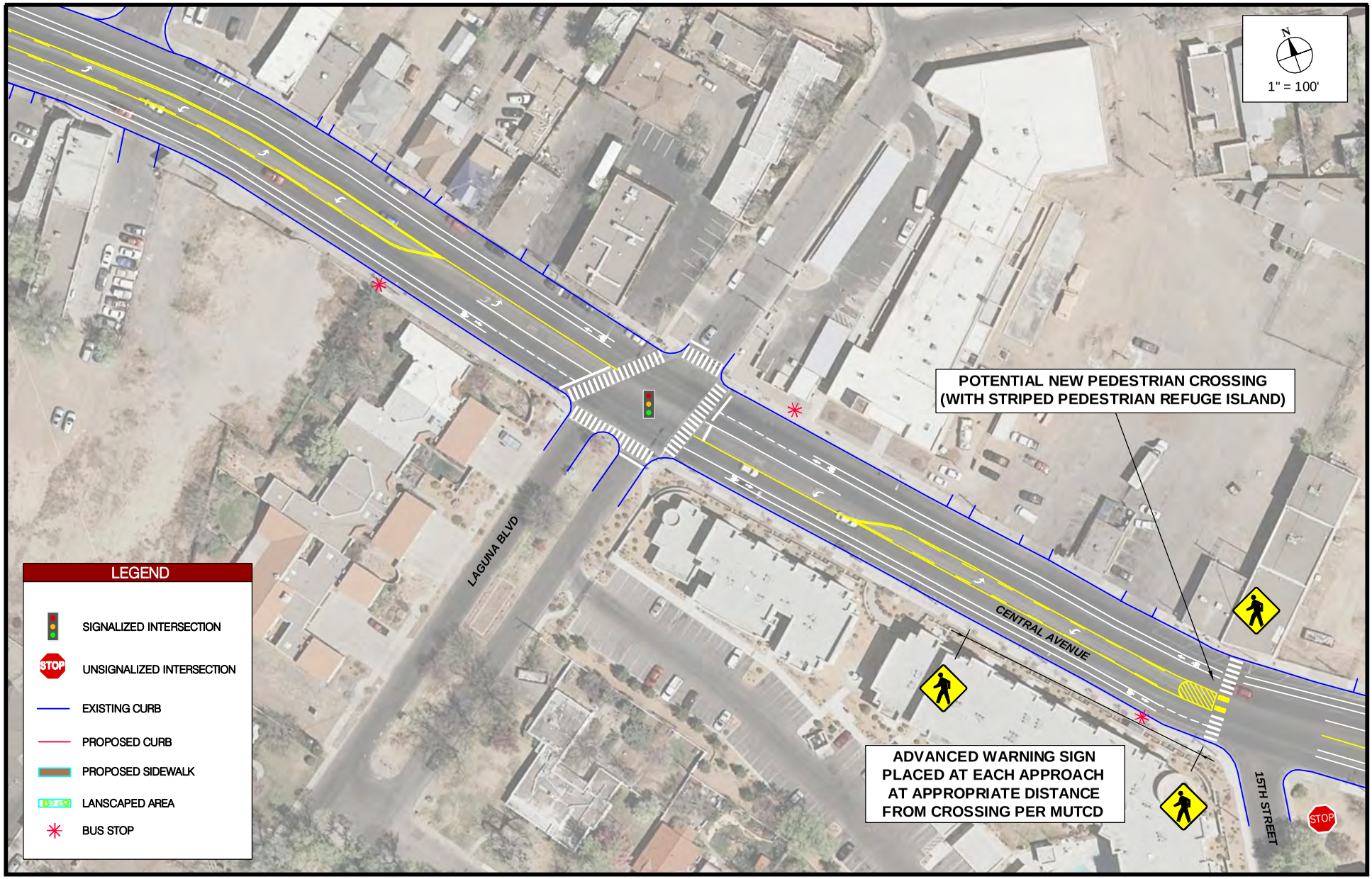

FIGURE 7

CENTRAL AVENUE ROAD DIET CONCEPTS

NEAR-TERM STREET LAYOUT (MANZANO DAY SCHOOL ENTRANCE TO 15TH STREET)

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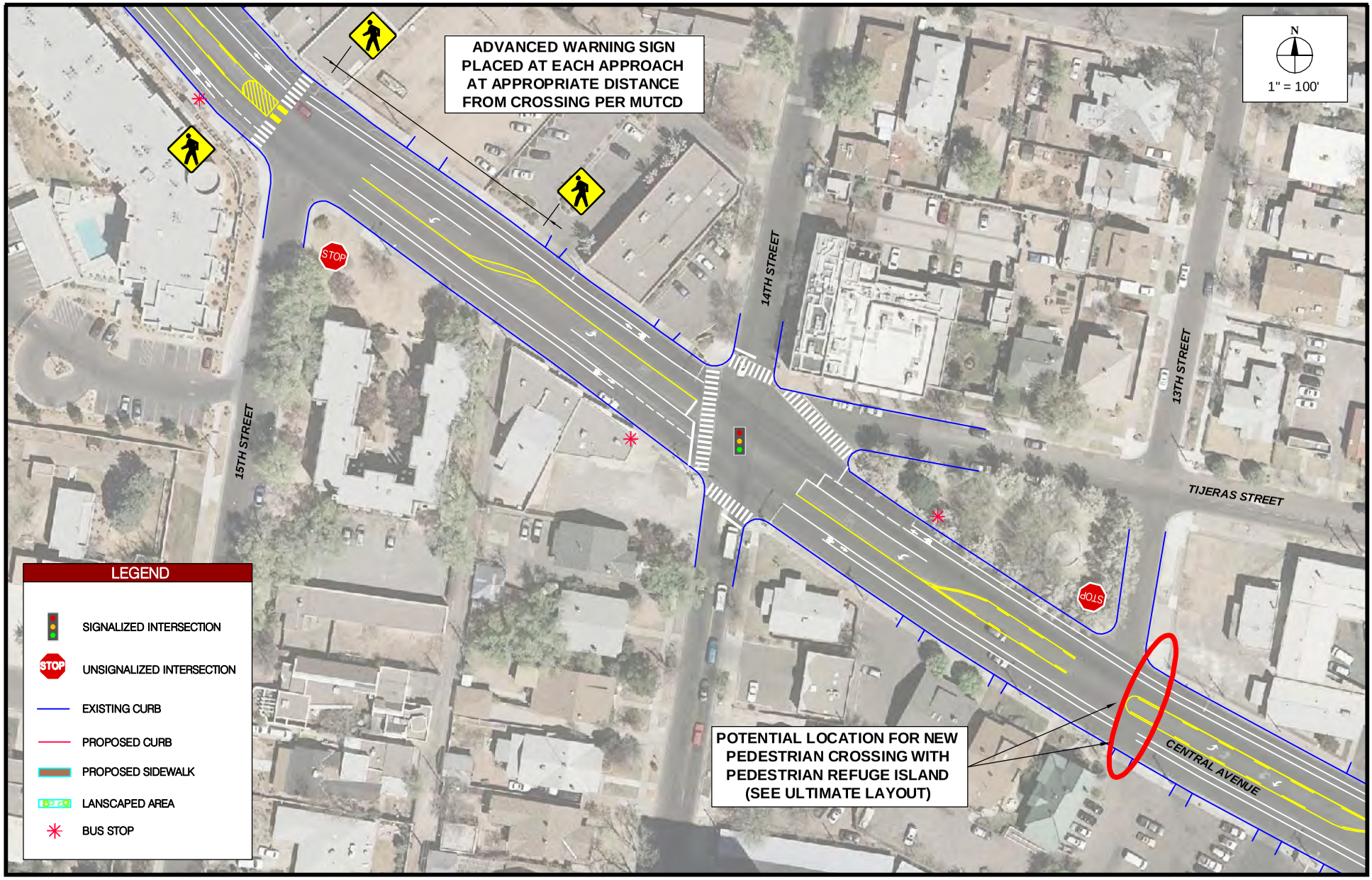

FIGURE 8

CENTRAL AVENUE ROAD DIET CONCEPTS

NEAR-TERM STREET LAYOUT (15TH STREET TO 12TH STREET)

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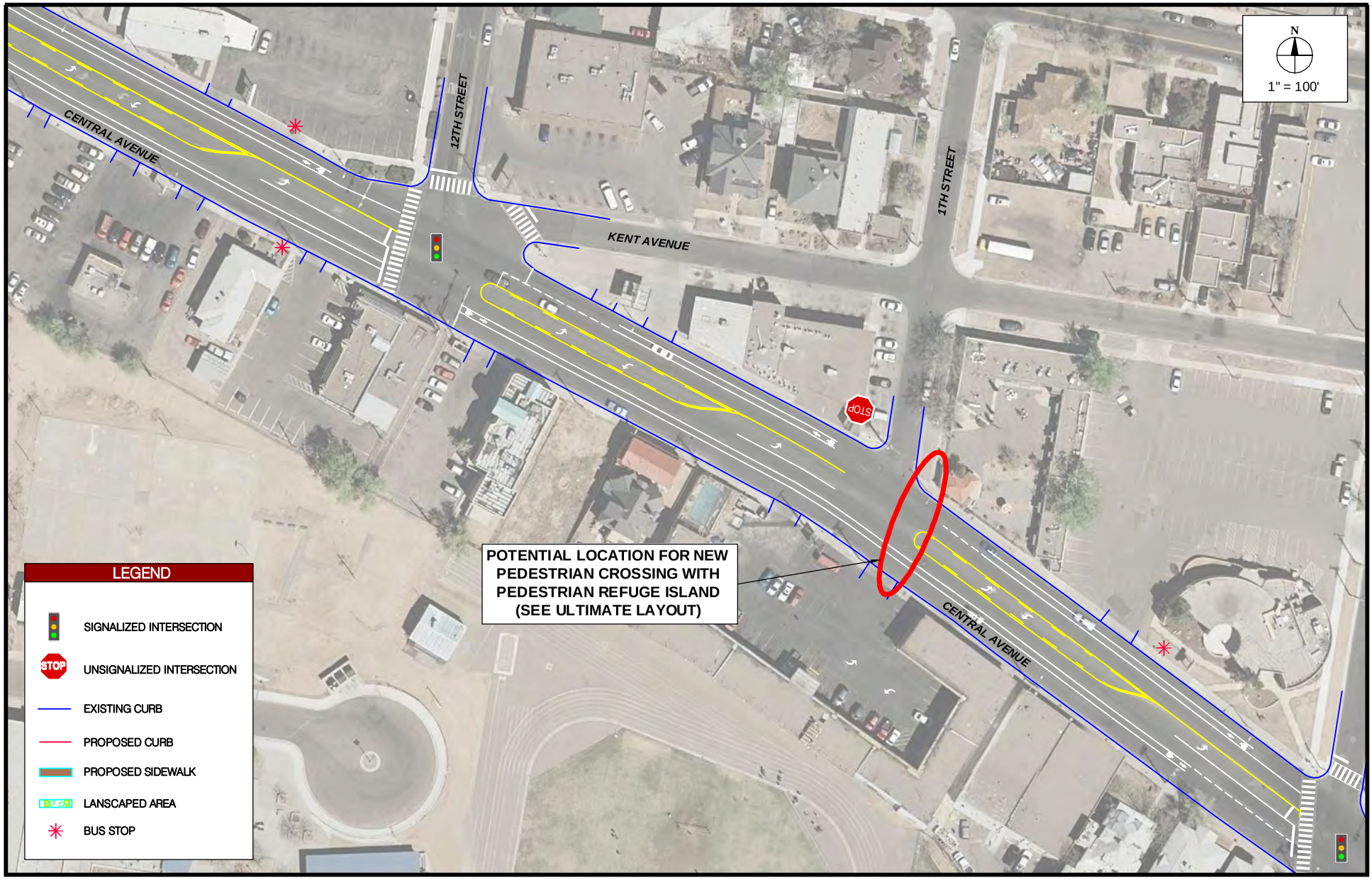

FIGURE 9

CENTRAL AVENUE ROAD DIET CONCEPTS

NEAR-TERM STREET LAYOUT (12TH STREET TO 10TH STREET)

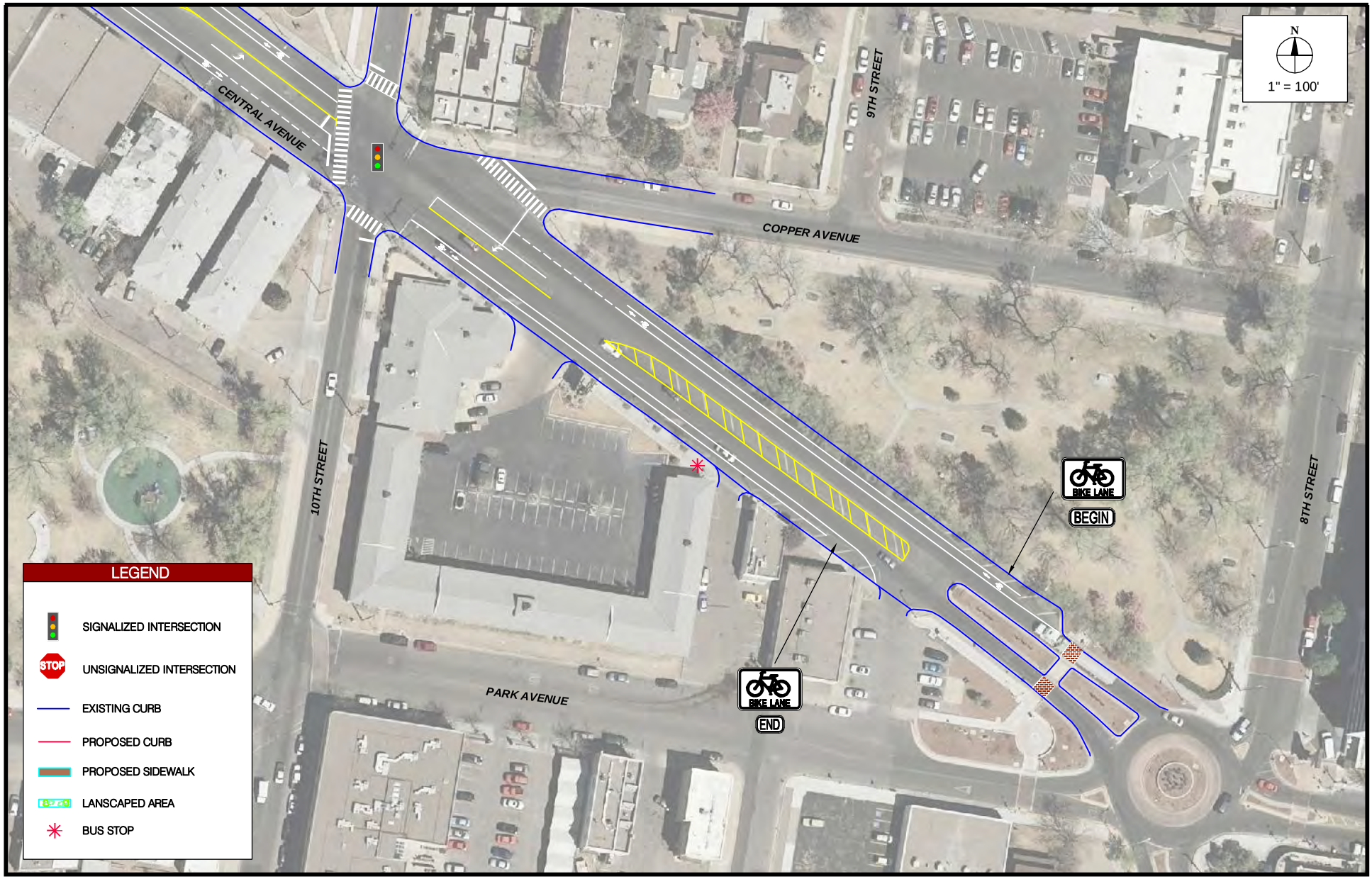

FIGURE 10

CENTRAL AVENUE ROAD DIET CONCEPTS

NEAR-TERM STREET LAYOUT (10TH STREET TO 8TH STREET)

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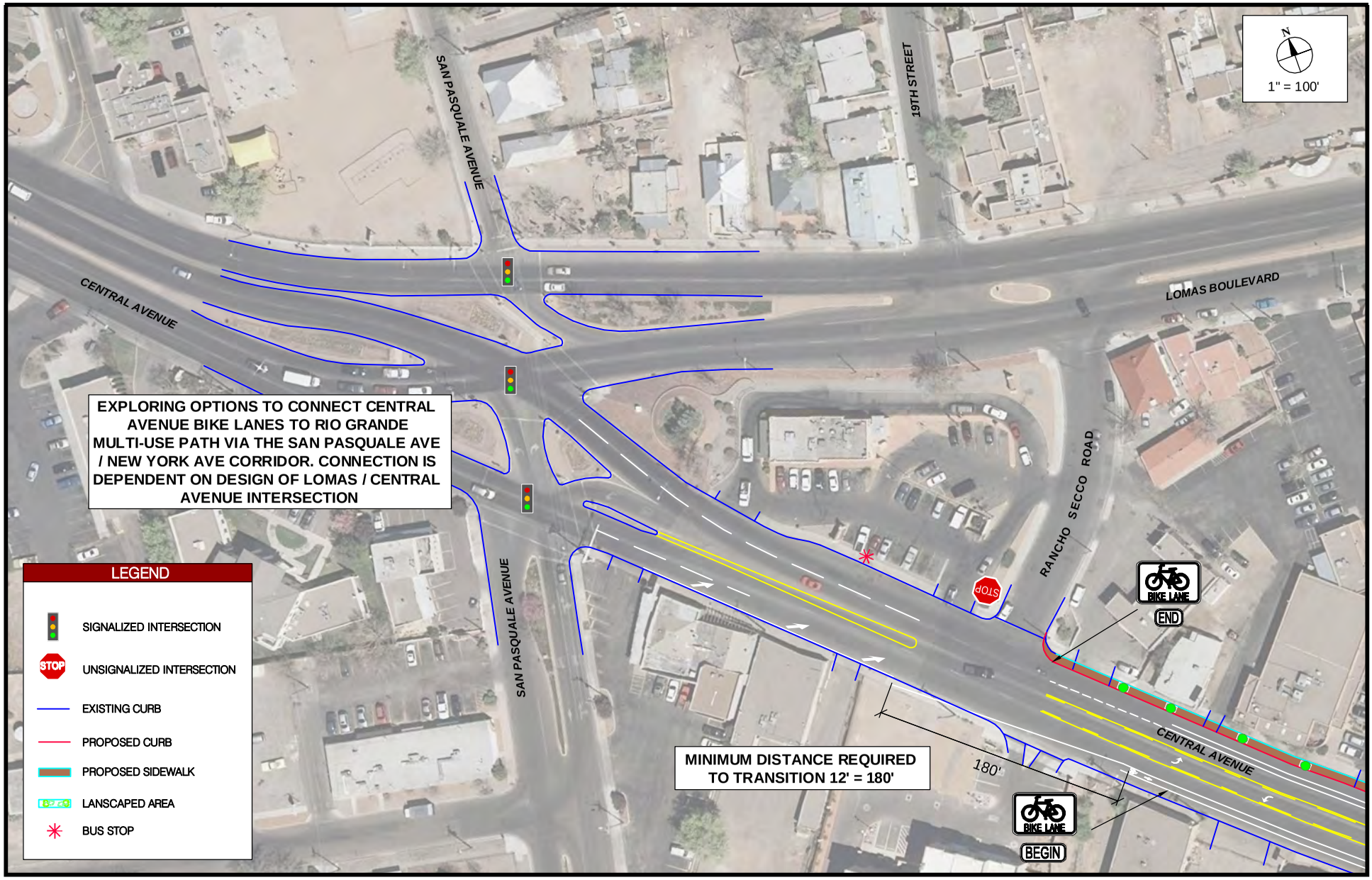

FIGURE 11

CENTRAL AVENUE ROAD DIET CONCEPTS

ULTIMATE STREET LAYOUT (SAN PASQUALE AVENUE TO RANCHO SECO ROAD)

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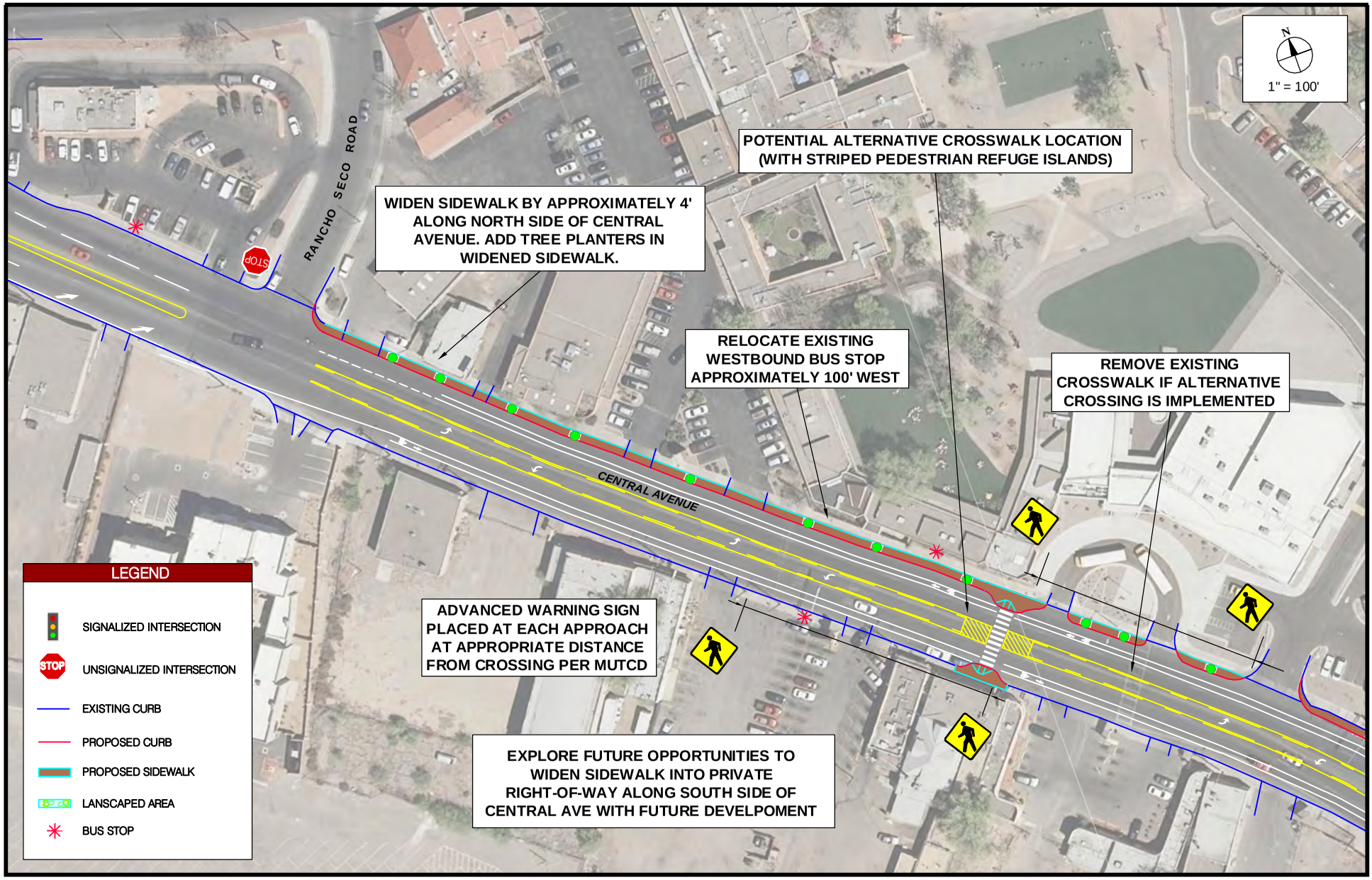

FIGURE 12

CENTRAL AVENUE ROAD DIET CONCEPTS

ULTIMATE STREET LAYOUT (RANCHO SECO ROAD TO MANZANO SCHOOL ENTRANCE)

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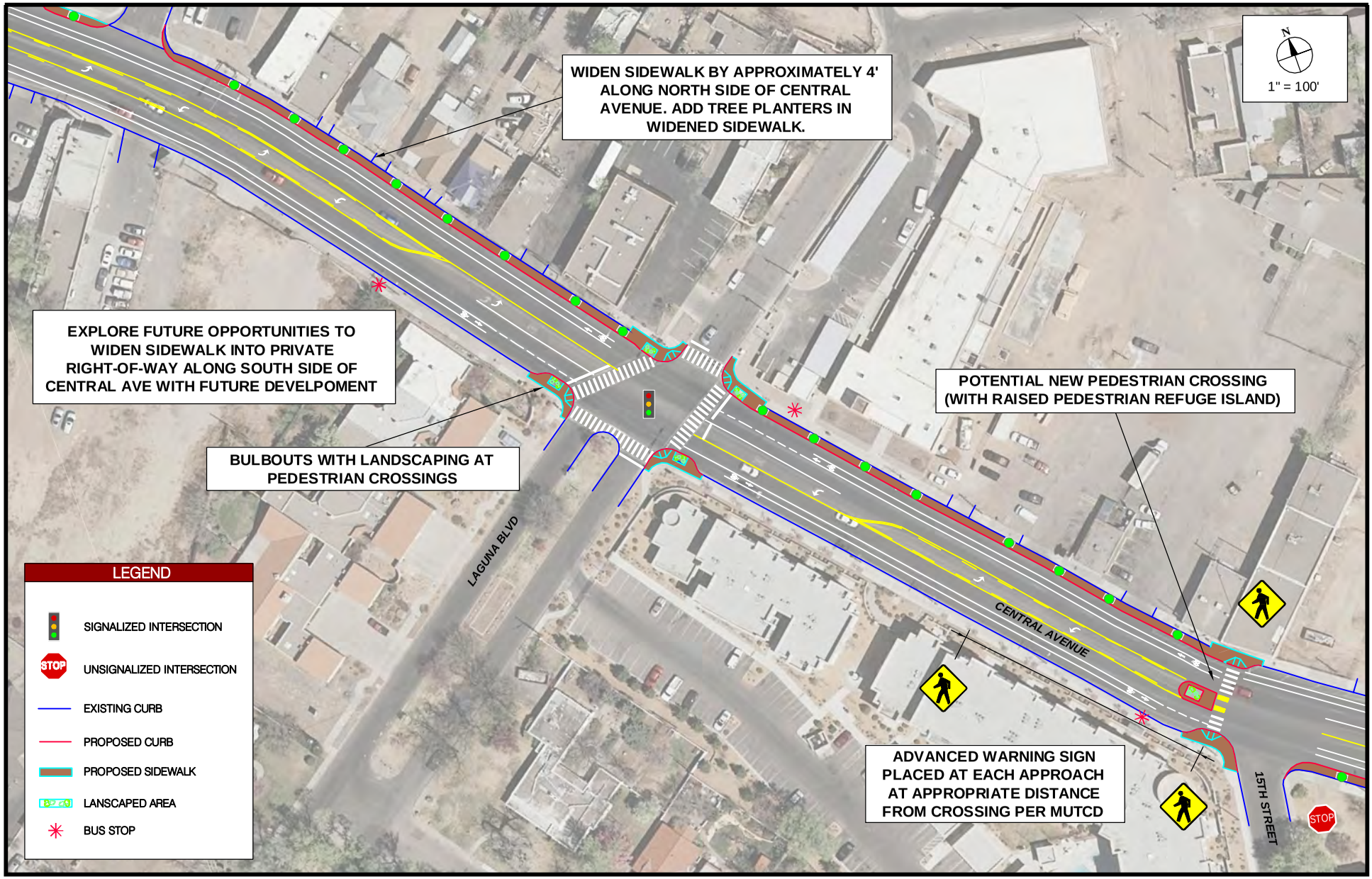

FIGURE 13

CENTRAL AVENUE ROAD DIET CONCEPTS

ULTIMATE STREET LAYOUT (MANZANO DAY SCHOOL ENTRANCE TO 15TH STREET)

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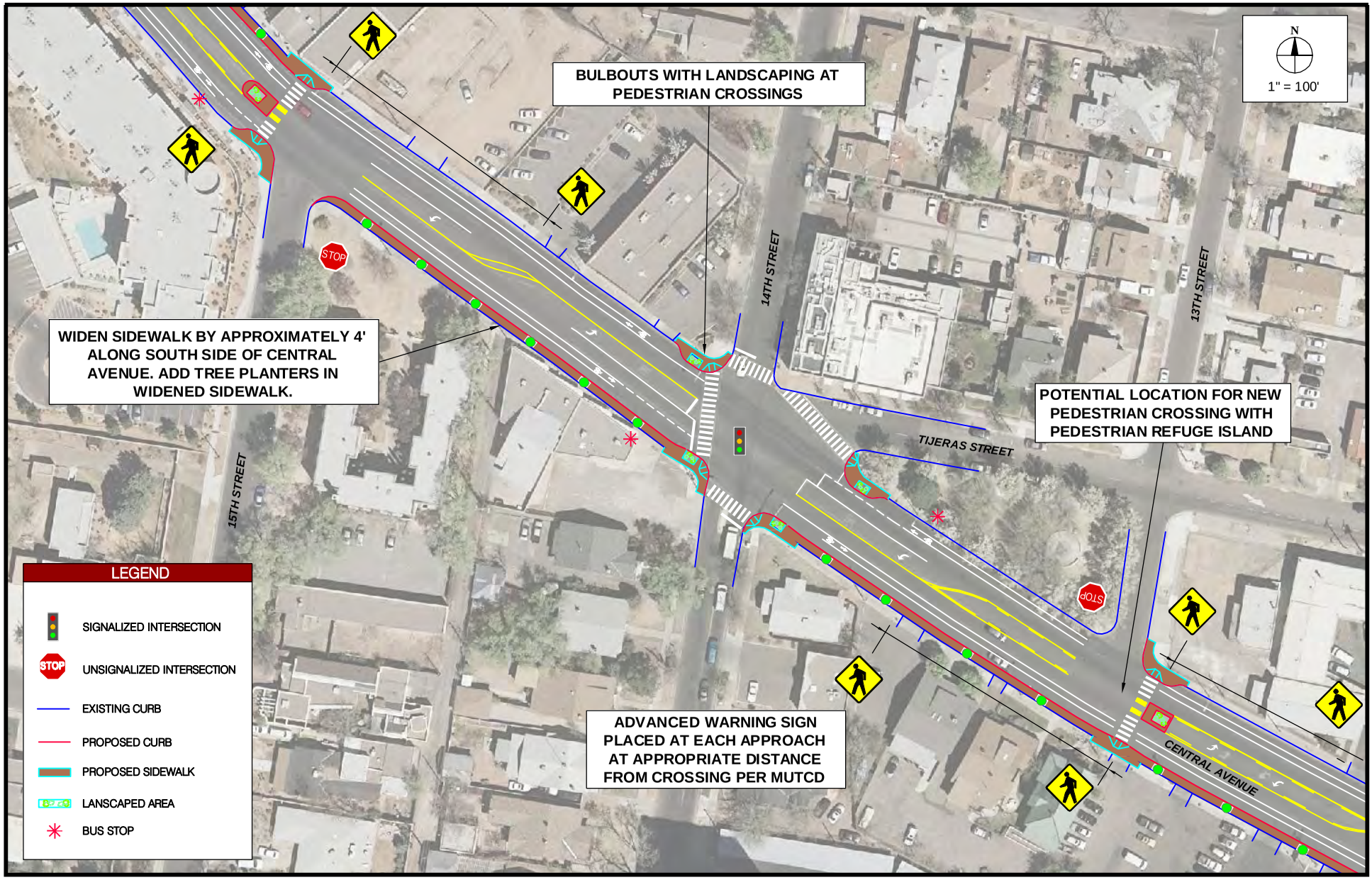

FIGURE 14

CENTRAL AVENUE ROAD DIET CONCEPTS

ULTIMATE STREET LAYOUT (15TH STREET TO 12TH STREET)

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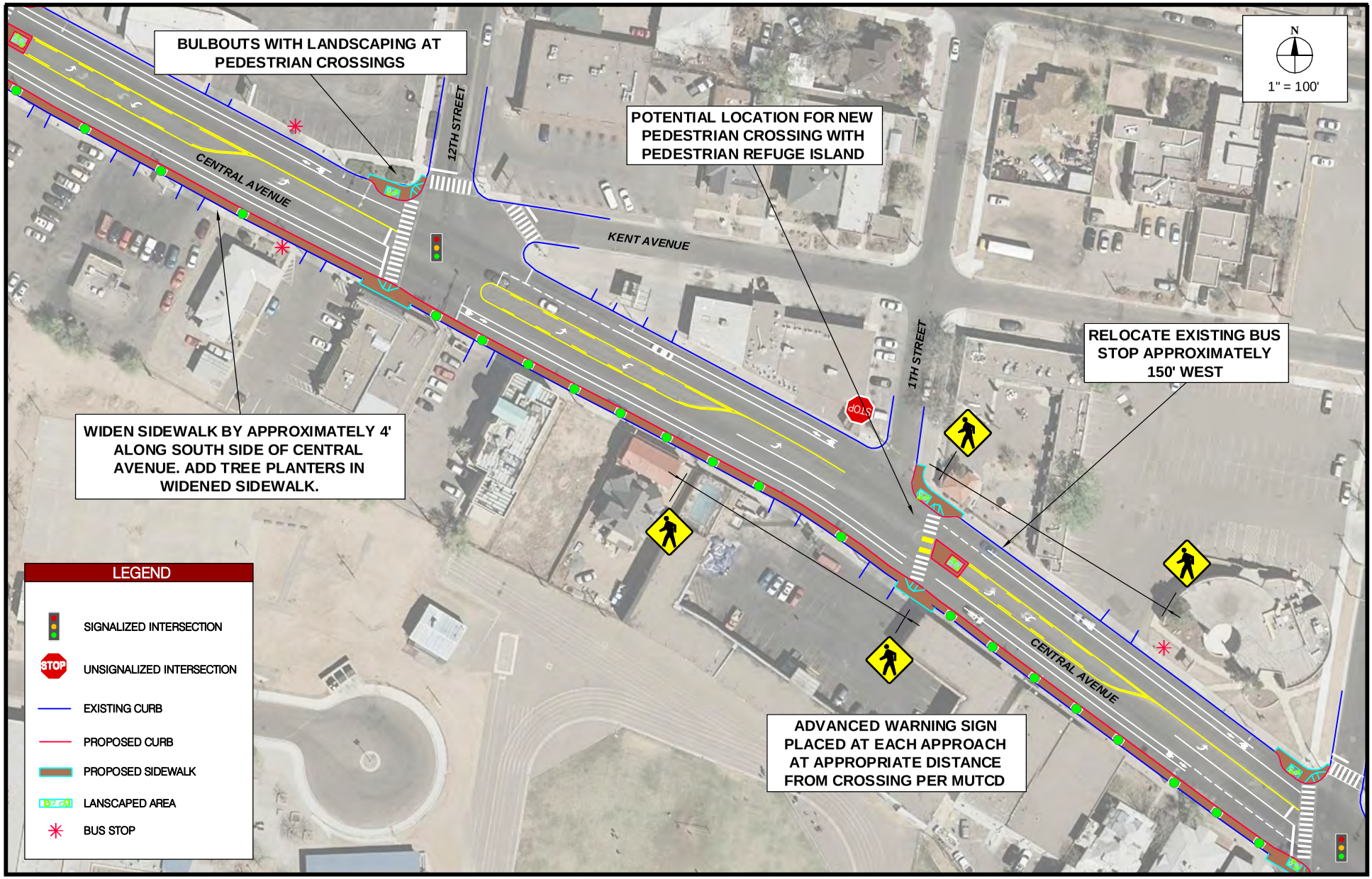

FIGURE 15

CENTRAL AVENUE ROAD DIET CONCEPTS

ULTIMATE STREET LAYOUT (12TH STREET TO 10TH STREET)

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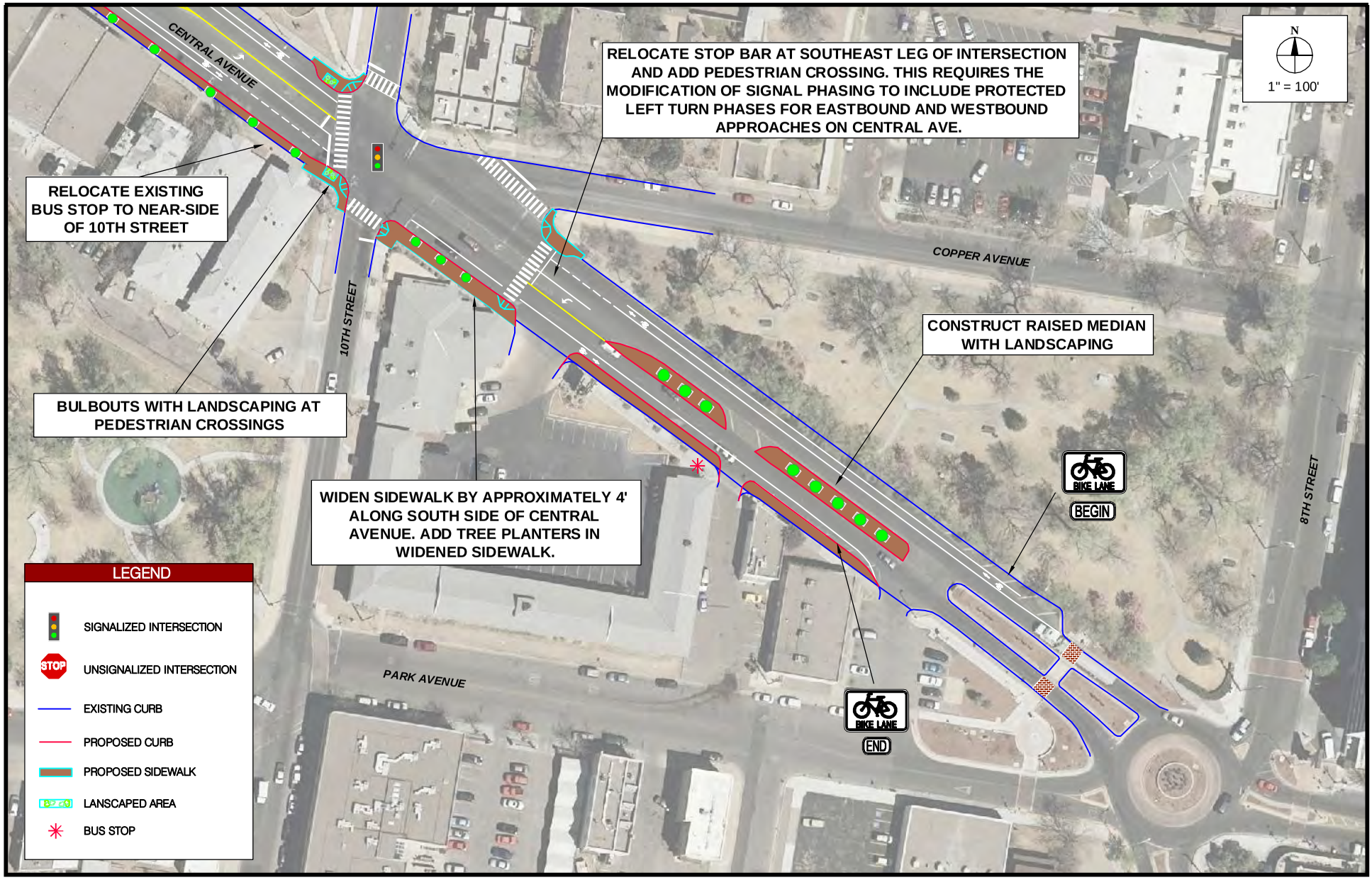

FIGURE 16

CENTRAL AVENUE ROAD DIET CONCEPTS

ULTIMATE STREET LAYOUT (10TH STREET TO 8TH STREET)

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Implications for Transit

Transit service in the City of Albuquerque is provided by ABQ Ride. Currently, two bus routes operate along Central Avenue between Lomas Boulevard and 8th Street. Route 66, a local route, operates Monday through Saturday with 15 to 30-minute headways and provides access to Old Town, Downtown Albuquerque and University of New Mexico. Rapid Ride Route 766 (Red Line), an express bus route, operates seven days a week at 10 to 15-minute headways and connects Downtown Albuquerque, Alvarado Transportation Center, University of New Mexico and the Uptown Transit Center. There are approximately 12 bus stops for ABQ Ride Route 66 along the road diet study segment. The local stops typically consist of a flag sign pole, a bench and in some cases, an overhanging shelter. There are currently no Rapid Ride stations within the road diet segment.

In developing the road diet concepts, each existing bus stop was examined to identify potential impacts with implementation of the road diet. In some cases, it is recommended that a stop be relocated nearby to avoid conflicts with proposed curb extensions. Relocated bus stops for Route 66 are called out in Figures 5-16[1]. Further, the road diet monitoring plan presented in Table 3 includes elements intended to identify impacts to transit service. Monitoring provides an opportunity to assess the need for transit-related improvements along the corridor, such as curb extension bus stops (bus bulbs), improvements to the existing transit signal priority at intersections, and queue jump lanes.

Road Diet Demonstration Project – One Year Monitoring Plan

Monitoring the effectiveness of the Near-Term demonstration project allows the City and affected agencies to assess the benefits and impacts of the road diet prior to permanent construction. The results of the monitoring plan provide an opportunity to refine the design and mitigate impacts. Monitoring provides a comprehensive evaluation to inform decision-makers before authorizing the ultimate improvements. Finally, it serves as a model for assessing future similar types of road projects.

Table 3 presents the components of the monitoring plan to measure and record the effectiveness of the road diet over a period of one year following completion of the Near-Term (Demonstration Project) improvements. City and ABQ Ride staff should collaboratively

[1] In their review of the Near-Term and Ultimate design concepts, ABQ Ride staff expressed some concern with the proposed bus stop relocations indicating a general preference to locate bus stops on the far side of intersections wherever possible. The relocation of bus stop in the concept plans are suggestions as one way to eliminate conflicts with curbside improvements attempting to keep stops as close to current locations as possible. ABQ Ride staff will identify and approve the actual locations before implementation of the demonstration project and during final design of the ultimate improvements.

develop desired performance standards for each mode (vehicle, transit, bicycle, and walking) and thresholds for identifying positive or negative impacts. Mitigation of negative impacts should be included in the final design of the Ultimate improvements. A detailed description of the monitoring plan components is provided in the Appendix.

Table 3: Road Diet Monitoring Plan Summary

Monitoring Element	Purpose	Frequency	Cost
Traffic / Pedestrian / Bicycle Counts	▪ Identify shift in traffic patterns ▪ Identify shift to alternative travel modes ▪ Monitor traffic operations	5 Times (once before; quarterly after construction)	$47,200
Parking Occupancy Counts	▪ Monitor change in parking utilization	5 Times (once before; quarterly after construction)	$3,500
Travel Time Runs	▪ Monitor operational performance of three-lane configuration ▪ Identify impacts to vehicular circulation/delay	5 Times (once before; quarterly after construction)	$3,500
Accident Data Review	▪ Compare vehicular, pedestrian and bicycle accident rates and types before and after implementation of the project	1 Time After one year, collect and review accident data for before and after conditions	$500
Queuing Observations	▪ Monitor operational performance of three-lane configuration ▪ Identify impacts to vehicular circulation ▪ Identify change in traffic congestion	5 Times (once before; quarterly after construction)	$3,500
Speed Surveys	▪ Study change in vehicle speeds with implementation of the three-lane configuration	5 Times (once before; quarterly after construction)	$1,500
Transit Travel Time Surveys	▪ Monitor performance of transit service with three-lane configuration ▪ Identify impacts to transit service on-time performance and reliability	5 Times (once before; quarterly after construction)	$3,500
Stakeholder Interviews	▪ Record stakeholder perceptions of functionality and safety of three-lane configuration	1 Time After one year, interview area stakeholders, such as neighborhood residents, business associations, schools, emergency services, transit providers/users and bicycle advocates.	$500
		Total Monitoring Plan Cost:	**$63,700**
See appendix for more detailed description of monitoring elements and derivation of costs.			

B. Central Avenue / Lomas Boulevard Intersection Concepts

Background and Proposed Intersection Alternatives

Over many years City staff and the community have expressed concern regarding the intersection of Central Avenue / Lomas Boulevard / San Pasquale Avenue. These concerns are primarily about the complicated nature of the existing intersection configuration, which can be confusing to both motorists and pedestrians. Further, crossing the intersection can pose a challenge to pedestrians due to the indirect placement of the existing crosswalks, multiple streets to cross, and lack of adequate ADA ramps at some crossings. Alternative designs have been proposed in the past including a concept for a multi-lane roundabout and conventional signal controlled intersections simplified by closing side streets. To date none of the past concepts have been adopted. This study evaluates the geometric and operational feasibility of the previously proposed roundabout and develops two additional conventional signalized intersection alternatives.

To explore other potential intersection configurations that would allow the Central Avenue / Lomas Boulevard intersection to better facilitate vehicular and non-motorized travel, the following intersection alternatives were developed:

1. Alternative 1: Four-Leg Intersection with Rerouted San Pasquale Avenue
    - Reconfigure intersection approaches to create a more compact conventional four-leg configuration.
    - Reroute the San Pasquale approach to connect to Central Avenue aligned with Rancho Seco Road and cul-de-sac existing San Pasquale Avenue at Central / Lomas (this will require acquisition of significant right-of-way from adjacent properties). In this alternative the San Pasquale approach is no longer signal controlled but allows full movements on Central Avenue.
    - Stripe three left turn lanes from westbound Central Avenue to improve queuing storage and minimize vehicular delay.
    - Construct raised medians with pedestrian refuge islands.
    - Provide high-visibility, ladder style crosswalks with ADA ramps.
    - Direct bicyclists to turn left onto San Pasquale Avenue to connect to bike route on Alhambra Avenue and New York Avenue (also see section on Bicycle Connectivity with Proposed Improvements).
2. Alternative 2: Two-Lane Urban Roundabout
    - Convert intersection to a two-lane urban roundabout retaining all of the current approaches to the intersection.
    - Use excess land created by implementing the roundabout and central island for landscaping and potential urban design and gateway landmarks.

- Construct standard raised medians (splitter islands) with pedestrian refuge typical of roundabouts.
- Provide high-visibility, ladder style crosswalks with ADA ramps
- Allow bicyclists to use sidewalk to complete connection from Central Avenue to bike routes along Alhambra Avenue and New York Avenue.

3. Alternative 3 (Preferred): Four-Leg Intersection with Limited Access at San Pasquale Avenue
    - Reconfigure intersection approaches to create a more compact conventional four-leg configuration.
    - Reroute San Pasquale approach eastward on Central Avenue and restrict access to right-turn-in / right-turn-out only from San Pasquale Avenue to Central Avenue. This requires minor property acquisition from the southeast corner of the intersection.
    - Construct raised medians with pedestrian refuge islands.
    - Provide high-visibility, ladder style crosswalks with ADA ramps.
    - Direct bicyclists to use left turn lane to turn left from westbound Central Avenue to San Pasquale Avenue to access the bike route on Alhambra Avenue and New York Avenue. Indicate shared-use of left turn lane with "sharrows" and colored pavement (also see section on Bicycle Connectivity with Proposed Improvements).

The preliminary design concepts for each intersection alternative are presented in Figure 17 Figure 18 and Figure 19. A traffic operational analysis of each configuration is included in the Appendix.

The Preferred Alternative

The recommended alternative (Alternative 3) was determined through discussions with staff from multiple departments. It was agreed that Alternative 3 meets the objectives of this concept plan and the intent of the Central Avenue Streetscape Master Plan by simplifying the intersection resulting in improved conditions for motorists and significantly improved conditions for pedestrians. Furthermore, the compact and conventionally configured intersection is more familiar and predictable for motorists and pedestrians.

Pedestrian safety and convenience is enhanced by 1) reducing the total length of crossings where pedestrians are exposed to traffic, 2) significantly reducing the time and delay for pedestrians to cross, and 3) providing refuge islands on Lomas and Central for pedestrians who may not be able to cross the entire street in one signal cycle (e.g., mobility impaired or elderly). An important factor in choosing Alternative 3 is the retention of signal control of the

Central / Lomas intersection especially for pedestrian crossings. Given the volume of traffic this intersection experiences and the existence of a school on the north side of the intersection, protected signalized pedestrian crosswalks are more desirable than the uncontrolled crossings in the roundabout alternative.

Alternative 3 provides an understandable and conventional bicycle connection to the proposed bike route paralleling Central Avenue (see section on Bicycle Connectivity with Proposed Improvements). Alternative 3 retains bicyclists in bike lanes or shared turning lanes without the need to use sidewalks.

The relocation of San Pasquale Avenue and associated turn restrictions significantly simplify and improve traffic operations and pedestrian crossings at Central / Lomas while retaining full access to/from any direction for San Pasquale traffic via combinations of Central Avenue, Rancho Seco Road and Lomas Boulevard. Unlike Alternative 1, the preferred alternative requires very little right-of-way acquisition making this concept significantly more viable in the short-term.

Vehicular traffic is well accommodated by the preferred alternative. Under existing and year 2030 traffic conditions the intersection operates within acceptable delay and level of service standards (Level of Service C or better). The westbound approach of Lomas Boulevard and the northbound approach of Central Avenue experiences moderate queues in the afternoon peak hour in the year 2030. The northbound queue in the preferred alternative is greater than projected in Alternative 1 because Alternative 1 is designed with three northbound left turn storage lanes. The elimination of the third left turn lane in the preferred alternative was a trade-off in order to provide an eastbound bike lane on Central Avenue east of San Pasquale Avenue. Furthermore, should a third lane be implemented, ABQ Ride staff would like the lane to be used as a queue-jump lane for transit vehicles (allowing buses to bypass congestion at the intersection). A detailed traffic analysis comparing the three alternatives is included in the appendix.

Alternatives Considered but Rejected

Alternative 1 is very similar in design and operation to Alternative 3. It improves both traffic and pedestrian crossing conditions, and provides conventional bicycle facilities directing bicyclists to the proposed bicycle route. However, the principal reason this alternative was rejected is the property acquisition required to align San Pasquale Avenue with Rancho Seco Road. The bisection of private property(ies) would have significant impacts on these properties and substantially increase the cost of the alternative which could make the alternative infeasible. In addition, properties located on the southwest corner of the

intersection lose access to Central and Lomas. The loss of access requires vehicles attempting to reach these properties to use circuitous and non-intuitive routes.

Alternative 2 (two lane urban roundabout) was carefully considered but rejected for the following principal reasons:

- Multi-lane roundabouts are generally confusing and intimidating for motorists not familiar with them and the Central / Lomas roundabout is particularly confusing because the east-west through traffic volume requires two exiting lanes at each leg. This forces traffic in the outside lanes to continue as through movements even though they may want to continue around the roundabout to exit at another leg (e.g. San Pasquale Avenue). This condition requires motorists to pre-determine their approach lane to avoid being forced out of the roundabout at an incorrect leg. Further, motorists continuing around the roundabout in the inside lane are required to weave across heavy through traffic volumes to exit at any other leg. Effective use of this roundabout would require experience and familiarity and initially would likely be perceived as poorly designed.
- While the roundabout is projected to operate with little delay under existing traffic volumes (Level of Service B or better) it is projected to operate with delays considered “failing” in 2030 (Level of Service F) and long queues in the peak directions both morning and afternoon.
- This roundabout would create an undesirable environment for pedestrians crossing the Lomas and Central approaches of the roundabout because 1) the high traffic volumes combined with two lane approaches and exits are intimidating to pedestrians, 2) queuing that results in a continuous stream of traffic entering and exiting the roundabout with few gaps for pedestrians to cross (despite laws that require motorists to yield to pedestrians), and 3) the absence of signal control in high volume conditions can be uncomfortable for pedestrians.
- The standard design of roundabouts requires bicyclists to go around the roundabout in shared lanes with vehicles to turn left from Central to San Pasquale and access the recommended bike route. Bicycle travel through this roundabout would likely only be attempted by the most experienced cyclists. Therefore this is the only alternative that recommends that cyclists to use the sidewalk and cross as pedestrians to access the bike route.

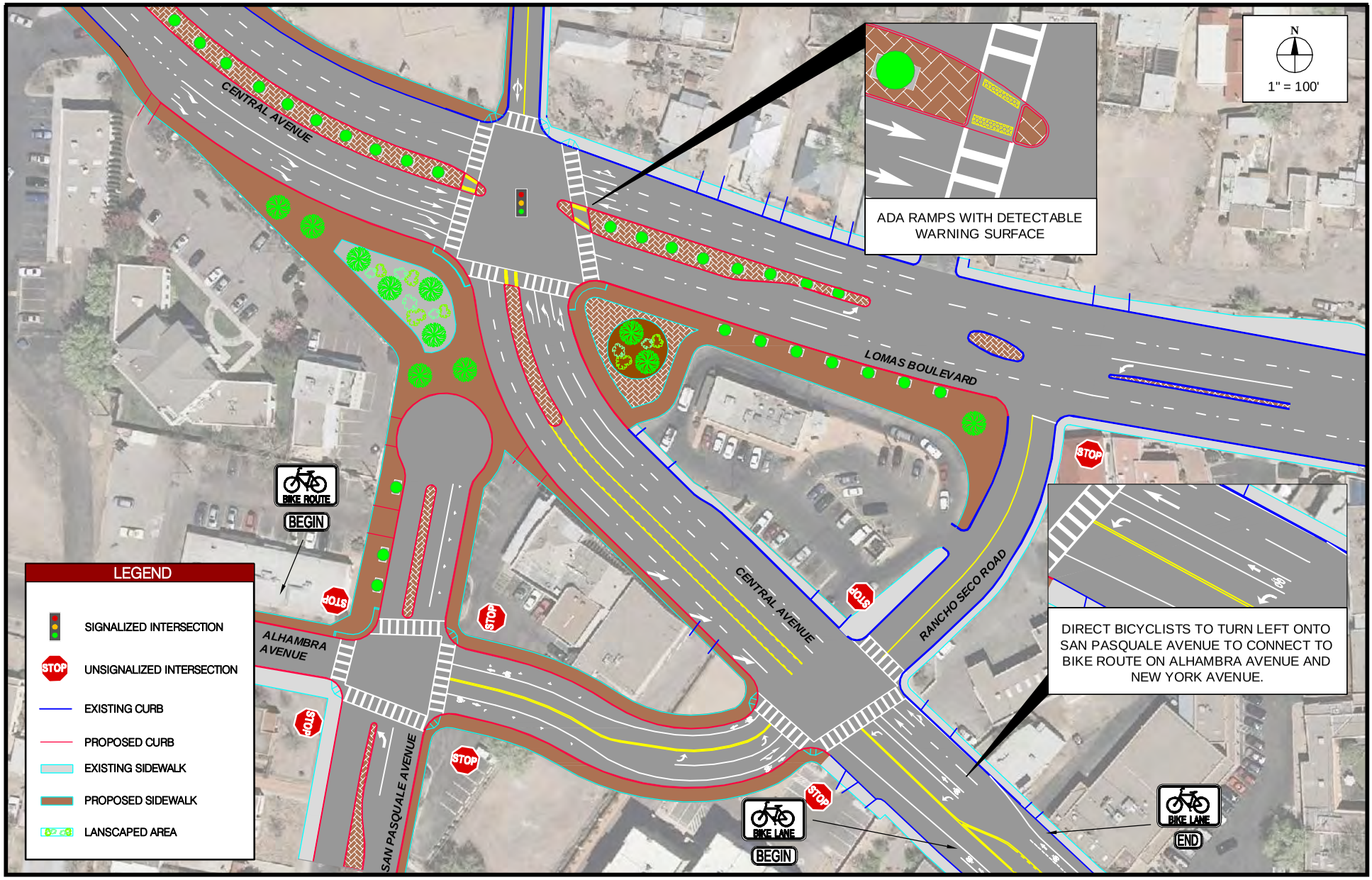

FIGURE 17

CENTRAL AVE / SAN PASQUALE AVE / LOMAS BLVD INTERSECTION CONCEPTS
ALTERNATIVE 1: FOUR-LEG INTERSECTION WITH REROUTED SAN PASQUALE AVE

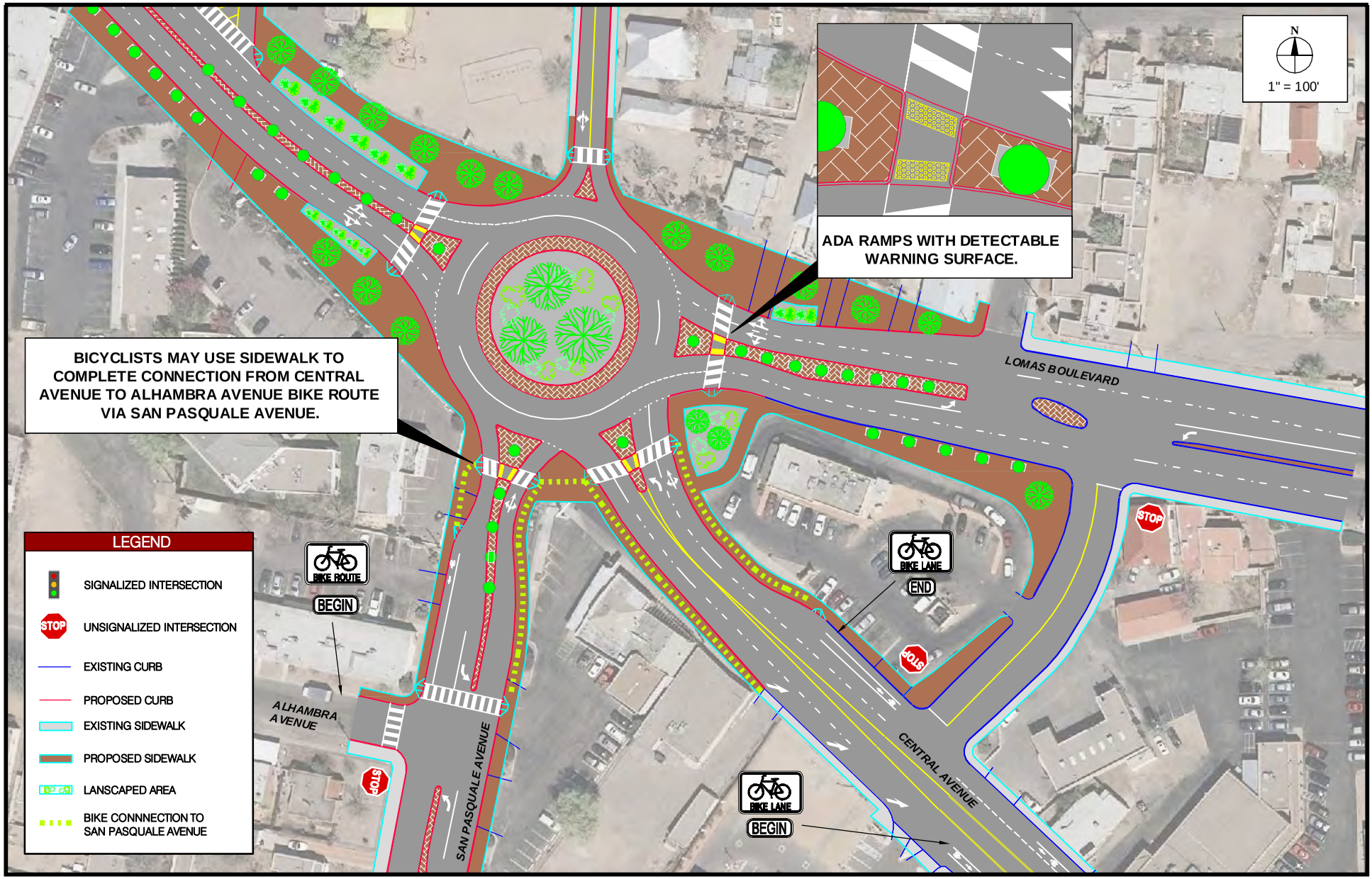

FIGURE 18

CENTRAL AVE / SAN PASQUALE / LOMAS BLVD INTERSECTION CONCEPTS

ALTERNATIVE 2: TWO-LANE URBAN ROUNDABOUT

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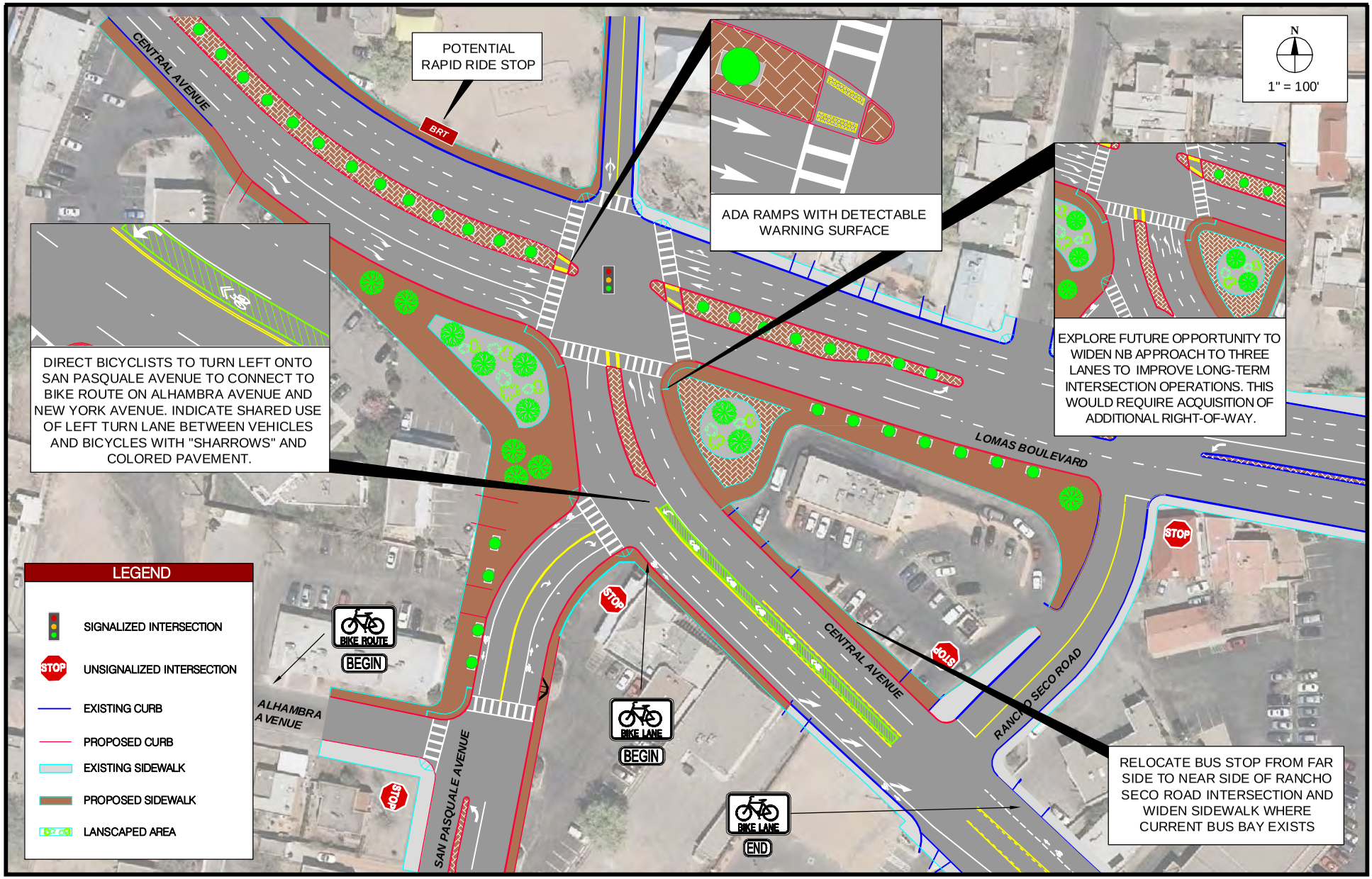

FIGURE 19

CENTRAL AVE / SAN PASQUALE AVE / LOMAS BLVD INTERSECTION CONCEPTS

PREFERRED ALTERNATIVE: 4-LEG INTERSECTION - LIMITED ACCESS AT SAN PASQUALE AVE

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C. Central Avenue Improvements West of Lomas Boulevard

Central Avenue / Rio Grande Boulevard Intersection Recommendations

The Central Avenue / Rio Grande Boulevard intersection is located near the Old Town Historic District and carries a substantial amount of vehicular, pedestrian and transit traffic. According to the Albuquerque Citywide Intersection LOS Study (March, 2009), there were 120 documented crashes at the intersection of Central Avenue / Rio Grande Boulevard between 2004 and 2006. Of these incidents, four crashes involved pedestrians and five crashes involved bicyclists. Due to the high traffic demand and operational constraints at the intersection there are limited viable options to improve the pedestrian environment and safety at this intersection. The Albuquerque Public Works Department is currently developing plans for minor intersection modifications to improve safety at this intersection. As a further supplement to the City's plans, the following recommendations were developed to improve the pedestrian crossings at Central Avenue / Rio Grande Boulevard:

- Provide a two-to-five second leading pedestrian signal phase (north-south) prior to the vehicular green phase for pedestrians crossing Central on the west side of the intersection. This allows pedestrians to get a head start crossing the intersection and become more visible to the vehicles making a southbound right turn.[2]
- Extend the median at the west leg of the intersection to the crosswalk to provide a small refuge for pedestrians.
- Eliminate the westbound left turn lane and reconstruct and widen the median to provide a large pedestrian refuge and area for landscaping. This is intended to encourage pedestrian travel to Old Town. The displaced westbound left turns may proceed on Central and make a left or u-turn at Clayton Street.
- Reconstruct the curb return at the northeast corner of the intersection to decrease the radius of the return as a means of slowing right-turning vehicles.
- Restripe or reapply thermoplastic to the faded ladder style crosswalks. This is an ongoing maintenance requirement. The City found that it must continuously remark the crosswalks as they wear down frequently due to high traffic volumes.

It is desirable to improve (widen, street trees, improved lighting) the sidewalk on the east side of Rio Grande north of Central as this is a primary pedestrian route to Old Town. Additionally, some form of gateway marker at the northeast corner of the Central / Rio

[2] Note that the Albuquerque Citywide Intersection LOS Study recommends removing this crosswalk to increase vehicular capacity and for pedestrian safety reasons. This study does not support removal of this crosswalk because it is frequently used to connect the neighborhoods to the south of Central Avenue to the Rapid Ride station at the northwest corner of Central / Rio Grande, to the adjacent shopping center, and to Old Town.

Grande intersection would help identify the route. However, due to limited right-of-way it is not feasible to widen the sidewalk without acquiring private property or reducing traffic lanes. Acquiring property is a costly and potentially long-term option and reducing travel lanes in such a high volume condition may worsen the pedestrian environment. Therefore, this study recommends designating Romero Street as the primary pedestrian route to Old Town. Romero Street does not require sidewalk improvements, but a gateway marker or landmark and wayfinding signs should be implemented to direct pedestrians to this route.

The recommendations developed for the Central Avenue / Rio Grande Intersection are shown in Figure 20.

Central Avenue Corridor Pedestrian Enhancements – 47th Street to Rio Grande Blvd

The pedestrian facilities along Central Avenue west of the Rio Grande intersection are in moderately good condition and appear to meet minimum ADA requirements. While this segment of the corridor lacks pedestrian amenities such as buffering from adjacent traffic, street trees for shade and pedestrian scaled lighting, the sidewalks are continuous and appear sufficiently wide for the current low volume of pedestrians using the corridor. There are no bicycle facilities on Central Avenue and this causes some bicyclists to ride on the sidewalk. Bicycling on the sidewalk presents hazards for both pedestrians and the bicyclists. Further, there are numerous curb cuts and driveways serving the adjacent properties. Some properties have multiple driveways and many of these driveways are excessively wide. Pedestrians are frequently exposed to turning traffic crossing these wide driveways. This condition creates an "uncomfortable" walking experience and could be difficult for disabled persons to navigate. Therefore, to enhance the pedestrian and bicycle environment along Central Avenue from Lomas Boulevard west to 47th Street, improvements including driveway narrowing and consolidation are recommended, as presented in Figure 21.

Bicycle Connectivity with Proposed Improvements

A goal of the West Central Avenue Corridor Concept Plan is to improve the connectivity, safety and quality of the bicycle environment and to provide a quality link between Downtown, the existing trails near the Albuquerque Aquarium and Biological Park and destinations west of the Central Avenue Bridge. The present bicycle system lacks a direct connection between downtown and destinations to the west along or parallel to the Central Avenue corridor. With the Central Avenue road diet and associated bike lanes there will remain a gap in bike facilities between the Central / Lomas intersection and the Central Avenue Bridge.

This plan recommends supplementing the Central Avenue bike lanes with a combination of Class III bike routes and multi-use paths within the Central Avenue streetside to close the gap. To complete the connection between downtown and points west of the Rio Grande, the recommendations include:

- Designate Alhambra Avenue from the termination of the bike lanes on San Pasquale Avenue to Gallup Avenue as a Class III bike route.
- Provide a multi-use path (approximately 10-12 feet wide) within the wide sidewalk/landscaping area on the northwest side of Central Avenue between New York Avenue and the Central Avenue Bridge.
- Provide a multi-use path (approximately 10-12 feet wide) within the sidewalk/landscaping area on the north side of Central Avenue between Sunset Drive and Atrisco Road.

Figure 22 illustrates the proposed bicycle improvements and the ultimate connectivity of the bicycle system with implementation of the corridor plan.

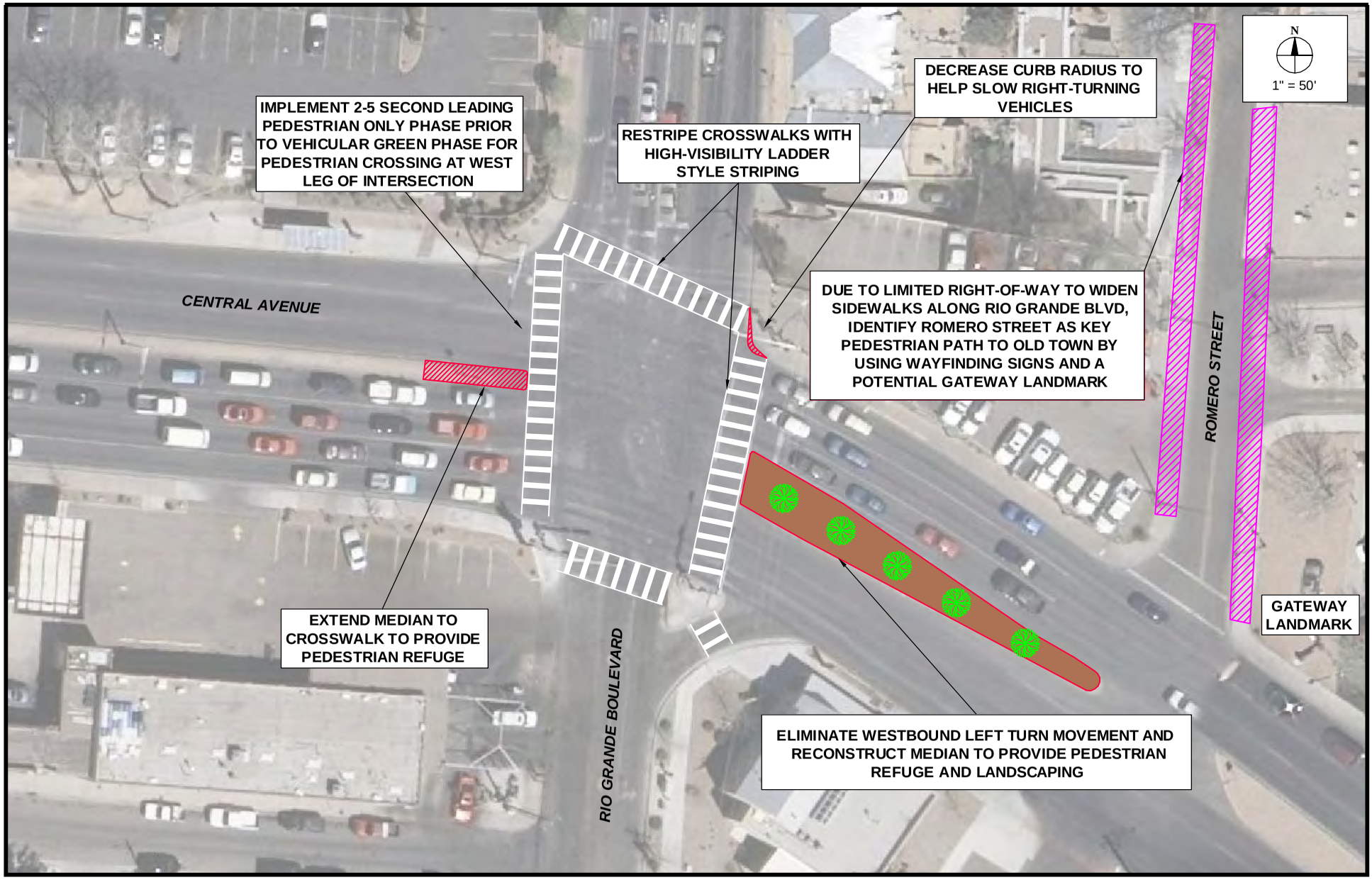

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FIGURE 20

CENTRAL AVENUE / RIO GRANDE BOULEVARD INTERSECTION IMPROVEMENTS

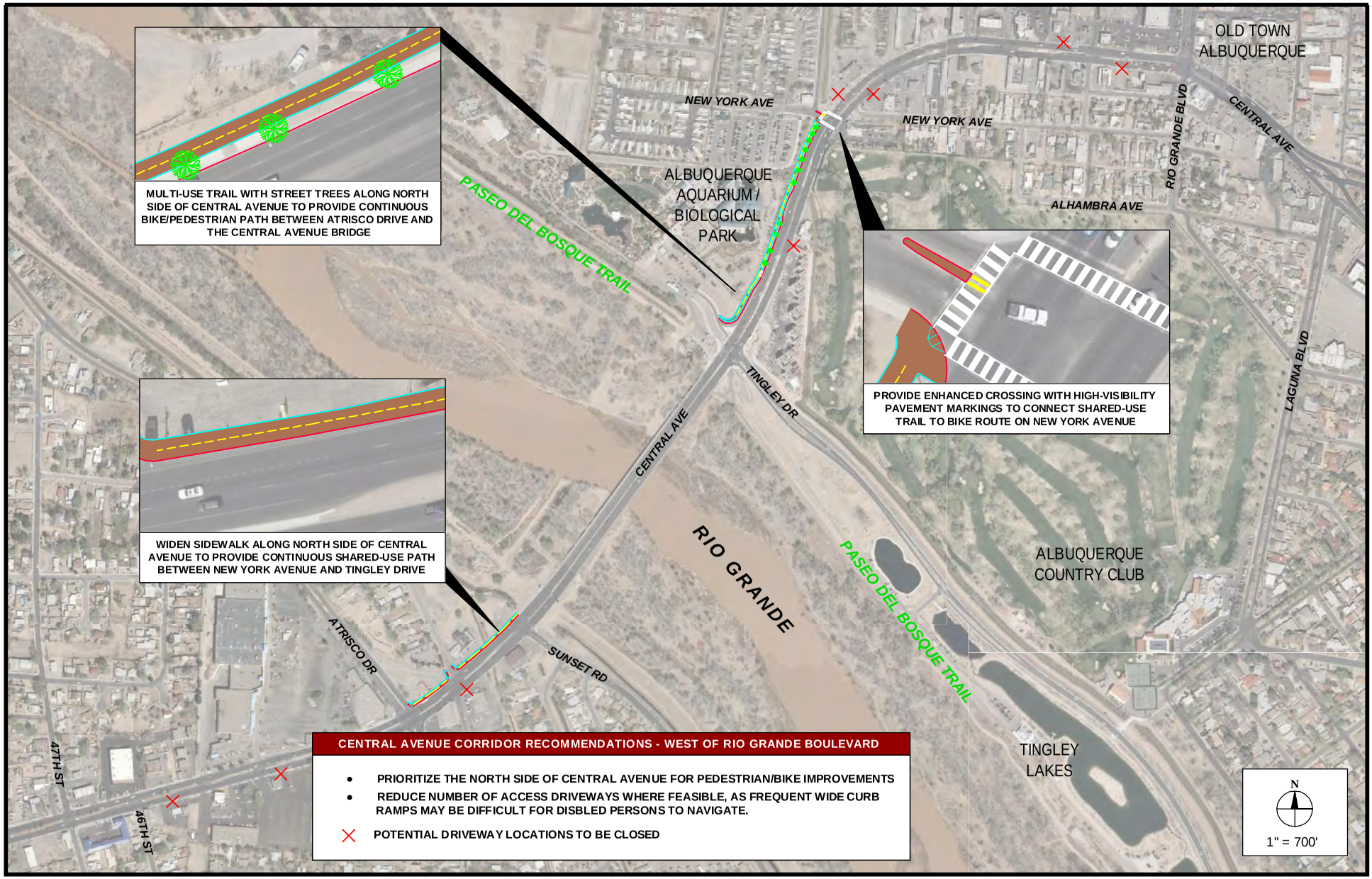

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FIGURE 21

CENTRAL AVENUE CORRIDOR IMPROVEMENTS: RIO GRANDE BLVD WEST TO 47TH ST

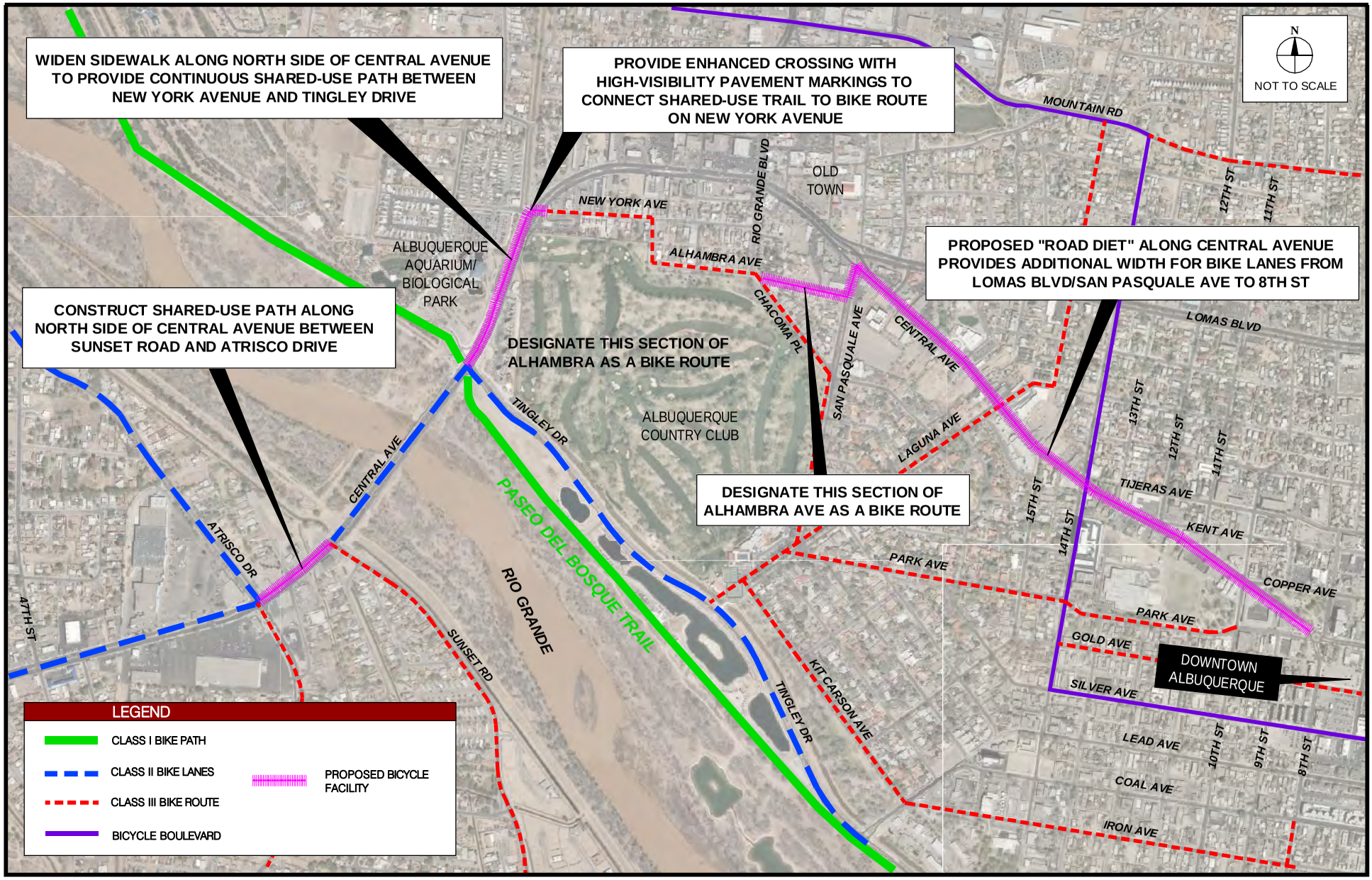

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FIGURE 22

BICYCLE CONNECTIVITY WITH PROPOSED IMPROVEMENTS

APPENDIX

Traffic Operational Analysis

Analysis Methodology

Peak hour intersection levels-of-service were analyzed for existing and future conditions with and without implementation of the proposed improvements to evaluate the potential traffic impacts of the recommended improvements presented in the West Central Avenue Corridor Concept Plan,. For the Central Avenue road diet, additional performance measures were utilized to assess the potential impacts of reducing the number of lanes. These additional measures include arterial level of service and average corridor travel times.

Level of Service (LOS) is a qualitative term used to describe the operating conditions a driver will experience while traveling on a particular street or at an intersection during a specific time interval. Levels of service are represented by a letter scale from LOS A to LOS F, with LOS A representing the best performance and LOS F representing the poorest performance under significantly congested conditions. The peak hour intersection and arterial levels of service were calculated using SYNCHRO 6© software, which utilizes the operations methodology of the *2000 Highway Capacity Manual*, Transportation Research Board, National Research Council, 2000. For the roundabout alternative proposed at the Central Avenue / Lomas Boulevard Intersection, SIDRA software was used to analyze peak hour traffic operations.

Analysis of existing traffic operations was performed using current signal timings and peak hour intersection volumes provided by the City of Albuquerque and MRCOG. Intersection traffic counts were collected between 2006 and 2010 and provided by the City of Albuquerque and MRCOG. Future (2030) traffic volumes were derived using the MRCOG Regional Travel Demand Model, which reflects demand for automobile, transit, bicycle and walk trips representing buildout of the 2030 Metropolitan Transportation Plan. Signal timings were optimized for the analysis of future conditions and for scenarios where changes to lane configurations or intersection improvements have been identified.

Central Avenue Road Diet Operational Impacts

Existing Average Daily Traffic (ADT) volumes along Central Avenue are presented in Table 4.

Table 4: Central Avenue Average Daily Traffic (ADT) Volumes

No.	Location	Count Year	Eastbound	Westbound	Total
1	East of Rio Grande Blvd	2009	15,150	14,918	30,068
2	Southeast of Lomas Blvd	2004	8,985	8,620	17,605
3	East of 13th Street	2009	6,854	7,631	14,485
4	East of 12th Street	2008	7,366	7,122	14,487
5	Southeast of Copper Ave	2008	6,680	4,739	11,419
Source of Data: MRCOG					

The existing conditions intersection geometry and traffic control are shown in Figure 23. The intersection geometry and traffic control for conditions with implementation of the road diet are shown in Figure 24.

The existing peak hour intersection turning movement volumes are shown in Figure 25. The Future (2030) peak hour intersection turning movement volumes are shown in Figure 26 and a summary of the calculations used to derive the Future (2030) AM and PM peak hour intersection volumes is provided in Table 5 and Table 6.

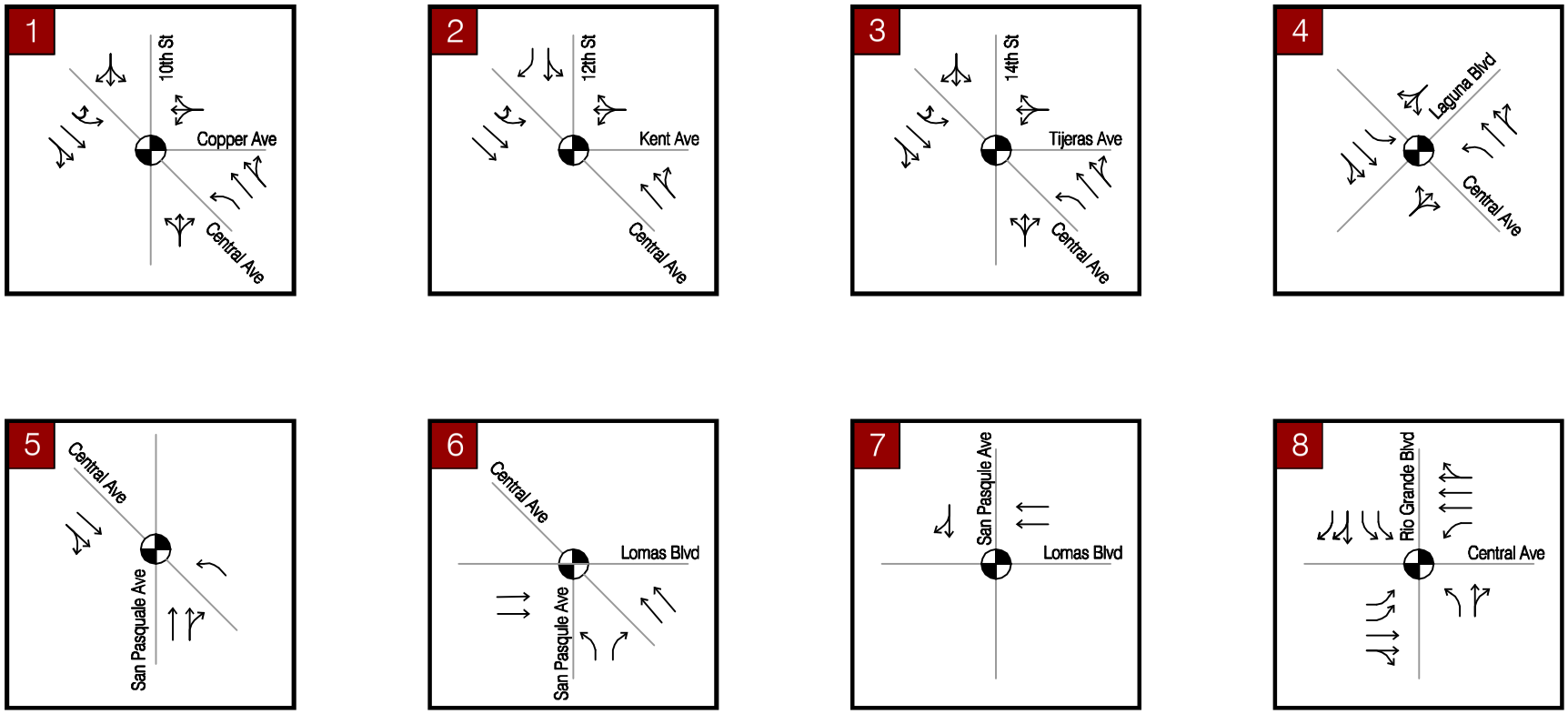


FIGURE 23

EXISTING CONDITIONS

STUDY INTERSECTION LANE GEOMETRY AND TRAFFIC CONTROL

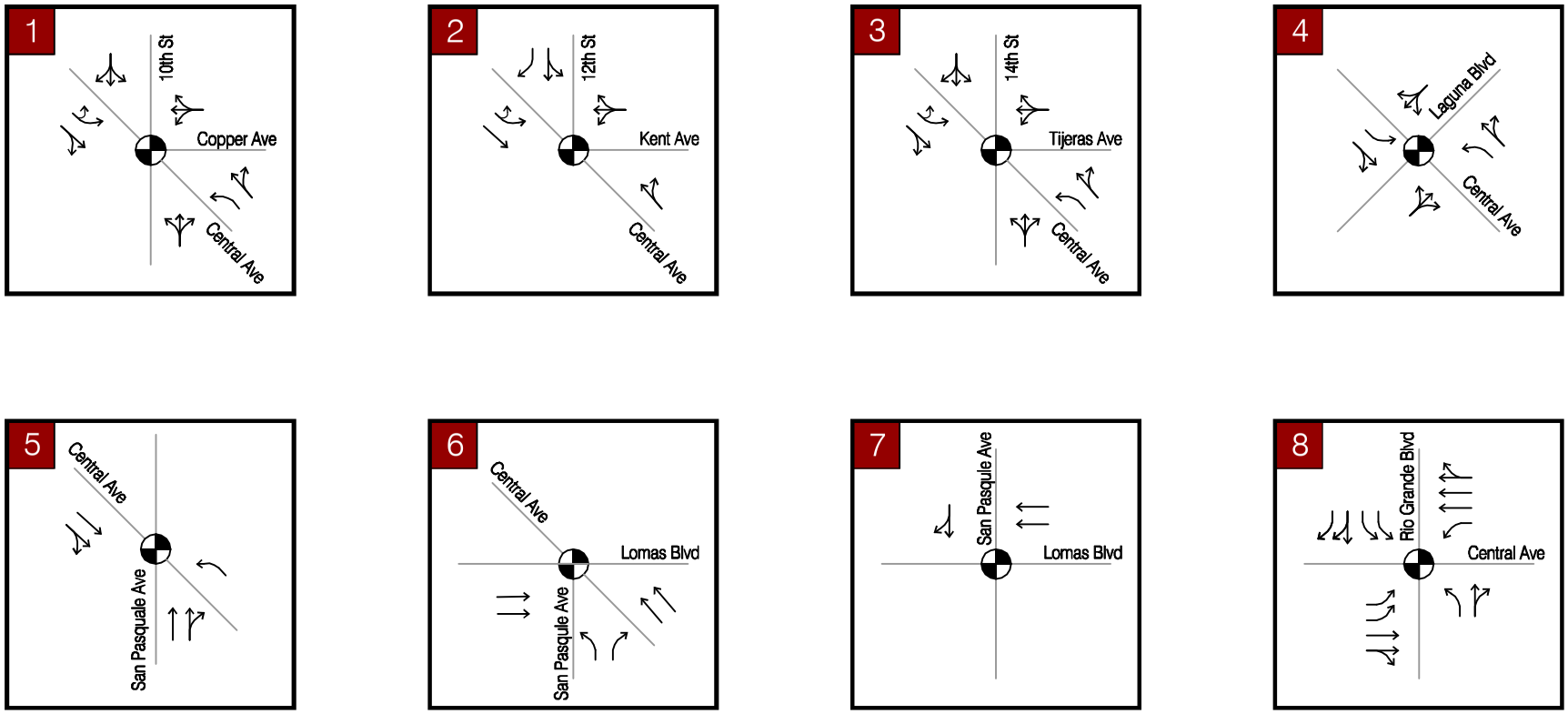
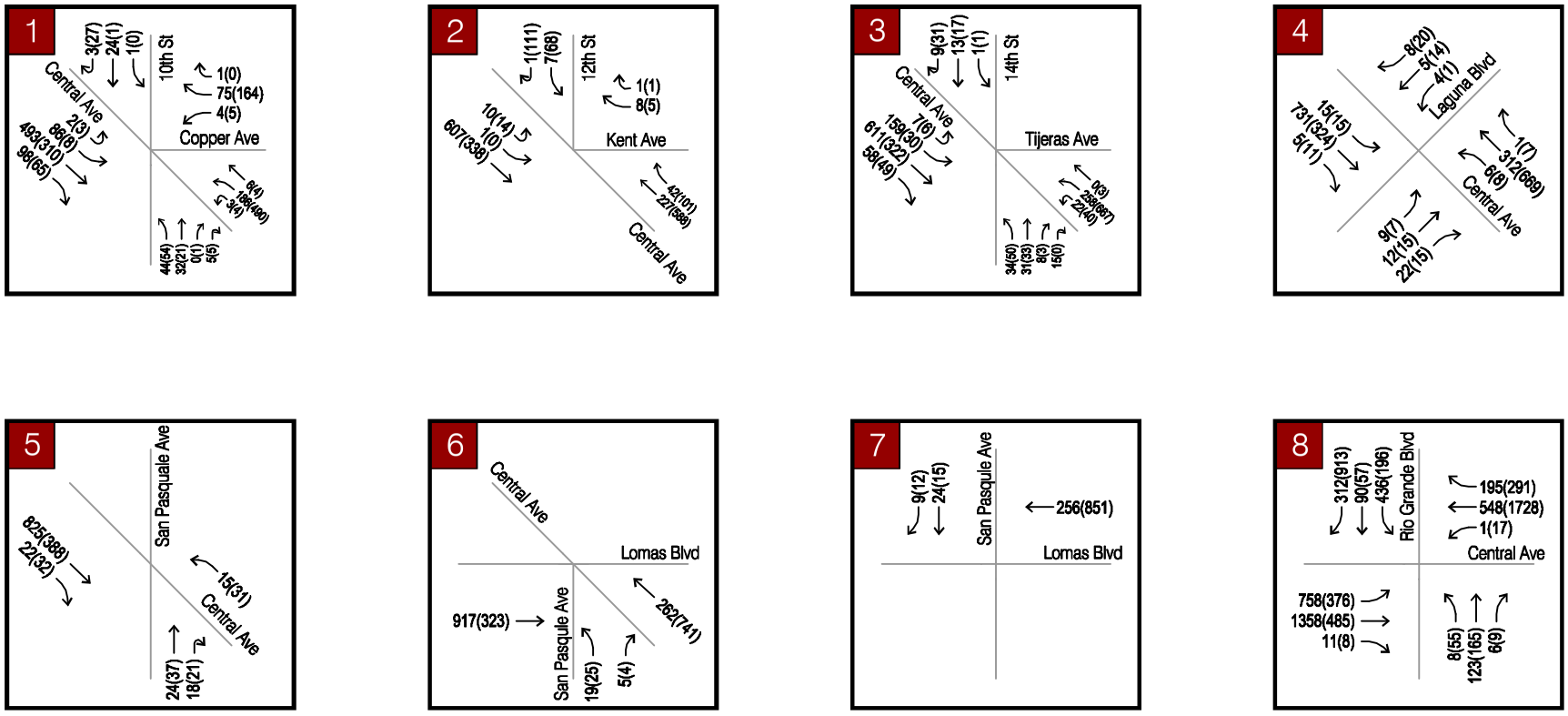


FIGURE 24

ROAD DIET CONFIGURATION

STUDY INTERSECTION LANE GEOMETRY AND TRAFFIC CONTROL



LEGEND	
X	STUDY AREA INTERSECTIONS
XX/(YY)	AM(PM) PEAK HOUR VOULMES

FIGURE 25

EXISTING CONDITIONS

PEAK HOUR INTERSECTION TURNING MOVEMENT VOLUMES

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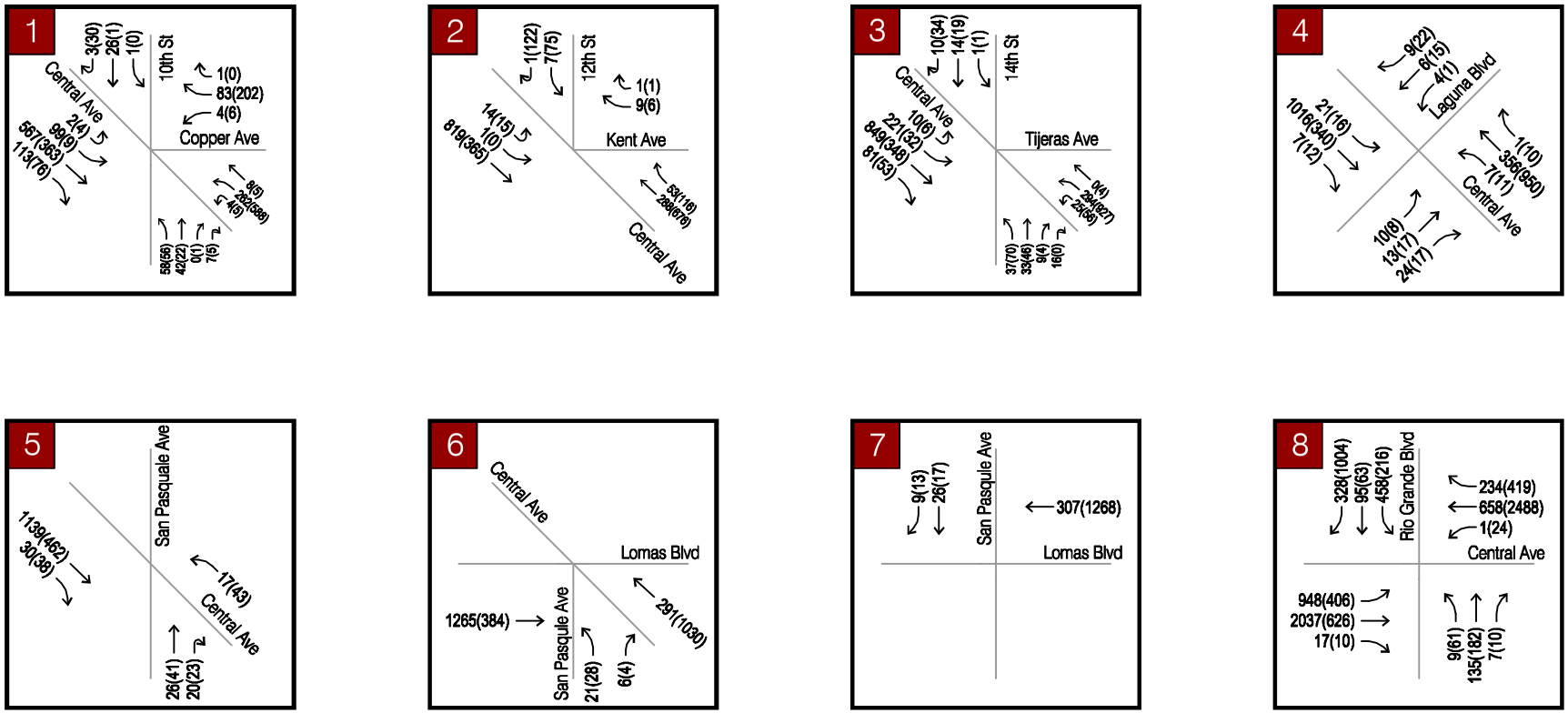

LEGEND	
X	STUDY AREA INTERSECTIONS
XX/(YY)	AM(PM) PEAK HOUR VOULMES

*SEE APPENDIX FOR VOLUME FORECASTING METHODOLOGY

FIGURE 26

FUTURE (2030) CONDITIONS

PEAK HOUR INTERSECTION TURNING MOVEMENT VOLUMES

Table 5: Central Avenue Future Volume Forecasts (AM Peak Hour)

AM PEAK HOUR

No.	Intersection	Source	Approach Direction NB	SB	SE	NW	WB
1	Central Ave / 10th St / Copper Ave	Existing Vol (2009)	81	28	679	195	80
		Base Model (2006)	236	-	848	171	173
		Future Model (2030)	323	-	996	252	169
		Weighted % Growth	32%	10%	15%	41%	10%
		Calculated 2030 Vol	**107**	**31**	**783**	**276**	**88**
2	Central Ave / 12th St / Kent Ave	Existing Vol (2009)	-	8	618	269	9
		Base Model (2006)	-	147	823	287	-
		Future Model (2030)	-	159	1155	374	
		Weighted % Growth	-	7%	35%	27%	10%
		Calculated 2030 Vol	**-**	**9**	**836**	**340**	**10**
3	Central Ave / 14th St / Tijeras Ave	Existing Vol (2009)	88	23	835	280	-
		Base Model (2006)	93	-	745	823	-
		Future Model (2030)	102	-	1,080	352	-
		Weighted % Growth	8%	10%	39%	-50%	-
		Calculated 2030 Vol	**95**	**25**	**1164**	**140**	**-**
4	Central Ave / Laguna Blvd	Existing Vol (2009)	43	17	751	319	-
		Base Model (2006)	-	-	752	291	-
		Future Model (2030)	-	-	1,087	336	
		Weighted % Growth	10%	10%	39%	14%	-
		Calculated 2030 Vol	**47**	**19**	**1044**	**362**	**-**
5,6,7	Central Ave / San Pasquale Ave / Lomas Blvd	Existing Vol (2009)	42	33	1,764	277	256
		Base Model (2006)	-	-	1,573	309	345
		Future Model (2030)	-	-	2,254	348	424
		Weighted % Growth	10%	10%	38%	11%	20%
		Calculated 2030 Vol	**46**	**36**	**2432**	**308**	**307**
8	Central Ave / Rio Grande Blvd	Existing Vol (2006)	137	838	2,127	744	-
		Base Model (2006)	-	727	2,187	643	-
		Future Model (2030)	-	763	3,291	769	
		Weighted % Growth	10%	5%	50%	20%	-
		Calculated 2030 Vol	**151**	**879**	**3201**	**890**	**-**

Notes:

1. Source of Model Volumes: MRCOG MTP Travel Model

2. Future (2030) intersection turning movements were derived by applying the growth rates calculated from the MRCOG Travel Demand Model, shown in the table above, to the existing approach volumes for each intersection. The future turning movement volumes were then derived by distributing the approach volumes based on the existing turning movement volumes.

3. For minor side streets that are not adequately detailed in the MRCOG Model, and connect to generally established/built out areas and are not expected to experience significant increases in traffic levels, a nominal growth rate of approx. 0.5% per year (**10%** total) was applied to existing intersection volumes to derive 2030 traffic volumes.

4. The MRCOG MTP Travel Model shows approximately 50% growth from 2006-2030 for the eastbound approach volume at Central Ave / Rio Grande Blvd for AM peak hour conditions. However, the northbound departure volume shows a much lower growth rate (approximately 25%). For this reason, a total growth rate of 25% was applied to the existing eastbound left turn volume and a 50% growth rate was applied to the eastbound through volume to derive the 2030 volumes at this location.

Table 6: Central Avenue Future Volume Forecasts (PM Peak Hour)

PM PEAK HOUR

No.	Intersection	Source	Approach Direction NB	SB	SE	NW	WB
1	Central Ave / 10th St / Copper Ave	Existing Vol (2009)	81	28	386	498	169
		Base Model (2006)	193	-	600	458	443
		Future Model (2030)	201	-	716	563	557
		Weighted % Growth	4%	**10%**	17%	20%	23%
		Calculated 2030 Vol	**84**	**31**	**451**	**598**	**207**
2	Central Ave / 12th St / Kent Ave	Existing Vol (2009)	-	179	352	689	6
		Base Model (2006)	-	-	540	815	-
		Future Model (2030)	-	-	587	952	-
		Weighted % Growth	-	**10%**	8%	15%	**10%**
		Calculated 2030 Vol	**-**	**197**	**379**	**790**	**7**
3	Central Ave / 14th St / Tijeras Ave	Existing Vol (2009)	86	49	407	710	-
		Base Model (2006)	44	-	512	868	-
		Future Model (2030)	64	-	557	1,251	-
		Weighted % Growth	40%	**10%**	8%	39%	-
		Calculated 2030 Vol	**120**	**54**	**438**	**984**	**-**
4	Central Ave / Laguna Blvd	Existing Vol (2009)	37	35	350	684	-
		Base Model (2006)	-	-	533	802	-
		Future Model (2030)	-	-	566	1,190	-
		Weighted % Growth	**10%**	**10%**	5%	42%	-
		Calculated 2030 Vol	**41**	**39**	**369**	**974**	**-**
5,6,7	Central Ave / San Pasquale Ave / Lomas Blvd	Existing Vol (2009)	58	27	420	772	851
		Base Model (2006)	-	-	1,002	767	895
		Future Model (2030)	-	-	1,225	1,107	1,398
		Weighted % Growth	**10%**	**10%**	19%	39%	49%
		Calculated 2030 Vol	**64**	**30**	**502**	**1071**	**1269**
8	Central Ave / Rio Grande Blvd	Existing Vol (2006)	229	1,166	868	2,036	-
		Base Model (2006)	-	1,230	1,336	1,659	-
		Future Model (2030)	-	1,368	1,782	2,501	-
		Weighted % Growth	**10%**	10%	29%	44%	-
		Calculated 2030 Vol	**252**	**1280**	**1122**	**2940**	**-**

Notes:

1. Source of Model Volumes: MRCOG MTP Travel Model

2. Future (2030) intersection turning movements were derived by applying the growth rates calculated from the MRCOG Travel Demand Model, shown in the table above, to the existing approach volumes for each intersection. The future turning movement volumes were then derived by distributing the approach volumes based on the existing turning movement volumes.

3. For minor side streets that are not adequately detailed in the MRCOG Model, and connect to generally established/built out areas and are not expected to experience significant increases in traffic levels, a nominal growth rate of approx. 0.5% per year (**10%** total) was applied to existing intersection volumes to derive 2030 traffic volumes.

2950% growth from 2006-2030 for the eastbound approach volume at Central Ave / Rio Grande Blvd for AM peak hour conditions. However, the northbound departure volume shows a much lower growth rate (approximately 8%). For this reason, a total growth rate of 8% was applied to the existing eastbound left turn volume and a 29% growth rate was applied to the eastbound through volume to derive the 2030 volumes at this location.

Intersection Level of Service (LOS) Summary

Intersection levels of service based on existing traffic volumes for conditions with and without implementation of the Central Avenue road diet are shown in Table 7 and Table 8, respectively. All of the study intersections along the road diet segment operate at level of service D or better with existing traffic volumes with and without the proposed road diet. Level of service D is considered an acceptable maximum level of service by the City of Albuquerque.

Table 7: Existing Conditions – Intersection LOS

No.	Intersection	Traffic Control	AM Peak Hour		PM Peak Hour	
			Control Delay (sec/veh)	LOS	Control Delay (sec/veh)	LOS
1	Central Ave / 10th St / Copper Ave	Signal	12.3	B	20.9	C
2	Central Ave / 12th St / Kent Ave	Signal	1.9	A	17.7	B
3	Central Ave / 14th St / Tijeras Ave	Signal	6.6	A	8.8	A
4	Central Ave / Laguna Blvd	Signal	4.7	A	4.2	A
5	Central Ave / San Pasquale Ave	Signal	4.1	A	5.6	A
6	Central Ave / Lomas Blvd	Signal	50.2	D	16.9	B
7	Lomas Blvd / San Pasquale Ave	Signal	7.7	A	5.7	A
8	Central Ave / Rio Grande Blvd	Signal	29.3	C	40.7	D

Table 8: Existing Conditions with Road Diet – Intersection LOS

No.	Intersection	Traffic Control	AM Peak Hour		PM Peak Hour	
			Control Delay (sec/veh)	LOS	Control Delay (sec/veh)	LOS
1	Central Ave / 10th St / Copper Ave	Signal	14.0	B	23.4	C
2	Central Ave / 12th St / Kent Ave	Signal	5.0	A	25.6	C
3	Central Ave / 14th St / Tijeras Ave	Signal	8.1	A	12.5	B
4	Central Ave / Laguna Blvd	Signal	6.9	A	5.9	A
5	Central Ave / San Pasquale Ave	Signal	4.0	A	5.5	A
6	Central Ave / Lomas Blvd	Signal	50.0	D	17.4	B
7	Lomas Blvd / San Pasquale Ave	Signal	7.7	A	5.9	A
8	Central Ave / Rio Grande Blvd	Signal	29.3	C	40.7	D

The Future (2030) intersection LOS for conditions with and without implementation of the Central Avenue road diet are shown in Table 8 and

Table 10, respectively. All of the study intersections along the road diet segment operate at level of service C or better with 2030 traffic volumes for conditions with proposed road diet, with the exception of the Central Avenue / Rio Grande intersection. This intersection is anticipated to operate at LOS F for PM peak hour conditions with and without the proposed project. Further, since implementation of the road diet does not increase the average control delay at Central Avenue / Rio Grande the projected level of service would occur regardless of the road diet and should not be considered a significant project-related impact.

Table 9: Future (2030) Conditions – Intersection LOS

No.	Intersection	Traffic Control	AM Peak Hour		PM Peak Hour	
			Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
1	Central Ave / 10th St / Copper Ave	Signal	16.8	B	24.3	C
2	Central Ave / 12th St / Kent Ave	Signal	2.4	A	13.3	B
3	Central Ave / 14th St / Tijeras Ave	Signal	5.5	A	8.2	A
4	Central Ave / Laguna Blvd	Signal	2.4	A	3.2	A
5	Central Ave / San Pasquale Ave	Signal	2.6	A	5.6	A
6	Central Ave / Lomas Blvd	Signal	24.2	C	19.6	B
7	Lomas Blvd / San Pasquale Ave	Signal	6.5	A	7.1	A
8	Central Ave / Rio Grande Blvd	Signal	34.9	C	**87.7**	**F**
Note: Signal timings optimized for Future (2030) Conditions analysis.						

Intersection Queuing Analysis

Table 10 summarizes existing and 2030 vehicle queues for conditions with and without the proposed road diet at study intersections where left or right turn pockets are provided. As shown in the table, the AM and PM peak hour vehicle queues are anticipated to extend beyond the available turn pocket storage for several approaches at the intersection of Central Avenue / Rio Grande Boulevard. However, this issue occurs under existing and 2030 conditions without the proposed road diet and is not significantly worsened with the implementation of the road diet.

Table 10: Future (2030) Conditions with Road Diet – Intersection LOS

No.	Intersection	Traffic Control	AM Peak Hour		PM Peak Hour	
			Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
1	Central Ave / 10th St / Copper Ave	Signal	19.1	B	27.2	C
2	Central Ave / 12th St / Kent Ave	Signal	4.3	A	17.4	B
3	Central Ave / 14th St / Tijeras Ave	Signal	7.3	A	10.3	B
4	Central Ave / Laguna Blvd	Signal	4.1	A	4.4	A
5	Central Ave / San Pasquale Ave	Signal	2.6	A	5.5	A
6	Central Ave / Lomas Blvd	Signal	24.4	C	19.3	B
7	Lomas Blvd / San Pasquale Ave	Signal	6.5	A	6.7	A
8	Central Ave / Rio Grande Blvd	Signal	34.9	C	**86.8**	**F**

Note: Signal timings optimized for Future (2030) Conditions analysis.

Table 11: Central Avenue Corridor – Queuing Summary

Scenarios Analyzed	Turning Movement	Central Avenue																			
		10th Street / Copper Avenue			12th Street / Kent Avenue			14th Street / Tijeras Avenue			Laguna Avenue			San Pasquale Avenue			Lomas Boulevard			Rio Grande Boulevard		
		Link	AM	PM	Link	AM	PM	Link	AM	PM	Link	AM	PM	Link	AM	PM	Link	AM	PM	Link	AM	PM
Existing Conditions No Project	EBL	100	26	<25	110	<25	<25	120	82	<25	100	<25	<25							185	363	196
	WBL	100	<25	<25				100	<25	<25	110	<25	<25	70	<25	<25				75	<25	26
	NBL																45	<25	<25	75	<25	86
	SBL				100	<25	75													150	176	95
	SBR																			275	91	337
Existing Conditions With Road Diet Project	EBL	100	<25	<25	110	<25	26	120	29	30	100	<25	<25							185	363	196
	WBL	100	<25	<25				100	31	<25	110	<25	<25	70	<25	<25				75	<25	26
	NBL																45	<25	<25	75	<25	86
	SBL				100	<25	75													150	176	95
	SBR																			275	91	337
Long-Term Year 2030 No Project	EBL	100	49	<25	110	<25	<25	120	28	<25	100	<25	<25							185	465	315
	WBL	100	<25	<25				100	<25	<25	110	<25	<25	70	<25	27				75	<25	<25
	NBL																45	<25	<25	75	<25	163
	SBL				100	<25	109													150	251	175
	SBR																			275	125	762
Long-Term Year 2030 With Road Diet Project	EBL	100	26	<25	110	<25	<25	120	39	30	100	<25	<25							185	465	315
	WBL	100	<25	<25				100	<25	<25	110	<25	<25	70	<25	<25				75	<25	<25
	NBL																45	<25	<25	75	<25	163
	SBL				100	<25	109													150	251	175
	SBR																			275	125	762

95th Percentile Queues are reported above in terms of feet.
Queues determined using SYNCHRO 6 software, which utilizes 2000 Highway Capacity (HCM) methodology.
Highlighted cells represent locations where 95th percentile queues extend at least one vehicle length beyond existing turn pocket lengths.

Arterial Level of Service (LOS) and Travel Time Summary

Table 12 summarizes the arterial level of service and average peak hour travel times for the eastbound and westbound segments of Central Avenue where the road diet is proposed. As shown in the table, the arterial level of service is anticipated to be LOS C or better with the road diet, with the exception of the westbound direction for 2030 PM peak hour conditions. This segment of Central Avenue is anticipated to operate at LOS E for 2030 PM peak hour conditions with and without the road diet. The addition of the project does somewhat exacerbate the traffic conditions in the westbound direction for this scenario, but the addition of the road diet is not expected result in a significant increase in the average travel time (a 14-second increase is projected). For the analysis scenarios where the arterial level of service is expected to be LOS D or better, the average travel time along the corridor is increased by no more than 40 seconds during peak commute periods with implementation of the road diet.

Table 12: Central Avenue Arterial Analysis (Rio Grande Boulevard to 10th Street)

Scenario	Dir.	AM Peak Hour No Project		AM Peak Hour With Road Diet		Net Travel Time Change (min)	PM Peak Hour No Project		PM Peak Hour With Road Diet		Net Travel Time Change (min)
		Travel Time (min)	Arterial LOS	Travel Time (min)	Arterial LOS		Travel Time (min)	Arterial LOS	Travel Time (min)	Arterial LOS	
Existing Conditions	WB	3:08	C	3:18	C	0:10	3:43	D	3:58	D	0:15
	EB	2:27	C	2:36	C	0:09	2:34	C	3:14	D	0:40
Future (2030) Conditions	WB	3:04	C	3:10	C	0:06	4:26	E	4:40	E	0:14
	EB	2:31	C	2:41	C	0:10	2:23	C	2:29	C	0:06

Central Avenue / Lomas Boulevard Intersection Operational Impacts

Intersection Level of Service (LOS) Summary

Table 13 summarizes the peak hour levels of service for the Central Avenue / Lomas Boulevard intersection under existing and Future (2030) conditions for the existing intersection configuration, as well as the three proposed alternatives. As shown in the table, the intersection operates at acceptable LOS C or better for each scenario, with the exception of Alternative 2 (Two-Lane Urban Roundabout), where the roundabout would be expected to operate at LOS E for the AM peak hour and LOS F during the PM peak hour.

Table 13: Central Ave / Lomas Blvd / San Pasquale Ave Intersection LOS Comparison

Scenario	Existing AM Peak Hour		Existing PM Peak Hour		2030 AM Peak Hour		2030 PM Peak Hour	
	Control Delay (sec/veh)	LOS	Control Delay (sec/veh)	LOS	Control Delay (sec/veh)	LOS	Control Delay (sec/veh)	LOS
Existing Configuration a. Central Ave / San Pasquale Ave b. Central Ave / Lomas Blvd c. Lomas Blvd / San Pasquale Ave	a. 4.1 b. 50.2 c. 7.7	A D A	a. 5.6 b. 16.9 c. 5.7	A B A	a. 2.6 b. 24.2 c. 6.5	A C A	a. 5.6 b. 19.6 c. 7.1	A B A
Alternative 1: Four-Leg Intersection with Rerouted San Pasquale Avenue	14.4	B	21.8	C	14.5	B	26.5	C
Alternative 2: Two-Lane Roundabout a. Average (All Vehicles) b. Worst Approach	a. 4.5 b. 15.9	A B	a. 8.3 b. 14.9	A B	a. 11.0 b. 62.6	B E	a. 89.7 b. **	F F
Preferred Alternative: Four-Leg Intersection with Limited Access at San Pasquale Avenue	14.4	B	25.7	C	14.8	B	27.9	C

** Volume exceeds capacity, resulting in high delay (>200 sec.)
Note: Signal timings optimized.

Intersection Queuing Analysis

Table 14 summarizes the estimated existing and 2030 vehicle queues for each of the proposed design alternatives at the intersection of Central Avenue / Lomas Boulevard. As shown in the table, for Alternative 1 and the Preferred Alternative, the vehicle queues for the westbound through movement are likely to back up slightly past Rancho Seco Road for some signal cycles during the PM peak hour in 2030 conditions. With the Preferred Alternative intersection configuration, the PM peak hour vehicle queues could also be expected to queue back to Rancho Seco Road for the northbound approach (currently the northwest approach with the existing configuration).

Table 14: Central Ave / Lomas Blvd / San Pasquale Ave Intersection Queuing Summary

Scenarios Analyzed	Turning Movement	Existing Traffic Volumes						2030 Traffic Volumes					
		Central Avenue						Central Avenue					
		San Pasquale Avenue			Lomas Boulevard			San Pasquale Avenue			Lomas Boulevard		
		Link	AM	PM	Link	AM	PM	Link	AM	PM	Link	AM	PM
Existing Configuration	EBL												
	WBL	70	<25	<25				70	<25	<25			
	NBL				45	<25	<25				45	<25	<25
	SBL												
	SBR												
Alternative 1: Four-Leg Intersection with Rerouted San Pasquale	EBL												
	EBT				890	268	90				890	383	122
	EBR				200	<25	<25				200	<25	<25
	NBL				340	70	137				340	104	<25
	WBT				350	60	233				350	56	397
	SBR												
Alternative 2: Two-Lane Urban Roundabout	EB				850	251	61				850	**	78
	WB				320	27	192				320	34	**
	NB				210	30	<25				210	113	<25
	NW				315	41	88				315	93	182
	SB				590	<25	25				590	<25	33
Preferred Alternative: Four-Leg Intersection with Limited Access to San Pasquale	EBL												
	EBT				890	271	145				890	301	161
	EBR				200	<25	68				200	<25	<25
	NBL				340	144	350				340	174	494
	WBT				350	58	256				350	53	392
	SBR												

** Volume exceeds capacity; queues >700 feet.

Notes:

-95th Percentile Queues are reported above in terms of feet.

-Intersection queues determined using SYNCHRO 6 software, which utilizes 2000 Highway Capacity (HCM) methodology.

-For Roundabout Alternative, queues determined using SIDRA microsimulation software. Queues are reported for each approach, in terms of feet.

-For turning movements, storage length is equal to the turn pocket length. For through movements, storage length measured to adjacent intersection.

-Highlighted cells represent locations where 95th percentile queues extend at least one vehicle length beyond existing turn pocket lengths.

Central Avenue / Rio Grande Boulevard Intersection Operational Impacts

Intersection Level of Service (LOS) Summary

Table 15 summarizes the peak hour levels of service for the Central Avenue / Rio Grande Boulevard intersection under existing and Future (2030) conditions for the existing intersection configuration as well as recommended pedestrian improvements. As shown in the table, the intersection operates at LOS F for the PM peak hour under 2030 traffic conditions with and without the recommended improvements. The proposed intersection recommendations are expected to slightly worsen the already significant delays for vehicles at the intersection; however, the recommendations would improve safety for pedestrians

Table 15: Central Ave / Rio Grande Blvd Recommendations – Intersection LOS

Scenario	Traffic Control	AM Peak Hour Existing Conditions		AM Peak Hour w/ Improvements		PM Peak Hour Existing Conditions		PM Peak Hour w/ Improvements	
		Control Delay (sec/veh)	LOS	Control Delay (sec/veh)	LOS	Control Delay (sec/veh)	LOS	Control Delay (sec/veh)	LOS
Existing Conditions	Signal	29.3	C	30.5	C	40.7	D	54.0	D
Future (2030) Conditions	Signal	34.9	C	36.8	D	87.7	F	100.4	F

Intersection Queuing Analysis

Table 16 summarizes the existing and 2030 vehicle queues for the existing intersection configuration and with the recommended pedestrian improvements at the intersection of Central Avenue / Rio Grande. As shown in the table, under existing traffic conditions, the vehicle queues at several of the intersection approaches queue past the available turn pocket storage for some signal cycles during peak hour traffic conditions. The addition of the recommended improvements will increase the vehicle queues for the eastbound and northbound left turn movements by one-to-two vehicle lengths during PM peak hour conditions, which could cause the vehicle queues to extend past the existing turn pocket lengths for some cycles. For Future (2030) traffic conditions, the vehicle queues are anticipated to extend past the existing turn pocket lengths for each movement where an exclusive turn lane is provided. The proposed recommended intersection improvements increase these queues slightly.

Table 16: Central Ave / Rio Grande Blvd Recommendations – Intersection Queuing

Scenarios Analyzed	Turning Movement	Central Ave / Rio Grande Blvd		
		Link	AM	PM
Existing Conditions	EBL	185	363	196
	WBL	75	<25	26
	NBL	75	<25	86
	SBL	150	176	95
	SBR	275	91	337
Existing Conditions With Pedestrian Advance / WB Left Turn Removed	EBL	185	353	234
	WBL			
	NBL	75	<25	127
	SBL	150	200	110
	SBR	275	72	409
2030 Conditions	EBL	185	465	315
	WBL	75	<25	<25
	NBL	75	<25	163
	SBL	150	251	175
	SBR	275	125	762
2030 Conditions With Pedestrian Advance / WB Left Turn Removed	EBL	185	447	351
	WBL			
	NBL	75	<25	163
	SBL	150	302	175
	SBR	275	92	730

-95th Percentile Queues are reported above in terms of feet.
-Queues determined using SYNCHRO 6 software, which utilizes 2000 Highway Capacity (HCM) methodology.
-Highlighted cells represent locations where 95th percentile queues extend at least one vehicle length beyond existing turn pocket lengths.

Central Avenue Road Diet Planning-Level Opinion of Probable Costs

The cost to implement the proposed Central Avenue road diet project include pavement striping and legends, providing a seal coat of the corridor, bike lane and roadway signage, curb and gutter reconstruction where sidewalks are widened or bulbouts are proposed, sidewalk widening, drainage modification, landscaping (without irrigation), signal modifications (relocation of loop detectors, signal timing optimization / corridor coordination), engineering and surveying services, administrative expenses, project mobilization and contingency. Table 17 and Table 18 show the estimated opinion of probably costs for the Near-Term and Ultimate implementation of the Central Avenue road diet concepts.

Table 17: Estimated Opinion of Probable Cost for Near-Term Central Avenue Road Diet Improvements (Demonstration Project)

Expense	Amount
Direct Construction Costs	
Striping (using non-thermoplastic paint)	$57,250
Pavement Legends and Signing	$4,080
Curb Ramps, Sign and Post, Signal Modifications	$84,850
Subtotal	**$146,180**
Soft Costs for Engineering, Surveying, Administrative, etc. (35%)	$51,160
Mobilization (5%)	$7,310
Contingency (35%)	$21,470
Total	**$255,810**

Table 18: Estimated Opinion of Probable Cost for Ultimate Central Avenue Road Diet Improvements

Expense	Amount
Total Cost for Near-Term Road Diet Improvements	**$255,810**
Incremental Cost for Ultimate Improvements	
Direct Construction Costs	
Striping (restripe using thermoplastic paint)	$74,100
Seal Coat (279,800 square feet @ $0.15 per square foot)	$41,970
Pavement Legends and Signing	$6,790
Bulbouts, Curb and Gutter, Sidewalks, Drainage Improvements, Landscaping, Sign and Post, Signal Modifications	$756,410
Subtotal	**$879,270**
Soft Costs for Engineering, Surveying, Administrative, etc. (35%)	$307,750
Mobilization (5%)	$43,960
Contingency (35%)	$307,750
Total	**$1,794,540**

Detailed Road Diet Monitoring Plan

Monitoring Elements	Description	Frequency	Monitoring Locations	Cost (approximate)
Traffic / Pedestrian / Bicycle Counts	Conduct intersection turning movement counts at key intersections and 3-Day 24-Hour tube counts at critical roadway segments to determine changes in travel pattern and increase/decrease in vehicular/pedestrian/bicycle traffic volumes.	*Before Road Diet:* Once *After Road Diet:* Quarterly	*Intersection Count Locations* Conduct 2-hour (7 AM to 9 AM and 4 PM to 6 PM) intersection turning movement counts at the following locations: • Central Ave / San Pasquale Ave • Central Ave / Laguna Ave • Central Ave / 14th St • Central Ave / 12th St • Central Ave / 10th St • Central Ave / 8th St • Lomas Blvd / 12th St *24-Hour Tube Count Locations* • Lomas Blvd – east of Rancho Seco Road • Lomas Blvd – between 12th St and 10th St • West Central Ave – between San Pasquale Ave and Laguna Ave • Central Ave – between 14th St and 10th St • 14th St – between Central Ave and Park Ave • 14th St – between Central Ave and Lomas Blvd • 12th St – between Central Ave and Lomas Blvd • Park Ave – between 14th St and 10th St • Roma Ave – between 14th St and 12th St • Tijeras Ave – between 14th St and 12th St • Kent Ave – between 12th St and 10th St	Intersection Turning Movement Count Cost: = $21,000 3-Day 24-Hour Tube Count Cost : = $22,000 Contingency Cost for Intersection Counts if ADT Counts Show Traffic Shift: = $4,200 Total Traffic Count Cost: = $47,200
Parking Occupancy Counts	Conduct on-street parking occupancy counts along West Central Avenue between San Pasquale Avenue and 8th Street to determine increase/decrease in on-street parking demand.	*Before Road Diet:* Once *After Road Diet:* Quarterly	Central Avenue: San Pasquale Avenue to 8th Street	Parking Occupancy Survey Cost: = $3,500
Travel Time Runs	Conduct vehicular travel time surveys on West Central Avenue between San Pasquale Avenue and 8th Street to determine increase/decrease in travel time.	*Before Road Diet:* Once *After Road Diet:* Quarterly	Central Avenue: San Pasquale Avenue to 8th Street	Travel Time Survey Cost = $3,500

Monitoring Elements	Description	Frequency	Monitoring Locations	Cost (approximate)
Accident Data Review	Collect accident data (vehicle, pedestrian, and bicycle) along West Central Avenue between San Pasquale Avenue and 8th Street to determine percent change in crash frequency.	*Before Road Diet:* Once *After Road Diet:* Quarterly	Central Avenue: San Pasquale Avenue to 8th Street	Minimal administrative cost to collect information from the Police Department and review: = $500
Spot Speed Survey	Conduct spot speed surveys along West Central Avenue between San Pasquale Avenue and 8th Street to determine the percent change in travel speed.	*Before Road Diet:* Once *After Road Diet:* Quarterly	Central Avenue: San Pasquale Avenue to 8th Street	Spot Speed Survey Cost = $1,500
Queuing Observations	Visually observe vehicular queuing during the AM and the PM peak hours along West Central Avenue at key intersections.	*Before Road Diet:* Once *After Road Diet:* Quarterly	*Queuing Observation Locations:* • Central Avenue / San Pasquale Avenue • Central Avenue / Laguna Avenue • Central Avenue / 14th Street • Central Avenue / 12th Street • Central Avenue / 10th Street • Central Avenue / 8th Street	Approximate cost for one to two surveyors: = $3,500
Transit Travel Time Surveys	Conduct transit travel time surveys to determine the increase/decrease in transit travel time and ridership along West Central Avenue between San Pasquale Avenue and 8th Street. The transit surveys would follow ABQ Rides' typical procedure for collecting travel time and ridership data.	*Before Road Diet:* Once *After Road Diet:* Quarterly	Central Avenue: San Pasquale Avenue to 8th Street	Approximate cost for one to two surveyors: = $3,500
Stakeholder Interviews	Conduct stakeholder interviews to determine the affect of proposed road diet on neighborhoods, businesses and emergency response services.	*Before Road Diet:* Once *After Road Diet:* Twice	*List of potential stakeholders:* Emergency Service Providers (Fire Department, Medical Service, and Police Department) • Neighborhood Associations (North and South of West Central Avenue) • Washington Middle School and Manzano Day School • Selected businesses along West Central Avenue. • Bicycle Coalition • Transit Service Providers.	Approximate cost for one to two interviewers: = $500
			Total Cost for Road Diet Monitoring Plan:	**$63,700**
Note: It is assumed that City of Albuquerque Staff will be utilized for Monitoring Plan tasks, with the exception of traffic count and speed survey data collection.				