BERNALILLO COUNTY SAFETY STUDY FOR CENTRAL AVE

Eubank Blvd to Juan Tabo Blvd

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Bernalillo County Safety for East Central Ave Safety Study: Eubank Blvd to Juan Tabo Blvd

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Executive Summary

The built environment is a major contributor to high crash rates and unsafe conditions for pedestrians along East Central Ave. The portion of the corridor between Eubank Blvd and Juan Tabo Blvd – the focus area for this study – features auto-oriented design with high levels of through traffic. Yet the corridor also features frequent transit service and high levels of pedestrian activity, while household income and vehicle ownership rates are well below City averages. These conditions lead to a significant number of vulnerable road users and poor safety outcomes; in particular, total crashes and severe crashes throughout the study area occur at rates well above the City average.

The pedestrian environment along East Central Ave is particularly deficient. Sidewalks are in generally poor conditions with frequent obstructions and uneven surfaces, while the lighting along the corridor is focused on roadway illumination rather than the pedestrian way. At the same time, formal pedestrian crossing opportunities are infrequent and only located at signalized intersections, about 0.5 miles apart. Vehicle speeds are also high and there are no buffers or separation between the outside travel lanes and sidewalks.

This study identifies a road diet that removes a general-purpose travel lane in each direction as the safety countermeasure that best addresses the structural issues along the corridor. See the recommendations section of this report for potential design concepts and additional discussion. A road diet along East Central Ave would likely result in lower travel speeds, reduced crash severity, shorter crossing distances, and improved pedestrian comfort by creating greater separation from motorists. A road diet and traffic calming measures are also supported by guidance in the Comprehensive Plan – which calls for wide sidewalks, landscape buffers, and lower speeds on major transit corridors – as well analysis from the Mid-Region Council of Governments and City of Albuquerque Complete Streets and Vision Zero principles.

Outreach to businesses and community organizations highlighted both the need for safety improvements and the challenges associated with implementation. Interviewees from community organizations, who generally serve populations along the corridor, identified significant pedestrian safety concerns, and advocated for strategies that reduce motor vehicle speeds and improve the pedestrian environment. In contrast, business owners generally acknowledged safety issues, though many respondents were reluctant to see transportation infrastructure changes that might affect site access for motorists.

As the process for determining desired features along East Central Ave may require considerable funding, public outreach, and design efforts, this study recommends a series of near-term improvements that could provide some safety benefits. These include:

- **Sidewalk improvements** to remove obstructions, create level surfaces, and reduce conflicts by removing unnecessary driveways
- **Install pedestrian-scale lighting** to improve visibility and address the disproportionate number of pedestrian-involved crashes that take place at night.
- **Lane narrowing/restriping**, where space allows, to create a striped buffer between the outside driving the lane and the sidewalk.

Introduction/Project Background

Various studies and planning efforts have identified safety concerns along East Central Ave and highlighted the need to create a more pedestrian-oriented environment. Regional analysis by the Mid-Region Council of Governments (MRCOG) show crash rates consistently above the regional average, with one out of every five pedestrian deaths in Albuquerque occurring along East Central Ave in 2019 (including areas both inside and outside the study area).

In response to these conditions, both the City of Albuquerque and Bernalillo County have sponsored safety studies along portions of East Central Ave. This study, commissioned by Bernalillo County, examines transportation safety conditions along the portion of the corridor from Eubank Blvd to Juan Tabo Blvd. This effort follows the recently completed East Central Ave Safety Study, conducted on behalf of the City of Albuquerque Council Services Department, which identified recommendations for the portion of the corridor between Louisiana Blvd and Eubank Blvd. The scope and analyses conducted for these two studies are similar and the recommendations are intended to be complementary.

This particular study contains three principal sections:

1) **Review of existing conditions**: Analyses include roadway conditions, traffic operations, transit service, sidewalk conditions, and crash data evaluation, among others.
2) **Business and community stakeholder outreach**: Efforts included phone surveys administered to business owners along the corridor and interviews with area community organizations and staff from medical clinics.
3) **Recommendations**: Consideration of near and long-term improvements along the one-mile study area as well as the overall East Central Ave corridor. Renderings and design concepts are included in this report, though more detailed survey and engineering design would need to take place in later phases.

Existing Conditions

Study Area Characteristics

General Roadway Conditions

Central Ave is a principal arterial that traverses the City of Albuquerque from east to west. It is also a critical corridor for transit with two major routes in operation through the study area: Route 66 and the ART Green Line (Route 777). Due to the presence of frequent transit service and the area demographics, there are a high number of pedestrians that travel along the corridor. However, sidewalks are not separated from vehicle traffic and have obstructions, while land uses are generally auto-oriented, creating unsafe conditions that result in conflicts among various users.

Central Ave through the study area features three lanes in each direction plus a median/center turn lane. Lane widths vary slightly but are generally 10-11 feet. The roadway was resurfaced in 2020 and is in excellent condition, as of this writing.

Figure 1: Typical Section from Eubank Blvd to Juan Tabo Blvd with Center Median

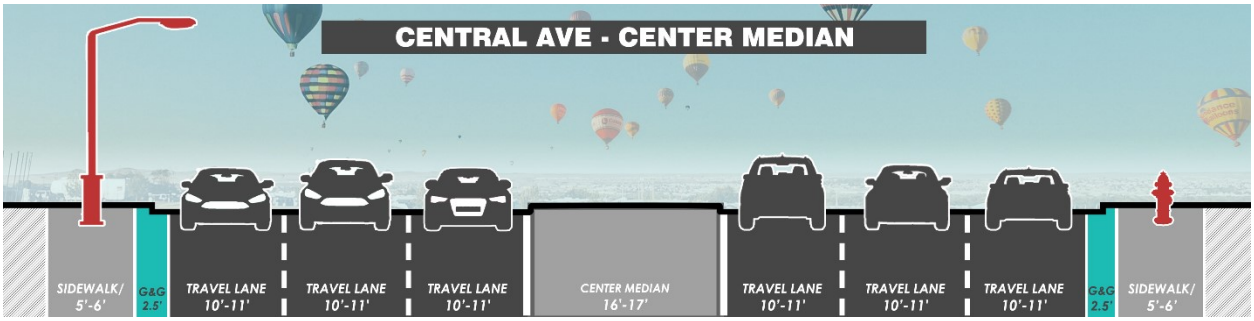

Figure 2: Typical Section from Eubank Blvd to Juan Tabo Blvd with Two-Way Left Turn Lane

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Traffic Signals/Intersection Spacing

Signalized intersections are located at Eubank Blvd, Elizabeth St, and Juan Tabo Blvd and are about 0.5 miles apart. The wide spacing of traffic signals has implications for both motorists and pedestrians. In particular, the open design of the roadway can encourage higher speeds in the gap between intersections, while the distance between crossings is a clear barrier for pedestrians. There are no other designated pedestrian crossings along the corridor, meaning pedestrians must either walk long distances to cross at a traffic signal or cross at unmarked and undesignated crosswalks along the corridor.

This spacing between signalized intersections is also greater than the technical guidance provided by the City. According to the Development Process Manual (DPM), as a designated Major Transit corridor, Central Ave should have signalized pedestrian crossings less than or equal to 1,320 feet (0.25) miles apart (Section 7-4(A)(6)). See the Policy Guidance section for additional discussion on relevant designations from the Comprehensive Plans.

Travel Patterns and Operations

The portion of Central Ave through the study area serves a high level of through traffic and features few destinations along the corridor, apart from a major shopping center located at the southeast corner of Central Ave and Eubank Blvd. From a roadway performance perspective, Central Ave currently operates well below capacity. Pre-COVID traffic volumes across the study area range from 23,000 to 28,000 vehicles per day, while PM peak period volume-to-capacity are around 0.5-0.6 – well within the acceptable range – indicating at most 60% of the roadway capacity is utilized at the highest traffic portion of the day (see Table 1). Further, volumes on Central Ave not expected to increase significantly, if at all, by 2040. To the extent that congestion occurs along the corridor, it is generally related to delays at intersections and non-recurring congestion from traffic incidents.

Table 1: General Transportation Conditions in Study Area

Termini (west to east)	Daily Traffic Volume (2018)	Volume-to-Capacity (V/C) Ratio – PM Peak Period	Posted Speed (MPH)	Observed Speed – PM Peak Period
Eubank Blvd to Elizabeth St	27,809	EB: 0.55 WB: 0.30	40	EB: 28.3 WB: 26.2
Elizabeth St to Juan Tabo Blvd	22,738	EB: 0.60 WB: 0.26	40	EB: 19.6 WB: 24.1

Notes: Dates for observed traffic counts data vary by location (source: MRCOG TAQA tool); speed data taken from INRIX data on MRCOG TAQA tool for Tuesdays, Wednesdays, and Thursdays in September 2016

Posted speeds are 40 MPH from Eubank Blvd to Juan Tabo Blvd, with average observed speeds ranging from 20-30 MPH.[1] It is important to note that **observed speed** data is based on the average speed across the corridor rather than at segment mid-points where speeds are typically the highest. The relatively high difference between observed speeds and posted speeds is likely the result of intersection delays; major cross-streets such as Eubank Blvd and Juan Tabo Blvd are both principal arterials where competing traffic movements cause motorists to wait for traffic signals to change.

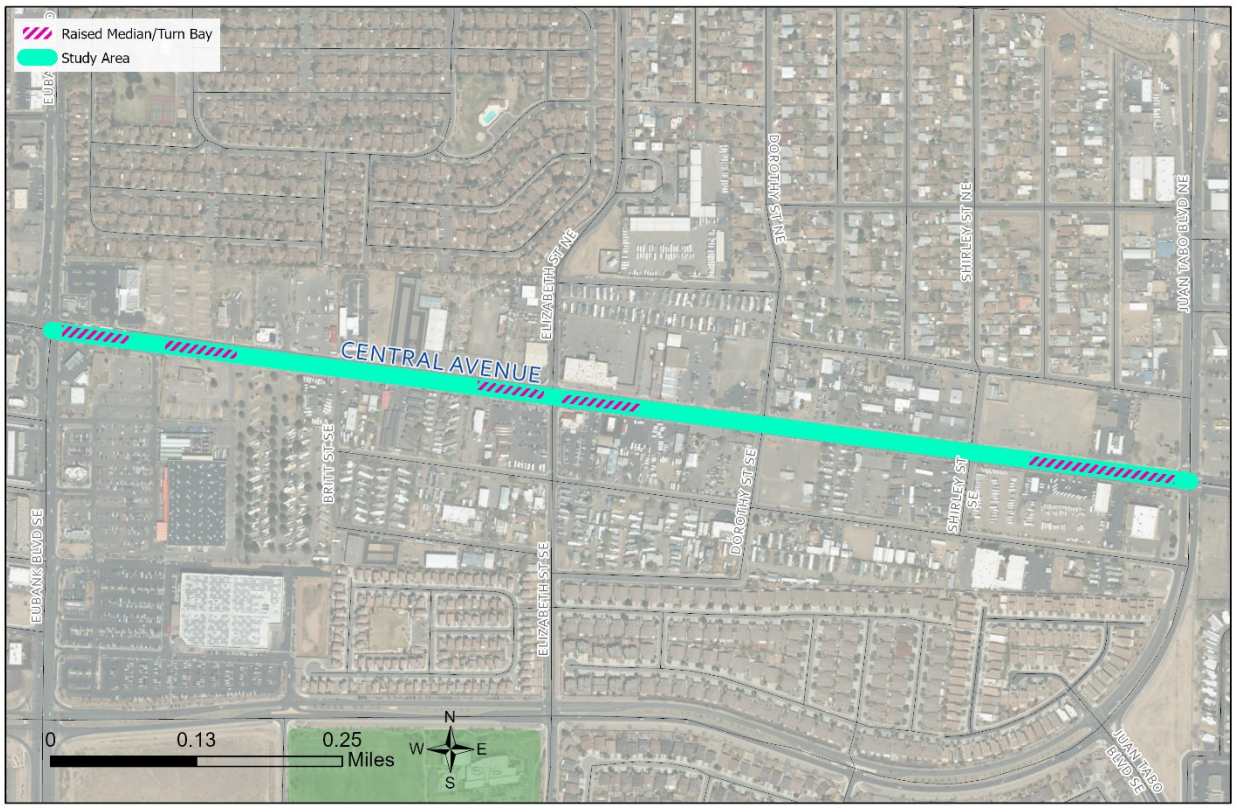
[1] Overall average speed information at the segment level is available from MRCOG using data from INRIX.

Though speed data is not available at segment mid-points, the long distances between signalized intersections provides ample time for motorists to increase vehicle speeds before reaching the next intersection. Evidence from crash reports also suggests speeding is an issue between signalized intersections.

Access Control/Center Turn Lanes

Central Ave through the study area features a combination of two-way left turn lanes and raised medians/turn bays, which are primarily concentrated around signalized intersections. An additional median and left turn bay is present east of Eubank Blvd that allows vehicles traveling westbound on Central Ave to access the Home Depot and Costco shopping center. Overall, areas with raised medians/turn bays comprise about 0.38 miles of the study area while two-way left turn lanes are present for 0.62 miles. Raised medians that manage access are a proven safety countermeasure along major roadways and are strongly preferred over two-way left turn lanes along principal arterials in the DPM (see Section 7-4(I)(7)).

Figure 3: Raised Medians/Turn Bays



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Sidewalk Conditions

General Conditions

Sidewalks along the study area are generally 6' wide with adequate ramps at intersections and crosswalks. Though sidewalks meet the minimum width specific for a Major Transit Corridor, Central Ave generally lacks landscape buffers that separate motorists from pedestrian ways. Wider sidewalks with landscape buffers are present along short stretches where recent site redevelopment has occurred. According to the DPM sidewalks along a Major Transit Corridor should be 6-10' wide with a 6' landscape buffer.

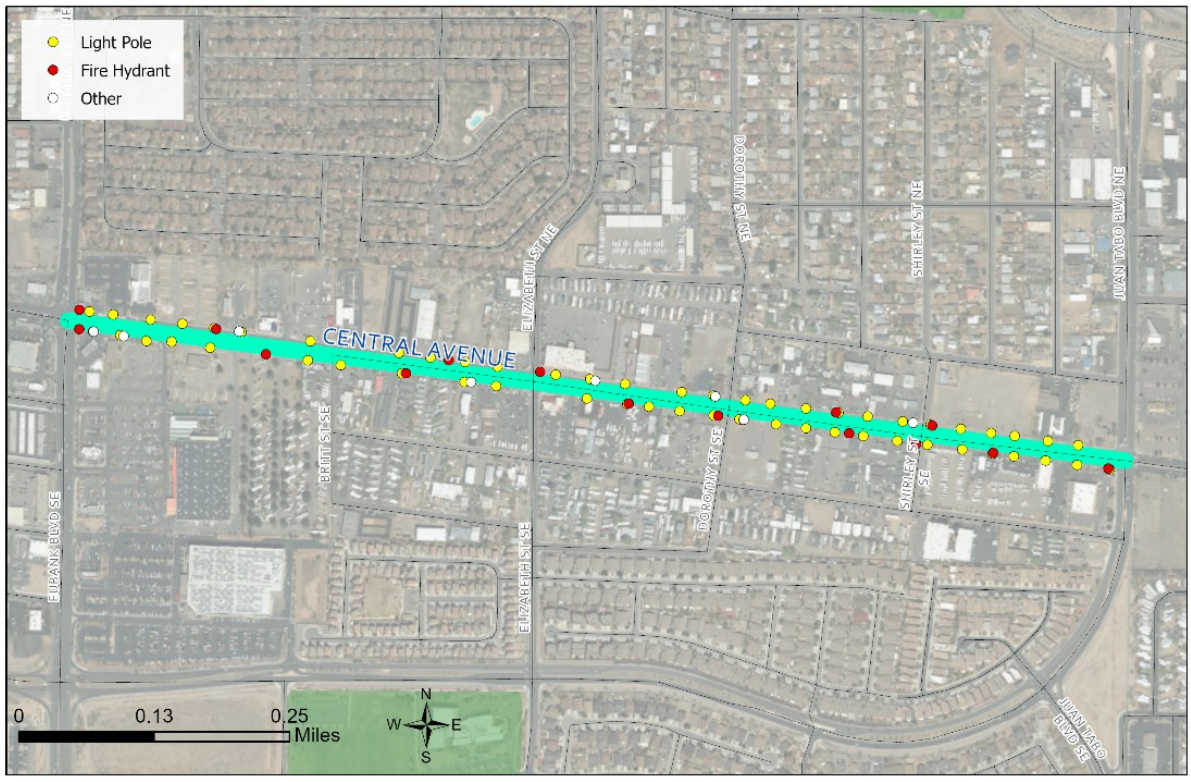
In addition to the lack of separation between motorists and pedestrians, light poles and fire hydrants create regular sidewalk obstructions along the entirety of the corridor. These obstructions reduce the usable sidewalk width available and can create unsafe conditions for users. Obstructions would need to be addressed with passing spaces, sidewalk expansion, or relocation. Other less frequent obstructions along the corridor include bus stop benches and signs. Figure 5 indicates obstructions along Central Ave.

Obstructions and uneven sidewalk surfaces along East Central Ave. Fencing on the outside edge the sidewalk limits the usable area and forces pedestrians to walk closer to the roadway edge.

Another major impediment to pedestrian travel along the corridor is the presence of driveways and curb cuts that enable vehicle turning movements and create uneven sidewalk conditions. Preliminary analysis identified 74 driveways along the study area, including multiple driveway access points for many individual properties (see Figure 4). Of the identified driveways, approximately 23.0% would be in violation of the location criteria established in the DPM for minimum distances from intersections if the owners of these properties were to apply for a permit for site and building improvements. In some cases, driveways have been closed off through gates or other barriers. While these driveways are no longer an issue for pedestrians in terms of conflicts with motor vehicles, the fences create uncomfortable walking conditions by creating a physical barrier on one side of the sidewalk while vehicles travel at high speeds on the opposite side of the sidewalk.

Figure 4: Driveways through the Study Area

Figure 5: Sidewalk Obstructions along Central Through Study Area



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Pedestrian Level of Service

Methodology

The Project Team conducted a Pedestrian Level of Service (LOS) analysis for the study area to quantify the quality of existing infrastructure and ease of mobility overall comfort levels and safety concerns along the East Central Ave corridor. Advantages of completing a LOS analysis include the ability to diagnose where conditions could be improved and the magnitude of benefits from certain pedestrian infrastructure improvements.

Segments along the study area were evaluated using a combination of data retrieved from MRCOG and measurements obtained from Google Earth. For each of the segments, the LOS analysis produced an overall score ranging from A to D. In general, segments with C or below for Pedestrian LOS can be considered uncomfortable and/or unsafe for pedestrian travel. To complete this analysis, the Project Team utilized a custom tool derived from the nationally recognized publication *Multi-Modal Level of Service for Urban Streets (NCHRP 2008).* Data inputs for the LOS analysis consisted of the following:

- Daily traffic volume
- Posted speed limit
- Number of travel lanes
- Outside travel lane width
- Sidewalk width (if applicable)
- Sidewalk buffer width (if applicable)

Results

Two scenarios were calculated using the Pedestrian LOS tool. No buffers between the sidewalk and outside driving lane are included in either scenario.

- *Scenario 1* is based on existing conditions and accounts for the lack of walkable area due to obstructions and uneven surfaces by assuming sidewalk is only 3-4 feet wide.
- *Scenario 2* is based on existing conditions and assumes that almost all sidewalks along the corridor are 6 feet wide and clear of obstructions.

The contrast between the two scenarios demonstrates the benefits in terms of pedestrian comfort level associated with an additional two or three feet of usable sidewalk width. Where obstructions or uneven sidewalk surfaces exist, as in Scenario 1, pedestrian conditions are LOS D-E and can be considered uncomfortable for users (see Table 2). As demonstrated in Scenario 2 (see Table 3), pedestrian conditions along Central Ave from Eubank Blvd to Elizabeth St are acceptable (i.e. LOS C) – though below preferred conditions – if no obstructions are present and sidewalks are of desired width.

Table 2: Scenario 1 – Existing Conditions with Obstructions and 3 feet or 4 feet Sidewalks

Location	Daily Traffic Volume (2018)	Speed Limit (mph)	Lane Width (ft)	Sidewalk Width (ft)	Level of Service*	
Eubank Blvd to Elizabeth St	27,809	40	10	3 / 4	**4.96 / 3.64**	**E / D**
Elizabeth St to Juan Tabo Blvd	22,738	40	10	3 / 4	**5.11 / 3.80**	**E / D**

**Higher values represent more unfavorable LOS scores; scoring is based on A (most favorable) to F (least favorable)*
***Considers sidewalk obstructions including light poles, fire hydrants, and utility boxes that limit safe pedestrian travel and can take up two (2) to three (3) feet of the sidewalk*

Table 3: Scenario 2 – Existing Conditions along Central Ave with 6-foot Sidewalks

Location	Daily Traffic Volume (2018)	Speed Limit (mph)	Lane Width (ft)	Sidewalk Width (ft)	Level of Service*	
Eubank Blvd to Elizabeth St	27,809	40	10	6	**3.41**	**C**
Elizabeth St to Juan Tabo Blvd	22,738	40	10	6	**3.56**	**D**

**Larger numbers represent more unfavorable LOS scores; scoring is based on A (most favorable) to F (least favorable)*

Lighting

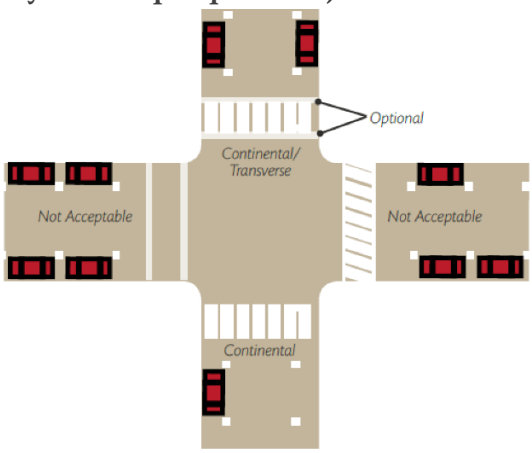
Lighting throughout the corridor has an average maintained illuminance greater than the minimum design value outlined in the AASHTO Roadway Lighting Design Guide and has recently been updated to LED to meet the new City standard. However, current lighting patterns, featuring luminaires located on the outside edge of the sidewalk in each direction, are focused on creating visibility for moving traffic and lack pedestrian scale lighting at locations where pedestrians are often present. Light poles are generally spaced about 130-180 feet apart.

Roadway lighting near Central Ave and Dorothy St

Intersection Design

The existing signalized crossings on Central Ave feature long crossing distances (about 85-90 feet), which can make crossings challenging for pedestrians. Options to reduce crossing distance for existing crosswalks are limited under the current roadway design. None of the intersections have formal median refuge islands. The existing crosswalks at Eubank Blvd, Elizabeth St, and Juan Tabo Blvd adhere to DPM guidelines, which calls for continental striping design.

Figure 6: Desired Crosswalk Marking Design (City of Albuquerque DPM)



Crosswalks are push-button activated, and the pedestrian walk signal is not automatically triggered with each light cycle. The pedestrian crossing times meet MUTCD requirements.

Figure 7: Crosswalk Design at Juan Tabo Blvd and Central Ave

A preliminary review of intersections along the corridor revealed modest issues related to sight distance on the south side of Central Ave at various intersections. The results of this analysis are provided in Table 4. A preliminary review of curb return radii did not reveal any locations where the radii exceed the desired values provided in the DPM.

Table 4: Summary of Intersection Design Issues

Intersection	Location	Issue
Central Ave and Britt St	Southwest corner	Fencing poses possible sight distance issue. Preliminary measures in Google Earth indicate 140' of sight distance where 430' is required.
Central Ave and Elizabeth St	Southwest corner	Possible sight distance issues for vehicles turning right from Central Ave onto Elizabeth St or for vehicles turning left/west from
Central Ave and Shirley St	Southwest corner	Possible sight distance issues for vehicles turning right from Central Ave onto Shirley St or for vehicles turning left/west from

Transit Service

Central Ave is served by two high frequency transit lines; Route 66 provides local service and stops every two blocks, while the ART Green Line (Route 777) is a bus rapid transit service with stops at Eubank Blvd and Juan Tabo Blvd. Both routes operate with a frequency of every 15-minutes (pre-COVID) and serve the extent of Central Ave from Tramway Blvd to Unser Blvd. Service for both routes spans from around 6 AM to around 11 or 12 PM depending on the day of the week. In addition to the service along Central Ave, all-day local routes operate north-south along Eubank Blvd (Route 2) and Juan Tabo Blvd (Route 1).

Transit activity along the corridor is concentrated heavily around Juan Tabo Blvd and Eubank Blvd, with about 5,000 and 8,000 combined trips associated with both Central Ave transit routes at those intersections, respectively. In addition to ART stops, these intersections also serve as transfer points for north-south routes.

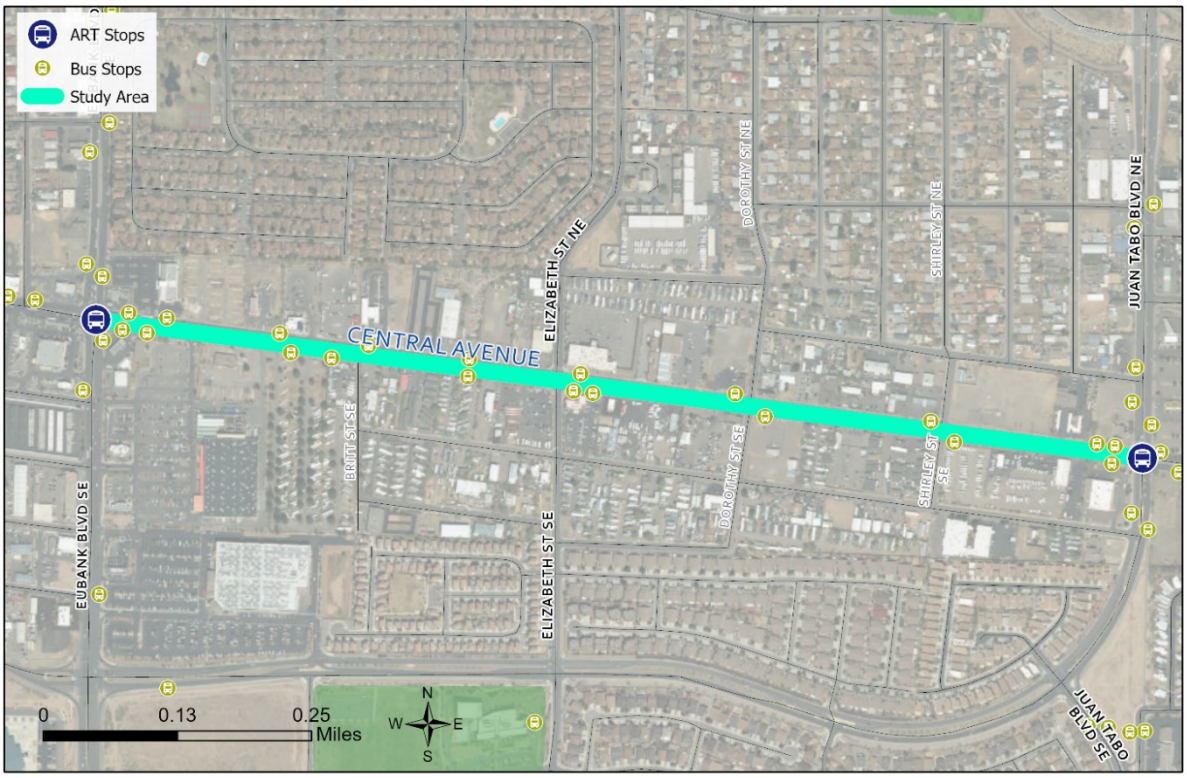
Table 5: Transit Service by Location

Route(s)	Location	Stop ID(s)	Total Boardings	Total Alightings	Total Trips
66, 777	Central / Juan Tabo	7, 66, 8	2,478	2,511	4,989
66	Central / Shirley	9, 65	13	13	25
66	Central / Dorothy	10, 64	6	6	12
66	Central / Elizabeth	11, 63	41	49	90
66	Central / Britt	62	9	15	24
66, 777	Central / Eubank	12, 61, 13, 60	3,780	4,268	8,048

Source: Route 66 data are from August 2018. ART Green Line (Route 777) data are from February 2020.
Notes: Different dates are utilized because ART was not in service in 2018, while the Route 66 data is the most recent complete data provided by ABQ Ride. This table combines both directions and all stops near intersections from east to west.

Most transit sops along the corridor feature signs and benches only. Shelters are present at in the westbound direction to the east of Eubank Blvd, near Elizabeth St, near Britt St, and west of Juan Tabo Blvd. The only shelter provided in the eastbound direction is located near Elizabeth St. Guidance from the DPM calls for shelters to be present at all stops along Major Transit Corridors and Premium Transit Corridors.

Figure 8: Transit Stops through Study Area



Bikeways

Existing & Proposed Facilities

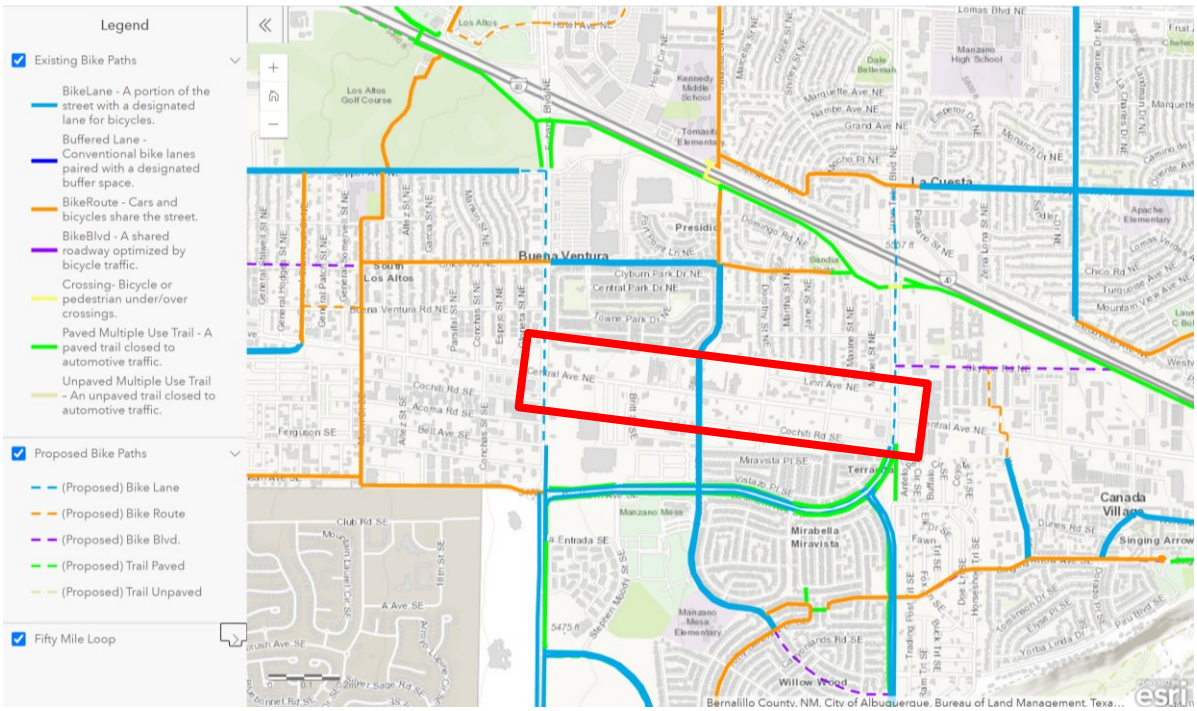
There are currently no bicycle facilities along Central Avenue from Eubank Blvd to Juan Tabo Blvd. However, future bike lanes are identified along the corridor in the Long Range Bikeway System, maintained by MRCOG, and Central Ave is explicitly cited as a gap in the City's Bikeways & Trails Facility Plan (2015). In addition, Central Ave was identified by the Greater Albuquerque Bicycling Advisory Committee in a list in 2019 of critical gaps in the regional bikeway network.

The only north-south bicycle facility that provides direct access from the study area is a bike lane along Elizabeth St. Bike lanes are proposed in the Long Range Bikeway System along both Eubank Blvd and Juan Tabo Blvd, though improvements are not planned in the near term (see Figure 9).

Network Analysis

Bikeway facilities are present on parallel roadways, though connections across the study area are generally limited. Chico Rd to the north of Central Ave is a designated bike route where cars and bicyclists share the roadway. The bike route connects with the I-40 Trail East and provides access to the greater Albuquerque area. Bike lanes and a paved multi-use trail are present along Southern Rd to the south of Central Ave between Eubank Blvd and Juan Tabo Blvd. Elizabeth Rd/Morris Rd is a key connection to both sets of parallel bikeways. However, longer distance connections are limited, and options are generally limited for bicyclists and pedestrians to use alternative routes adjacent to Central Ave to travel east-west and access nearby destinations. Where options do exist, such as Cochiti Rd to the south of Central Ave, connectivity is limited by the major shopping plaza to the southeast of Eubank Blvd and Central Ave.

Figure 9: Existing and Proposed Bicycle Facilities near Study Area



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Safety/Crash Data Analysis

Crash Rates and High Risk Locations

The Project Team completed a thorough review of crash data along the corridor, including analysis of locations, severity, and sources of crashes. This section considers crash rates, total crashes, and bicycle and pedestrian-involved crashes in both the study area and for the City of Albuquerque overall to allow for comparative analysis. Crash rate data is compiled by MRCOG and is available for the years 2014-2018. Crash data for individual locations is available from the New Mexico Department of Transportation (NMDOT) for the years 2013-2017.

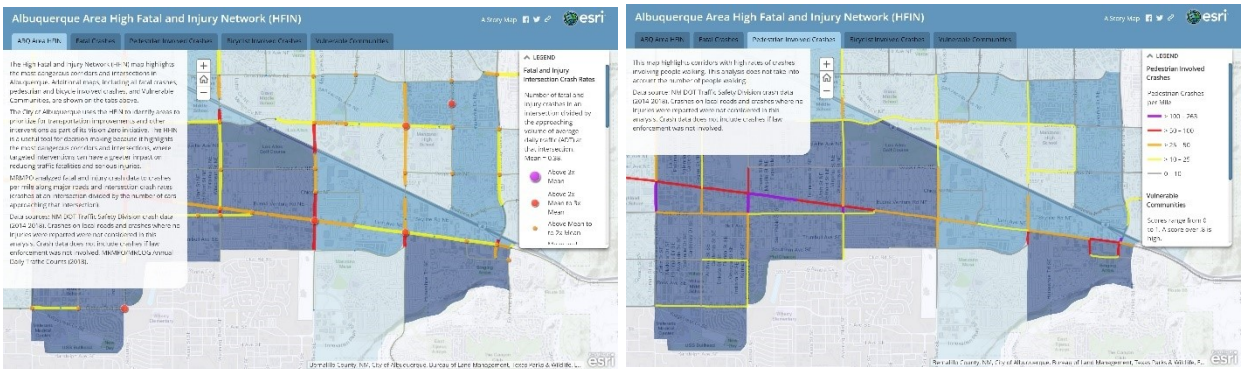
Overall, from 2013 to 2017 there were 559 total crashes (about 111 per year), and 187 severe crashes in the study area (33.5% of all crashes). In addition to high numbers of total crashes, the two major intersections along the corridor feature crash rates well above the City-wide averages. According to the MRCOG Fatal and Injury Network (HFIN), which highlights intersections and road segments that are prone to high rates of crashes, crashes occur at both Central Ave and Eubank Blvd and Central Ave and Juan Tabo Eubank Blvd at rate 2-3 times above the City average. Crashes also occur along the segments of Central Ave between Eubank Blvd and Elizabeth St and between Elizabth St and Eubank Blvd at rates above the City average.

Table 6: Crash Rates along Study Area Compared to City Average

Location	HFIN Crash Rate*
Intersection: Central Ave & Eubank Blvd	2-3x Above Mean
Intersection: Central Ave & Juan Tabo Blvd	2-3x Above Mean
Central Ave Segment: Eubank Blvd to Elizabeth St	1.5-2x Above Mean
Central Ave Segment: Elizabeth St to Juan Tabo Blvd	1-1.5x Above Mean

Source: MRCOG HFIN (2014-2018)

Figure 10: High Fatality and Injury Network and High Crash Rate Network (MRCOG)



The individual intersections along Central Ave with the highest number of crashes from 2013 to 2017 are Eubank Blvd and Juan Tabo Blvd; about 83% of all crashes in the study area took place at these two intersections. The concentration of crashes at these locations are due to high number of conflict points when high volume multi-lane arterials intersect. More pedestrians are also present at these intersections due to the presence of high-volume transit stops and signalized pedestrian crossings.

The intersection at Eubank Blvd is of particular concern as it has a high number of severe crashes (n=86) and overall crashes (n=307). Between 2013 and 2017 there were also eight pedestrian-involved crashes. The primary causes of crashes at Eubank Blvd include driver inattention, driver error, and failure to yield, reflecting the conflicts associated with turning movements. Though fewer overall crashes took place at Juan Tabo Blvd compared to Eubank Blvd, Juan Tabo Blvd experienced a significant number of severe crashes (n=64) and had equal or higher numbers of pedestrian (n=8) and bicycle-involved crashes (n=3) than Eubank Blvd. Among fatal crashes, one occurred at Britt St and one occurred at Juan Tabo Blvd.

Figure 11: Hot Spot Map of All Crashes Along Central Ave

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Table 7: Total Crashes by Type by Location

Location	Total Crashes	Severe Crashes	Pedestrian-Involved	Bicycle-Involved
Central Ave & Eubank Blvd	307	86	8	0
Central Ave & Britt St	4	1	0	0
Central Ave & Elizabeth St	57	24	2	1
Central Ave & Dorothy St	11	5	0	0
Central Ave & Shirley St	8	3	1	0
Central Ave & Juan Tabo Blvd	158	64	8	3
All Other Locations	14	6	2	0
Total	**559**	**187**	**21**	**4**

Source: NMDOT (2013 to 2017)

Figure 12: Pedestrian & Bicycle-Involved Severe Crashes

Table 8 indicates the count and percent of pedestrian and bicycle-involved crashes in the study area and the City of Albuquerque as a whole. Notably, pedestrian-involved crashes within the study area (3.8%) make up a much higher share of total crashes than the City of Albuquerque overall (1.7%). Of the 559 total crashes in the study area, 21 were pedestrian-involved and 4 were bicycle-involved crashes (combined about 4.5% of all crashes). While the majority of pedestrian and bicyclsit-involved crashes took place at or ear Eubank Blvd and Juan Tabo Blvd, individual crashes also occurred along the corridor near transit stops around Elizabeth St and Shirley St, though it cannot be discerned from the daya if pedestrians were accessing those transit stops at the stop of the crash.

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Table 8: Pedestrian- and Bicycle-Involved Crashes by Location

	Study Area		City	
	Count	Percent	Count	Percent
Pedestrian-Involved Crashes	21	3.8%	1,376	1.7%
Bicycle-Involved Crashes	4	0.7%	830	1.0%
All Other Crashes	534	95.5%	81,117	97.4%
Total	**559**	**100.0%**	**83,323**	**100.0%**

Source: NMDOT (2013-2017)

Crash Severity

In addition to higher crash rates than the city overall, crashes in the study area are slightly more likely to result in fatality and injury. Overall, about one-third (33.5%) of all crashes in the study area are classified as severe, indicating serious injury to at least one party involved, compared to 29.6% for the city overall (see Table 9). When crashes do occur with bicyclists and pedestrians, the results are far more likely to be severe: among the total bicycle and pedestrian-involved crashes between Eubank Blvd and Juan Tabo Blvd, almost all were severe (23 out of 25).

Table 9: Severity of Crashes by Location by Type

Crash Type	All Crashes				Pedestrian & Bicycle-Involved			
	Study Area		City		Study Area		City	
	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Fatal	2	0.4%	265	0.3%	2	8.0%	120	5.5%
Injury	185	33.1%	24,373	29.3%	21	84.0%	1,844	83.7%
Property Damage Only	372	66.6%	58,685	70.4%	2	8.0%	239	10.9%
Total	**559**	**100.0%**	**83,323**	**100.0%**	**25**	**100.0%**	**2,203**	**100.0%**

Source: NMDOT (2013-2017)
Note: Not all total percentages equal 100% due to rounding.

Vulnerable Communities

The City of Albuquerque utilizes a Vulnerable Communities metric to assess the level of vulnerable of different areas to traffic violence. The metric considers a range of census data – including household income, vehicle ownership rate, youth and elderly populations, and non-white population – is intended to be used in combination with crash rate data to prioritize Vision Zero efforts. The score for the census tract across the study area is 0.78 on a scale of 0 to 1 (a score over 0.8 is considered "very high"), indicating that populations across the study area are both vulnerable to traffic violence in general and to specific risks associated with roadway conditions along Central Ave.

Top Contributing Factors

The top three contributing factors for all crashes in the study area, as indicated in reports from the Albuquerque Police Department, include:

- Driver inattention (25.5%)
- Failure to yield (20.4%)
- Driver error (16.3%)

These factors are attributed to crashes at similar rates to the City overall, though incidences of disregarding traffic signals and alcohol-involved crashes take place at somewhat higher rates. There are also more crashes attributed to pedestrian error in the study area than the City overall (2.4% v. 0.9%).

The most frequent cause of pedestrian-involved crashes through the study area, as identified in police reports is pedestrian error. Overall, pedestrian error account for 45.5% of pedestrian and bicycle-involved crashes in the study area compared to 26.1% for the city overall.[2] Somewhat contrary to public perception, a relatively small number of pedestrian and bicycle crashes involved alcohol or drugs (n=3 or 13.6%).

Table 10: Top Contributing Factor by Location by Type

Top Contributing Factor	All Crashes				Pedestrian & Bicycle-Involved			
	Study Area		City		Study Area		City	
	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Alcohol/Drug Involved	28	6.0%	3,175	4.8%	3	13.6%	330	17.1%
Disregard Traffic Signal	63	13.3%	5,778	8.7%	2	9.1%	109	5.7%
Driver Error	76	16.3%	10,686	16.1%	2	9.1%	131	6.8%
Driver Inattention	119	25.5%	20,735	31.3%	2	9.1%	531	27.6%
Excessive Speed	31	6.7%	5,797	8.8%	0	0.0%	35	1.8%
Failure to Yield	95	20.4%	11,244	17.0%	3	13.6%	284	14.7%
Following Too Closely	44	9.4%	8,217	12.4%	0	0.0%	4	0.2%
Pedestrian Error	11	2.4%	589	0.9%	10	45.5%	503	26.1%
Total	**467**	**100.0%**	**66,221**	**100.0%**	**22**	**100.0%**	**1,927**	**100.0%**

Source: NMDOT (2013-2017)
Notes: No data was provided for an additional 92 crashes; not all total percentages equal 100% due to rounding.

[2] Pedestrian error is a broad term that is applied to a range of pedestrian actions, most of which are legal but increase the likeliness for pedestrians being struck by motor vehicles, such as wearing dark clothes at night or crossing at an unmarked crosswalk.

Time of Day

An analysis of crashes by time of day reveals that there is a disproportionate share of crashes involving pedestrians and bicyclists that take place at night; for pedestrian and bicycle-involved crashes, 50.0% of crashes in the study area occurred at night compared to 22.7% for the city overall. It is difficult to determine from the data if the *rate* of crashes at night is greater than other parts of the city. However, risks for pedestrians and bicyclists along the corridor are clearly exacerbated at nighttime.

Table 11: Crashes by Time of Day by Location by Type

Time of Day	All Crashes				Pedestrian & Bicycle Involved			
	Study Area		City		Study Area		City	
	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Dark-Lighted	98	18.5%	12,409	16.3%	12	50.0%	478	22.7%
Dark-Not Lighted	12	2.2%	2,953	3.9%	0	0.0%	158	7.5%
Dawn	9	1.7%	1,146	1.5%	1	4.2%	30	1.4%
Daylight	396	74.9%	57,406	75.4%	11	45.8%	1,369	65.0%
Dusk	14	2.6%	2,206	2.9%	0	0.0%	72	3.4%
Total	**529**	**100.0%**	**76,120**	**100.0%**	**24**	**100.0%**	**2,107**	**100.0%**

Source: NMDOT (2013-2017)

Notes: No data was provided for an additional 30 crashes; not all total percentages equal 100% due to rounding.

Demographics and Socioeconomic Conditions

Demographic and socioeconomic analysis for the study area is based on data from the American Community Survey (2014-2018 5-year estimates) for Census Tract 7.08, which encompasses neighborhoods north and south of Central Ave to the east of Eubank Blvd. The tables below compare conditions in the study area to the City of Albuquerque and Bernalillo County overall.

Figure 13: Location of Census Tract 7.08

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The racial and ethnic profile of populations in the study area are generally similar to the City and County overall, through higher shares of residents along this portion of East Central Ave identify as Black / African American or Other. As shown in Table 12, Table 126.5% of study area residents identify as Black / African American compared to 3.2% at the City-level and only 2.8% at the County-level, while 21.0% identify as Other compared to 15.9% of City residents and 15.7% of County residents. The population who identifies as Hispanic is slightly lower in the study area than the City and County overall.

Table 12: Race/Ethnicity by Location

Race	Census Tract 7.08	City of Albuquerque	Bernalillo County
White (Non-Hispanic)	38.4%	39.4%	39.0%
White (Hispanic)	28.4%	34.1%	35.0%
Black / African American	6.5%	3.2%	2.8%
Native American	4.6%	4.6%	4.8%
Asian	1.8%	2.8%	2.6%
Other	21.0%	15.9%	15.7%
Total	**100%**	**100%**	**100%**
Total Hispanic	46.5%	49.0%	49.8%
Total Non-Hispanic	53.5%	51.0%	50.2%

Notable differences can be observed in household poverty rates and commuting characteristics. In particular, almost 25.0% of study area residents are below the poverty level compared to 17.6% of City residents. Poverty levels are also reflected in travel behavior and vehicle ownership rates. Across the study area, there is a much lower percentage of residents who drive alone to work (66.0%) compared to the City (80.5%). A greater portion of study area residents also carpool to work and a notably higher percentage use public transit (4.3% compared to 2.0%). Commuting behavior can be explained in part by the fact that study area residents are twice as likely to live in a household without access to a vehicle (14.1%) as the City overall (7.3%). There is also a higher percentage of residents who work from home (9.1%) compared to the City (4.4%).

These differences are particularly noteworthy because high rates of transit usage and low vehicle ownership rates means many residents depend on Central Ave to access job sites and services. However, existing conditions along the corridor are generally unfavorable for pedestrians and transit users. The combination of unsafe conditions and prevalence of vulnerable users validates the considerable need for infrastructure that improves the pedestrian environment.

Table 13: Income and Poverty levels

Location	Below Poverty Level	Median Household Income
Census Tract 7.08	24.9%	$38,486
City of Albuquerque	17.6%	$51,128
Bernalillo County	17.4%	$51,643

Table 14: Means of Transportation to Work

Means of Transportation to Work	Census Tract 7.08	City of Albuquerque	Bernalillo County
Drove Alone	66.0%	80.5%	80.7%
Carpooled	17.6%	9.2%	9.1%
Public Transit	4.3%	2.0%	1.9%
Bicycle	1.2%	1.2%	1.1%
Walked	1.9%	1.9%	1.8%
Other Means	0.0%	0.7%	0.7%
Worked at Home	9.1%	4.4%	4.6%
Total	**100%**	**100%**	**100.0%**

Table 15: Vehicles Available by Household

Vehicles Available per Household	Census Tract 7.08	City of Albuquerque	Bernalillo County
0 Vehicles	14.1%	7.3%	6.6%
1 Vehicle	39.8%	37.3%	35.6%
2 or More Vehicles	46.2%	55.4%	57.7%
Total	**100%**	**100%**	**100%**

Policies

A variety of planning efforts and studies have been conducted along Central Ave through the study area. This section summarizes relevant guidance and findings related to land use, development, community concerns, and transportation infrastructure at the local and regional levels. In addition to general policy ideas, many of these documents provide location-specific strategies to address safety challenges.

City of Albuquerque Plans and Policies

Albuquerque-Bernalillo County Comprehensive Plan

The Comprehensive Plan (2017) prioritizes expanded transportation options and improved mobility as part of its long-term for the City and County. In addition to a range of land use and transportation policies, the Comprehensive Plan contains policies related to pedestrian-oriented street improvements, including desired street design elements. These policies are supported by site development standards from the Integrated Development Ordinance, including requirements that site improvements and new development provide wider sidewalks with landscape buffers.

Specific guidance for transportation infrastructure and urban design are provided through Center and Corridor designations. Central Ave through the study area is designated as both a Major Transit Corridor and a Premium Transit Corridor; as such, it is intended to provide high frequency local transit service, while development along the corridor should be transit and pedestrian-oriented. Roadway design features are also essential to facilitate convenient and safe access to transit for pedestrians. As a Major Transit Corridor, Central Ave should include wider sidewalks than typical roadways and use of landscape buffers should be prioritized, while transit stops should feature

shelters. The designation as a Premium Transit Corridor indicates the desire for dedicated transit infrastructure, while design guidance largely focuses around Premium Transit Station Areas, such as park-and-ride facilities or enhanced ART stops.) Regular pedestrian crossings and lower design speeds than other arterial roadways are also recommended. See Table 16 for policies from the Comprehensive Plan that are relevant to East Central Ave.

Metropolitan Redevelopment Area

The study area is part of the East Gateway Metropolitan Redevelopment Area (MRA), which was designated by City Council in 2016 to identify potential redevelopment efforts in the area. The East Gateway MRA spans Central Ave and its immediate surroundings from Wyoming Blvd to Tramway Blvd. The designation of an MRA is based on findings of blighted conditions as defined in the Metropolitan Redevelopment Code.

The East Gateway Metropolitan Redevelopment Area Plan specifically identifies investments that would create a more comfortable experience for residents and visitors to the area, including streetscape improvements for the portion of Central Ave between Eubank Blvd and Juan Tabo Blvd. In addition, desired improvements include street lighting every 200 feet, street trees every 30 feet, and one bench and one trash receptacle per 3,000 linear feet of sidewalk, and landscape enhancement at bus stops.

Vision Zero

In 2019, the City of Albuquerque committed to Vision Zero through an Executive Order that established the goal of eliminating all traffic-related fatalities and serious injuries by 2040. Vision Zero is an international movement that sets zero as the only justifiable fatality target. The City is currently working on a Vision Zero Action Plan that will include guidance on roadway design features that improve safety, City and State-level policy, community engagement strategies, and funding considerations. Notably, the Action Plan refers to the High Fatality Injury Network, identified by MRCOG, to prioritize specific projects where safety improvements are most critical. The High Fatality Injury Network highlights East Central Ave as a key area of concern. To support Vision Zero, the City Council recently set-aside $4 million in funds for projects that address locations with high numbers of crashes and identified safety concerns.

Complete Streets Ordinance

In 2019, the City updated its Complete Streets Ordinance, first passed in 2015, to require City departments to equally consider the efficiency and safety of all types of travel and to apply Complete Streets design features during all roadway rehabilitation projects (routine maintenance projects may be excluded). Complete Streets is a national movement to ensure that roadways are designed, built, and operate to serve everyone – including pedestrians, bicyclists, transit riders, and drivers of all ages and abilities. The City's adoption of a Complete Streets Ordinance demonstrates a commitment to designing streets in a way that prioritizes the safety of all users.

To support implementation of Complete Streets, the ordinance identifies street design elements that may be applied to all City roadway projects. These elements include: mid-block pedestrian crossings, curb cuts, mitigating insufficient multi-modal facilities such as bike lanes that do not meet minimum engineering criteria for width, traffic calming techniques such as narrowing traffic lanes, providing buffers between vehicle traffic and pedestrian/bicycle facilities and adding parallel parking.

Table 16: Policies Related to Pedestrian Safety from the Comprehensive Plan

Policy	Relevant Considerations	Action Items
6.2.3: Pedestrian and Bicycle Connectivity	• Design streets, streetscapes, and sidewalks to enhance pedestrian and bicyclist mobility for commuting, recreation, and activities of daily living. • Preserve and maintain pedestrian, biking, and equestrian opportunities on neighborhood streets, in alleys, and along acequias. • Provide comfortable, barrier-free, direct pedestrian and bicycle routes to Transit Centers, transit stations, and transit stops.	• Analyze gaps in connectivity, prioritize improvement projects, and assess progress over time.
6.3.2: Street Design for Pedestrian Safety	• Improve the comfort and safety of pedestrians in areas with high pedestrian volume, particularly at signalized and unsignalized crosswalks on arterials and collector streets, near schools, and in Centers. • Provide buffers between pedestrians and traffic (e.g. on-street parking, landscaped buffers, etc.). • Prioritize and incentivize public and private pedestrian-scale lighting to increase pedestrian visibility and security.	• Implement FHWA proven safety countermeasures, such as medians and pedestrian crossing islands, at intersections with high auto and pedestrian traffic levels and sufficient right-of-way. • Coordinate with FHWA and MRMPO on pedestrian road safety assessments and implement recommended improvements at priority intersections.
7.2.1: Walkability	• Improve the pedestrian environment through coordinated design of subdivisions, streets, development sites, and buildings. • Improve pedestrian safety and comfort by providing wider sidewalks, street trees and landscape buffers, lighting, on-street parking, street furniture, and waiting areas and median refuges at large or busy intersections. • Ensure the location and design of sidewalks reflects the existing or planned character and intensity of surrounding land uses. • Enhance existing streets and trails as linear paths connecting destinations throughout the region. • Promote trees and landscape elements in the public right-of-way, along trails, and within private development to ensure a high-quality, pleasant, and healthy built environment. • Design and place incidental structures such as signs, guywires, poles, fire hydrants, street furniture, and overhead utility wires to minimize visual intrusion and mobility impediment to pedestrians.	• Develop sidewalk and street design standards that improve pedestrian comfort and safety while maintaining neighborhood character in historic and rural neighborhoods.

Regional Policy Initiatives

Connections 2040 Metropolitan Transportation Plan

A major focus of the Connections 2040 MTP, the long-range regional transportation plan for the Albuquerque metropolitan area, is to address existing gaps in the transportation system so that connections can be made across the region by all modes. The plan was produced by MRCOG with the involvement of agencies across the region – including the City of Albuquerque and Bernalillo County – and was adopted in spring 2020. Common issues identified in the plan related to bicycle and pedestrian connections include unsafe crosswalks, poor facility design such as the lack of buffered bike lanes, the need for additional pedestrian crossings, and well-maintained sidewalks.

As part of the MTP, MRCOG produces Long Range Bikeway System and Long Range Transit Network maps, which identify desired infrastructure improvements across the region. Future bike lanes are identified on the Long Range Bikeway System, while Central Ave is identified as a Bus Rapid Transit corridor with dedicated transit lanes.

To support implementation of the MTP, MRCOG prioritizes projects for federal funding through the short-range Transportation Improvement Program based on criteria such as transit connection, bicycle and pedestrian improvements, and crash rates. Projects along East Central Ave that improve conditions for bicyclists and pedestrians are likely to be ranked highly under the prioritization process.

MRCOG Complete Streets Resolution

The Metropolitan Transportation Board, of which the City of Albuquerque is a voting member, also passed a Complete Streets resolution in 2011 that directs the creation of a Complete Streets policy and roadway design guidelines. Several jurisdictions in the MRCOG planning area have subsequently passed Complete Streets resolutions or adopted policy that encourages or ensures the development of streets that serve all users.

MRCOG Regional Transportation Safety Action Plan

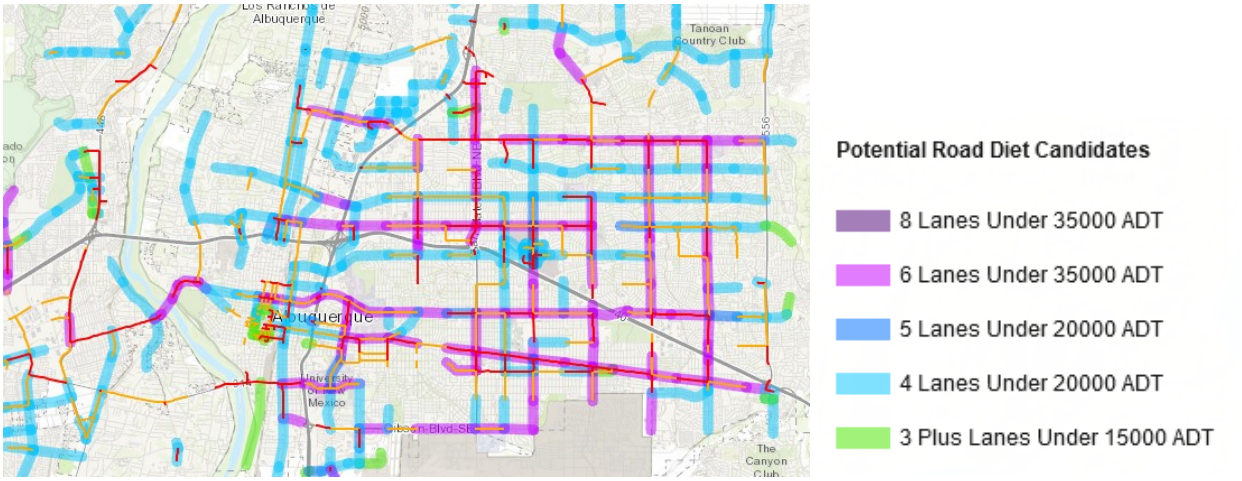
The Regional Transportation Safety Action Plan (RTSAP) was completed in 2018 to combat the serious transportation safety challenges across the region. The plan responds to the fact that New Mexico has one of the highest pedestrian fatality rates per capita across the US and pedestrian crashes in Albuquerque are disproportionately higher than other metropolitan areas in the Southwest. East Central Ave is identified as a critical area where pedestrian safety issues should be addressed. The plan sets goals for reducing crashes over time and identifies emphasis areas and potential action items, including design aspects such as reducing vehicle turning speeds in areas of high pedestrian traffic by widening curb radii, as well as increasing pedestrian signage and pedestrian scale lighting.

Table 17: RSTAP Goals and Emphasis Areas

Goals	*Emphasis Areas*
1. A year over year reduction in fatal and injury crashes: a. at high priority corridors and intersections b. related to excessive speed and dangerous driving c. involving pedestrian and bicyclists d. involving alcohol and drugs 2. An overall 5 to 10 percent reduction of the above categories of fatal and injury crashes over the next 5 years 3. A year over year increase in the levels of comfort and safety experienced by bicyclists and pedestrians out in traffic 4. Complete streets approach incorporated by all future construction projects from inception to construction	1. Reduce excessive speed and dangerous driving 2. Design streets for all modes of travel 3. Implement meaningful behavior change campaigns 4. Expand data collection and traffic management 5. Ensure strong policy and funding mechanisms 6. Provide targeted traffic enforcement

Among the strategies identified in the RTSAP is the implementation of road diets, which can improve safety while reallocating roadway spaces for bicyclists and pedestrians. Analysis by MRCOG indicates that Central Ave through the study area is a candidate for a road diet. Central Ave meets the criteria for a road diet as a 6-lane facility with fewer than 35,000 vehicles per day (actual daily traffic counts are 23,000-28,000).

Figure 14: Potential Road Diet Candidates (MRCOG)



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Bernalillo County: Pedestrian Safety Action Plan and Complete Streets Ordinance

The **Bernalillo County Pedestrian Safety Action Plan** (2012) identifies and prioritizes future facility and policy changes, including the recommendation of a Complete Streets policy and specific pedestrian and bikeway projects. The plan recommends considering adequate pedestrian and bicycle facilities as part of all new roadway projects with higher speed collector and arterial streets as paramount concerns. The plan also recommends improving intersections with continental crosswalk markings, adequate lighting, shortened crosswalk length, smaller turning radii, installation of countdown walk signals, and setting signal timing to accommodate the elderly and children.

Major priorities include streets that serve community facilities, parks, and schools, as well as projects which complete gaps and provide connectivity in the transportation network. Although the project is not specifically identified in the Pedestrian Safety Action Plan, Bernalillo County is designing a HAWK signal at the intersection of Central Ave/Texas St adjacent to the study area. This project is consistent with the priorities established in the plan and discussed above. Refer to the Current Projects section for more information.

The **Bernalillo County Complete Streets Ordinance** was passed in 2015 and includes guidance for incorporating infrastructure for non-auto modes onto major roadways. Though Bernalillo County generally owns and maintains roads in unincorporated areas, the policy guidance may be applied to City streets such as East Central Ave.

Nearby Development and Infrastructure Projects

Infrastructure Improvements

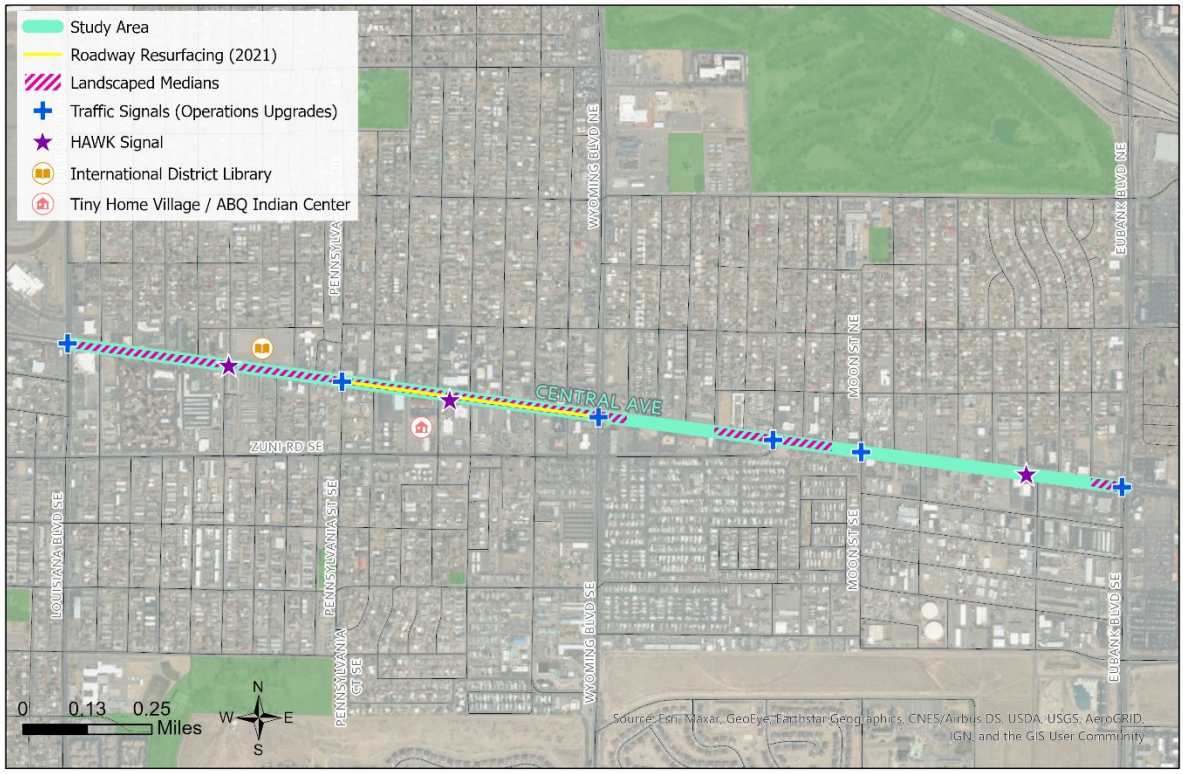
The City of Albuquerque is in the process of implementing a series of projects along Central Ave from Louisiana Blvd to Tramway, while Central Ave from Wyoming Blvd to Eubank Blvd was resurfaced in 2020. Ongoing (see Figure 15). These projects are considered as part of this study to ensure recommendations are complementary and to reduce the likeliness of creating conflicts. Planned improvements include:

- **Restriping** between Louisiana Blvd and Eubank Blvd is in design to include a narrow buffer/shy lane between the sidewalk and outside driving lane, where space permits.
- **Pedestrian scale lighting** is in design between Louisiana Blvd and Eubank Blvd.
- **HAWK signals** are in design for crossings near San Pablo St and Conchas St. An additional HAWK signal was designed near Central Ave and Texas St. Construction on all three devices is expected in 2021.
- **Traffic signal enhancements** have been installed along Central Ave between Louisiana Blvd and Tramway Blvd that will allow for greater signal coordination.
- **Median landscaping** improvements are under construction for raised medians between Louisiana Blvd and Eubank Blvd.

Several of the efforts identified above are funded through Transportation Improvement Program, including $1 million in federal funds, plus $170,000 local match, for improvements between

Louisiana Blvd and Eubank Blvd. As of this writing, funds will be used to design and construct HAWK signals and striping improvements. Additional local funds are identified in the TIP between Louisiana Blvd and Wyoming Blvd and between Eubank Blvd and Tramway Blvd for Complete Streets improvements.

Figure 15: Projects in Progress near the Study Area



Development Projects

There are two development projects of note that will likely generate increased pedestrian activity along the corridor. Roadway design measures that improve pedestrian safety and provide traffic calming benefits may be considered to support these projects.

- The Luminaria Senior Community, a senior living facility that targets low-income senior citizens is under construction at the southeast corner of Eubank Blvd and Central Ave. The four-story facility will provide 92 affordable housing units and will develop a vacant parcel previously held as state trust land.
- A mixed-use development has been proposed in the Franklin Plaza shopping center at the northeast corner of Juan Tabo Blvd and Central Ave. Though outside of the study area, the project could contribute to pedestrian activity and transit trips along East Central Ave.

Existing Conditions Summary

This section briefly highlights some of the key takeaways from the analysis of existing conditions. Recommendations and safety countermeasures are discussed in a later section in the report.

Key Findings

- The study area experiences a high number of crashes overall, and crash rates are disproportionately high for pedestrians compared to the city as whole. Intersections with particularly high rates of crashes include Eubank Blvd and Juan Tabo Blvd.
- Major issues for all crashes include driver inattention, failure to yield, and other driver errors. Pedestrian-involved crashes are concentrated at major intersections.
- A disproportionately high share of crashes along the corridor result in severe injuries, which are likely due to high vehicle speeds and open roadway design.
- Infrequent pedestrian crossings may create an incentive for people to cross at uncontrolled or unmarked locations.
- A large number of crashes involving pedestrians are ascribed to "pedestrian error" and may be a result of individuals crossing in locations where no safe options to do so are provided. Another top contributing factor in pedestrian-related crashes is driver inattention.
- Half of the pedestrian and bicyclist-involved crashes occurred at night.
- Lighting along the corridor meets City requirements, but illumination is directed toward the roadway.
- Traffic volumes on Central Ave are well below the roadway capacity; the corridor has been identified by MRCOG as a candidate for a road diet.
- The sidewalks along Central Ave are located immediately adjacent to the outside travel lane and are marked by obstructions and uneven surfaces. Pedestrian LOS analysis indicates a low level of pedestrian comfort along the sidewalks themselves.
- Frequent sidewalk obstructions and uneven surfaces contribute to poor overall conditions for pedestrians.
- The median household income along the study area is significantly below the median value for the City. Area residents are far more likely than the average City resident to utilize public transit or walk to work.
- Policy guidance from the Comprehensive Plan calls for investment in pedestrian facilities and more frequent crossings on Central Ave. Regional and city policy supports the implementation of Complete Streets to improve safety and enhance transportation options. The City has also committed to Vision Zero and the explicit goal of eliminating traffic fatalities.

Business & Stakeholder Outreach

Overview

To complement the technical analysis, this study included outreach to businesses specifically located within the study area as well as staff of community organizations and medical clinics located along the greater East Central Ave corridor between Louisiana Blvd and Juan Tabo Blvd. This section provides a brief summary of the methodology for conducting outreach and key findings from the outreach efforts. More detailed findings can be found in Appendix B.

Methodology

Outreach to businesses was conducted via phone survey. An online option was also provided for business owners who were not interested in completing the survey over the phone. A total of 10 businesses completed the survey for a response rate of 31%. All individual responses were kept confidential.

Business Outreach Results	Number
No response	11
No longer at that location	2
Invalid number	4
Requested online survey; did not complete	2
Refused	3
Completed	10
Total	32

Survey content was developed in coordination with Bernalillo County. The survey included both open-ended and multiple-choice questions that were designed to elicit input on perceived transportation safety issues along the corridor and to gain insight into the potential improvements and safety countermeasures that business owners would find most effective. A copy of the survey instrument is included in Appendix B.

Outreach to community organizations and medical clinics was conducted via one-on-one interviews.[3] In lieu of a structured survey, the interviews were open-ended to allow the Project Team to gain greater insights into the types of populations served and safety countermeasures that would be most beneficial. Interviews were conducted with five organizations identified by Bernalillo County staff.[4] Community organizations and medical clinics represented in study included:

- East Central Ministries
- God's Warehouse
- Street Safe NM
- Southeast Heights Clinic
- UNM Young Children's Hospital

[3] An exception was the UNM Young Children's Hospital where BHI staff were invited to present and facilitate a discussion during a meeting of more than a dozen staff members.
[4] It is important to note that some of the organizations are located along Central Ave outside of the study area (i.e. Eubank Blvd to Juan Tabo Blvd).

Key Findings: Business Owners

General Issues and Feedback

Safety-related concerns expressed by multiple business owners can be grouped into a series of themes and categories. The summary below is derived from open-ended responses provided as part of the phone survey.

High presence of homeless population: Respondents indicated the presence of people experiencing homelessness has increased over time and is a barrier to walking or transit usage in the area.

Concerns regarding personal safety: Respondents cited incidents of theft and public intoxication as threats to their businesses (and patrons) and as obstacles to walking along the corridor.

High vehicle speeds: Business owners perceive that high travel speeds make it less likely motorists will stop at their businesses, while excessive speeding poses safety concerns for pedestrians.

Incidences of jaywalking: Respondents indicated that jaywalking is pervasive and were generally pessimistic that additional crosswalks would be beneficial. Several business owners felt that increased enforcement was necessary.

Poor sidewalk conditions: Issues mentioned include uneven surfaces with frequent obstacles that affect wheelchair users and prevent pedestrians from walking side-by-side or pass each other.

Other: Individual business owners mentioned the lack of bike lanes and poor lighting conditions. Multiple businesses owners indicated the newly resurfaced pavement is an improvement for the corridor and that center turn lanes allowing for easy business access.

Perceptions of Travel Modes and Potential Improvements

All business owners agreed (or strongly agreed) that safety challenges are present along the corridor. However, business owners felt comfortable driving along Central Ave and that customers can generally access their businesses (see Figure 16). These somewhat contradictory perspectives may be reflective of the fact that most businesses along East Central Ave are auto-oriented.

The safety challenges that were most consistently identified include lack of lighting and high vehicle speeds (see Figure 17). Despite the fact that sidewalk conditions were identified explicitly by several business owners as in poor condition – and despite the fact that business owners themselves would not feel comfortable walking – the width of sidewalks and the crossing distance of streets were not identified as safety challenges when respondents were asked to rate the level of seriousness of particular issues.

The only potential improvement strategy that was considered to be beneficial on average would be to add pedestrian-scale lighting; most other strategies received average scores that indicated moderate or minimal perceived benefit. Conversely, businesses indicated the least beneficial improvement strategy would be reducing the number of driving lanes along the corridor. See Figure 18 for a full set of responses.

Figure 16: Perceptions of Travel Modes among Business Owners – Response Averages

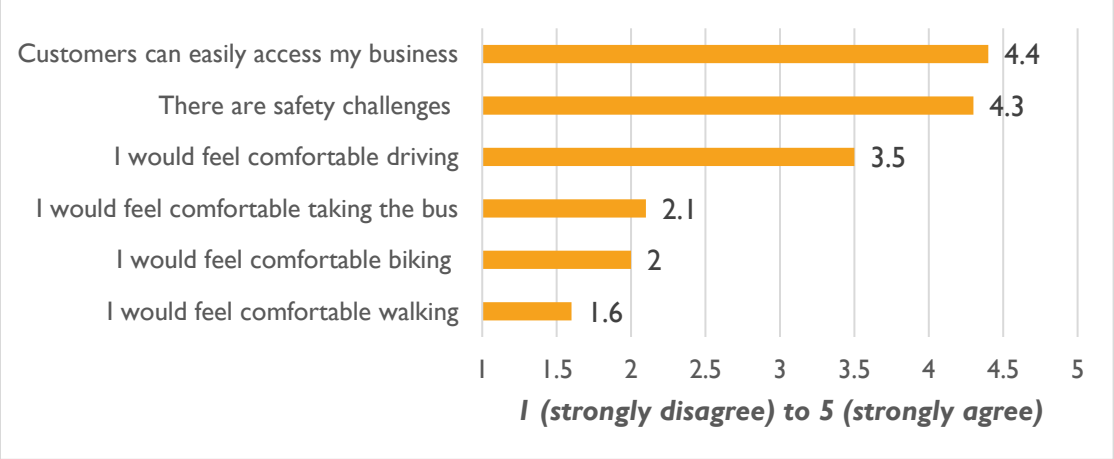


Figure 17: Perceived Safety Challenges among Business Owners – Response Averages

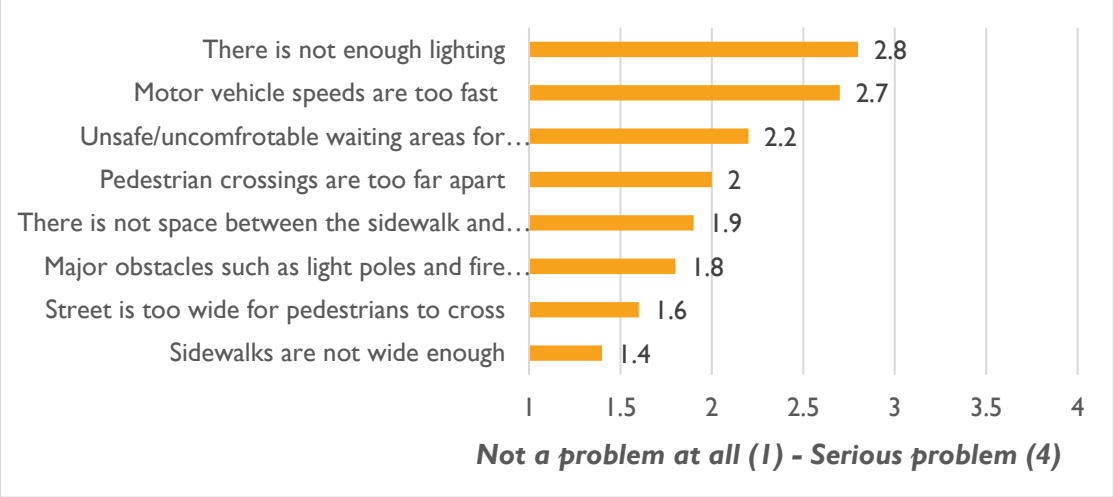
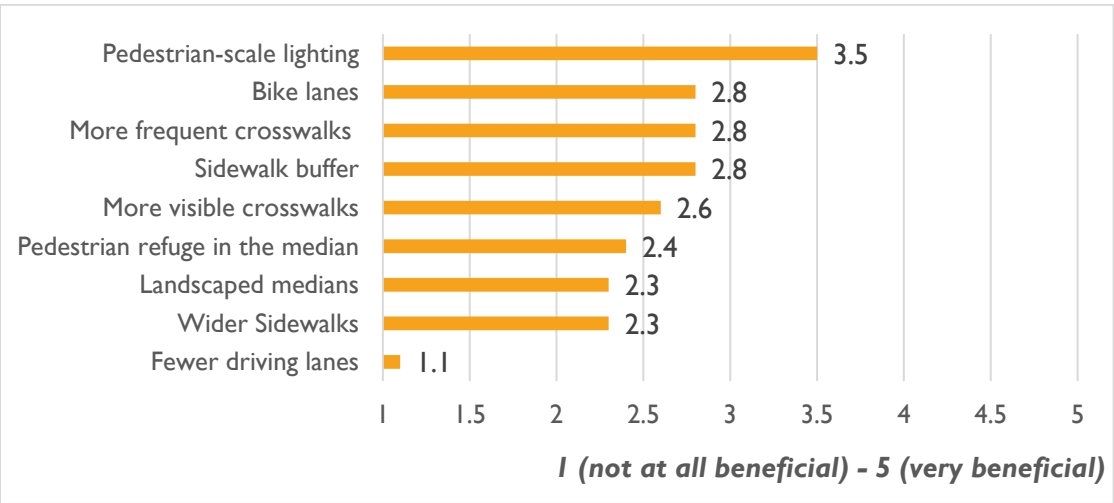


Figure 18: Level of Benefit for Potential Safety Improvements



Key Findings: Community Organizations

General Considerations

Transportation safety is a major issue from the perspective of each of the stakeholders interviewed, who universally agreed that Central Ave through the study area is inhospitable to pedestrians and that traffics speeds are too high. Unlike the businesses interviewed, community organizations and medical clinics located along East Central Ave work with populations who are much more likely to be pedestrians and dependent on public transportation. As a result, stakeholders generally expressed greater support for design interventions that would enhance pedestrian safety, even if it meant site access would be more limited.

In addition to transportation safety issues, stakeholders provided important insights into social conditions and demographics along the corridor, which are relevant when considering potential improvements. Representatives of community organizations who directly interact with individuals who reside and frequent the area confirmed that homelessness, drug use, public intoxication, and solicitation are all issues along the corridor. These issues, when combined with high speed roadway conditions and poor sidewalk conditions, exacerbate the pedestrian safety risks. Stakeholders also related that there are refugee and recent immigrant populations in the study area who are not as familiar or comfortable with high speed suburban roadways like Central Ave.

Travel Speeds and Barriers for Pedestrians

According to the stakeholders interviewed, high speed traffic makes it difficult for people to cross Central Ave, and the distances between crosswalks mean that most people cross in uncontrolled locations. Stakeholders acknowledged that jaywalking is common along the corridor, often within a short distance of a crosswalk, and expressed mixed opinions on whether crosswalks and HAWK signals would be utilized.

Access to Transit

Stakeholders emphasized the critical role that transit plays for residents along the corridor and asserted the need for safer access to transit stops. Interviewees related various instances of individuals being hit while trying to cross the street to reach a transit vehicle.

Sidewalk Conditions

Sidewalk conditions were consistently identified as poor, with issues related to uneven surfaces, the presence of obstructions, and the fact that sidewalks are located immediately adjacent to traffic. Multiple interviewees voiced the need for greater separation between pedestrians and motorists. In particular, stakeholders related stories of parents walking with strollers and being forced into the street to avoid an obstacle, as well as instances of intoxicated individuals falling into the street.

Discussion on the Use of Median Barriers

Following an initial proposal by an attendee of a group stakeholder interview that Bernalillo County and the City of Albuquerque entertain median barriers that force pedestrians to use crosswalks. Dr. John Buchan of the UNM Young Children's Health Center asserted that many people in the community are already marginalized and stigmatized and that fencing could reinforce those social

stigmas. Multiple attendees agreed that a better solution would be more opportunities to cross the street rather than the use of physical barriers.

Potential Recommendations

Stakeholders related a number of potential strategies and demonstrated a far greater interest in design interventions along the corridor that would lower speeds and reduce crossing distances for pedestrians than business owners. In particular, John Bulten of East Central Ministries advocated for changes to the roadway that would slow speeds in a natural way, including the removal of travel lanes. Multiple interviewees also voiced equity concerns as East Central Ave does not have comparable pedestrian infrastructure to Nob Hill. Recommendations identified during the stakeholder interviews include:

- **Landscape buffers**: The proximity of sidewalks to motor vehicles could be addressed through landscape buffers, which would mitigate the issue of individuals stepping or falling into the street.
- **Raised medians**: Multiple interviewees identified medians as beneficial since they would allow for pedestrians to cross the street in two stages. An additional consideration related to medians is that there is relatively little green space in the area and landscaped medians would provide some level of greenery and aesthetic improvements.
- **Lighting**: Several interviewees mentioned a need for additional lighting in the area to address both personal safety and pedestrian safety.
- **Additional crosswalks**: Interviewees generally indicated that more crosswalks are needed, including to better access public transit, though some were skeptical that they would be utilized. If HAWK signals were to be introduced, interviewees recommended that signage/instructions be provided in multiple language to ensure individuals know how to navigate the intersection.
- **Other**: Other proposed improvements include bike lanes and wider sidewalks.

Recommendations

General Overview

This section provides recommendations for Central Ave between Eubank Blvd and Juan Tabo Blvd. Though this study focuses on a specific portion of Central Ave, the recommendations are intended to complement other planned improvements along the corridor, including the findings of the East Central Ave Safety Study, which examined conditions between Louisiana Blvd and Eubank Blvd on behalf of the City of Albuquerque Council Services Department.

The primary recommendation for the larger Central Ave corridor east of Louisiana Blvd is a road diet, which is likely to provide the greatest benefits in terms of general roadway safety, and pedestrian safety in particular, among potential improvements. Although a road diet is the preferred countermeasure for the corridor, this study identifies various near-term improvements that could be implemented while options for a road diet are considered more thoroughly.

Primary Recommendation: Road Diet

Benefits

The primary long-term recommendation for the East Central Ave corridor, including the segment between Eubank Blvd and Juan Tabo Blvd, is a road diet. This countermeasure would address many of the issues that lead to unsafe conditions along the corridor by reducing vehicle speeds, improving pedestrian crossing opportunities, and enhancing general comfort level along the corridor through the creation of greater separation between motorists and pedestrians. A road diet is considered a proven safety countermeasure by FHWA, though the typical application is along a roadway with four general purpose lanes rather than a six. Other proven safety countermeasures could be in incorporated into the road diet design, including median refuges and access management through raised medians and/or consolidation of driveways.

Policy Support

The corridor meets the criteria for a road diet established by MRCOG, which indicates that road diets are appropriate along 6-lane arterials where traffic volumes are below 35,000 vehicles per day. East Central Ave through the study area is currently at or below 60% of capacity during the peak periods, with no significant long-term increase in traffic anticipated in the most recent MTP. Road diets are specifically encouraged by the MRCOG Regional Transportation Safety Action Plan.

A road diet and traffic calming measures are supported by guidance in the Comprehensive Plan, which calls for Major Transit Corridors such as Central Ave to feature wide sidewalks, landscape buffers, and lower design speeds than typical arterials. Such measures could be achieved by reallocating roadway space from one of the general-purpose lanes in each direction. A road diet would also support Complete Streets principles and the design guidance generally applied for Vision Zero efforts.

Design Considerations

While this study does not identify a specific design, a road diet would likely reconfigure Central Ave from a seven-lane facility, with three lanes in each direction plus a median/center turn lane, to a

five-lane facility with two general purpose travel lanes in each direction plus a median/center turn lane. This general design concept is supported by analysis from the recently completed East Central Ave Safety Study. The resulting space could be reallocated to enhance conditions for bicyclists and pedestrians, and allow for facilities such as buffered bike lanes, which would create further separation between motorists and pedestrians. A road diet would also create a cross section that is consistent with conditions along Central Ave to the west of Louisiana Blvd, which features two general purpose lanes in each direction. Improving conditions for pedestrians and bicyclists is also necessary as the lack of parallel network options means Central Ave must play a major role in mobility for non-auto modes.

Multiple approaches could be taken in the installation of a road diet. This study recommends that a road diet be applied initially through re-striping. Subsequently, the City of Albuquerque, along with stakeholders such as Bernalillo County and MRCOG, should undertake a formal process to consider a permanent road diet. During the design phase, major considerations for the road diet should include:

- **Sidewalk/Landscape Buffers**: The installation of wider sidewalks and landscape buffers could be pursued as part of a broader corridor reconstruction effort. Achieving ADA compliance will require significant redesign and reconstruction of sidewalks. In addition, significant rehabilitation or reconstruction may be necessary as moving the curblines would affect the drainage capacity of the roadway.
- **Bikeways**: Bikeways could be installed as part of a temporary road diet through re-striping and/or a permanent road diet. Given the corridor type, travel speeds, and the number of lanes (even after a road diet), the desired bikeway design would include buffered bike lanes. Whether bike lanes should be installed or if the additional space should be reallocated to dedicated transit facilities and/or landscape buffers would ultimately depend on the priorities established for the corridor and the final design.
- **Transit**: Future transit service infrastructure could impact the design of Central Ave, including whether dedicated transit lanes used by ART are extended to the east of Louisiana Blvd. Improved ART service along the corridor could also take the form of business access/transit lanes in which the outside lane is shared by buses as well as motorists making right turns onto local streets or into businesses. Additional space around transit stops should be considered in all design options.
- **Community Outreach**: Given the potential impacts of a road diet during construction and the concerns about business access that were raised during the outreach process for this study, additional outreach is appropriate prior to the design phase to generate community input on desired roadway elements and to consider strategies to mitigate concerns from the business community.

Road Diet Design Options

Option 1 – Re-striping

A low-cost option to implement a road diet involves removal of one general purpose travel lane in each direction. Additional space could be created by narrowing the two-way left turn lane, which is currently 17-18' and could be reduced to 14' (center turn locations with raised medians would remain unchanged). Such a design would create significant space for buffered bike lanes and/or striped buffers along the sidewalk. The restriping option would maintain curblines in their current locations and would not require any changes to the roadway geometry or drainage capacity. A restriping option appears particularly viable for the portion of Central Ave between Eubank Blvd and Juan Tabo Blvd as there are few side streets, few retail stores, or drive thru restaurants, meaning there are fewer turning movements than other parts of Central Ave. A disadvantage of the road diet through restriping is that comprehensive sidewalk improvements and removal of obstructions would not be addressed.

Overall, removal of the outside travel lane and narrowing of the two way left turn lane could result in 10-12' of space for bicycle and pedestrian facilities in each direction. A road diet through restriping could also be complemented with raised medians with turn bays in place of the two-way left turn lane. Median refuges with vertical barriers should be installed at regular intervals to create additional pedestrian crossing opportunities. A concept for a road diet through restriping can be found in Figure 19.

Figure 19: Road Diet Concept Through Re-Striping

Option 2 – Roadway Reconfiguration

A far more costly, though more permanent and comprehensive approach would be to install a road diet as part of a corridor rehabilitation and reconfiguration project. Such a project would permanently remove one travel lane in each direction and would provide an opportunity to reconstruct sidewalks, address uneven surfaces, and remove obstructions.

A permanent road diet and roadway reconfiguration should include widened sidewalks and landscape buffers between the sidewalks and travel lanes. The landscape buffer area could also be utilized for lighting and transit stop amenities. Depending on the design and available right-of-way, the reconfiguration of Central Ave could include bike lanes and raised medians. In addition, permanent road diet would greatly reduce the crossing distance for pedestrians, as the installation of

raised medians and median refuges mean that pedestrians would only be required to cross two lanes of traffic at a time.

The reconfiguration of the corridor as part of a road diet also creates a meaningful opportunity to introduce landscaping along the corridor. In addition to community aesthetics – some stakeholders cited a need for landscaping due to the lack of green space along the corridor – landscaping trees can provide shade along the sidewalk and enhance pedestrian comfort levels by creating physical barriers from motor vehicle traffic. Landscaping has also been proven to have traffic calming effects on a roadway.

Figure 20: Road Diet with Reconstructed Sidewalks

Figure 21: Raised Median Concept with Pedestrian Refuge

Near-Term Recommendations

The items discussed below include countermeasures that could provide safety benefits in the near-term. These include generally low-cost improvements, such as re-striping, or treatments that would provide utility even if a road diet is introduced, such as pedestrian-scale lighting. Additional monitoring should take place over time to determine if benefits associated with these countermeasures can be observed.

Restriping/Lane Narrowing

Modest changes to the striping plan along Central Ave could have speed reduction benefits and could allow for a buffer to be installed between the outside driving lane and the sidewalk to improve pedestrian comfort levels. In particular, space could be reallocated by narrowing the two-way left turn lane (where present) and travel lanes in excess of 10' to create a striped buffer or "shy lane" between the outside travel lane and the sidewalks. A more thorough review of the overall roadway width, including the travel lanes and medians, is required to determine exactly where the restriping may be applied. Where this treatment is to be applied, the outside travel lane should feature a width of 10.5' while other general-purpose travel lanes may feature a width of 10'. The buffer/shy lane should be 1.5-2' in width and feature parallel striped lines to the outside of the gutter pan.

Figure 22: Restriping Concept with Buffer/Shy Lane

The most feasible means of installing a buffer/shy lane is to reallocate space from the two-way left turn lanes to the buffer/shy lane since the turn lanes are excessively wide through the study area (17-18'). It is important to note that two-way left turn lanes are not considered to be appropriate in the DPM for arterials with more than two travel lanes in each direction. (Raised medians are preferred.) However, if existing two-way left turn lanes are to be maintained, the width should be reduced from the current design of 17-18' to a width of 12-14', as indicated in the City's DPM.

A similar recommendation is made in the East Central Ave Safety Study for the portion of Central Ave between Louisiana Blvd and Eubank Blvd. A restriping plan is in design at the time of this writing, though the application of the buffer is not possible in all locations depending on the presence and width of raised medians.

Pedestrian-scale Lighting

Though the current lighting meets City minimum standards, illumination is designed for roadway users rather than pedestrians. Per the FHWA Toolbox of Countermeasures, enhanced lighting can reduce pedestrian fatality rates and is especially important along corridors with significant pedestrian activity as well as high speeds, which requires greater stopping distance. This study recommends that installation of pedestrian-scale be applied along the length of the corridor. Areas where lighting is particularly critical include areas around transit stops.

Lighting should follow similar design patterns to other portions of Central Ave where pedestrian-scale lighting is present, including the portion of Central Ave to the west of Eubank Blvd where lighting is under design. Pedestrian-scale lighting received a high level of support among business owners and community stakeholders during the outreach efforts for this study and should be considered a high priority.

Sidewalk Improvements

Sidewalks along the corridor feature frequent obstructions, uneven surfaces, and minimal separation from adjacent traffic. Ideally, sidewalks along Central Ave should be brought into compliance with ADA/PROWAG standards and should be improved to allow a high level of pedestrian comfort. Measures to improve sidewalk conditions include closing driveways and reconstructing sidewalks to create level surfaces and removing and relocating obstructions, where possible. In addition to creating level surfaces, removing or consolidating driveways provides access management benefits by reducing the number of places where turning movements may occur and minimizing potential conflicts between motorists and pedestrians.

Pedestrian comfort level could be addressed most effectively through a major corridor rehabilitation effort and road diet that features sidewalks reconstruction and installation of landscape buffers. Under such a scenario, sidewalks should be at least 6' wide with a 6' landscape buffer. In the interim, sidewalk improvements could be undertaken as stand-alone efforts. Conditions for transit users would be further improved by adding bus shelters, especially at ART stops in the eastbound direction.

Discussion/Other Considerations

Additional Pedestrian Crossings

One of the primary challenges for pedestrians along the portion of East Central Ave between Eubank Blvd and Juan Tabo Blvd is the lack of crossing opportunities. The lack of crossings is exacerbated by the high speeds, high traffic volumes (around 28,000 vehicles per day to the east of Eubank Blvd), and the need to cross seven lanes of traffic at a time. At present, there is distance of about 0.5 miles between the traffic signals (and pedestrian crossings) at Eubank Blvd, Elizabeth St, and Juan Tabo Blvd. Based on the lack of crossing opportunities and the guidance contained in the Comprehensive Plan and DPM regarding the frequency of crossings – which should be provided at least every 0.25 miles along a Major Transit Corridor – additional opportunities are warranted along

the corridor. Potential candidates for pedestrian crossings, based on spacing guidance and proximity to transit stops, include:

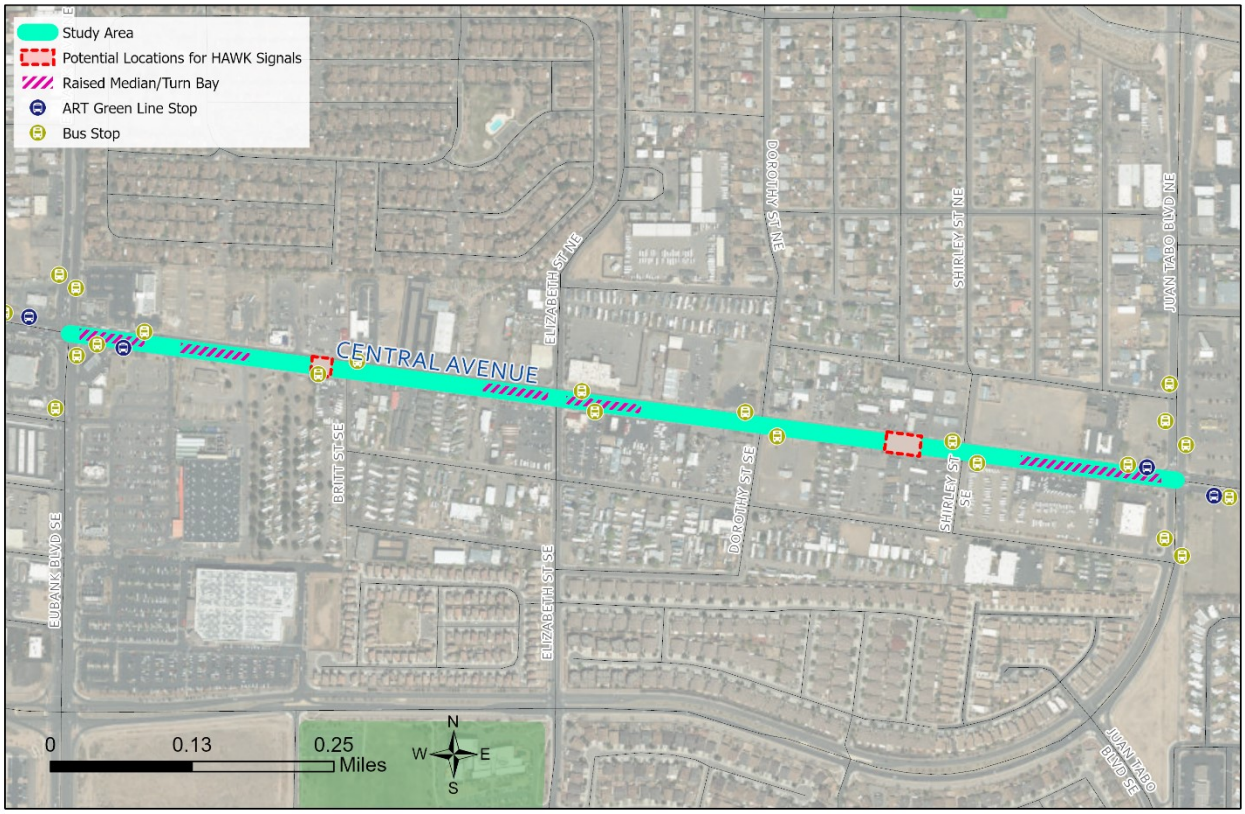
- Near Britt St – about halfway between Eubank Blvd and Elizabeth St
- Near Dorothy St – about 0.2 miles east of Elizabeth St Blvd

Apart from the policy rationale for the installation of additional pedestrian crossings, there are further challenges worthy of discussion. First, though the study area features a high level of transit usage associated with the major intersections (based on pre-pandemic ridership patterns) and nearby residents are less likely to own vehicles than the average Albuquerque household, there are few locations with concentrated levels of pedestrian activity or primary destinations. In addition, guidance from the DPM and best practices from FHWA indicate that crosswalks that are not traffic-controlled are not appropriate along East Central Ave as traffic volumes and travel speeds are too high.

Additional on-street pedestrian crossings would therefore require either a HAWK signal or a full traffic signal. (Pedestrian overpasses may be considered but are cost-prohibitive and poorly utilized unless they connect two main generators of activity.) A HAWK signal is the less costly of the two options and provides the benefit of being user-activated. Though concerns have been raised previously about compliance with HAWK signals, the increased application across Central Ave and the City of Albuquerque overall should improve motorist awareness. Traffic signals also create pedestrian crossing opportunities; however, there is limited need in the study area for a traffic signal from a land access perspective and it is unlikely that sufficient turning movements take place at the local roads that intersect with Central Ave in the study area to warrant a signal. (Note: it was outside the scope of this study to conduct intersection warrant analysis.)

Figure 23 identifies potential locations for HAWK signals through the study area. These locations should be considered preliminary and are based on the desire to provide signalized pedestrian crossings at intervals that are consistent with the DPM as well as guidance from the MUTCD in terms of spacing from driveways and intersections. Other locations may be considered. Additional design efforts would also be needed to determine specific alignment, ADA compliance, appropriateness of raised medians, and opportunities to close nearby driveways to reduce conflicts with turning movements. It is important to note that if a road diet were implemented and median refuges were constructed, various designated but unsignalized pedestrian crossings may be appropriate without traffic control devices such as a HAWK signal.

Figure 23: Potential Locations for HAWK Signals



Raised Medians

Most of the corridor features two-way left-turn lanes in the center of the roadway. As such, there is an opportunity to install medians with appropriate turn bays along the corridor. Such countermeasures are a form of access management that create physical barriers between traffic traveling in opposite directions. In addition to access management, medians with landscaping enhance community aesthetics, as requested by stakeholders during the outreach process for this study. The installation of raised medians would also reduce the number of lanes that individuals must cross at a time and could serve as refuge islands. Per the DPM, raised medians should be a total 14' in width, with 2-4' of raised median used to separate traffic as part of a turn bay. Median refuges should be at least 6' in width.

Median fencing/barriers may be considered to manage pedestrian travel and encourage pedestrians to cross at designated locations. Median fencing/barriers do have demonstrated safety benefits and may be appropriate approaching intersections and designated pedestrian crossings. However, fencing that limits pedestrian movement is not appropriate to apply over long-distances without significantly increasing crossing opportunities. Community stakeholders expressed opposition to the use of median fencing as potentially adding to the stigma as an unsafe corridor.

Intersection Improvements

As the majority of pedestrian-involved crashes take place at the signalized intersections along the study area, these locations present major opportunity to improve safety for users along the corridor.

A primary strategy to improve safety from a design perspective is to reduce the crossing distance. This can be achieved through road diets that remove travel lanes and/or add curb extensions. However, curb extensions at major intersections along Central Ave are technically challenging to introduce at present due to the number of travel lanes.

Options to enhance pedestrian safety at signalized intersections may be considered by creating dedicated time for pedestrians to cross and thereby removing conflicts with motorists. Options include leading pedestrian interval or eliminating right-turn on red at intersections of Central Ave with Eubank Blvd and Juan Tabo Blvd where there are major transit stops, as well as adding flashing yellow right turn arrows to warn motorists making turns of the potential presence of pedestrians in the crosswalk. Introducing leading intervals or dedicated time for pedestrians to cross affects traffic signal timing and requires coordination along the extent of the corridor, not just within the study area. An additional is to install red light cameras to improve enforcement along the corridor and address incidences of motorists running red lights, which is a frequent contributor to crashes in the study area.

This study recommends a comprehensive review of the entire East Central Ave corridor for opportunities and locations to apply intersection operations improvements, with the ultimate goal of finding an appropriate balance between traffic operations and pedestrian safety.

Traffic Calming

The extent of conflicts at major intersections and the severity of crashes along Central Ave can be mitigated through the reduction of motor vehicle speeds. However, the distances between signals means there are opportunities for motorists to achieve high speeds for long stretches between intersections. Options for traffic calming on wide arterial roadways such as Central Ave are somewhat limited. According to the FHWA *Traffic Calming ePrimer*, the most suitable treatments for major thoroughfares and arterials involve reducing the width of the roadway, specifically through road diets, corner extensions, median islands, on-street parking, or a combination of these elements.[5] Signage and pavement markings may also be applied, but their effectiveness is strongest when used in combination with physical changes to the roadway. Table 18 provides a description of the traffic calming techniques deemed appropriate for arterial roadways by the FHWA and their appropriateness and likely effectiveness for Central Ave.

[5] https://safety.fhwa.dot.gov/speedmgt/ePrimer_modules/module3.cfm

Table 18: Potential Traffic Calming Techniques for Arterial Roadways and their Likely Effectiveness along Central Ave

Treatment	Description	Appropriateness for Central Ave	Effectiveness
Speed Feedback Signs	Speed feedback signs consist of a static "Your Speed" sign and an electronic display of the approaching vehicle speed measured by radar. Speeding vehicles can trigger a warning message such as "Too Fast" or "Slow Down." Speed data can be recorded and used by police for increased enforcement during peak periods, which has been shown to increase effectiveness.	High	Low, if used in isolation
Street Markings	Pavement markings provide messaging to remind drivers of lawful speeds utilizing messages like "SLOW" and "SPEED LIMIT 25 MPH." Transverse markings are also an appropriate traffic calming technique for arterial roadways and have shown speed reductions when paired with speed bars. Pavement marking messages have been shown to be ineffective in isolation, and other traffic calming measures must be used in combination with messages to achieve any significant reduction in travel speeds.	High	Low, if used in isolation
Narrowing Travel Lanes	Travel lane narrowing reduces the lane width for vehicle travel, which is creates a feeling of being constrained and reduce driving speeds as a result. To create this effect, median and/or shoulder pavement markings, bike facilities, rumble strips, landscaping, or on-street parking are added to a street with the space gained by reducing travel lane widths.	Moderate – lane widths are generally 10-11' and could be narrowed by small amounts	Low - Moderate
Raised Medians / Median Island	A median island involves the placement of a raised concrete island in the middle of the roadway to narrow the travel lanes and separate traffic. A median island can often double as a pedestrian refuge island if a cut in the island is provided along a marked crosswalk. The separation of travel lanes also allows pedestrians to focus on one direction at a time when crossing the street.	Moderate	Low to High (if used with other techniques)
On-Street Parking	On-street parking can effectively narrow the roadway travel lanes by adding side "friction" to the traffic flow. Whether on-street parking can be an appropriate traffic calming measure is a function of vehicle speeds, traffic volume, and parking demand. On-street parking is most effective as a traffic calming technique when spaces are regularly occupied. The City of Albuquerque discourages on-street parking where posted vehicle speeds exceed 30 MPH and traffic volume is greater than 10,000 vehicles per day.	Low	Low - Moderate
Road Diet	A road diet is the conversion of a roadway to a cross-section with fewer or narrower through motor vehicle travel lanes. The reduction in the number of lanes permits the inclusion of facilities for other uses, such as bicycle lanes, sidewalks, pedestrian refuge islands, transit uses, and on-street parking. The FHWA Road Diet Informational Guide provides guidance on potential road diet applications and designs and their anticipated effects on safety and mobility and can be found here: http://www.safety.fhwa.dot.gov/road_diets/info_guide/	High	Moderate - High

Summary of Recommendations

Table 19 provides a summary of the recommendation described in this study, as well as cost estimates. The estimates reflect the costs of construction (design is not included) and are intended to be used for general planning and budgeting purposes only. Final costs may vary depending on the design. Costs are based on City of Albuquerque unit bid prices and engineering judgment and include 30% contingency.

Table 19: Summary of Recommendations and Cost Estimates

Location	Recommendation	Potential Timeframe	Approximate Cost
Corridor-wide	**Lane narrowing and striped buffer**; Narrow travel lanes and two-way left turn lanes (where present) through re-striping and create striped buffer between outside lane and sidewalk	Near-term	$110,000
Corridor-wide	**Sidewalk improvements**: remove obstructions and create level sidewalks where driveways can be closed (see Figure 4)	Near-term	$250,000+
Corridor-wide	**Pedestrian-scale lighting**; add lighting for sidewalk illumination along corridor; range of costs reflects use of existing light poles or adding new fixtures	Near-term	$150,000-550,000
Corridor-wide	**Raised medians**; replace two-way left turns lanes and provide access management to separate traffic moving in opposite directions	Near-to-medium term	$380,000
Near Britt St and Shirley St	**HAWK signals**; signalized pedestrian crossings to meet City guidance; additional analysis needed for specific alignments	Near-to-medium term	$350,000-500,000 per location*
Corridor-wide	**Road diet through re-striping**; remove general purpose lane in each direction and reallocate space for buffered bike lanes	Near-to-medium term	$200,000
Corridor-wide	**Permanent road diet**; reconfigure corridor by removing general purpose lane in each direction, installing landscape buffers, medians with refuge islands, and widening sidewalks	Medium-to-long term	$3,000,000

*Cost of full signalized intersection is approximately $400,000-500,000 plus costs associated with ADA improvements, restriping, etc.

Appendix A: Recommendations from City of Albuquerque East Central Ave Safety Study

The City of Albuquerque recently completed a safety study along Central Ave from Louisiana Blvd to Eubank Blvd to evaluate safety challenges and identify specific recommendations and potential improvements for the corridor. A summary of design factors and recommendations from the City study are included in this report (see table below**Error! Reference source not found.**) to promote c onsistency in roadway design and safety countermeasures for the extent of East Central Ave.

Near-term recommendations include additional HAWK signals, narrowing lanes, installing pedestrian-scale lighting, improving intersections and crosswalks through striping, and removing obstructions along sidewalks to increase pedestrian comfort and accessibility. A temporary road diet is proposed that would convert the outside driving lane into a buffered bike lane. Access management and closures to driveways are recommended as other measures that would accompany the temporary road diet to reduce potential points of conflict between all modes. The **long-term recommendation** is to implement a permanent road diet with reconstructed sidewalks and landscape buffers. The study asserts a reconfiguration of the roadway to reduce speeds and improve pedestrian conditions would be the most effective means to address safety challenges along the corridor.

Recommendations Summary Table

Design Factor(s)	Location	Recommendation	Timeframe	Cost
Access Management	Corridor-wide	**Close unnecessary driveways**	Short to Medium-Term	See Sidewalk Design
Access Management	East of Wyoming Blvd	*Conditional strategy*: **Replace two-way center turn lane with raised median** and turn bays if major reconfiguration is not pursued	Short to Medium-Term	To be determined
Intersection / Pedestrian Crossing Design	Signalized Intersections	Install **median barriers** at intersection turn bays to direct pedestrian travel to signalized crossings	Short-Term	Nominal
Intersection / Pedestrian Crossing Design	Corridor	*Conditional strategy*: **Median barriers** along corridor to direct pedestrian travel to signalized crossings (further evaluation needed)	Short-Term	$900,000 -$1 million
Intersection / Pedestrian Crossing Design	Pennsylvania Rd	Convert raised median in crosswalk to **median refuge**	Short-Term	Nominal
Intersection / Pedestrian Crossing Design	Louisiana Blvd	**Restrict right turns on red lights**	Short-Term	Nominal

Intersection / Pedestrian Crossing Design	Signalized Intersections	**Enhance striping**; convert crosswalk striping to continental/ladder design	Short-Term	$15,000
Pedestrian Crossing Frequency	Central Ave & San Pablo St	**HAWK signal**; close median cut	Short-Term	$350,000-500,000
Pedestrian Crossing Frequency	Central Ave & Conchas St	**HAWK signal**; close median cut	Short-Term	$350,000-500,000
Reduce Vehicle Speeds	Corridor-wide	**Narrow travel lanes** through re-striping and create striped buffer between outside lane and sidewalk	Short-Term	$190,000
Reduce Vehicle Speeds	Corridor-wide	*Conditional*: **Temporary road diet** through restriping	Short to Medium-Term	$275,000
Reduce Vehicle Speeds / Sidewalk Design	Corridor-wide	**Reconfigure roadway** through a road diet or by extending ART lanes; widen sidewalks and add landscaping buffers	Long-Term	High cost; to be determined
Sidewalk Design	Corridor-wide	**Rebuild sidewalks** where driveways were closed to create level surfaces	Short to Medium-Term	$4,300 per site
Sidewalk Design	Corridor-wide	**ADA compliance**: address obstructions and other ADA issues at intersections	Short to Medium-Term	Low cost; varies by location
Street Lighting	Corridor-wide	**Add pedestrian-scale lighting;** Louisiana Blvd to Wisconsin St	Short to Medium-Term	$1,000,000

Appendix B: Detailed Summary of Business and Stakeholder Outreach

Overview

This chapter outlines purpose and methodology of outreach strategies implemented as part of the East Central Safety Study and presents an analysis of input generated from these efforts. The first section of this chapter focuses on outreach to business owners followed by a review and analysis of input received from outreach to social organizations situated along East Central Ave.

Outreach to Businesses

Purpose and Benefits

The outreach methodology applied in this project ensures that business owners are engaged in the development of proposed safety measures that may impact their business. Interviews were also conducted with local stakeholders at social organizations. Since outreach methods were limited due to COVID-19, a phone survey approach was implemented to gain comprehensive feedback from local stakeholders while adhering to social distancing guidelines.

In hearing the perspectives of local business and social organizations, the Project Team was able to understand how transportation safety affects residents and visitors of the area from first-hand anecdotal experiences. This feedback is particularly valuable given that these stakeholders have personally invested in the corridor.

Methodology

Outreach to businesses was conducted via phone survey. An online option was also provided for business owners who were not interested in completing the survey over the phone. Survey content was developed in coordination with Bernalillo County, and the survey includes both open-ended and close ended questions that provide insight into existing conditions along the study area and potential improvements that business owners would find most effective. Close-ended responses allow for comparison of responses across different potential improvements and transportation safety challenges. In turn, the Project Team assessed which potential improvements are most important to stakeholders and which safety challenges are most pressing.

As compared to online or paper surveys, phone surveys have the benefit of interacting personally with each individual stakeholder which emphasizes the need and importance of their involvement. In addition, phone surveys allow stakeholders to ask questions about the survey or the project overall. Respondents are also more likely to say what first comes to mind when answering questions instead of overthinking their responses. In another effort to encourage participation in the survey and to speak candidly, respondents were assured that their responses would remain confidential. For that purpose, this document does not ascribe any responses to specific businesses.

Survey Population

The target audience for the survey was all businesses located along Central Ave in the study area (i.e. between Eubank Blvd and Juan Tabo Blvd). A list of businesses for the corridor was provided

by MRCOG using a database from DataAxleUSA (formerly InfoUSA). The Project Team verified the list of businesses via a drive through along the corridor and noted any additional businesses or instances where businesses were listed but are now vacant. The survey was administered to business owners or managers.

Survey Administration

Surveys were administered the weeks of October 19th and October 26th. If a business answered the call, the interviewer requested to speak with a business owner or manager. If they were not available, a call-back time was requested. For those who were interested in completing the interview, responses were entered and aggregated using a Survey Monkey form. In the case that a business did not answer, a voicemail was left providing a number to reach the Project Team. Businesses were called once a day; voicemails were only left once a week.

Call Results	Number
No response	11
No longer at that location	2
Invalid number	4
Requested online survey; did not complete	2
Refused	3
Completed	10
Total	**32**

Open Ended Responses

An analysis of open-ended responses revealed several recurring themes, including concerns regarding the homeless population, personal safety, motorist speed/behavior, jaywalking, transportation infrastructure, and comments regarding a need for more of a police presence. Open-ended survey responses are categorized under these themes.

It is important to note that responses often fell under multiple themes. For example, responses that spoke to concerns regarding personal safety often coincided with concerns regarding the homeless population. Some respondents also tied these concerns to existing transportation infrastructure. For example, one respondent who referred to personal safety, transportation infrastructure, and the homeless population commented: "The sidewalks are broken and there's homeless everywhere. Homeless camp on the property line every night and that's why people don't walk around here. There's a lot of crime in the area." Another respondent commented: "Dealing with homeless people is a safety challenge and the people who walk up and down the street. At night, there are safety challenges because there is not enough lighting."

Concerns regarding homeless population

Responses that referred to the homeless population elucidated local stakeholders' perspective on the presence of the homeless population and how it impacts both transportation patterns and perceptions of personal safety in the area. For example, some responses referred to the presence of the homeless population as a barrier to feeling safe walking and using transit in the area. Also, when

asked what changes they have seen over time along the corridor, several respondents mentioned an increase in the presence of the homeless population.

> *"The biggest thing is the homeless people, they're just too many. If I were a woman, I'd never walk here…(but) the roads are very good actually."*

Concerns regarding personal safety

Responses that referred to personal safety focused on concerns and experiences with theft, substance use, and intoxicated people near their businesses. Respondents spoke about how these experiences are a barrier to feeling comfortable travelling through the neighborhood, whether it be by car, bus, or walking. As a response to personal safety concerns, one respondent indicated he had hired security personnel to monitor activity near his business.

> *"I hear screaming and yelling and fighting sometimes, I wouldn't walk here, I wouldn't feel good about it. Then again, I'm an older lady but I don't see many people walking around."*

Concerns regarding motorist speed/behavior

Responses that referred to motorist behavior focused primarily on vehicle speeds and how it impacts their business. Respondents mentioned the lack of business investment in the area and tied this lack of investment to motorists speeding through the area which negatively impacts their business. One respondent discussed how due to a lack of businesses to stop for, motorists tend to speed. In turn, they expressed a desire for increased business investment in the area before moving forward with pedestrian safety investments. Another respondent mentioned that high motorist speeds renders their business less visible to the public.

Positive aspect of existing transportation infrastructure

Responses that referred positively to existing transportation infrastructure described recent developments they viewed as benefiting their business. For example, respondents positively spoke about repaved streets and fewer potholes. Other respondents indicated their preference that transportation infrastructure along other parts of Central Ave not be applied near their business. In particular, one respondent voiced opposition to the ART and the use of raised medians.

Concerns regarding jaywalking

Responses referred to pedestrian behavior in the area and how infrastructure increased enforcement might help curtail the jaywalking. For example, one respondent mentioned that crosswalks won't prevent jaywalking; instead, a median barrier along with enforcing penalties will be more effective. In alignment with this comment, another respondent said that pedestrians will jaywalk even if a crosswalk is five feet away. This respondent tied this issue to their observations of pedestrians colliding with vehicles near their business all the time.

Concerns regarding transportation infrastructure

Responses regarding transportation infrastructure focused on safety issues related to construction, deteriorating sidewalks, and a lack of sufficient lighting. Respondents mentioned that these concerns lead to issues with customers accessing their business. In particular, the references to a lack of

lighting is reinforced by the close ended responses, where not enough lighting was rated as the most significant safety challenge.

Several respondents described sidewalk infrastructure as uninviting. Respondents referred to the unevenness of sidewalks and proximity to moving vehicles. One respondent mentioned that fire hydrants and other obstructions make sidewalks inaccessible to pedestrians using wheelchairs. Another respondent spoke to how bicyclists often use the sidewalks since there are no bicycle lanes, making pedestrians prone to crashes with bicyclists.

Key Takeaways from Close Ended Responses

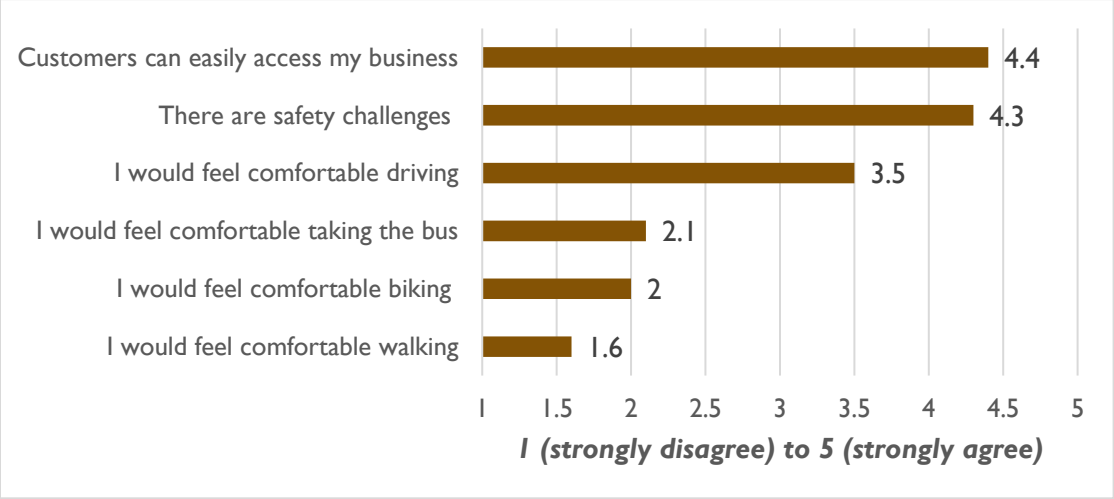
Time in Business

Eight of the 10 businesses have had their business along East Central Ave for over 10 years. The other two had been there for less than 1 year and 2-5 years respectively.

Perceptions of Travel Modes

Respondents were asked to rate their level of agreement on a scale of 1 (strongly disagree) to 5 (strongly agree) with a list of statements related to perceptions of various modes of travel along Central Ave (see the table below). Respondents most strongly *agreed* with the statements: Customers can easily access my business and there are safety challenges along Central Ave near my business. Respondents most strongly *disagreed* with the statements: I would feel comfortable walking along Central Ave near my business and I would feel comfortable biking along Central Ave near my business.

Perceptions of Travel Modes among Business Owners – Response Averages

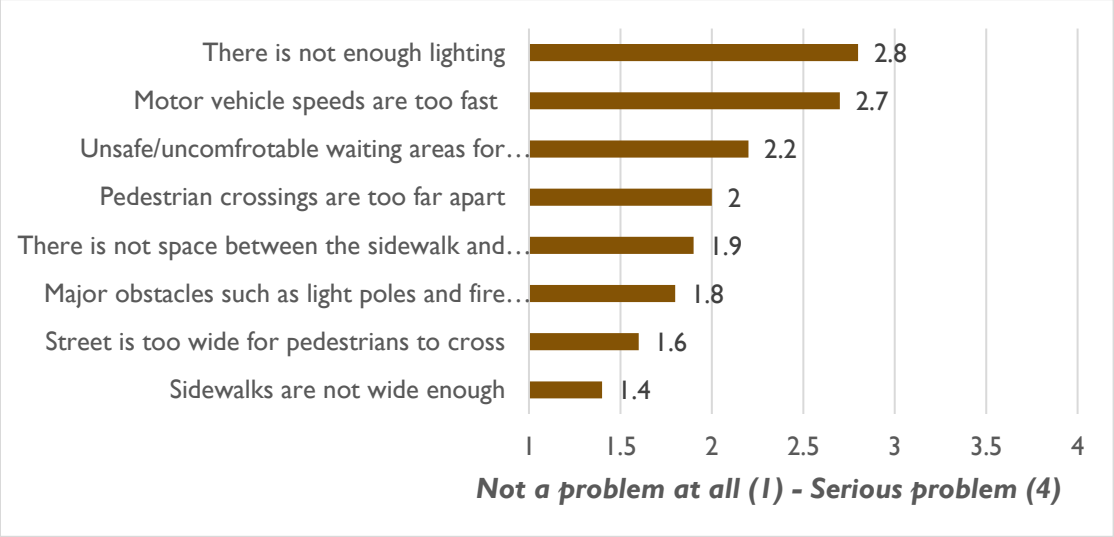


Safety Challenges

Respondents were asked to rate how much of a problem specific transportation safety challenges are on a scale of 1 (not at all a problem) to 4 (serious problem). The most frequently cited issues include

insufficient lighting, motor vehicle speeds are too fast, and unsafe/uncomfortable waiting areas for transit users.

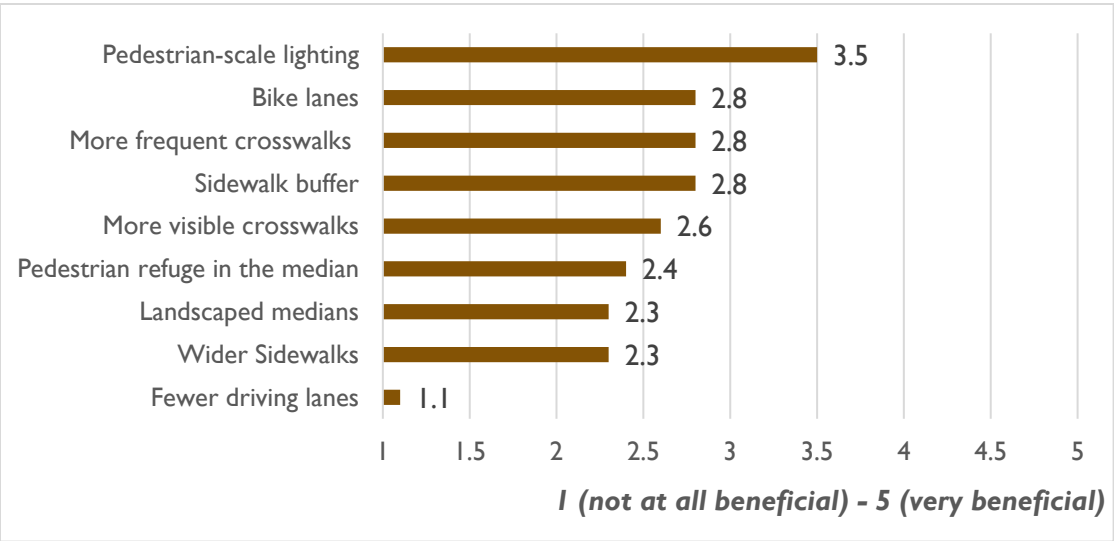
Perceived Safety Challenges among Business Owners – Response Averages



Potential Safety Improvements

Respondents were asked to rate how beneficial potential safety improvements would be on a scale from 1 (not at all beneficial) to 5 (very beneficial). Pedestrian-scale lighting, buffer between sidewalks and driving lanes, more frequent crosswalks, more visible crosswalks, and bike lanes were rated as the most beneficial potential safety improvements respectively.

Level of Benefit for Potential Safety Improvements



Key Takeaways/ Discussion

In their responses, business owners were generally motivated by a desire to maintain vehicle access to their businesses. On average, business owners estimated that 93% of their customers arrive by car, business owners agreed that customers can easily access their business. Given that most of their customers arrive by car, business owners tended to respond to survey questions from an auto-oriented perspective. Motivated by improving or maintaining their success, they tended to speak to safety challenges as it relates to why and how patrons might be deterred from their business. One salient example is a business owner who, when asked if customers have issues accessing their business, said that access to their business is fine but potential customers may simply avoid the area due to personal safety concerns. Another example is a business owner who, as a result of personal safety concerns related to intoxicated people near his business, has taken the measures of fencing their business and hiring on-call security personnel to remove intoxicated individuals from near their business.

Close-ended responses also reflected business owners' desire to maintain vehicle access to their businesses. Business owners found narrow sidewalks and wide roadways as the least problematic safety challenges while not enough lighting and high vehicle speeds were ranked as the most problematic safety challenges. However, business owners generally did not find any pedestrian safety improvements as likely to be particularly beneficial. When asked to identify potential improvements, fewer driving lanes, wider sidewalks, and landscaped medians were collectively ranked as the least beneficial strategies.

Outreach to Social Organizations

This section outlines the methodology for and key findings from the project team's interviews with social organizations along East Central Ave.

Purpose

Outreach was conducted to social organizations so to generate feedback from stakeholders who understand social issues along East Central Ave, are invested in improving the community, and, based on their existing knowledge, can provide informed input and recommendations.

Methodology

Outreach to community organizations and medical clinics was conducted via one-on-one interviews.[6] In lieu of a structured survey, the interviews were open-ended to allow the Project Team to gain greater insights into the types of populations served and safety countermeasures that would be most beneficial. Interviews were conducted with all five of the organizations identified by Bernalillo County staff.[7] Community organizations and medical clinics represented in study included:

- East Central Ministries
- God's Warehouse

[6] An exception was the UNM Young Children's Hospital where BHI staff were invited to present and facilitate a discussion during a meeting of more than a dozen staff members.
[7] It is important to note that some of the organizations are located along Central Ave outside of the study area (i.e. Eubank Blvd to Juan Tabo Blvd).

- Street Safe NM
- Southeast Heights Clinic
- UNM Young Children's Hospital

Key Findings: Community Organizations

Transportation safety is a major issue from the perspective of each of the stakeholders interviewed, who universally agreed that Central Ave through the study area is inhospitable to pedestrians and that traffic speeds are too high. Unlike the businesses interviewed, community organizations and medical clinics located along East Central Ave work with populations who are more likely to be pedestrians and dependent on public transportation. As a result, stakeholders generally expressed greater support for design interventions that would enhance pedestrian safety, even if it were to limit site access.

General Conditions

In addition to transportation safety issues, stakeholders provided important insights into social conditions and demographics along the corridor, which are relevant when considering potential improvements. Several stakeholders mentioned that there is a presence of families who walk with children and/or strollers. Stakeholders also related that there are refugee and recent immigrant populations in the study area who are not as familiar or comfortable with high speed suburban roadways like Central Ave.

Representatives of community organizations who directly interact with individuals who reside and frequent the area confirmed that homelessness, drug use, public intoxication, and solicitation are all issues along the corridor. These issues, when combined with high speed roadway conditions and poor sidewalk conditions, exacerbate the pedestrian safety risks.

Travel Speeds and Barriers for Pedestrians

According to the stakeholders interviewed, high speed traffic makes it difficult for people to cross Central Ave, and the distances between crosswalks mean that most people cross in uncontrolled locations. Stakeholders acknowledged there is a lot of jaywalking along the corridor, often within a short distance of a crosswalk, and expressed mixed opinions on whether crosswalks and HAWK signals would be utilized if constructed. For example, John Bulten of East Central ministries described how pedestrians often won't walk the extra block or two to get to a crossing and posed the question, "How do we make it safe for people who are jaywalking because they'll do it anyway." Christine Barber of Street Safe NM similarly described jaywalking as a safety concern in saying, "I don't know if the solution [to jaywalking] is changing the speed limit, or adding HAWK crossings, but are people going to use it or walk through traffic?"

Access to Transit

Stakeholders emphasized the critical role that transit plays for residents along the corridor and asserted the need for safer access to transit stops. For example, Christine Barber of Street Safe NM related various instances of individuals being hit while trying to cross the street to reach a transit stop. Pastor Chuck of God's Warehouse related a similar concern of pedestrians jaywalking to access transit and attributed this behavior both to bus stops not being located near crosswalks and to the prevalence of intoxicated pedestrians. Dr. Kate McCalmont, a practitioner at the Southeast Heights Clinic, mentioned that many of her patients use transit to access the clinic and that,

oftentimes, patients feel uncomfortable at transit stops due to the presence of people using substances.

Sidewalk Conditions

Sidewalk conditions were consistently identified as poor. Sidewalk issues include uneven surfaces, the presence of obstructions, and the fact that sidewalks are located immediately adjacent to traffic. Multiple interviewees voiced the need for greater separation between pedestrians and motorists. Stakeholders related stories of parents walking with strollers and being forced into the street to avoid an obstacle, as well as instances of intoxicated individuals falling into the street.

> *"I have patients that walk over to the clinic. Sidewalks are extremely important for them including having wide enough sidewalks so they can walk around people who are spending the day on the sidewalk. Wide, safe sidewalks are important for those who walk to the clinic." -Dr. Kate McCalmont, Southeast Heights Clinic*

Discussion on the Use of Median Barriers

Following an initial proposal by an attendee of a group stakeholder interview that Bernalillo County and the City of Albuquerque entertain median barriers that force pedestrians to use crosswalks, Dr. John Buchan of the UNM Young Children's Health Center asserted that many people in the community are already marginalized and stigmatized. In turn, fencing could reinforce those social stigmas. Multiple attendees agreed that a better solution would be more opportunities to cross the street rather than the use of physical barriers. Dr. Kate McCalmont reinforced this sentiment by mentioning how pedestrians using walkers or wheelchairs and pedestrians who carry their belongings in shopping carts are challenged with crossing the median if it is not level with the road. In turn, Dr. McCalmont recommended prioritizing ADA accessibility.

Potential Recommendations

Stakeholders related several potential strategies and demonstrated a far greater interest in design interventions along the corridor that would lower speeds and reduce crossing distances for pedestrians than business owners.

John Bulten of East Central Ministries advocated for changes to the roadway that would slow speeds in a natural way, including the removal of travel lanes. Multiple interviewees also voiced equity concerns as East Central Ave does not have comparable pedestrian infrastructure to Nob Hill.

Christine Barber of Street Safe NM specifically referred to a lack of lighting as a significant indicator of increased violence, "There's a huge stretch off Eubank north of Central with abandoned buildings that has no lighting. We're trying to track a rapist in that area who drags women into nearby alleys. The lack of lighting contributes to that kind of behavior. Property lights in that area have purposefully been broken to be conducive to violent attacks."

Dr. McCalmont specifically referred to the benefits of aesthetic improvements for pedestrian safety, "It's something about your physical environment, when it looks well cared for, you take more pride in it and feel like you matter. I like the sidewalk that goes across the west side of our clinic. There are cut outs with planted trees and I like that its wide. When your sidewalks have cracks you think it's not as safe because it's not well cared for."

Recommendations identified during the stakeholder interviews include:

- **Landscape buffers**: The proximity of sidewalks to motor vehicles could be addressed through landscape buffers, which would mitigate the issue of individuals stepping or falling into the street.
- **Raised medians**: Multiple interviewees identified medians as beneficial since they would allow for pedestrians to cross the street in two stages. An additional consideration related to medians is that there is relatively little green space in the area and landscaped medians would provide some level of greenery and aesthetic improvements. In turn, pedestrians are more likely to use safety infrastructure.
- **Lighting**: Several interviewees mentioned a need for additional lighting in the area to address both personal safety and pedestrian safety.
- **Additional crosswalks**: Interviewees generally indicated that more crosswalks are needed, including to better access public transit, though some were skeptical that they would be utilized. If HAWK signals were to be introduced, interviewees recommended that signage/instructions be provided in multiple language to ensure individuals know how to navigate the intersections.
- **Other**: Other proposed improvements include bike lanes and wider sidewalks.

Business Owner Survey Questions

Overview

The survey questions below were developed in coordination with Bernalillo County and were administered by phone to businesses along East Central Ave between Eubank Blvd and Juan Tabo Blvd in October and November 2020. All of the answers were kept confidential and the information provided was aggregated.

Background Information

- Business Name (kept confidential)
- How long have you had your business along East Central Avenue? (multiple-choice)
    - Less than 1 year
    - 1 to 2 years
    - 2 to 5 years
    - 5 to 10 years
    - More than 10 years
- Approximately what percentage of your customers arrive to your business by the following transportation modes? (open-ended)
    - Car
    - Bus
    - Walking
    - Biking

Perceptions and Safety Issues along East Central Ave

- Please state whether you strongly agree, agree, are neutral, disagree, or strongly disagree with the following statements:
    - I would feel comfortable walking along Central Avenue to my business
    - I would feel comfortable driving along Central Avenue to my business
    - I would feel comfortable taking the bus along Central Avenue to my business
    - I would feel comfortable biking along Central Avenue to my business

- If you disagree with any of the above, please explain. (open-ended)
- Have you observed any issues with customers accessing your business? (open-ended)
- Do you have any comments or observations about transportation safety issues along East Central Ave near your business? (open-ended)
- What changes, if any, have you observed in transportation safety conditions along the corridor over time? (open-ended)
- For each of the following transportation safety challenges, rate how much of a problem the issue is from 1 (not at all a problem) to 4 (serious problem).
    - Motor vehicle speeds are too fast
    - Street is too wide for pedestrians to cross
    - Sidewalks are not wide enough
    - There is no space between the sidewalk and motor vehicles
    - Pedestrian crossings are too far apart

  - There is not enough lighting
  - Major obstacles such as light poles and fire hydrants are present along the sidewalks
  - Unsafe/uncomfortable waiting areas for transit users

- What other information would you like to share about safety for motor vehicles, pedestrians, and bicyclists along East Central Avenue? (open-ended)

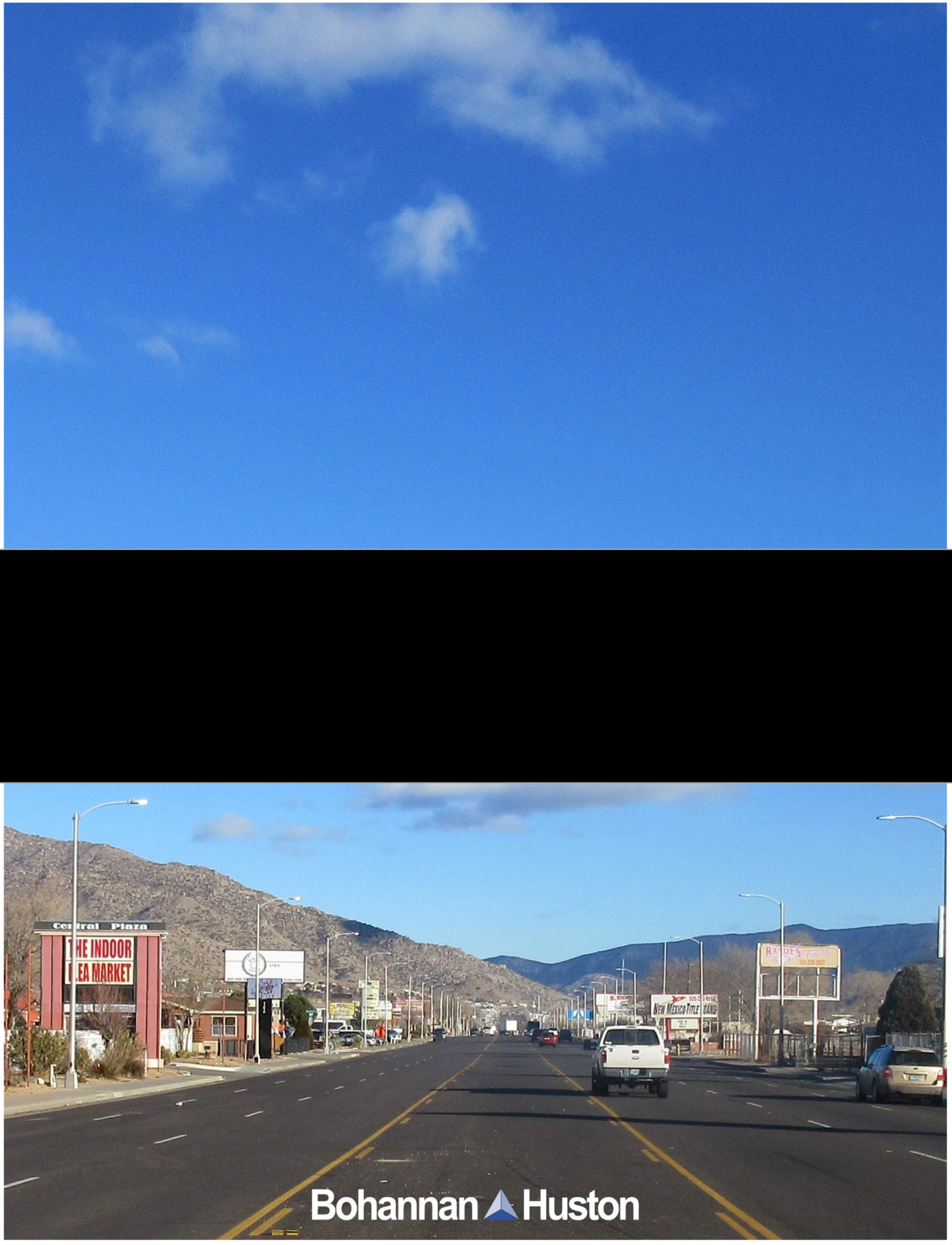
Recommended Improvements

- Of the following strategies, how beneficial do you think each of the improvements below would be on a scale from 1 to 5.
  - Wider sidewalks
  - Buffer between sidewalks and driving lanes
  - More frequent crosswalks
  - More visible crosswalks
  - Landscape medians
  - Pedestrian refuge in the median
  - Pedestrian-scale lighting
  - Fewer driving lanes
  - Bike lanes

- What other recommendations would you like to see implemented to improve safety along East Central Avenue for motor vehicles, pedestrians, and bicyclists? (open-ended)
- Do you think those types of improvements would benefit your business? (open-ended)

Other/Open-Ended Comments

- Please share any other comments below. (open-ended)


Central Plaza
THE INDOOR
FLEA MARKET
NEW MEXICO TITLE
Bohannan Huston