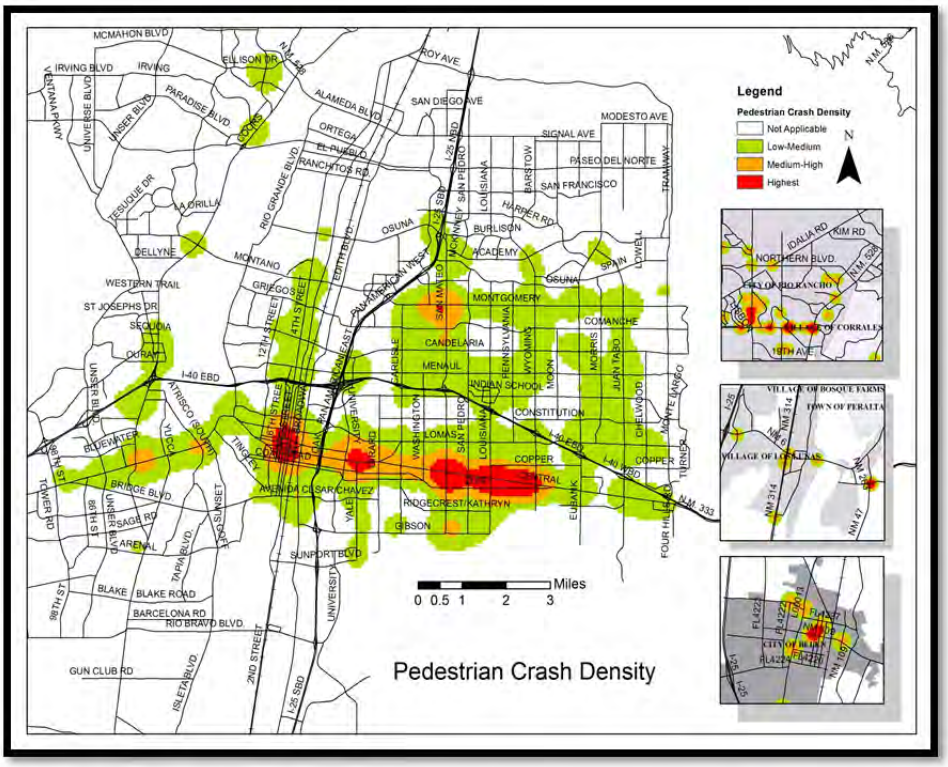
West Central Avenue

(Coors Blvd. to Sunset Dr.)

Pedestrian Road Safety Audit Report



Albuquerque, NM

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Prepared by

Federal Highway Administration, Office of Safety

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EXECUTIVE SUMMARY

The Federal Highway Administration, Office of Safety (FHWA) launched the Focused Approach to Safety in 2005 to better direct resources where there is greatest opportunity to save lives and prevent serious injuries. In 2011, FHWA's Focused Approach to Safety narrowed its scope concentrating on roadway departure, intersection and pedestrian fatal crashes. Through a comprehensive data analyses for all 50 States using crash data from 2007, 2008 and 2009, the City of Albuquerque became eligible to be one of 26 Pedestrian Focus Cities by the FHWA, due to the higher than average annual pedestrian fatality rate per population. Albuquerque shares this eligibility with other cities such as Miami, FL, New York City, NY and Los Angeles, CA.

FHWA Pedestrian Focus Cities

In an effort to reverse this trend, FHWA has offered the City of Albuquerque the opportunity to access free training, technical assistance and technical experts in the pedestrian safety area. It includes identifying and implementing proven safety countermeasures to help solve safety issues and explore ways to improve the safety culture, policies, and procedures related to pedestrian safety. In 2013, as a part of the technical assistance effort, the City of Albuquerque identified the West Central Avenue corridor between Coors Boulevard and Sunset Drive as a good candidate for a pedestrian Road Safety Audit and requested assistance to identify solutions – engineering, educational, and enforcement – for a seemingly high number of midblock, injury-producing pedestrian crashes.

During the Road Safety Audit, the team observed a high number of mid-block crossings, typically near transit stops, which is consistent with the historic crash data. These types of crashes can potentially be reduced with targeted education and enforcement efforts as well as a focus on changing the pedestrian safety culture. Additionally, several engineering safety improvements were identified ranging from low cost – marking additional high visibility crosswalks, to intermediate cost – signal phasing and intersection geometry improvements, to high cost – moving transit stops.

Following the on-site Road Safety Audit, the next steps include the City's development of an implementation plan for the suitable recommended safety countermeasures for West Central Avenue. Furthermore, duplicating the Road Safety Audit practices learned on Central Avenue to other corridors and intersections in the City of Albuquerque, as well as, develops a comprehensive pedestrian safety action plan to improve safety for all modes and reduce the number of fatal and injury crashes in the City of Albuquerque.

INTRODUCTION

Background

Roadways in the state of New Mexico rank among the highest in the nation for pedestrian fatalities. In 2011, according to the National Highway Traffic Safety Administration (NHTSA) data, New Mexico's pedestrian fatality rate per 100,000 people ranked seventh highest in the country. New Mexico has experienced severe pedestrian fatality issues over the past decade. Although the pedestrian crash rates are not as high as in past years, the average rate from 2006 through 2010 still remained high.

New Mexico				
Year	Pedestrian Fatal Crashes	ACS One-Year Population Estimate	Pedestrian Fatality Rate per 100,000 Population	NM National Rank for State with Highest Pedestrian Fatalities per 100K population
2006	69	1,954,599	3.53	1
2007	52	1,969,915	2.64	3
2008	39	1,984,356	1.97	7
2009	39	2,009,671	1.94	7
2010	33	2,065,932	1.60	14
2011	41	2,082,224	1.97	5

The Federal Highway Administration, Office of Safety (FHWA) launched the Focused Approach to Safety in 2005 to better direct resources where there is greatest opportunity to save lives and prevent serious injuries. In 2011, FHWA's Focused Approach to Safety narrowed its scope concentrating on roadway departure, intersection and pedestrian fatal crashes. Through a comprehensive data analyses for all 50 States using crash data from 2007, 2008 and 2009, the City of Albuquerque became eligible to be one of 26 Pedestrian Focus Cities designated by the FHWA, due to the higher than average annual pedestrian fatality rate per population. Albuquerque shares this eligibility with other cities such as Miami, New York City and Los Angeles.

Cities qualify as an FHWA Focus City if they exceed the national average of 20 average annual pedestrian fatalities or have a pedestrian fatality rate greater than 2.33 per 100,000 population between 2007 and 2009. While Albuquerque's average annual pedestrian fatality rate was less than 20 between 2007 and 2009, the city's fatality rate per 100,000 population was 2.53, which led to its selection as a Focus City. The NHTSA crash data is shown in Table 1.

From 2006 to 2010, Albuquerque accounted for 40.9% of *all crashes* in the state and 48.5% of *pedestrian crashes* in the state, as shown in Table 2. Yet, the city accounts for 26.5% of the state's population.

Table 1: Albuquerque Pedestrian Fatality Rates by Year, 2006-2010

Year	Pedestrian Crash Fatalities	Population	Fatality Rate per 100,000 population
2006	18	493,438	3.65
2007	15	511,893	2.93
2008	13	514,895	2.52
2009	11	529,206	2.08
2010	8	545,852	1.47
Average	13	--	2.53

Sources: US Census Bureau and NHTSA

Table 2: Top Ten New Mexico Cities by Share of Pedestrian Crashes, 2006-2010

	Total Crashes		% of Total Crashes		Population	
City	**Ped**	**All**	**% of Ped**	**% of All**	**Population**	**% of Total Population**
Statewide	**2,377**	**233,831**	**100.0%**	**100.0%**	**2,059,179**	**100.0%**
Albuquerque	1,152	95,613	48.5%	40.9%	545,852	26.5%
Santa Fe	161	13,041	6.8%	5.6%	67,947	3.3%
Las Cruces	134	16,380	5.6%	7.0%	97,618	4.7%
Farmington	84	7,355	3.5%	3.1%	45,877	2.2%
Gallup	63	3,937	2.7%	1.7%	21,678	1.1%
Roswell	61	6,123	2.6%	2.6%	48,366	2.3%
Hobbs	44	4,374	1.9%	1.9%	34,122	1.7%
Clovis	41	4,713	1.7%	2.0%	37,775	1.8%
Rio Rancho	38	6,008	1.6%	2.6%	87,521	4.3%
Carlsbad	36	3,923	1.5%	1.7%	26,138	1.3%

Source: Bushell, M., Gelinne, D, Miano, M., and Zegeer, C. *Baseline Pedestrian Safety Assessment: State of New Mexico and City of Albuquerque.* University of North Carolina Highway Safety Research Center, Chapel Hill, NC, 2012.

Road Safety Audit

As a part of the FHWA Pedestrian Focus City efforts, the City of Albuquerque expressed interest in conducting a pedestrian Road Safety Audit on West Central Ave. Central Ave in southwest Albuquerque has one of the highest concentrations of pedestrian crashes in the city. The intersection of Central Ave and Coors Blvd, located within the RSA study area, had the third highest crash rate and the third highest fatal and injury crash rate of any intersection in the Albuquerque

A **Road Safety Audit** is the formal safety performance examination of an existing or future road or intersection by an independent, multidisciplinary team. It qualitatively estimates and reports on potential road safety issues and identifies opportunities for improvements in safety for all road users

Metropolitan Planning Area for the period from 2005 to 2009 according to the Mid Region Council of Governments (MRCOG) Crash and Safety Report for the Albuquerque Metropolitan Planning Area[1]. In addition, both Central Ave and Coors Blvd rank among the top 20 most congested corridors in the metropolitan area.[2]

Although pedestrian crashes occur throughout the Albuquerque area, there are particularly high concentrations along the Central Ave corridor. Neighborhoods participating in a recent sector plan called the West Route 66 Sector Development Plan Update expressed high levels of concern for pedestrian safety in the area. In 2012, there were two incidents involving pedestrians, including a fatality at Central Ave and Coors Blvd that further heightened concern from the local command of the Albuquerque Police Department (APD). Given the relatively high rates of pedestrian crashes along West Central Ave, the section of Central Ave between Coors Blvd and Sunset Rd was selected for the Road Safety Audit.

Figure 1 shows the overall pedestrian crash hot spots throughout the metropolitan area from 2000-2009. The pedestrian crash hot spot locations are shown by frequency of crashes within six different sectors, divided by the Interstates 40 and 25 and the Rio Grande River. The red and orange colors on the map show the areas with the highest concentrations of crashes. Similarly, Figure 2 shows the Central Ave corridor pedestrian crash density.

[1] http://www.mrcog-nm.gov/transportation/technical-services/safety-analysis
[2] *Congestion Management Process Atlas,* Mid-Region Council of Governments, Albuquerque, NM, 2011.

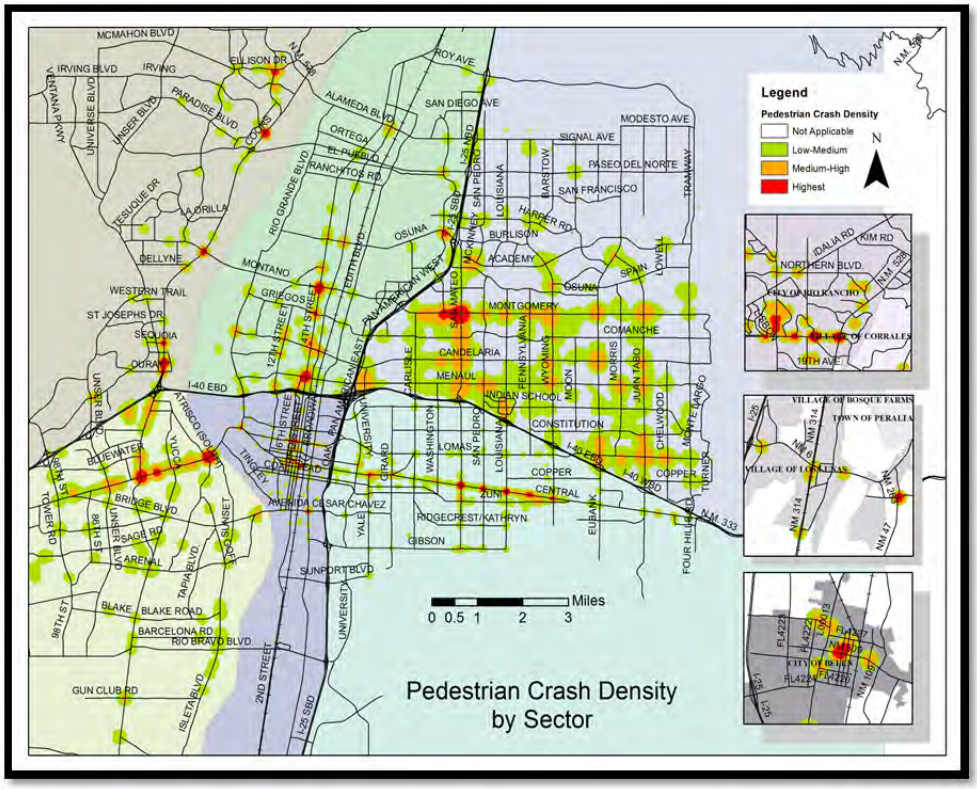


FIGURE 1: Sector Map with Pedestrian Hot Spots (2000 – 2009)

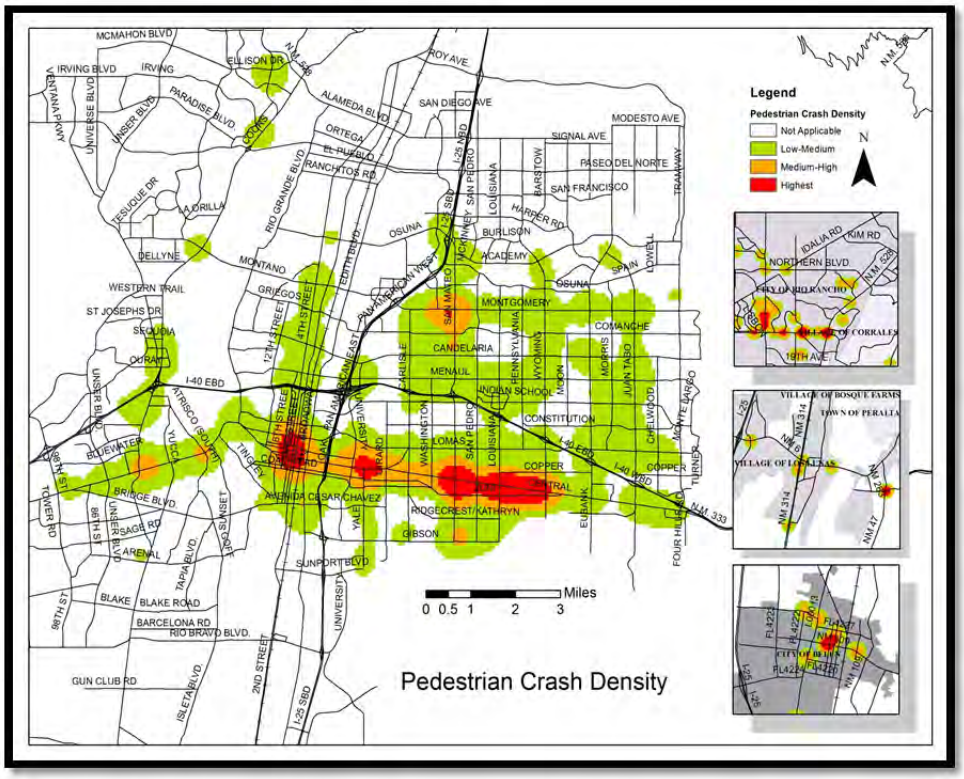


FIGURE 2: Pedestrian Crash Hot Spots (2000 – 2009)

General Description of West Central Avenue

Central Ave is very busy place. This urban stretch of Route 66 includes major transit lines and Central Ave is one of six bridge crossings over the Rio Grande River in the Albuquerque area. The average weekday traffic along this corridor ranges from 21,000 to 32,000 vehicles per day (2012 Traffic Counts MRCOG) and transit ridership ranges from 2,100 to 2,800 bus riders (2012 ABQ Ride and MRCOG) per typical commute day. In the surrounding Census tracts the average percentage of workers 16 years and older who walk or take transit to work is 11% (compared to 4% for the rest of the City). The average percentage of households with no vehicle or fewer vehicles than workers in the household is 14% (compared to 10% for the rest of the City.)[3]

Curb cuts along Central Ave

Central Ave has nearly 100 access points and 23 cross streets between Coors Blvd and Sunset Rd. The raised medians have frequent openings and channelized left turn lanes. A large number of vehicles and pedestrians travel along the corridor while simultaneously a significant number of vehicles and pedestrians cross Central Ave from the side roads and driveways.

FIGURE 3: Example of three cars leaving and entering median cut not far from a signal

[3] American Community Survey 2008-2012.

General Crash History along West Central Avenue

The study area encompasses a 1.7-mile segment of Central Ave between Coors Blvd and Sunset Dr. The speed limits in the study area are posted at both 35 mph to 40 mph. Central Ave features multiple modes and users, including motorists, bicyclists, pedestrians, and premium transit. 931 crashes occurred along Central Ave between Coors Blvd and Sunset Rd from 2008-2011. Nearly 2% of these crashes resulted in an incapacitating injury and one fatality was reported. The West Central Ave crash data is summarized in Tables 3 and 4 and Figures 3 through 6. The following were common crash characteristics and contributing factors of the crashes:

- Top contributing factor was driver inattention
- Most crashes occurred on a Friday
- Most crashes occurred between 3-6pm

Table 3: Total Corridor Crashes by Top Contributing Factor

Top Contributing Factor	Total Crashes	Percent of Total Crashes
Driver Inattention	308	33.1%
Follow Too Close	176	18.9%
Failure To Yield	151	16.2%
Improper Turn	43	4.6%
Excessive Speed	38	4.1%
Imp. Lane Change	28	3.0%
Alcohol/Drug Involved	26	2.8%
Red Light Running	24	2.6%
None	23	2.5%
Avoid Vehicle	22	2.4%
No Indication	21	2.3%
Imp. Overtaking	18	1.9%
Too Fast For Conditions	14	1.5%
Poor Driving	13	1.4%
Other-No Error	7	0.8%
Mech. Defect	5	0.5%
Avoid Ped Etc.	4	0.4%
Defect Brakes	4	0.4%
Passed Stop Sign	3	0.3%
Pedestrian Error	3	0.3%
Total (2008-2011)	931	100%

Table 4: Total Corridor Crashes by Year and Severity

Total Crashes Along Central Ave Corridor from Coors Blvd to Sunset Rd

	Fatal Crashes	Injury (Incapacitating)	Injury (Not Incapacitating)	Property Damage Only	Total
2008	0	2	64	171	237
2009	1	6	72	157	236
2010	0	3	59	154	216
2011	0	6	79	157	242
Total (2008-2011)	**1**	**17**	**274**	**639**	**931**
Percent of Total	**0.1%**	**1.8%**	**29.4%**	**68.6%**	**100%**

Figure 3: Total Corridor Crashes by Day of Week

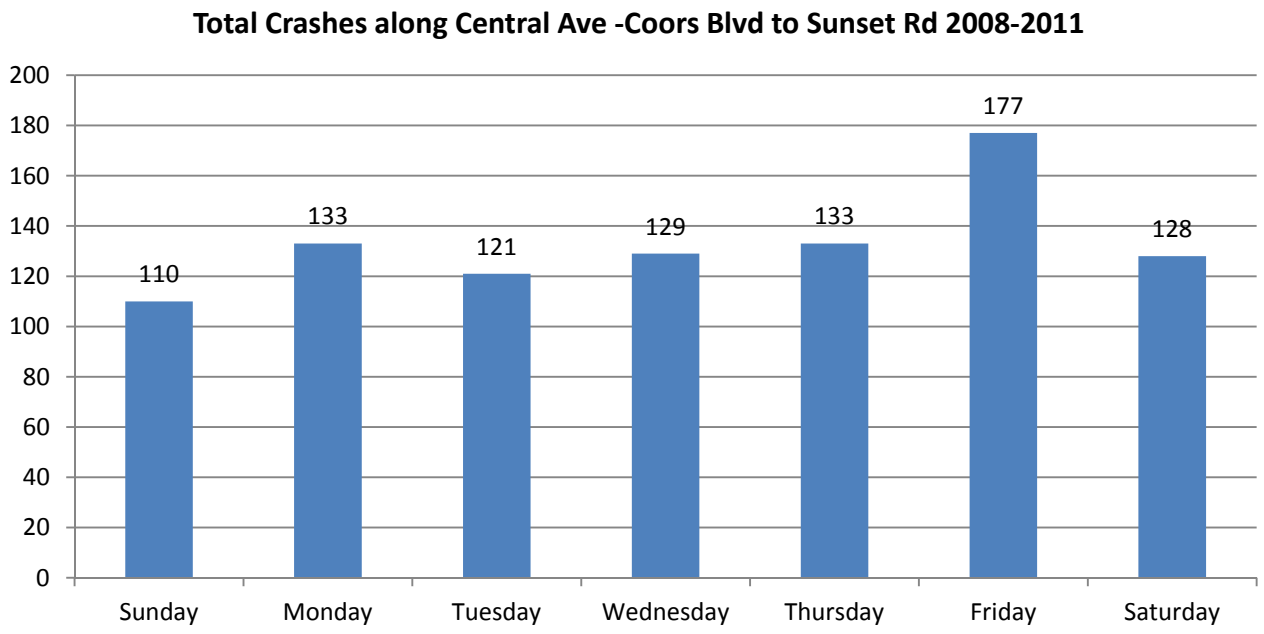


Figure 4: Total Corridor Crashes for Friday by Time of Day

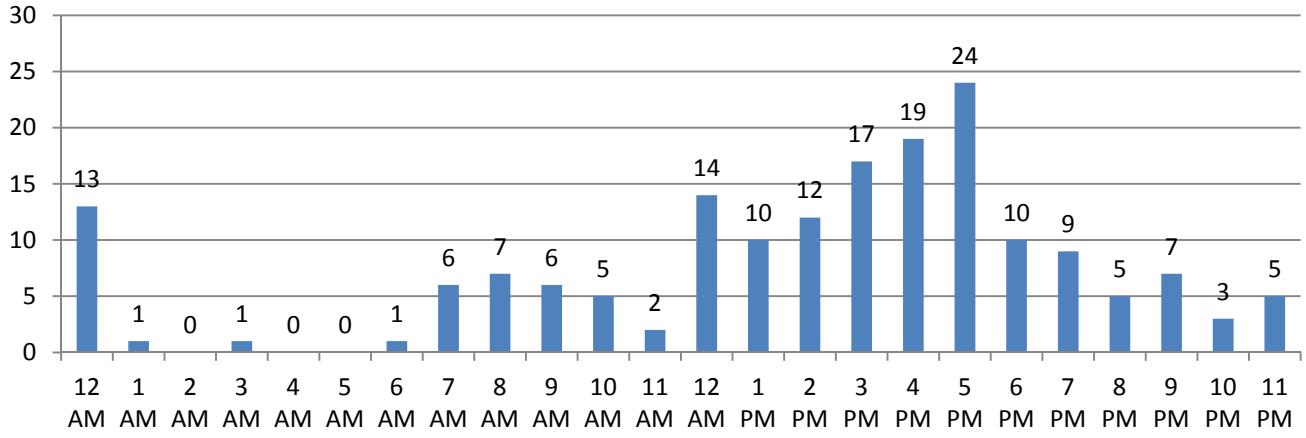


Figure 5: Total Corridor Crashes for Monday-Thursday by Time of Day

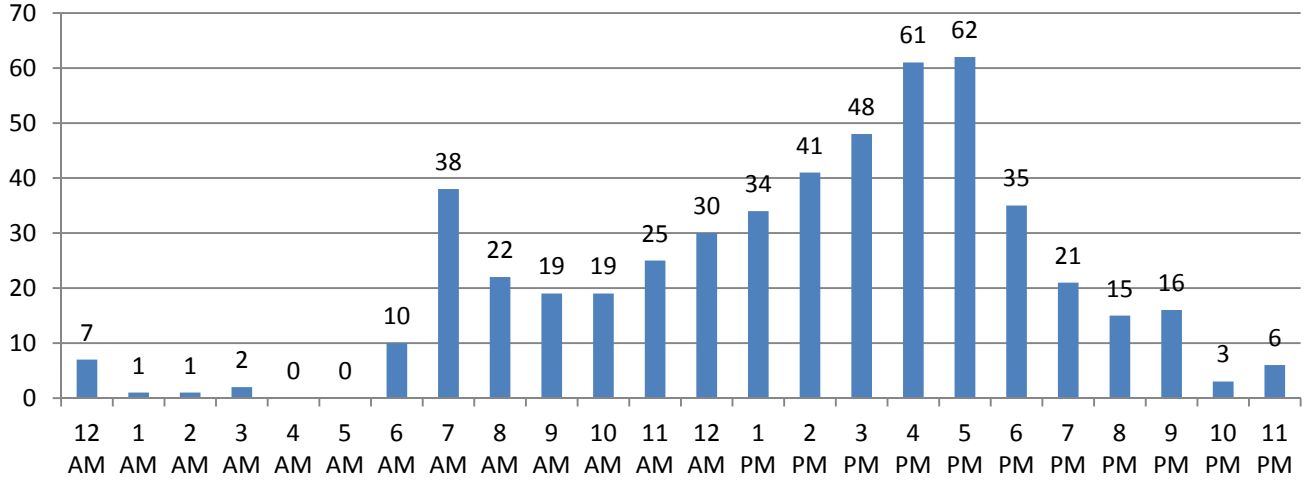
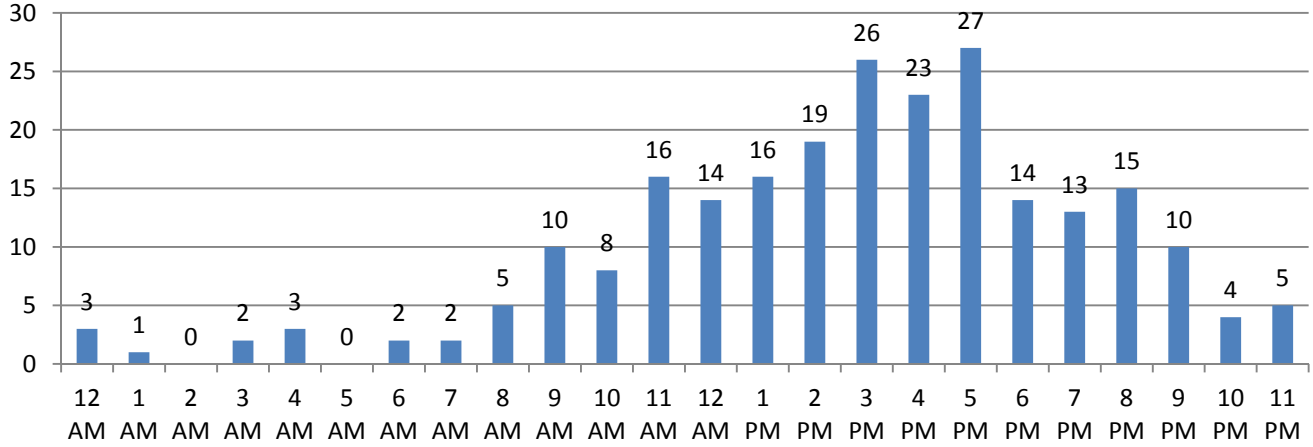


Figure 6: Total Corridor Crashes for Saturday-Sunday by Time of Day



Pedestrian Crash History

A review of crash records for the Central Ave corridor revealed that there were 35 crashes involving pedestrians or bicyclists over the four year period between 2008 and 2011, with 19 of the crashes involving pedestrians and 16 involving bicyclists. Crash data indicate that 27 of the 35 crashes (77%) resulted in injury, as shown in Figure 7. Of the 19 pedestrian crashes, 14 involved midblock crossings. Almost all the midblock crashes were in the vicinity of the Central Ave and Coors Blvd intersection.

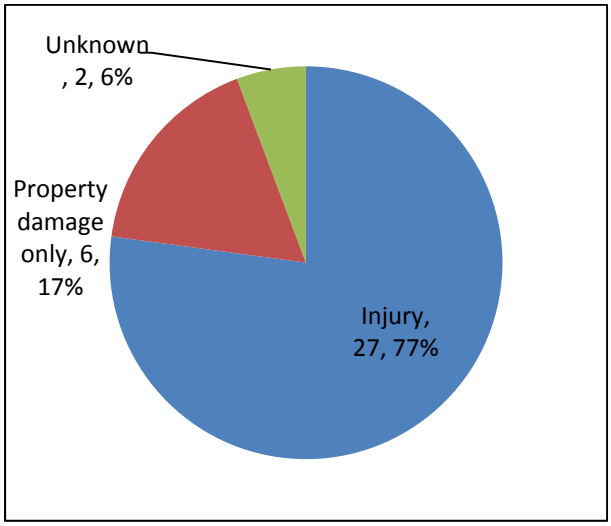


Figure 7: Pedestrian and Bicycle Crashes by Injury Severity, 2008-2011

Figure 8 shows that nearly half of the pedestrian crashes occurred during the evening peak hours from 4 to 7pm and 5 to 6 pm accounted for nine crashes over that four-year period.

Bicyclist behavior – specifically, failure to ride with traffic – was identified as a contributing factor in bicyclist crashes, as shown in Figure 9. Of the 16 bicycle crashes, seven (43%) involved the bicyclists riding against vehicular traffic – whether in the roadway, in a bike lane, or on the sidewalk.

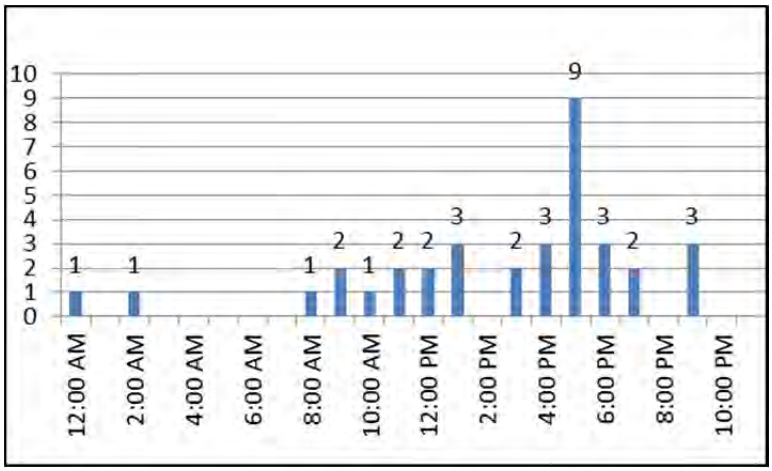


Figure 8: Pedestrian Crashes by Time of Day, 2008-2011

A 1992 study by Wachtel and Lewiston found that bicyclists riding on the sidewalk are 4.5 times more dangerous as right-way sidewalk travel.[4]

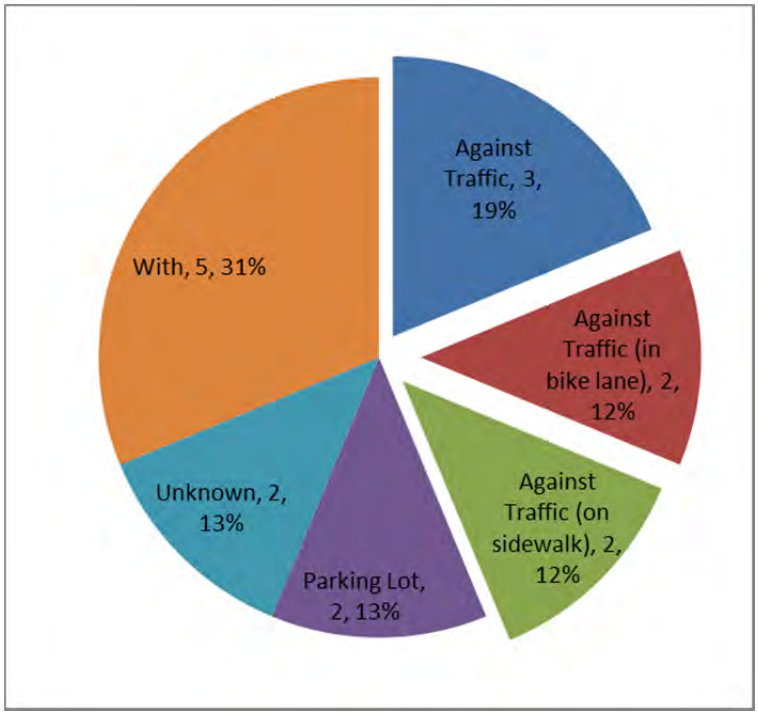


Figure 9: Bicyclist Crashes - With or Against Traffic (2008-2011)

Pedestrian Crash Fatalities and Alcohol and/or Drug Impairment

From 2008-2011, 4.2% of all crashes in Albuquerque involved alcohol or drug impairment while 15.5% of all pedestrian crashes involved a pedestrian who was alcohol or drug impaired. Of the 53 fatal pedestrian crashes, 30 involved an alcohol or drug impaired pedestrian (56.6%).

Within the West Central Ave corridor, 19 pedestrian crashes were reported from 2008-2011 between Coors Blvd and Sunset Rd. The percentage of pedestrian crashes with impaired pedestrians is lower along West Central Ave compared to the Albuquerque Region as a whole (5% versus 15.5%). Table 5 shows the percentage of crashes on the West Central Ave corridor that involved alcohol or impairment.

[4] http://www.vehicularcyclist.com/wachtel.html

Table 5: Total Central Avenue Corridor Crashes by Alcohol/Drug Involvement (Coors Blvd to Sunset Rd.)

	Drug / Alcohol Involvement	Percent Alcohol /Drug Involved	Total Crashes
2008	11	4.6%	237
2009	5	2.1%	236
2010	3	1.4%	216
2011	7	2.9%	242
Total (2008-2011)	26	2.8%	931

Pedestrian Crashes in Relation to Crosswalks on West Central Avenue

A majority of the crashes occurred where pedestrians crossed away from intersections and outside marked crosswalks. Another contributing factor in pedestrian crashes was failure of drivers' to yield to pedestrians in the crosswalk. Of the five (5) pedestrian crashes that occurred at intersections, four (4) involved pedestrians being struck *in the crosswalk* while they had the right-of-way. Four (4) intersections have marked crosswalks in the study area, Coors Blvd, Yucca/Old Coors Dr, 47th St and Atrisco Dr. Figure 10 shows the distances between marked crosswalks in the study area.

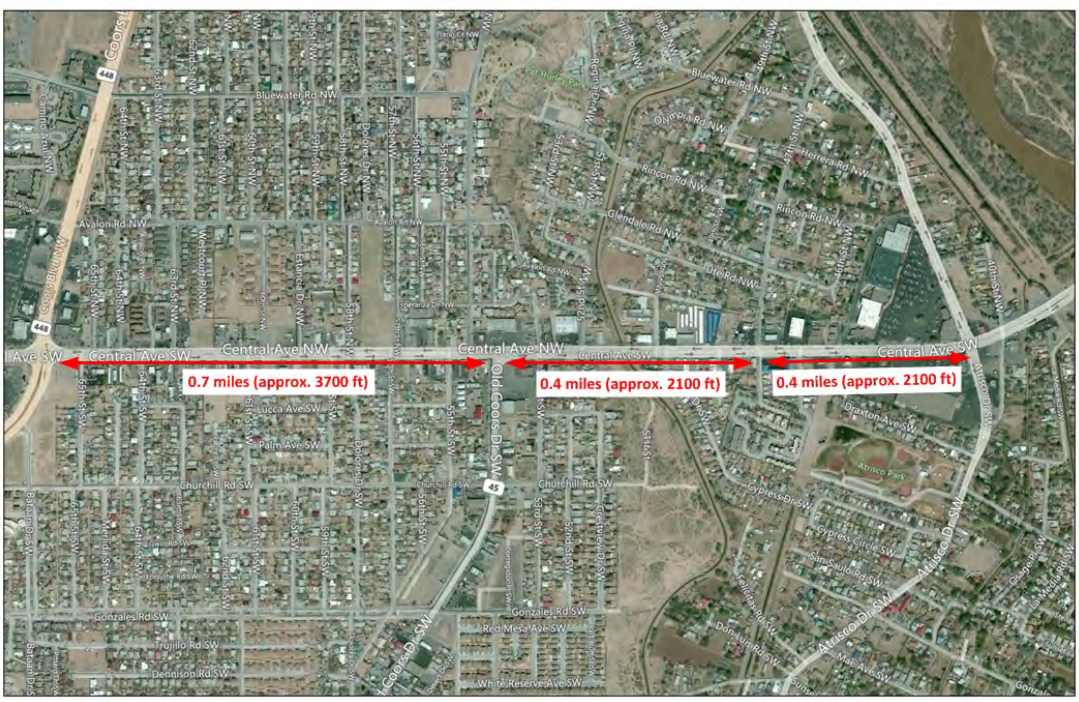


Figure 10: Distances between Marked Crosswalks on Central Ave (Coors Blvd. and Sunset Dr.)

WEST CENTRAL ROAD SAFETY AUDIT

Attendees and Contributors

The RSA Team included representatives from the following agencies and organizations:

- City of Albuquerque
  - Planning Department
  - ABQ Ride (transit)
  - Police Department
  - Risk Management Division
  - Parks and Recreation Department
  - Dept. of Municipal Development (public works)
  - Council Services
  - Greater Albuquerque Bicycle Advisory Committee (GABAC)
- New Mexico Department of Transportation
- Mid-Region Council of Governments
- Bernalillo County Public Works
- Federal Highway Administration

The month and days of the week selected for the RSA were based on crash data and knowledge of the RSA Team. The RSA was conducted from March 21 – 23, 2013.

Road Safety Audit Findings

The RSA Team observations, findings and recommendations are summarized by roadway feature as well as by safety issue and solutions are presented in three categories, education, enforcement and engineering. Table 6 provides a high level summary of the Central Avenue Corridor roadway features vital to pedestrian and bicycle safety and a brief assessment of the positive aspects of the features, as well as some of the potential issues with these same features. This provides a side-by-side comparison of how some features can both contribute to pedestrian and bicycle safety, and show room for improvement to fully enhance safety for all users.

Table 6: Central Avenue Roadway Features

Feature	PRO	CON
Sidewalks	Continuous sidewalks are provided on both sides of the roadway providing a designated path for pedestrians	Sidewalk is predominantly directly adjacent to the travel lanes with no buffer area between pedestrians and moving vehicles
Crosswalks	High visibility crosswalk markings are present at the four signalized intersections.	• The marked crosswalks are nearly one- half mile or more apart from each other • 19 minor road intersections create numerous unmarked crossings along the corridor
Bike lanes	Bike lanes are present on both sides of Central Avenue within the study area, on Atrisco Dr (north of Central Ave) and on Old Coors Dr	Bike lane is not obvious or consistent through the intersections; terminates near Old Coors for a duration; width includes the gutter pan
Transit	• The Central Avenue corridor features the highest transit ridership of any corridor in the Albuquerque metropolitan area. • Transit service on Central Avenue in the study area includes the Rapid Ride (Red Route), one of three ABQ Ride routes that feature limited stops, articulated buses, and streamlined boarding. • Transit transfer points are located at the intersections Central Ave and Coors Blvd and Central Ave and Atrisco Dr. • Bike racks on buses is an asset to bus riders.	Transit stops on opposite sides of Central Ave are not all linked with direct access via marked pedestrian crossings
Access Management	• Four-lane divided urban corridors (with partial access and medians) are typically safer than undivided corridors • The City has been active in assessing driveway access to properties along the corridor. This proactive approach to access management can potentially reduce conflict points along the corridor.	Over 100 of driveways are on this 1.7 mile corridor which results in a significant number of conflict points for all users

Data	Robust crash data, including pedestrian and bicyclist crash data, is available for analysis and decision making (Annual Crash and Safety Report for the Albuquerque Metropolitan Planning Area produced by the Mid-Region Council of Governments)	Crash data has not been extensively used to make data driven decisions for safety improvements
Pedestrian Safety Initiatives	• Bernalillo County Pedestrian and Bicyclist Safety Action Plan • The *Look for Me* campaign is a NHTSA-funded NMDOT Safety Education and Enforcement Campaign • The city has also been a part of the development and adoption of the 2035 Metropolitan Long Term Transportation Plan and the Mid-Region MPO Project Prioritization Process Guidebook. • The New Mexico Highway Safety Improvement Program provides funding to improve safety, including pedestrian safety	Although Pedestrian Safety initiatives exist within Albuquerque and New Mexico it is evident that the knowledge and effectiveness of these campaigns is unknown and potentially underutilized by all transportation partners
Community Bike Shop	The Esperanza Community Bike Shop (opened in Spring 2013) is located one block north of Central Avenue, serves as a citywide resource for bicyclists, and features extensive educational offerings on bicycle repair and safety	Use of community advocacy groups to assist in pedestrian and bicycle safety education may be underutilized

Safety Issues and Countermeasure Summary

The following section summarizes specific issues along the corridor observed and discussed by the RSA team and potential countermeasures to address these issues. The RSA approach always considers education, enforcement and engineering, the 3 E's, as potential solutions to safety issues. While some issues might be better addressed with enforcement others may be better addressed through engineering countermeasures. A list of the issues covered in this section follow:

- Education
- Enforcement
- Engineering
    - Intersections
    - Midblock Crossings
    - Transit
    - Bicyclist Infrastructure
    - Access Management (Driveways)
    - Accessibility
    - Lighting and Visibility

Pedestrian and Bicycle Safety Educational Campaign or Plan

Figure 11: ABQ Ride Mock Up Public Service Announcement

Based on the crash data, City staff observations and the observations during the RSA, it is apparent that pedestrians, bicyclist, and drivers are either not aware of crosswalk laws and bicyclists operating laws or these laws, are by and large being ignored by a majority of the users on Central Ave. One overarching recommendation from the RSA is to identify and assess any existing City, MPO, community-led or grassroots Pedestrian and/or Bicycle campaigns within the community and consider ways the existing programs could be enhanced to increase visibility and effectiveness in communicating to the public about Pedestrian and Bicycle safety. This sort of effort should be done, not only on Coors Blvd, but also across the City and provide recommendations on new initiatives that could be implemented. The City is encouraged to look both

internally and externally for opportunities to improve education and communication about pedestrian safety.

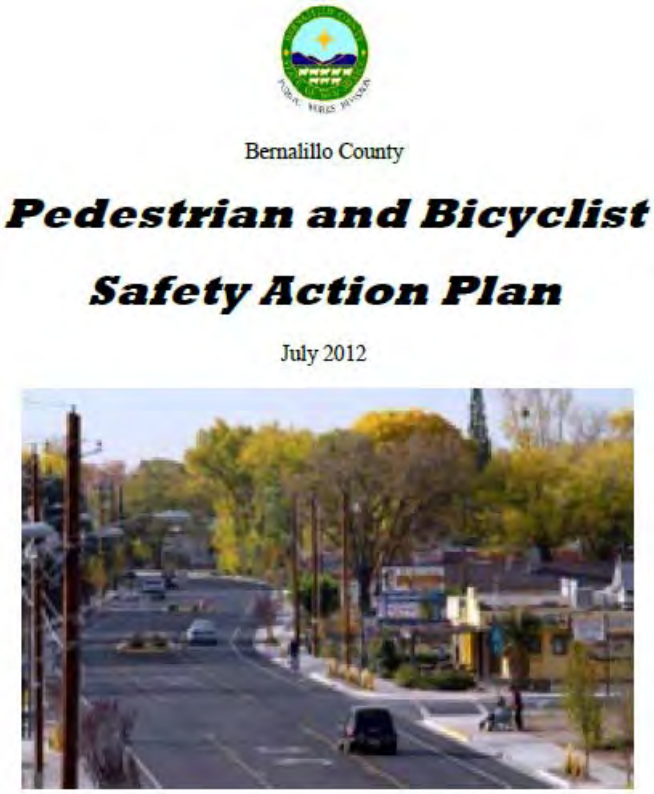
External educational (for the public) recommendations are summarized below:

- Host a "charette" and/or listening session for the Central Avenue Corridor to discuss the safety issues, discuss current laws, and develop potential recommendations. Provide incentives (e.g. free bus ride, free popcorn at the movies, grocery gift card) for community and business members to come and participate.
- Broadcast Public Service Announcements highlighting pedestrian safety issues. FHWA has some available for use or you may want to consider making one that is specific to Central Avenue or the City of Albuquerque.
  http://safety.fhwa.dot.gov/local_rural/pedcampaign/radiopsa.htm
  http://safety.fhwa.dot.gov/local_rural/pedcampaign/tvpsa.htm
- Sponsor advertisements on buses promoting pedestrian and bike safety.
- Sponsor a "Pedestrian Safety Day" or "Bicyclist Safety Day", where staff (or community volunteers) go into the field and hand out brochures on safety and or talk to transit riders about pedestrian safety.
- Sponsor pedestrian and bike safety meetings with business owners and their staff along the Central Avenue corridor (Walgreens, Albertsons, restaurants, motels, gas stations, schools/day care). Not only does an opportunity like this educate the employers and employees they can also communicate the message to their patrons.
- Initiate an education campaign for motorists focusing on the following:
  - Yield to pedestrians in crosswalks – It's the LAW
  - Educate drivers on the "multiple threat" situation.
  - Re-introduce the *Look for Me* campaign
- Initiate an education campaign for pedestrians, bicyclists and transit users focusing on the following:
  - Laws for pedestrians (ABQ §8-2-7-1 through -13, , see http://www.amlegal.com/library/nm/albuquerque.shtml)-– cross in crosswalks
  - Laws of bicyclists – (ABQ §8-3-3-1 through – 24) – bicyclists are vehicles and should ride in the direction of vehicular travel on the roadway (§8-3-3-8)
  - Discuss risk factors when pedestrians cross outside of crosswalks
    - Use pedestrian signals (count down timers) at intersections
    - Drivers may not expect pedestrians away from designated crosswalks that are visible to the driver.
    - Driveway traffic may not be expecting pedestrians as they look for a gap in traffic.
- Establish transit ridership protocol for passengers loading and unloading the buses (e.g. Riders should all cross behind the bus within the crosswalk).

Internal educational (for staff and employees) recommendations are summarized below:

- Offer planning and engineering staff access to training and workshops to enhance their ability to better design for Pedestrian Safety (FHWA offers free workshops)
- Offer Management, Leadership, Elected Officials opportunities to learn more about the pedestrian and bicyclist safety issues and potential solutions.
- Create a Pedestrian Advisory Group similar to the existing Transit, Bicycle, and Recreational Trail Advisory Groups. Possibly host a website promoting pedestrian and bike safety. http://www.iyield4peds.org/
- Establish a Citywide Traffic Safety Commission or Community Traffic Safety Team to discuss and address all transportation safety issues within the City. Often these Commissions meet on a quarterly basis and include members of the Police, Engineering, Traffic, Transit, School Board, County, EMS, University and other Community Members At-Large.

FWHA encourages all Pedestrian Focus Cities to develop a Pedestrian Safety Action Plan with the assistance of the technical team working with the City. In 2012, the Bernalillo County Public Works Division developed a Pedestrian and Bicyclist Safety Action Plan (PBSAP) that include recommendations for Street Standards Recommendations, Development of Criteria for Review of Private Development, Requirement of Traffic Impact Studies, Identify and Fund Capital Projects, and Promoting Coordination with Partner Agencies. (http://www.bernco.gov/PedBikeStudy/) The Bernalillo County Pedestrian and Bicyclist Safety Action Plan framework might be a starting point for the City of Albuquerque to consider as it develops its own Pedestrian Safety Action Plan (PSAP).



Isleta Boulevard, an example of a Complete Street

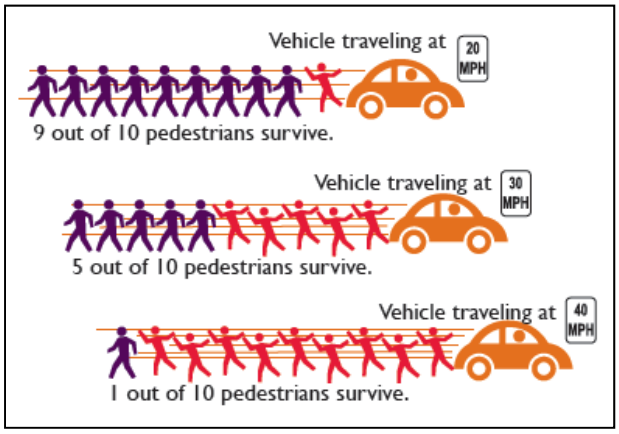
Pedestrian and Bicycle Safety Enforcement Campaign or Plan

The Albuquerque Police Department (APD) played an active role in identifying the Central Avenue Corridor for the RSA, as well as providing significant crash data and participating on the RSA Team. APD is considered a part of the solution to the safety issues identified along the corridor since the crash data indicates that many roadway users are violating traffic laws that resulted in the crashes. Some of the recommendations that involve APD are as follows:

- Playing an active role in the educational campaigns (above).
- Utilize the APD bike police in areas with heavy pedestrian and bike traffic near transit stations.
- Consider one day a month/quarter to emphasize pedestrian safety on high risk corridors that have been identified, including Central Ave.
- Consider the Department of Justice and National Highway Traffic Safety Administration Data-Driven Approaches to Crime and Traffic Safety (DDACTS) program. DDACTS integrates location-based crime and traffic crash data to determine the most effective methods for deploying law enforcement and other resources. Drawing on the deterrent value of highly visible traffic enforcement and the knowledge that crimes often involve motor vehicles, the goal of DDACTS is to reduce crime, crashes, and traffic violations across the country. http://www.nhtsa.gov/Driving+Safety/Enforcement+&+Justice+Services/Data-Driven+Approaches+to+Crime+and+Traffic+Safety+(DDACTS)
- Consider announced/advertised "sting" operations for driver, pedestrian and bicyclist violations along Central Avenue Corridor. The City of Chicago, IL has an active and ongoing yearly Crosswalk Enforcement Initiative. http://www.cityofchicago.org/city/en/depts/cdot/provdrs/ped/svcs/crosswalk_enforcementinitiatives.html
- Consider a Pedestrian Decoy Operation, where a plain clothed officer crosses the road and another officer watches to observe motorists violations. http://guide.saferoutesinfo.org/enforcement/pedestrian_decoy_operations.cfm

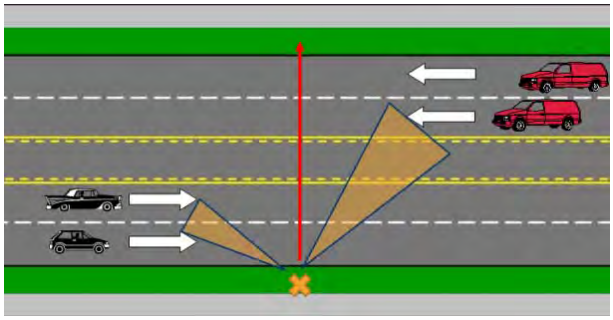
Engineering Safety Countermeasures for Pedestrian Safety

The pedestrian, bicycle, transit and vehicular needs along the Central Avenue corridor presents numerous infrastructure and engineering safety issues and opportunities. Pedestrians are our most vulnerable road user. The chance of survival decreases exponentially as vehicular speeds increase incrementally. At 40 mph, a pedestrian has only a 10% chance of survival if they are hit.

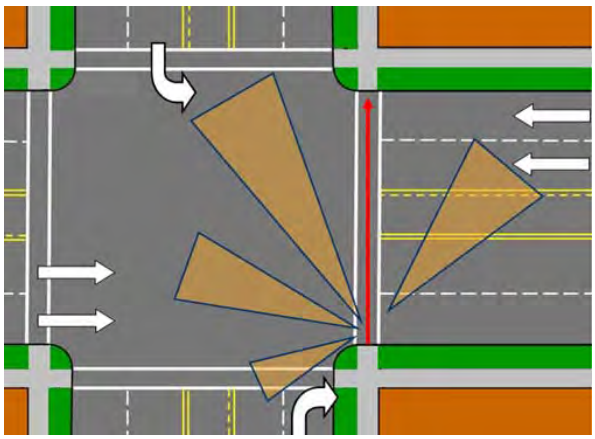


Source: City of Seattle, WA

Furthermore, both intersections and uncontrolled mid-block crossings present safety issues for pedestrians. Midblock locations account for more than 70 percent of pedestrian fatalities. Vehicle travel speeds are usually higher at midblock locations, contributing to the higher injury and fatality rates at these locations. At a midblock crossing (either marked or unmarked), pedestrians are faced with fewer conflicts but typically higher free-flow vehicular speeds.


Pedestrian conflicts at an uncontrolled mid-block crossing

At four legged intersection, pedestrians are faced with conflicts from vehicles approaching from all four legs of the intersection. Engineering studies have not shown one crossing is significantly safer than another but it is important that all crossings are identifiable by both drivers and pedestrians. The infrastructure and engineering safety countermeasures that support pedestrian safety become vital to the safety of the Central Ave corridor.


Conflicts for pedestrians at intersections

Pedestrians tend to take the path of least resistance. For example, if a transit stop is 50 ft from an intersection, and a passenger's destination is across the street, they will tend to walk to the intersection and wait for a "WALK" signal to cross the street. On the other hand, if a transit stop is 175 ft from an intersection and that same passenger's destination was across the street, they will likely chose to cross midblock even without a crosswalk. This is called human nature. If a pedestrian "feels" they can cross safely midblock, even without a crosswalk, they will. The FHWA Pedestrian Safety Guide for Transit Agencies also provides additional information for

transit agencies to consider along their transit routes as it pertains to pedestrian behavior and best practices.

Roadway improvements that increase safety for pedestrians generally increase safety for all roadway users. Expectations for both driver and pedestrians complement these countermeasures. FHWA has several Proven Safety Countermeasures that enhance pedestrian safety.

- Medians and Pedestrian Crossing Islands in Urban and Suburban Areas
- Pedestrian Hybrid Beacons
- Corridor Access Management
- Roundabouts

1. Raised medians (or refuge areas) should be considered in curbed sections of multi-lane roadways in urban and suburban areas, particularly in areas where there are mixtures of significant pedestrian and vehicle traffic (more than 12,000 Average Daily Traffic (ADT)) and intermediate or high travel speeds. Medians/refuge islands should be at least 6 feet wide (preferably 8 feet wide to accommodate pedestrian comfort and safety) and of adequate length to allow the anticipated number of pedestrians to stand and wait for gaps in traffic before crossing the second half of the street.

2. Pedestrian hybrid beacons (PHBs formerly known as HAWKs) should only be used in conjunction with a marked crosswalk. In general, they should be used if gaps in traffic are not adequate to permit pedestrians to cross, if vehicle speeds on the major street are too high to permit pedestrians to cross, or if pedestrian delay is excessive. Transit and school locations may be good places to consider using the pedestrian hybrid beacon.

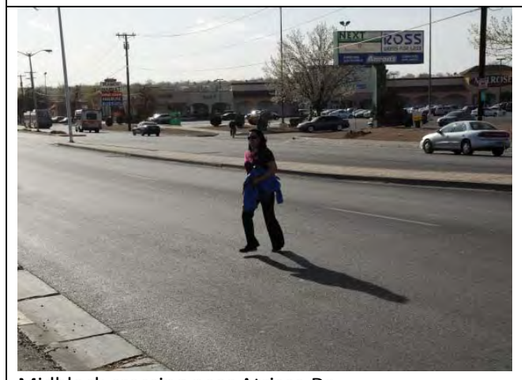
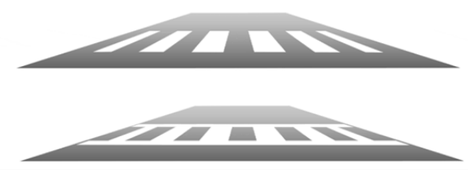
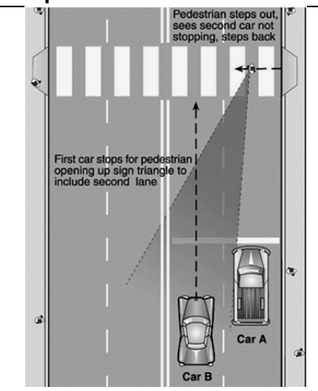
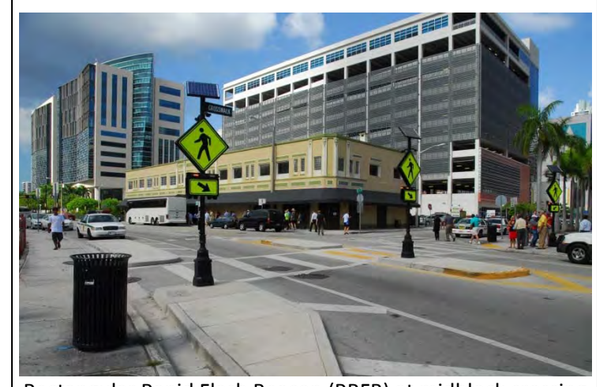
3. Access management techniques are designed to manage the frequency and magnitude of conflict points at intersections and driveways by altering access patterns. Several of the more common access management treatments include: Driveway closure, consolidation, or relocation; Restricted-movement designs for driveways (such as right-in/right-out only); Raised medians that prevent cross-roadway movements and focus turns and/or U-turns to key intersections; and using Roundabouts or Mini roundabouts to provided needed or desired access.

4. Roundabouts should also be considered when rehabilitating existing intersections that have been identified as needing major safety or operational improvements. By converting from a signalized intersection to a roundabout, a location can experience a 78 percent reduction in severe (injury/fatal) crashes and a 48 percent reduction in overall crashes.

Additional information can be found at http://safety.fhwa.dot.gov/provencountermeasures/.

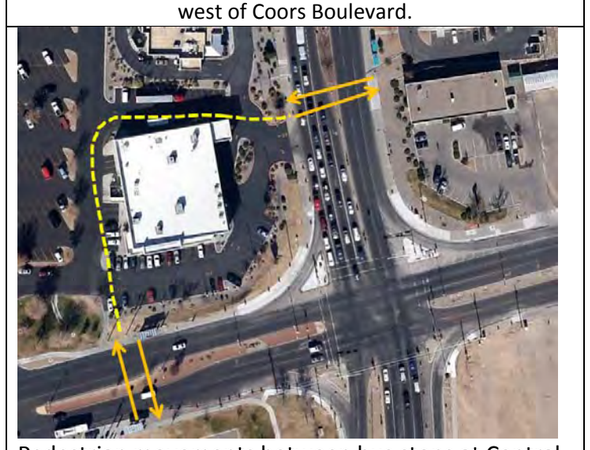
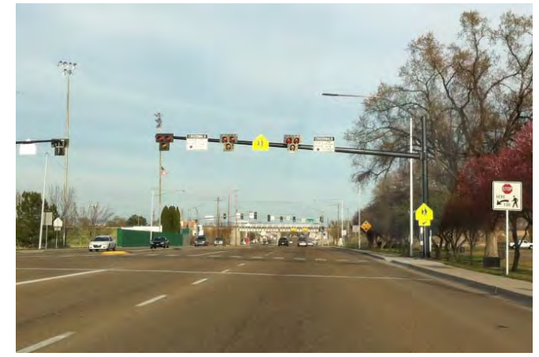
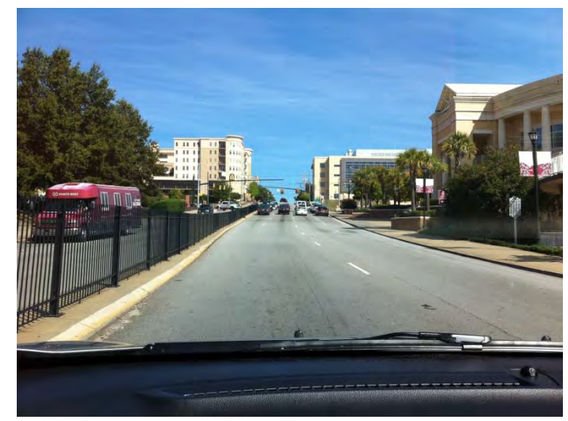
In the following pages, the suggested improvements are categorized as either “Short Term” which can be defined as efforts that can be done within the next 6 to 24 months; or “Long Term” improvements which may be considered beyond 24 months based on ease of implementation and costs. It is also possible that a Long Term solution would not be needed if the Short Term or solutions results show significant safety improvements.

Issue 1: Midblock Crossings – General

Specific Safety Issue	Examples of Issue	Suggested Improvements	Examples of Improvement
• 14 midblock crashes involving pedestrians throughout corridor • Significant midblock crossing activity throughout the study area – existing raised median's likely contribute to midblock crossing activity • Transit stops are not always located near a crosswalk (midblock or at an intersection). "Out of way" travel to (back to) intersections may encourage midblock crossings • Long distances between marked crosswalks and signalized crossings	 A pedestrian crossing Central Avenue midblock west of Atrisco Dr.  Midblock crossing near Atrisco Dr	***Short Term –*** • Conduct an "origin-destination" study to determine the origin and destination of the pedestrian trips along the corridor (e.g. WB Central Ave Transit stop to Albertsons, WB Central Ave transit stop to NB Coors Blvd transit stop) to optimize locations of transit stops and use of marked crosswalks • Use high visibility crosswalk markings for all major marked crossings along corridor • Increase the number of controlled (marked and signed) pedestrian crossing locations throughout the corridor based on pedestrian origins and destinations (e.g. transit stop relative to grocery store) • Assess unmarked crosswalks along corridor to determine if they should be marked and determine if any additional crossing countermeasures are desirable or warranted • Provide pedestrian refuges at crosswalks to break up crossing • For all midblock marked crossings include stop bars 20 to 30 ft in advance of the crosswalk to mitigate potential multiple threat crashes. 	 Example of installation of a stop bar approx. 30 ft from a midblock or other uncontrolled crosswalk to try to minimize the multiple threat condition  Rectangular Rapid Flash Beacon (RRFB) at midblock crossing

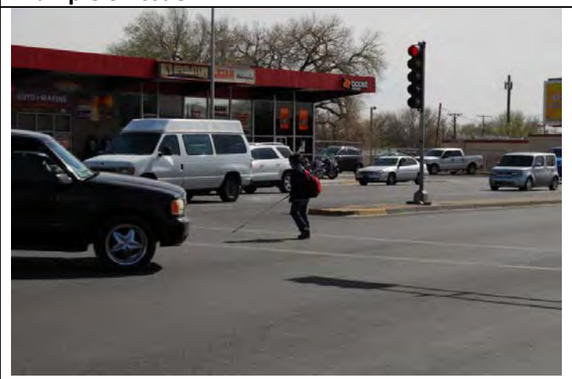
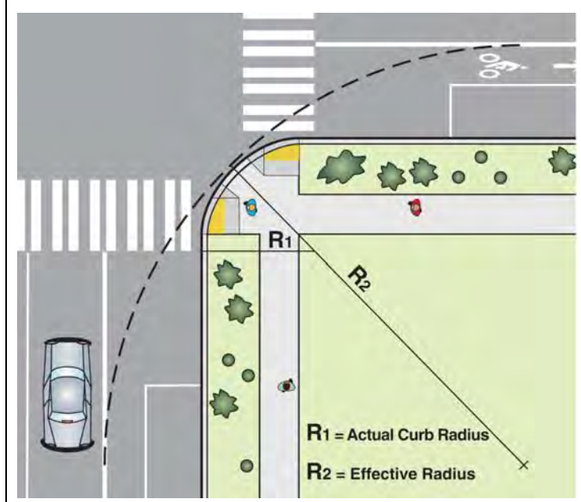
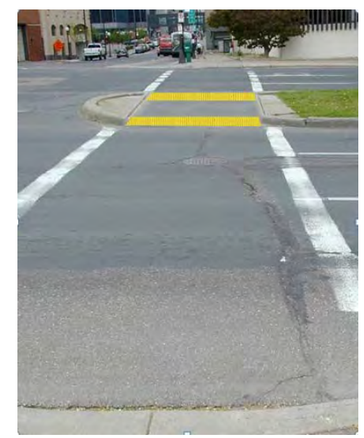
	 Midblock crossing west of Coors Blvd and transit stops	***Long Term –*** • Future Bus Rapid Transit options will present opportunities for potential reconstruction along Central Ave. • Install median fencing within the raised median to channelize pedestrians to controlled pedestrian crossings. This treatment is not intended for the entire corridor, only where other options have not been successful.	 Median fencing used to discourage midblock crossing between intersections

Issue 1: Midblock Crossings (Specific Locations)

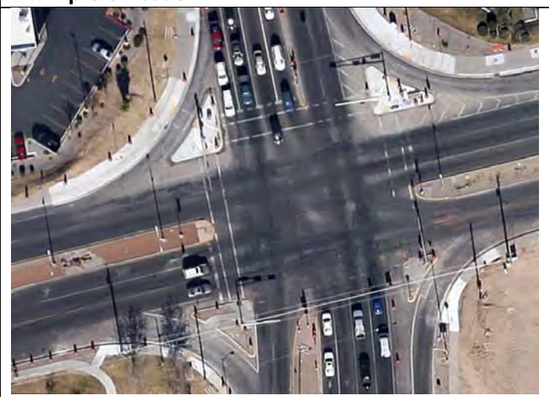
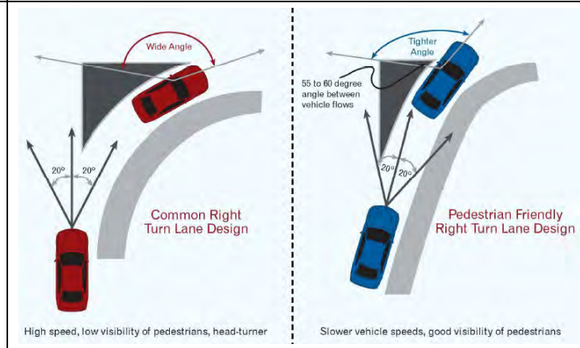
Specific Safety Issues	Example of Issues	Suggested Improvements	Examples of Improvements
Near Coors Boulevard • Four (4) crashes involving pedestrians crossing Central Ave were reported west of Coors Blvd intersection • Location of major pedestrian generators (bus stops, Walgreens, Albertsons) contributes to midblock crossing activity west and north of the intersection. • The RSA team observed approximately 30 people crossing at this location within one hour. • Transit stop is approximately 200 ft west of intersection. • At least two (2) crashes involved pedestrians crossing Coors Blvd north of the Central Ave intersection. **Near Atrisco Drive** • Location of major pedestrian generators (bus stops, Kmart, Atrisco Plaza) contributes to midblock (non-crosswalk) crossing activity • From 4pm to 6pm, 60 people crossed mid-block o Average time to cross was 37 seconds o Over half of the people had to pause in the median o In comparison, 17 people crossed at the signal	 A group of pedestrians cross Central Avenue midblock west of Coors Boulevard.  Pedestrian movements between bus stops at Central Ave and Coors Blvd intersection (Google Maps image) Pedestrian crossing midblock near Atrisco bus stop	***Short Term –*** • Conduct a detailed origin-destination study to determine influence of bus stops, Walgreens, Smith's, and Albertsons in generating midblock pedestrian traffic as well as pedestrians transferring from Central Avenue transit stops to Coors Blvd crossing midblock north of Walgreens • Evaluate adding a midblock crossing with high visibility marking, signing and pedestrian hybrid beacon at the existing driveways o Walgreens driveway/ Albertsons driveways off Central Ave near Coors Blvd o Walgreens driveway off Coors Avenue o K-Mart and mall driveways off Central Ave near Atrisco Dr • Using GIS, overlay transit ridership, transit stops and pedestrian crashes to assist in prioritization of new marked crosswalks ***Long Term –*** • Future Bus Rapid Transit options will present opportunities for potential reconstruction along Central Ave. • Install median fencing within the raised median to channelize pedestrians to controlled pedestrian crossings.	 Pedestrian Hybrid Beacon near a school and Boys and Girls Club  Median fencing installed between intersections to discourage midblock crossings

Issue 2: Pedestrian Crossings at Intersections

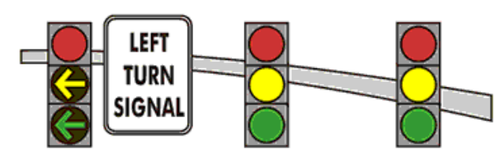
Specific Safety Issue	Example of Issue	Suggested Improvements	Example of Improvements

• Five (5) crashes involved pedestrians crossing at intersections
  o Four (4) of those crashes involved pedestrians struck in the crosswalk while crossing with signal
 	
• Vehicles fail to yield to pedestrians on a regular basis
• Large channelized right turns
  o Promote higher speeds,
  o Increase crossing distances,
  o Force drivers to look back over their shoulder as they scan oncoming traffic for gaps
	
	A blind pedestrian crosses Central Ave at Sunset Rd as a left-turning vehicle closely passes.
	
	A driver looks back over his shoulder as he prepares to merge onto Central Avenue from a channelized right turn at Old Coors.
		Short Term –
		• Adjust signal timing for pedestrians to provide a Leading Pedestrian Interval (LPI) where heavy turning movements exist
		• Adjust signal timing to add a protected phase (left arrow) to the signal timing
		• Retrofit intersection radii to reduce crossing distances
		• Retrofit median islands at intersections to include refuge areas
		• Reconfigure turning islands to create a tighter angle, slower speeds for right turning vehicle with yield condition
		• Add retro-reflective borders to all signal backplates to increase visibility of the signalized intersections
		
		 
		Consider design guidance on Effective Radius at intersections with bike lanes.
			
			Example of the Leading Pedestrian Interval; Pedestrian has WALK signal while vehicles have red ball to give pedestrian "head start" into the intersection
			
			 
			Intersection crossing with pedestrian refuge to break up long crossing distance

Issue 2a: Pedestrian Crossings at Intersections (Coors Blvd)

Specific Safety Issue	Example of Issue	Suggested Improvements	Example of Improvements
• Pedestrians cross over 100 ft of pavement and 4 to 6 lanes of traffic with no refuge island • Vehicles fail to yield to pedestrians in the crosswalk • Wide sweeping right-turn movements to encourage higher speeds and make it difficult for pedestrians to cross	 Illustration of long crossing distances, large corner radiuses and large islands at Coors Blvd (Google Maps image)	***Short Term –*** • Adjust signal timing for pedestrians to provide them priority by using Leading Pedestrian Interval (LPI) ***Long Term –*** • Retrofit right turn islands to promote lower speeds, better sight distance	 Example of high speed island geometry and low speed island geometry.

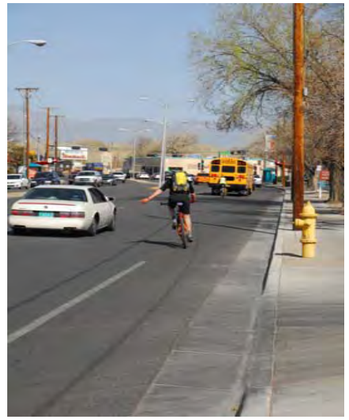
Issue 2b: Pedestrian Crossings at Intersections (Atrisco Dr)

Specific Safety Issue	Example of Issue	Suggested Improvements	Example of Improvements
• The existing protected/ permissive NB left turn movement may result in conflicts between left-turning vehicles and pedestrians crossing the west leg of the intersection – WALK phase coincides with permissive NB left turns. o One crash associated with this movement in which the pedestrian had right-of-way.	 Long crossing distances and lack of median refuge islands (Google Maps image)	***Short Term –*** • Consider changing the left-turn phasing for northbound left turns to protected only instead of protected/ permissive • Adjust signal timing for pedestrians to provide them priority by using Leading Pedestrian Interval (LPI) • Extend medians to provide pedestrian refuge areas	

Issue 2c: Pedestrian Crossings at Intersections (Old Coors Drive and Yucca Drive)

Specific Safety Issue	Example of Issue	Suggested Improvements	Example of Improvements
• Long traffic signal cycle lengths due to 200 ft offset and lengthy wait times for both pedestrians and vehicles which promotes impatience		***Short Term –*** • Assess the signal timing for this intersection to potentially include the Leading Pedestrian Interval (LPI) and a shorter signal cycle • Retrofit median islands at intersections to include refuge areas • Reconfigure islands to create tighter right-turn angle, to encourage slower speeds for right turning vehicle with yield condition ***Long Term –*** • Future Bus Rapid Transit options will present opportunities for potential reconstruction of these offset intersections o A roundabout intersection is a consideration for this location	 Complex T intersection roundabout design layout

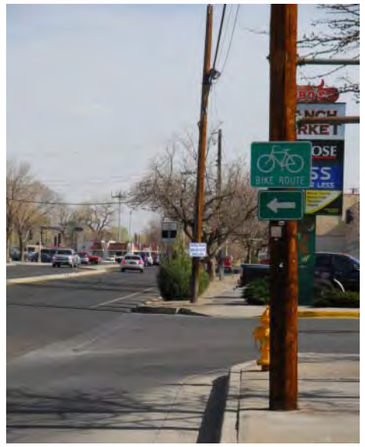
Issue 3: Bicyclist Infrastructure

Specific Safety Issue	Example of Issue	Suggested Improvements	Example of Improvements
• Bicyclists often ride against traffic o 43 percent of bicycle-related crashes involved the bicyclists riding against vehicular traffic • Gaps in bike lane along corridor • Transit stops block bike lane and right vehicular lane • Bike lane width include the gutter which narrows the effective width of bike lane • Existing bike route and wayfinding signage is confusing and inconsistent. It directs bicycle traffic to use trail segment that is poorly maintained with awkward interfaces with Central Ave and Atrisco Dr • Bike signing and marking not consistent with AASHTO Bike Guidance	 A bicyclist merges into a travel lane as a bike lane ends on Central Ave west of Atrisco Dr.	***Short Term –*** • Upgrade bike lane markings (corridor and intersections) to AASHTO Bike Guide or NACTO Bike guidelines • Consider extending existing bike lanes to intersection or implementing Bikes May Use Full Lane signs and Shared lane markings to fill in "gaps" in bike lanes along the corridor • Install bicycle "Wrong Way" and "Ride With Traffic" signs or directional pavement arrows • Consider providing bike information and courses through the Community Workshops, information on websites or via Public Service Announcements	 Bike lane transitions at intersection per AASHTO bike lane guidance.
	 Example of confusing bike signage on Atrisco Dr.	***Long Term –*** • Assess the bike lane widths along the corridor and determine if vehicle lane widths and bike lane widths can be re-allocated to provide a wider shy distance between vehicles and bicyclists	 Marked bike lane using green marking

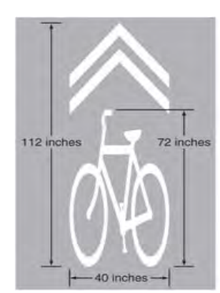
Issue 3a: Bicyclist Infrastructure (Coors Boulevard)

Specific Safety Issue	Examples of Issues	Suggested Improvements	Example of Improvements
• On WB approach, conflict zone created by bike lane and right turn lane – because of a lack of adequate right turn storage, vehicles waiting to turn right queue up in the bike lane • Existing bike lane markings on WB departure and merge from SB channelized right turn contributes to lack of driver visibility of bicyclists – placement of bike lane closer to the curb limits sight lines, as motorists are looking away from the curb at travel lanes.	 Vehicles queue up in the bike lane on WB Central Avenue as they wait to turn right on to NB Coors Blvd. The bike lane on WB Central Ave just west of the intersection at Coors Blvd. The bike lane is located adjacent to the curb rather than adjacent to the travel lane, making it difficult for drivers merging from the channelized right turn to see bicyclists.	***Short Term –*** • Re-stripe the bike lanes through the intersection in accordance with the AASHTO Bike Guide or NACTO Bike Guidelines ***Long Term –*** • Retrofit intersection island using smaller radius to reduce right turn speeds, increase visibility of bike lane and lengthen right turn lanes	 Example of a bike lane transitioning from adjacent to the curb to between the through lane and right turn lane at an intersection

Issue 3b: Bicyclist Infrastructure (Atrisco Drive)

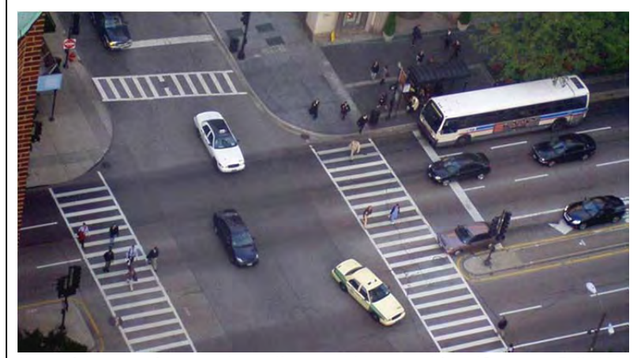
Specific Safety Issue	Example of Issues	Suggested Improvements	Example of Improvements
• On SB Atrisco Drive approaching the intersection at Central Ave, the bike route signage directs bicyclists to cross Atrisco Dr midblock and continue on a paved path to the southeast	 Bike route signage on SB Atrisco Dr directing bicyclists to cross midblock.	***Short Term –*** • Revise bike route signage to direct bicyclists to proceed to the intersection of Atrisco Dr and Central Ave, where they can connect to the bike lanes on Central Ave • Mark bicycle lanes on Central Ave between Sunset Rd and Atrisco Dr ***Long Term –*** • Re-allocate all lane widths - widen bike lanes and narrow driving lanes	 Bike Lane (Source MRCOG)

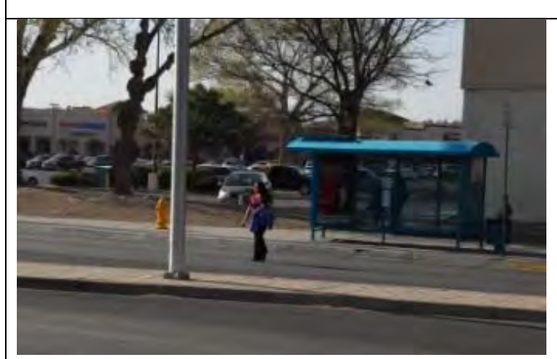
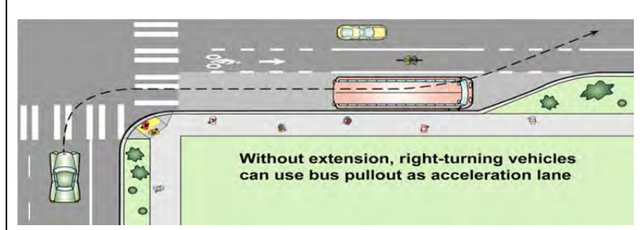
Issue 3c: Bicyclist Infrastructure (Central Avenue, west of Yucca Drive)

Specific Safety Issue	Example of Issues	Suggested Improvements	Example of Improvements
• On EB Central Ave approaching Yucca Dr, bike route signs are faded and indicate the bike route turns to the left. Bike Route follows Yucca Dr and Old Coors Dr. • Marked bike lanes are not continuous through the intersection with Yucca Dr and Old Coors Dr.	 Faded and inaccurate bike route signage	***Short Term –*** • Update and revise bike route signage. • Extend existing bike lanes through the intersection using AASHTO Bike Guide or NACTO guidelines or implement Bikes May Use Full Lane signage and shared lane markings to fill in "gaps" in bike lanes  Shared lane marking (SLM)	 Shared Use lane in Chicago, IL

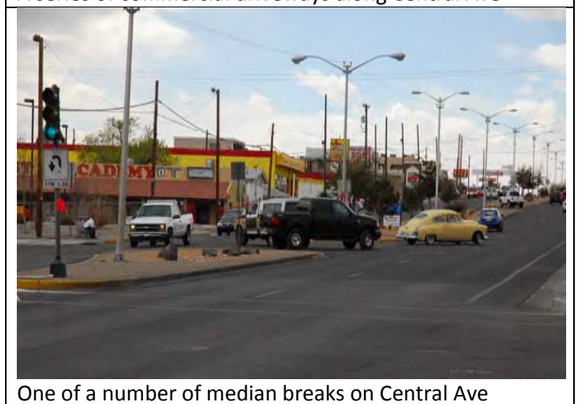
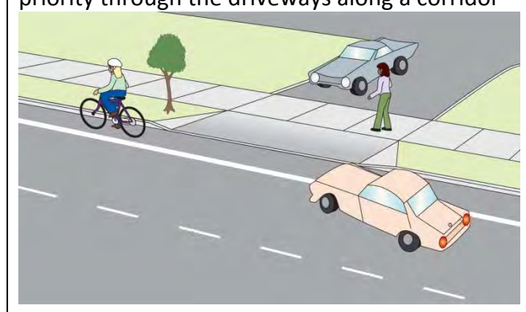
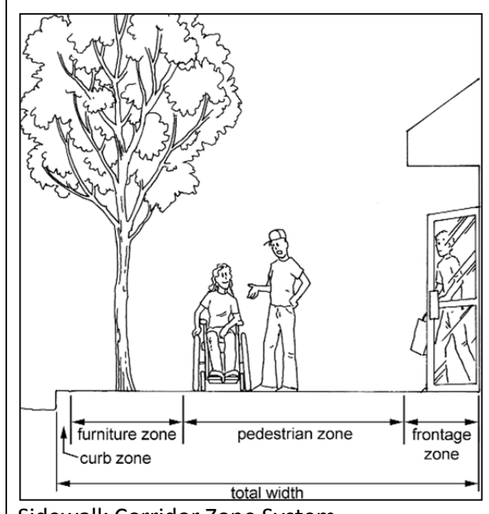
Issue 4: Transit

Specific Safety Issue	Examples of Issues	Suggested Improvements	Example of Improvements

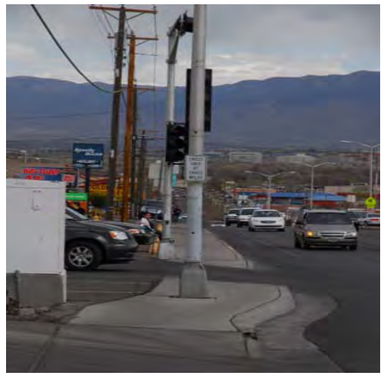
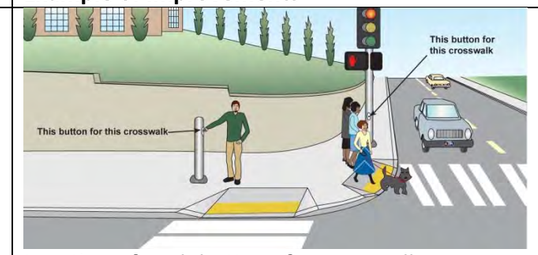
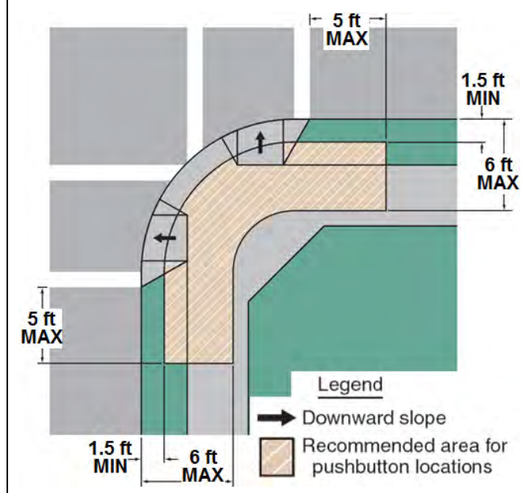
• Transit stop locations near major intersections are located midblock (not near sided or far sided) and can encourage midblock crossings by pedestrians walking directly to their destination
• Transit stops block the bike lane and right lane of vehicular traffic causing erratic passing maneuvers and lane encroachment
• Passengers cross the street midblock in front and behind the busses
 	
Coors Blvd
 	
• Transit stop is approximately 200 ft west of Coors Ave intersection.
• Most passengers cross midblock at this transit stop rather than walking back to the intersection with a marked and controlled pedestrian crossing
• Transit stops serve as transfer points and passengers cross midblock directly to transit stops on the other side of Central Ave
	
	Transit stop west of Coors Blvd. SUV passing bus stopped in right lane, crossing over and straddling adjacent lane
	
	EB and WB transit stops west of Coors Blvd adjacent to Walgreens, Albertsons and NB Coors Blvd bus route stop
		Short Term –
		• Conduct an "origin-destination" study to determine the origin and destination of the pedestrian trips along the corridor (e.g. WB Central Ave Transit stop to Albertsons, WB Central Avenue transit stop to NB Coors Blvd transit stop) to optimize locations transit stops and use of marked crosswalks
		• Add marked and signed pedestrian crossings at transit stops if a high percentage of passengers are not using the nearest intersection to cross the street and instead crossing midblock
		• Assess feasibility of bus pull outs to prevent blocking the bike lane and right lane of vehicular traffic for operational and safety reasons
		Long Term –
		• Relocate major transit stops closer to the intersections where marked and controlled crossings are provided for pedestrians
		  o Near side placement for transit stops allow for direct access to controlled pedestrian crossings, bus stacking and routes that turn at intersection
		  o Far side placement of transit stops has less impact on right lane operations
			
			Midblock transit stop with a marked crosswalk, pedestrian crossing signs and stop bar in advance of the crosswalk. Passengers cross behind the bus in allowing them to see approaching traffic
			
			 
			Nearside transit stop that allows to bus stacking (Source: FHWA)

Atrisco Drive • Transit stops are approximately 120 ft west of intersection • Most passengers cross midblock rather than use the Atrisco Dr intersection controlled crossing.	 A woman crosses midblock from a bus stop on Central Ave west of the intersection with Atrisco Dr.	 When bus pull outs are used, "yield to bus" laws encourage an easier transition into traffic	 Example of farside intersection transit stop with pull-out and bike lane

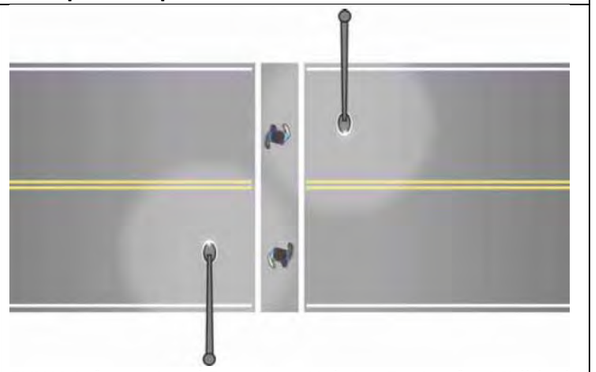
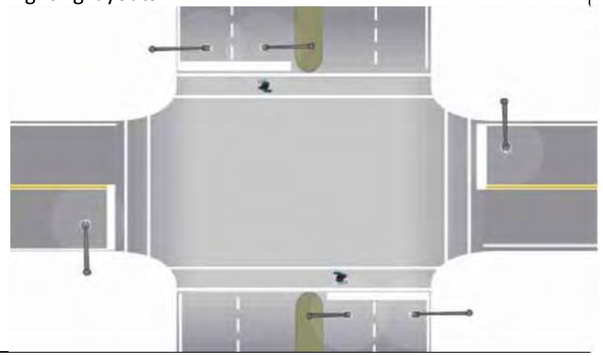
Issue 5: Access Management

Specific Safety Issue	Example of Issues	Suggested Improvements	Example of Improvements
• Large number of driveways – some of them redundant – along Central Ave lead to conflicts between pedestrians/cyclists and vehicles entering/exiting commercial properties. • Frequent median breaks along Central Ave lead to conflicts between turning and merging vehicles and pedestrians/bicyclists • High number of turning vehicles leads to drivers devoting more attention to looking for gaps and avoiding conflicts with other vehicles and reduced attention to pedestrians/bicyclists.	 A series of commercial driveways along Central Ave  One of a number of median breaks on Central Ave	***Ongoing –*** • As parcels are developed or redeveloped, work with the adjacent landowners and developers to consolidate driveways • When possible, promote the sidewalk Zone System ***Short Term-*** • Remove unused curb cuts per City Policy (Development Process Manual) • Conduct Access Management study along corridor to identify issues and prioritize locations for improvement.	 Examples of giving the sidewalk and pedestrian priority through the driveways along a corridor   Sidewalk Corridor Zone System

Issue 6: Accessibility

Specific Safety Issue	Examples of Issues	Suggested Improvements	Example of Improvements
• Existing pedestrian facilities are not fully accessible: o Obstructions make sidewalks inaccessible o Lack of adequate landing areas o Lack of accessible ramps and alignment of ramps o Inaccessible push button locations o Uneven surfaces	 A signal pole placed in the middle of the sidewalk obstructs access for persons with mobility restrictions. The placement of the push button on this signal pole is difficult to access. An uneven surface on the sidewalk along Atrisco Dr	***On-going –*** • As parcels are developed or redeveloped, work with adjacent landowners and developers to consolidate curb cuts and improve sidewalks ***Short Term –*** • Along with the Access Management Study (see Issue 5) identify specific issues and prioritize locations for improvement, including: o Removal of sidewalk obstructions o Improvement to landing areas o Installation and/or realignment of accessible ramps o Relocation of traffic signal push buttons o Replacement sidewalks and walkways where there are broken or uneven surfaces ***Long Term –*** • Incorporate ADA improvements in Capital Improvement Program (CIP) projects where identified	 Location of push buttons for crosswalks  Proper push button locations

Issue 7: Lighting and Visibility

Specific Safety Issue	Examples of Issues	Suggested Improvements	Example of Improvements
• Gaps in coverage of street lighting on the corridor because street lights are located in the Central Ave median o Lighting missing for the pedestrian and bicycle facilities • Minimal setback of buildings from the roadway at corners limits visibility, especially in low-light conditions	 Lighting along Central Ave	***Intermediate Term –*** • Upgrade/increase lighting at marked and unmarked crossings • Upgrade existing lighting at intersections, install pedestrian-scale lighting	 FHWA Informational Report on Lighting Design for Midblock Crosswalks Recommended Midblock and Intersection Lighting layouts 

Crash Modification Factors

A crash modification factor (CMF) is a multiplicative factor, based on documented safety research studies, used to compute the expected number of crashes after implementing a given countermeasure at a specific site. CMFs provide some indication of the potential benefit, or lack thereof, associated with specific countermeasures.

FHWA compiles CMF data from published safety studies in the CMF Clearinghouse (http://www.cmfclearinghouse.org/index.cfm) to help practitioners select the most effective safety treatments. While CMF data is not available for all potential countermeasures, the CMF Clearinghouse provides a useful and consolidated source of data to help engineers, planners, and project owners make informed decisions. Table 8 summarizes CMFs related to some of the countermeasure suggestions in the previous section.

Table 7. Crash Modification Factor (CMF) Summary.

Countermeasure	CMF (% Change in Crash Incidence)	Other Information
Convert permissive or permissive/protected left-turn phasing	0.57 (43% reduction)	Applies to pedestrian crashes.
Add segment lighting	0.77 (23% reduction) 0.8 (20% reduction)	Applies to pedestrian crashes. Applies to all crashes.
Increase Enforcement	0.77 (23% reduction)	Applies to pedestrian crashes.
High-visibility crosswalk	0.52 (48% reduction)	Applies to pedestrian crashes.

CONCLUSIONS

The Road Safety Audit identified potential safety issues and recommended safety improvements for all road users of Central Ave between Coors Blvd and Sunset Dr in Albuquerque. Safety issues were identified through use of crash data and the field observations and input of the RSA Team.

The portion of West Central Ave studied had 35 reported crashes involving pedestrians or bicyclists over the four year period between 2008 and 2011, with 19 of the crashes involving pedestrians and 16 involving bicyclists. Crash data indicate that 27 of the 35 (77%) crashes resulted in injury. Midblock crossing – particularly in the vicinity of Coors Blvd. and Central Ave, in which pedestrians crossed at locations away from intersections and without a marked crosswalk – were identified as a contributing factor in a majority of pedestrian crashes. Of the 19 pedestrian crashes between 2008 and 2011, 14 involved midblock crossings. Based on reported crashes and observations, there appears to be a correlation between mid block crossings, pedestrian crashes and the location of transit stops.

Bicycling against traffic also was identified as a contributing factor for bicycle crashes. Nearly half of the bicycle crash (43%) involved the cyclist riding against traffic. This was particularly valuable information since a review of crash reports was needed to identify these types of crashes. There were a couple of general factors that would not have been discovered without the review of crash reports: many of the pedestrian crashes involve transit riders and many of bicycle crashes involve cyclists riding against traffic.

The RSA Team identified a number of safety issues along the corridor related to the following areas:

- Midblock crossings
- Pedestrian crossings at intersections (with particular focus on intersections at Coors Blvd and at Atrisco Dr)
- Bicyclist infrastructure and bicyclists riding against traffic (with particular infrastructure focus on intersections at Coors Blvd and at Atrisco Drive, Yucca Dr and Old Coors Rd and the missing bicycle lanes on the segment of Central Ave between Atrisco Dr and Sunset Rd)
- Transit stop locations and transit rider crossings
- Access management
- Accessibility
- Lighting/visibility

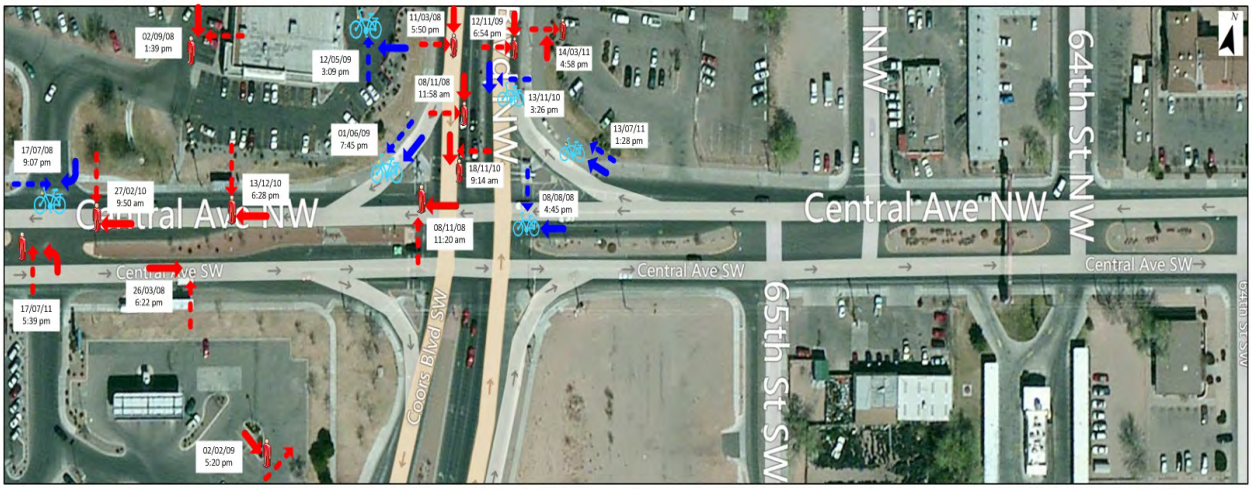
Among the improvements and countermeasures recommended were:

- Undertaking education and enforcement initiatives targeting pedestrians (including transit users), bicyclists, and motorists)
- Increasing and prioritizing the number of marked crossings
- Providing median refuges at marked and unmarked crosswalks
- Improving and/or extending bicycle facilities and bicycle signage
- Optimizing signal phasing for all users
- Redesigning intersections to reduce corner radii
- Modifying bus stop locations
- Improving sidewalk landing areas at corners, installing or realigning accessible ramps, relocating traffic signal push buttons, and removing sidewalk obstructions to improve accessibility
- Conducting an access management study
- Increasing lighting throughout the corridor
- Installing median fencing to discourage midblock crossings at select locations

The next step in the RSA process is to convene an ABQ Pedestrian Safety Team that will identify ways to implement on-going, short-, and long-term measures recommended in this report. The safety group should also seek to implement long-term measures and improvements in conjunction with the planned BRT system on Central Ave.

APPENDIX A: CRASH DATA & DIAGRAMS (2008 TO 2011)

Crash Diagram: Central Avenue between Coors Blvd. and 60th Street



Crash Diagram: Central Avenue between 60th Street and 52nd Street

Crash Diagram: Central Avenue between 52nd Street and 46th Street

Crash Diagram: Central Avenue from 46th Street to Sunset Road

APPENDIX B: RELEVANT POLICIES, PLANS AND INITIATIVES

STATE OF NEW MEXICO

RELEVANT PLANS AND POLICIES

The following plans, policies, and other documents have been developed to address pedestrian safety at the State level:

New Mexico Highway Safety Improvement Program: Every year the NM Highway Safety Improvement Program reviews applications and sometimes selects engineering type safety projects to fund such projects as pedestrian paths with concrete wall barriers to shield them from motor vehicle travel lanes, and enhanced crosswalks. See below newly proposed safety improvement projects currently under review for competitive statewide HSIP Federal funding, that have at least some proposed component involved with improving pedestrian safety

ONGOING PEDESTRIAN CAMPAIGNS AND INITIATIVES

The following campaigns and initiatives help support and promote pedestrian safety at the State level:

New Mexico Safe Routes to Schools Program: http://dot.state.nm.us/Planning.html#SRTS
The NM SRTS program is administered by the NMDOT and provides funding and technical assistance to communities, school districts and K-8 grade schools throughout New Mexico. The SRTS program empowers communities to make walking and bicycling to school a safe and routine activity. The program makes funding available for a wide variety of programs and projects, from building safer street crossings to establishing programs that encourage children and their parents to walk and bicycle safely to school.

NMDOT, Traffic Safety Division, Pedestrian and Bicyclist Safety Program Area: The Pedestrian and Bicyclist Safety Program addresses the need to reduce the number of pedestrian crashes in New Mexico, and to encourage walking and biking as comfortable, accessible, safe and efficient modes of transportation. This is accomplished by community–based interventions that are guided by pedestrian injury data specific to individual communities.

Pedestrian Safety Awareness Program and the Walkable Communities Initiative: Pedestrian Safety Awareness Program funds are made available, through a competitive process, to communities for specific interventions. Priority is given to projects in communities with a high incidence of pedestrian crashes, where project problem identification is data-driven. The Pedestrian Safety Awareness Program supports a community that contributes in-kind funding through city, county and State agencies to create and support Walkability Advocacy Groups (WAGs). This initiative is overseen by the statewide Walkability Awareness Group that provides technical assistance. Currently, there are 10 active communities around the State participating in WAGs. Using program funds, a designated statewide coordinating agency organizes and provides technical assistance to WAGs to help address pedestrian safety in targeted New Mexico communities.

Public Awareness Campaigns: With the help of stakeholder agencies, public awareness of pedestrian safety is created via news conferences, pedestrian and driver safety tip brochures, pedestrian safety education videos, letters to the editor, public meetings, and response to media requests for information and interviews. Safer New Mexico Now is the formal clearinghouse for information and education regarding pedestrian safety. In addition, the UNM Department of Emergency Medicine Center of Injury Prevention, Research and Education (CIPRE) provides pedestrian safety information through its website.

Walk to School Day: The annual 'Walk to School Day' effort is lead by the NMDOT 'Safe Routes to School' coordinator. TSD supports the New Mexico Safe Routes to School Program, and purchases 'I'm Safe, Walk With Me' and 'I'm Safe on My Bike' activity books and posters for Walk to School Day.

NMDOT "Look For Me" Pedestrian Safety Campaign: **http://dot.state.nm.us/Community/Press_Releases/PR_LFMSafetyBlitzes5_1_12.pdf** "Look For Me," is the theme of the New Mexico Department of Transportation's (NMDOT) education campaign to remind pedestrians and motorists to look when out on New Mexico's roadways. Bus advertisements and radio messages touting the NMDOT's safety program will target motorists and pedestrians alike. A number of pedestrian safety blitzes will take place across New Mexico by local enforcement to cite drivers for blocking crosswalks, failing to yield to pedestrians, failing to obey "no right on red" laws, and making improper turns into crosswalks.

In FY12, TSD and its Pedestrian Safety contractors will work with pedestrian safety advocates to accomplish the following: Partner with the Prescription Trails Pilot Program to provide pedestrian safety awareness training and materials; Work with local media to provide a pedestrian safety media message in communities at high-risk for pedestrian injury and/or fatalities; and Partner with city and county summer recreation programs for children and provide printed pedestrian safety and awareness educational materials.

In FY12, TSD and CIPRE staff will coordinate one training to encourage pedestrian safety in communities. The target audience for training will include engineers, traffic safety personnel, community members, planners, decision makers, and public health and injury prevention professionals who have the responsibility of improving pedestrian safety at the State or local level. The Pedestrian Safety Program and collaborative groups will also facilitate older adult pedestrian safety workshops.

CITY OF ALBUQUERQUE

RELEVANT PLANS, POLICIES, AND COUNTERMEASURES

The following plans, policies, and other documents have been developed to address pedestrian safety at the City level:

Annual Crash and Safety Report for the Albuquerque Metropolitan Planning Area (AMPA): http://www.mrcog-nm.gov/images/stories/pdf/transportation/2011_Safety_Report_Combined.pdf
This report was created by the Mid-Region Metropolitan Planning Organization (MRMPO). The annual safety report summarizes the most recent crash data received from NMDOT and highlights priority safety issues in the region. MRMPO is considering a long-Term safety planning processes through the development of a regional safety management plan or task force tailored to the AMPA and consistent with the New Mexico Comprehensive Transportation Safety Plan (New Mexico's Strategic Highway Safety Plan). An AMPA strategic transportation safety plan would continue to support crash data collection and analysis, but would also encourage collaboration among stakeholders such as law enforcement agencies, health institutions and engineering departments of public agencies.

2035 Metropolitan Long Term Transportation Plan (MTP): http://www.mrcog-nm.gov/transportation-mainmenu-67/metro-planning-mainmenu-188/long-Term-mtp-mainmenu-189/473-2035mtp The plan was created by the Mid Region Council of Governments Metropolitan Planning Organization (MRCOG MPO) for the Albuquerque Metropolitan Area. The Metropolitan Long Term Transportation Plan sets forth goals for the transportation network through 2035 to increase mobility and access and addresses how land use choices affect it.

Mid-Region Metropolitan Planning Organization Project Prioritization Process Guidebook: This process manual provides information for ranking regional transportation projects to be included in the Transportation Improvement Program (TIP). Safety is an integral part of this process; this guidebook includes a safety element that looks at vehicle crash rates, pedestrian risk areas (based on the density of pedestrian involved crashes) and safety strategies being used by the applicant.

ONGOING PEDESTRIAN CAMPAIGNS AND INITIATIVES

The following campaigns and initiatives help support and promote pedestrian safety at the City level:

NM Safe Routes to Schools Program in Albuquerque Metropolitan Area: Albuquerque Public Schools received a SRTS Phase 1 award in July 2009 to develop Action Plans for 3 schools – Monte Vista and Emerson Elementary School and Wilson Middle Schools. The Plans were developed and the consultant, Wilson & Company, conducted an SRTS-style Road Safety Audit of the 3 schools and developed a report outlining the desired infrastructure/engineering improvements needed at the 3 schools.

Bikeways and Trails Facility Plan (in progress): This plan will combine the City's previous plans for off and on-street facilities into one resource. It will update policies and proposed facilities to support the development of a metropolitan area-wide bicycle and multi-use network that serves commuting and recreational uses, as well as daily needs.