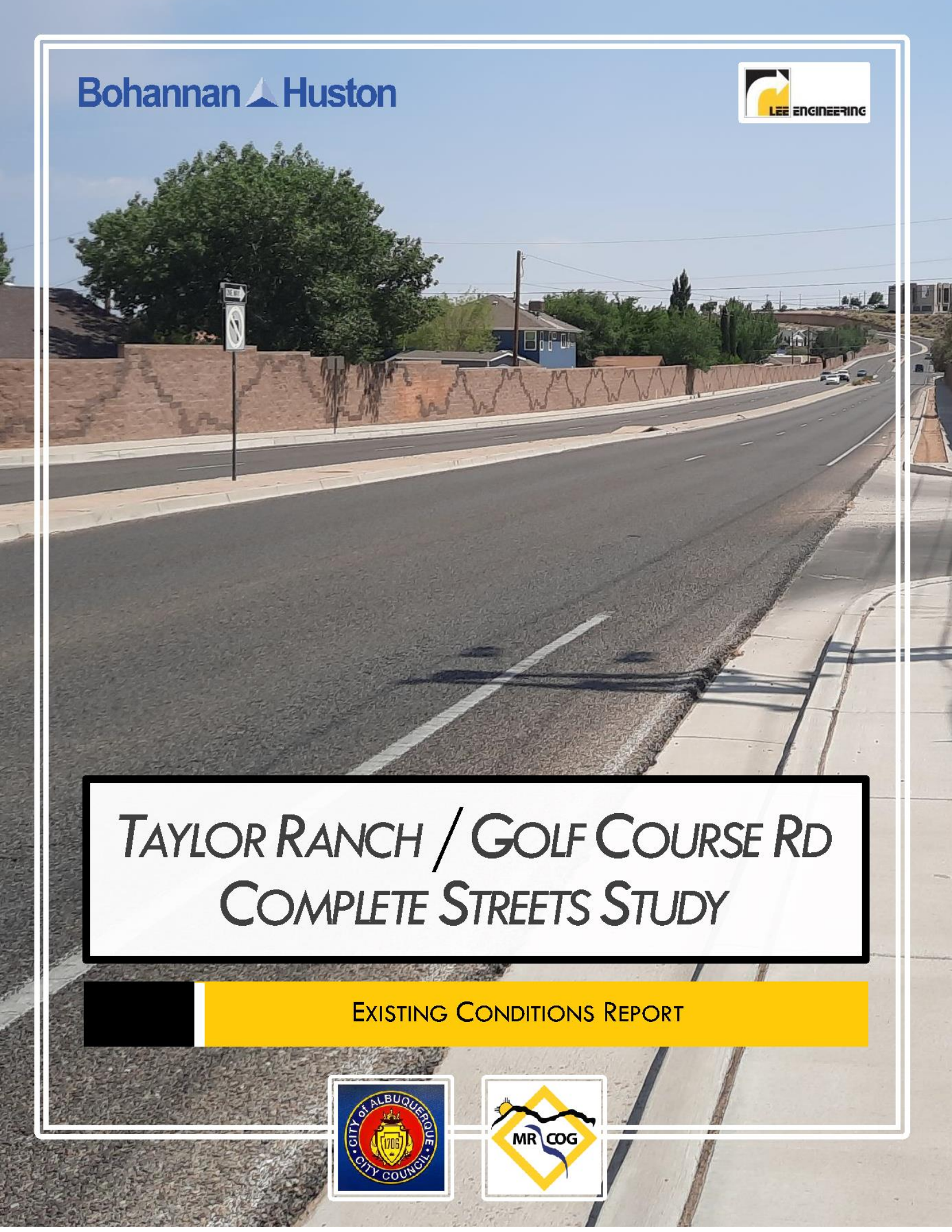


Bohannan Huston

LEE ENGINEERING

TAYLOR RANCH / GOLF COURSE RD COMPLETE STREETS STUDY

EXISTING CONDITIONS REPORT

CITY of ALBUQUERQUE · CITY COUNCIL · 1706

MR COG

TABLE OF CONTENTS

TABLES

FIGURES

INTRODUCTION

Study Background/Purpose and Need

Taylor Ranch Rd/Golf Course Rd (Golf Course Rd) between Montaño Rd and Westside Blvd is a five (5) mile corridor located in Northwest Albuquerque that plays an important role in both regional and neighborhood mobility. (The corridor follows Taylor Ranch Rd for about 0.5 miles north of Montaño Rd to La Orilla Rd and continues north as Golf Course Rd.) The corridor is located along a series of residential subdivisions with commercial centers generally located around major intersections. The corridor also provides connections to east-west arterials such as Paseo del Norte, as well as access to a variety of recreational destinations.

In contrast to major north-south arterials such as Coors Blvd and Unser Blvd, Golf Course Rd generally facilitates shorter distance travel and serves a more community-oriented role in the transportation network. Though existing infrastructure for bicyclists and pedestrians are incomplete, there are opportunities to improve Golf Course Rd by providing residents with greater opportunities to walk, bike, and take public transit along the corridor.

Major considerations for the Golf Course Rd Complete Streets Study:

- High travel speeds along the corridors
- Safety issues and dangerous crossing locations
- Improvements to bicycle and pedestrian facilities
- Increase connections to commercial areas and recreational sites along the corridor

Improvements to the corridor and increased access to recreational sites and commercial nodes, such as the Petroglyph Plaza shopping center, are major priorities for this study. However, there are significant concerns related to high motor vehicle travel speeds, limited opportunities to cross the roadway, and significant gaps in the bicycle and pedestrian networks. Golf Course Rd is also included in the regional High Fatality and Injury Network (HFIN) as the number of total and injury-involved vehicle crashes occur at rates above the municipal average along the corridor.

This planning study, conducted by the City of Albuquerque Council Services Department in partnership with the Mid-Region Council of Governments (MRCOG), responds to these challenges and identifies opportunities to apply Complete Streets roadway design principles and create a greater balance between vehicular traffic and the needs of other users along the Golf Course Rd corridor.

Components of the Study

The study begins with a **review of existing conditions** and examines current roadway characteristics and travel patterns, traffic operations, areas of safety concern, existing land uses, transit services, and bicycle and pedestrian facilities, among other considerations.

The study will also consider **Main Street principles** and opportunities to create a more community-oriented roadway that better connects residents and visitors to the commercial, institutional, and recreational destinations along the corridor. Major considerations and recommendations include connections to commercial

nodes via roadway improvements and potential redevelopment opportunities within shopping plazas and the creation of public places and gathering spaces that appeal to nearby residents.

Finally, the study provides **recommendations** for improvements that would enhance the safety and quality of the pedestrian, bicycle, and transit infrastructure. In addition, the study analyzes traffic conditions and access management issues at specific commercial nodes in the corridor and presents recommendations to mitigate traffic conflicts. Though initial design concepts are included as part of this report, full engineering design and implementation will take place in future phases.

Definition of Complete Streets

To better understand the purpose and need for the study, it is important to define the term "Complete Streets". Complete Streets is a transportation planning approach related to how streets are designed, operate, and how they are maintained. In general, a Complete Streets approach applies design techniques and roadway elements along new or existing roadways that promote user safety and create transportation options for users of all ages and abilities, including people with disabilities. The techniques vary by location and context but generally focus on improvements to the pedestrian, bicycle, and transit environments because most transportation facilities have well-established facilities that cater to vehicle use.

Golf Course Rd follows that trend, as the corridor has high-quality infrastructure for vehicle use and lacks complete and/or high-quality infrastructure for pedestrians, bicyclists, and transit riders. The study is also consistent with City policies that support safety for all roadway users. These policies include Vision Zero, which aspires to eliminate traffic fatalities on City roadways, and the City of Albuquerque's Complete Streets Ordinance. The Ordinance was updated in 2019 and now requires City departments to equally consider the application of Complete Streets design features during all roadway design and rehabilitation projects.

Major Issues and Opportunities

Golf Course Rd has the potential to become a community-oriented roadway that connects residents and visitors to destinations via walking, bicycling, transit, and vehicular travel. Although the corridor generally has adequate infrastructure for vehicle travel, the pedestrian and bicycle networks are lacking in comparison. At the same time, there are significant challenges and constraints to transforming the Golf Course Rd corridor. The corridor is largely built-out and there are limited opportunities to widen the roadway footprint to add new infrastructure or for the corridor to develop or re-develop with more pedestrian-friendly urban design forms. However, portions of the corridor have wide medians where space could be reallocated for enhanced bicycle and pedestrian facilities or for street trees and landscape buffers that separate pedestrians from motorists and provide a traffic calming effect.

Additional concerns include safety and traffic conflicts along the corridor. In addition to general concerns about speeding, there are significant conflicts that arise from vehicles accessing major shopping centers and destinations along Golf Course Rd. A primary concern is the intersection of Golf Course Rd and Paseo del Norte. In response, this study examines options for enhanced access management at this location and presents recommendations to improve traffic operations near this commercial node that will also decrease crash risks.

The ultimate challenge for this study is to balance the needs of competing users within the available right-of-way. Although improved conditions for non-auto users are desired, the corridor remains heavily utilized by motorists and serves an important function in connecting commuters to major east-west roadways.

Planning and Policy Context

Connections 2040 MTP

The Connections 2040 Metropolitan Transportation Plan (MTP), adopted in April 2020, is the long-range transportation plan for the Albuquerque Metropolitan Planning Area which identifies key regional challenges and establishes how federal transportation dollars should be prioritized over the 20-year time horizon of the plan. Per the MTP, transportation challenges for the Northwest Albuquerque area include a relative lack of destinations and jobs on Albuquerque's Westside compared to housing, traffic congestion on east-west roadways that cross the Rio Grande, and unsafe and incomplete bicycle and pedestrian facilities. Among the techniques to improve conditions for non-auto users are an emphasis on Complete Streets and filling in gaps in the bicycle and pedestrian networks. To address these concerns, the MTP identified the following general objectives as part of its Active Transportation goal:

- Improve multi-modal transportation options that enhance the pedestrian, bicyclist, and transit user experience
- Prioritize creating a well-connected and safe non-motorized transportation network that links residents with recreational areas and open space
- Improve access to/within transit corridors
- Provide better accommodations for people of all ages and people with disabilities in the design and operation of active transportation infrastructure
- Encourage place-making and the proliferation of community identity and innovation

Among the products contained in the Connections 2040 MTP is the Long Range Bikeway System (LRBS), which documents existing and proposed bikeways across the metropolitan area. The LRBS identifies on-street bike lanes along the extent of the study area for the Golf Course Complete Streets Study

Proposed Bike Lanes Projects on Golf Course Rd

Among the projects included on the MTP Project List is the installation of bike lanes on Golf Course Rd in two phases between Taylor Ranch Rd and Paradise Blvd. The first phase is between Taylor Ranch Rd and Paseo del Norte, with an estimated cost of $2.64 million. At present, there are bike lanes from Montaño Rd to la Orilla Rd only, though the MTP notes that this project has been completed. The second phase of the project is proposed for the 2031-2040 timeframe with an estimated cost of $1.2 million. The timeframe for the project indicates that specific funding has not been allocated for the project, though the City and MRCOG believe that it is reasonable that funds will be available for such a project in the future.

Nearby Roadway Improvement Projects

There are three major ongoing roadway improvement projects in the study area that may affect travel along Golf Course Rd. These include the widening of Westside Blvd to the east of Golf Course Rd, widening of Paseo del Norte between Rainbow Blvd and Calle Norteña, and widening of Unser Blvd between Kimmick Dr and Paradise Blvd. Each of these projects includes improved bikeways.

- **Paseo del Norte Widening:** Planning and design for the widening of Paseo del Norte from two lanes to four lanes between Rainbow Blvd and Calle Norteña to the west of Golf Course Rd are underway. To date over $19.6 million in City and State funds have been appropriated to the project. Planned improvements will include extension of the existing multi-use trail on the north side of the corridor.
- **Unser Blvd Widening Project:** The City of Albuquerque proposes to widen Unser Blvd from a two-lane roadway (one lane in each direction) to a four-lane roadway (two-lanes in each direction) from Kimmick Dr to Paradise Blvd. To date over $16 million in local and federal funds have been appropriated to the project; additional funding will be required for full implementation. Improvements include enhanced bike lanes. An Alternatives Analysis/Design Analysis Report for public review and comment is scheduled to be published in 2021.
- **Westside Blvd Widening Project:** A widening project on Westside Blvd will improve the 0.85-mile stretch to the east of Golf Course and approaching NM 528. The $9 million project is funded through a combination of federal and local funds and will install buffered bike lanes and improved pedestrian facilities in addition to widening the roadway from two general purpose lanes to four. The project will include a variety of intersection turn lanes to facilitate regional auto travel.

Comprehensive Plan

The City of Albuquerque-Bernalillo County Comprehensive Plan (Comprehensive Plan), last updated in 2017, is the long-range vision document that guides City policies and public investment decisions. General transportation and urban design priorities include emphasis on mixed-use areas and multi-modal transportation systems that provide residents and visitors a range of transportation options.

The Comprehensive Plan is organized around a series of Center and Corridor designations where more flexible land uses are to be encouraged and multi-modal roadway designs are to be prioritized. The Taylor Ranch Rd/Golf Course Rd corridor is designated as a Major Transit Corridor from Montaño Rd to Ellison Rd. Per the Comprehensive Plan, Major Transit Corridors are currently or intended to be served by high-frequency transit services and should specifically prioritize transit users by providing pedestrian amenities and roadway design elements that enable pedestrian crossings.

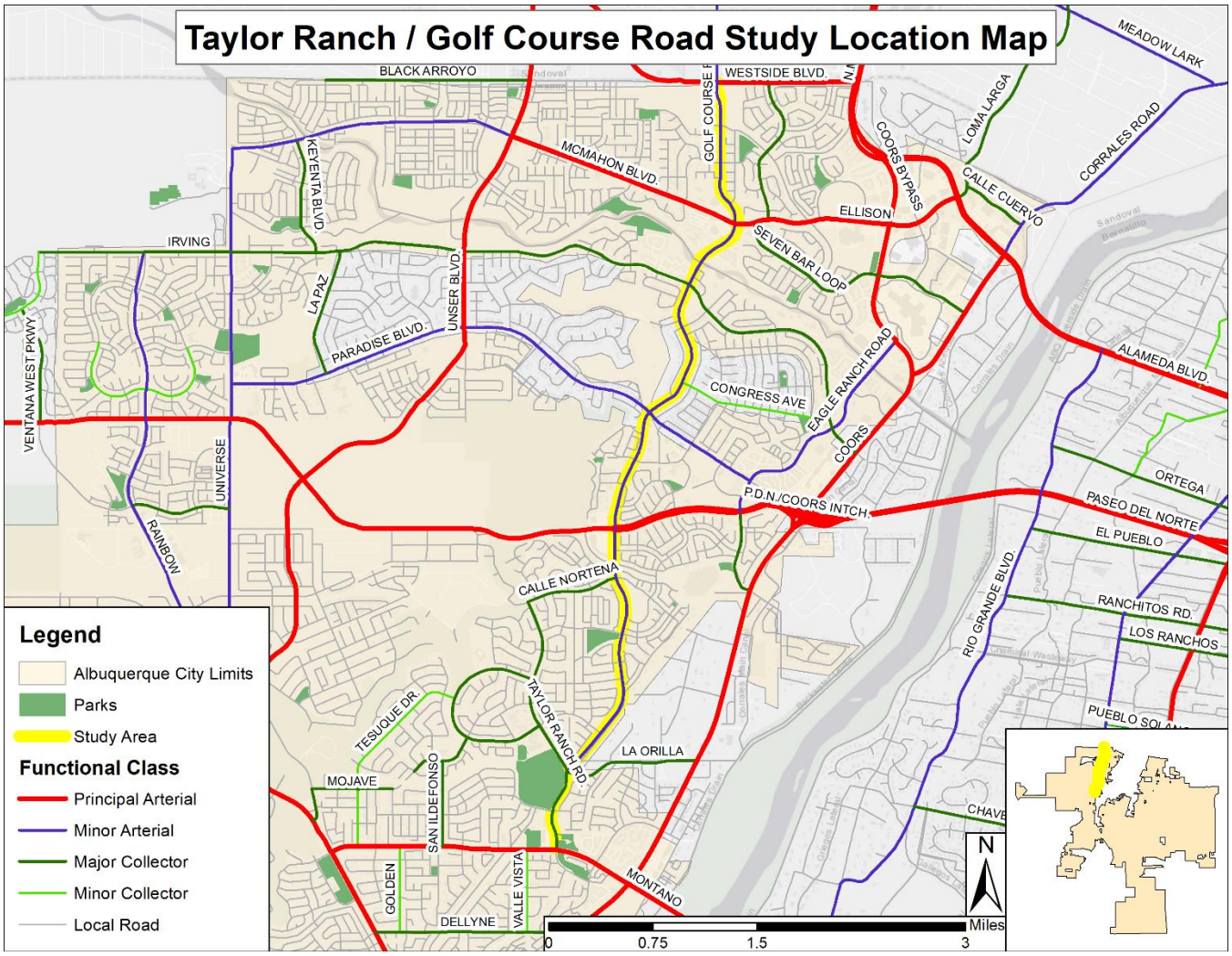
Consideration of Centers is also valuable for the Golf Course Rd corridor as Activity Centers are intended to be mixed-use areas with neighborhood-serving commercial establishments. The Comprehensive Plan states that Activity Centers "provide convenient, day-to-day services at a neighborhood scale to serve the surrounding area within a 20-minute walk or short bike ride," (p. 5-15). Although there are no designated Activity Centers along Golf Course Rd, the commercial nodes located at intersections with major east-west arterials such as Paseo del Norte and McMahon Blvd/Ellison Dr serve a similar, but less intense function. See the section on Opportunities for Creating a Main Street Identity for additional discussion.

EXISTING CONDITIONS

ROADWAY CONFIGURATION

The study area between Montaño Rd and Westside Blvd, Taylor Ranch Rd/Golf Course Rd has two (2) general purpose travel lanes in each direction with a center median or center turn lane. Although the number of travel lanes is consistent throughout the corridor, the provision of sidewalks, an off-street multi-use trail, and on-street bikeways is more inconsistent. The following discussion details the traffic volumes, size of median/center turn lane, and the presence/size of sidewalks, on-street bikeways, and off-street multi-use trails for segments along the corridor between east-west principal arterials.

Figure 1: Study Area Context Map



Segment 1: Montaño Rd to Paseo del Norte

The southern portion of the study area traverses mostly residential areas and carried roughly 18,000 to 20,500 vehicles on average each weekday in 2019 to the south of Calle Norteña and about 30,000 vehicle per day between Calle Norteña and Paseo del Norte. The corridor features a raised center median in this segment that ranges from 10 feet wide to 35 feet wide. Access along this segment is limited to intersecting streets and consolidated driveway openings for commercial/institutional uses.

This portion of the corridor can be further divided into smaller segments based on the types of pedestrians and bicycle infrastructure available. Sidewalks and bike lanes are present on both sides of the street between Montaño Rd and Kachina St. Between Kachina St and La Orilla Rd, there is sidewalk on the northbound side of the road and a multi-use trail on the southbound side that roughly parallels the road alignment. Between La Orilla Rd and Homestead Tr there are sidewalks on the southbound side and a multi-use trail on the northbound side. North of Homestead Tr to Butterfield Tr there are sidewalks on both sides of the street but no bike lanes. North of Butterfield Tr there are no bike lanes and sidewalks are present on the southbound side of the road only. Between Calle Norteña and Paseo del Norte, sidewalks are located on both sides of the street but there are no bike lanes. In addition, the Piedras Marcadas trail intersects the roadway just over 350 feet north of Calle Norteña.

Figure 2: Photographs of Segment Between Montaño Rd and Calle Norteña

Figure 3: Photographs of Segment 2 Between Calle Norteña and Paradise Blvd

Figure 4: Typical Section for Kachina St to La Orilla Rd

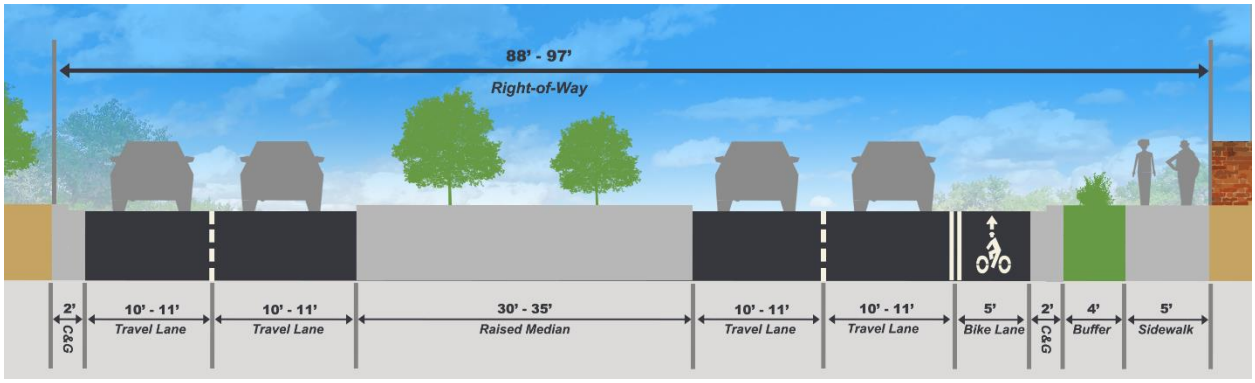


Figure 5: Typical Section for La Orilla Rd to Homestead Tr

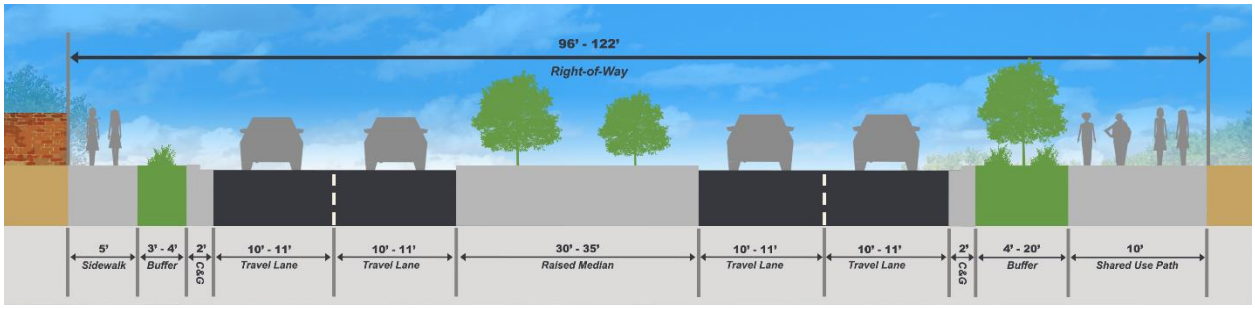
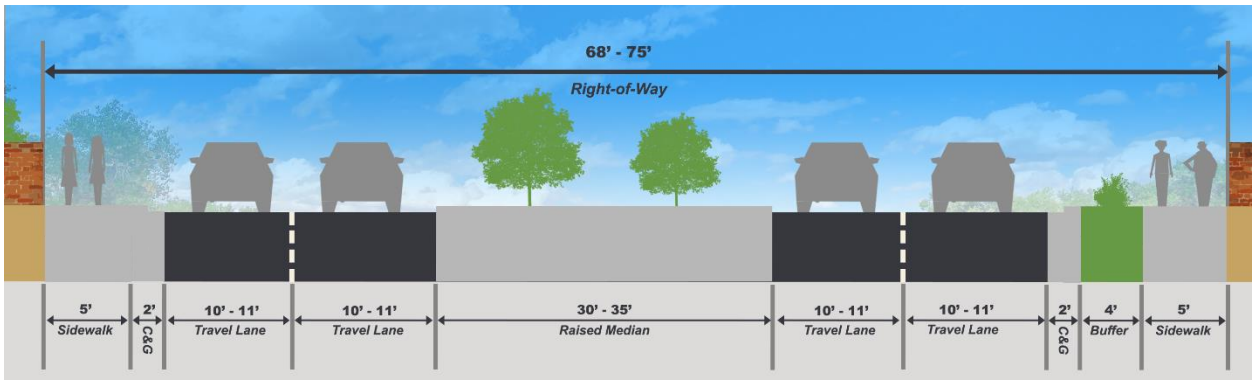


Figure 6: Typical Section for Homestead Tr to Paseo del Norte

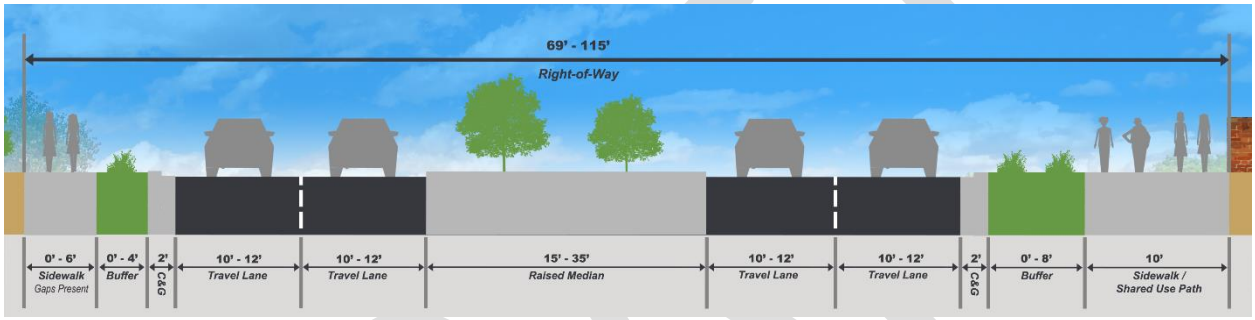


Segment 2: Paseo del Norte to Paradise Blvd

This segment carried 26,000 vehicles on average each weekday in 2019 and features various commercial destinations, including the Petroglyph Plaza shopping center at the southwest corner of Paseo del Norte and Golf Course Rd, as well as various commercial sites between Paseo del Norte and Paradise Blvd. The center median in this segment ranges between 15 and 35 feet wide, with turn lane cutouts at various intersections. Access along this segment is restricted to intersecting streets and consolidated driveways for commercial and institutional uses.

Between Paseo del Norte and Paradise Blvd, there are sidewalks along the southbound side of the road and a multi-use trail along the northbound side. There are no on-street bike facilities along this segment of the corridor.

Figure 7: Typical Section for Paseo del Norte to Paradise Blvd



Segment 3: Paradise Blvd to Irving Blvd

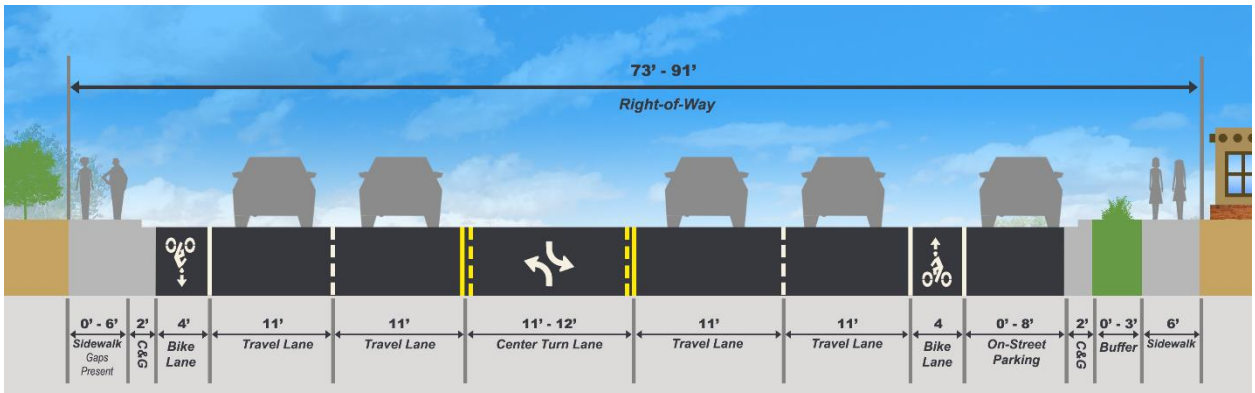
This segment passes through the Paradise Hills Community of unincorporated Bernalillo County and carried roughly 18,000 to 20,000 vehicles on average each weekday in 2019. In contrast to the portions of the corridor south of Paradise Blvd, this segment has a 12-foot wide center turn lane instead of a median. This segment of the corridor is unique in that residential properties along the corridor on the east (i.e. northbound) side of the roadway feature driveways that directly access Golf Course Rd. These properties are not separated from the corridor by subdivision walls, giving this portion of the corridor a unique look and feel not replicated elsewhere in the study area. The Desert Greens Golf Course and walled subdivisions border the roadway to the west.

Sidewalks are present on both sides of the street with the exception of the gap to the north of Greene Ave on the northbound side of the street. There are narrow bike lanes on both sides of the road but there are no off-street bikeways or multi-use trails along this segment.

Figure 8: Image of Segment 3 Between Paradise Blvd and Irving Blvd

Source: Google Streetview

Figure 9: Typical Section for Paradise Blvd to Irving Blvd



Segment 4: Irving Blvd to Westside Blvd

The northernmost segment of the corridor connects Northwest Albuquerque with Rio Rancho (to the north of Westside Blvd) and carried roughly 20,000 to 34,000 per weekday in 2019. This segment has a center median ranging from five (5) feet wide to 26 feet wide. Access along this segment is restricted to intersecting streets and consolidated driveways for residential, commercial, and institutional uses.

This portion of the corridor features significant changes in grade to the south of McMahon Blvd/Ellison Dr as the topography descends towards the Calabacillas Arroyo. Sidewalks are generally present on both sides of the street. This segment also has narrow bike lanes in both directions but there are no off-street bikeways or multi-use trails.

Figure 10: Photographs of Segment 4 Between Irving Blvd and Westside Blvd

Figure 11: Typical Section for Irving Blvd to Westside Blvd

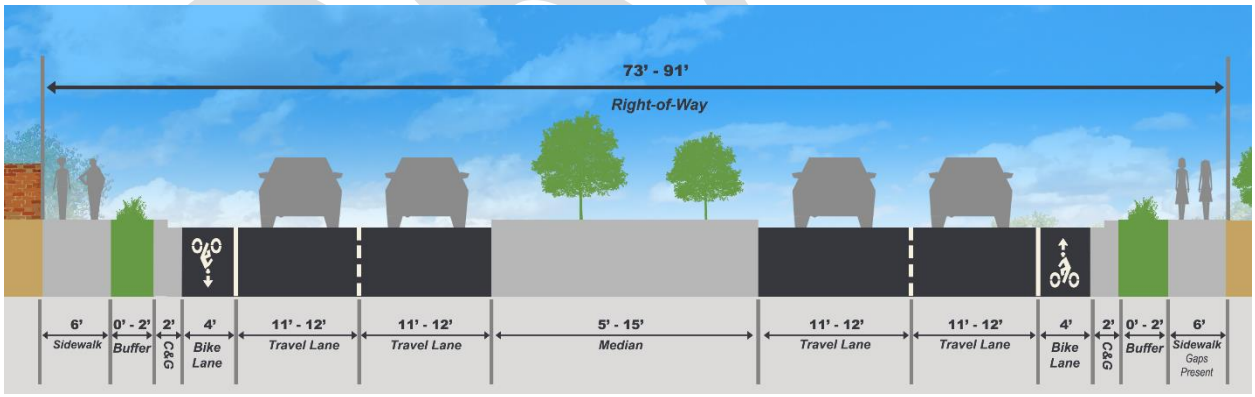


Table 1: Roadway Elements by Segment

	Location	Median / Center Turn Lane	Sidewalks	On-Street Bikeways	Multi-use Trails	Paved Surface Area (excluding gutter)	Area Between Sidewalk Edges	Roadway Edges
Segment 1	**Montaño Rd to La Orilla Rd**	Median: 10-30’	Southbound gap from Kachina St to La Orilla Rd	5' lanes in both directions	Kachina and La Orilla: 10' trail on SB side	83'	95-107’	Additional right-of-way available on west side; subdivision walls along east side north of Kachina St
	La Orilla to Homestead Tr / Riverview Trail Spur	Median: 35’	Southbound side (trail on northbound side)	None	10' trail on northbound side	83'	95' (plus trail and buffers)	Subdivision walls on west side; landscape buffers on either side of trail on east side
	Homestead Tr to Calle Norteña	Median: 35’	Various gaps in northbound direction	None	None	83'	108-160’	Subdivision walls on both sides
	Calle Norteña to Paseo del Norte	Median: 25-35’	Sidewalks on both sides	None	Intersects with Piedras Marcadas Trail	85-98’	98-140’	Subdivision walls on both sides; commercial plaza at SW corner of Paseo del Norte
Segment 2	**Paseo del Norte to Paradise Blvd**	Median: 15-24’	Sidewalks on southbound side only	None	10' trail on NB side	76-98’	106-120’	Mix of subdivision walls and commercial development
Segment 3	**Paradise Blvd to Congress Ave**	Center turn lane: 12’	Southbound gap from Greene Ave to Congress Ave	4' lanes in both directions	None	70’	80-85’	Residential homes on east side; subdivision walls on west side
	Congress Ave to Irving Blvd	Center turn lane: 12’	Gaps in southbound direction	4' lanes in both directions	None	70-74’	80-84’	Residential homes on east side; subdivision walls on west side
Segment 4	**Irving Blvd to Ellison Dr**	Median: 5-26’	Sidewalks on both sides	4' lanes in both directions	None	67-95’	80-105’	Mix of drainage facilities, residential subdivisions with walls, and commercial sites
	Ellison Dr to Westside Blvd	Median: 5-25’	Various gaps in southbound direction	4' lanes in both directions	None	60-85’	78-108’	Subdivision walls on both sides south of Black Arroyo

Note: Survey work was not conducted as part of this study.

GENERAL ROADWAY CONDITIONS

Traffic Volumes and General Traffic Flows

Traffic volume and speed data reveal important patterns about how residents travel along the corridor. Analysis of daily traffic volumes, using Average Weekday Daily Traffic (AWDT) data from MRCOG, convey general trends along the corridor, including the role that the corridor plays in regional travel. Traffic volumes along the corridor range from 18,000 to over 34,000 vehicles per day with the most heavily traveled areas in the corridor to the south and north of Paseo del Norte and McMahon Blvd/Ellison Dr. Table 2 and Figure 12 show the AWDT values for each of the segments in the corridor. Table 2 is broken into four segments that correspond with the typical sections found in the Roadway Configuration section. It is important to note that the volumes are based on traffic data collected before the onset of the COVID-19 pandemic.

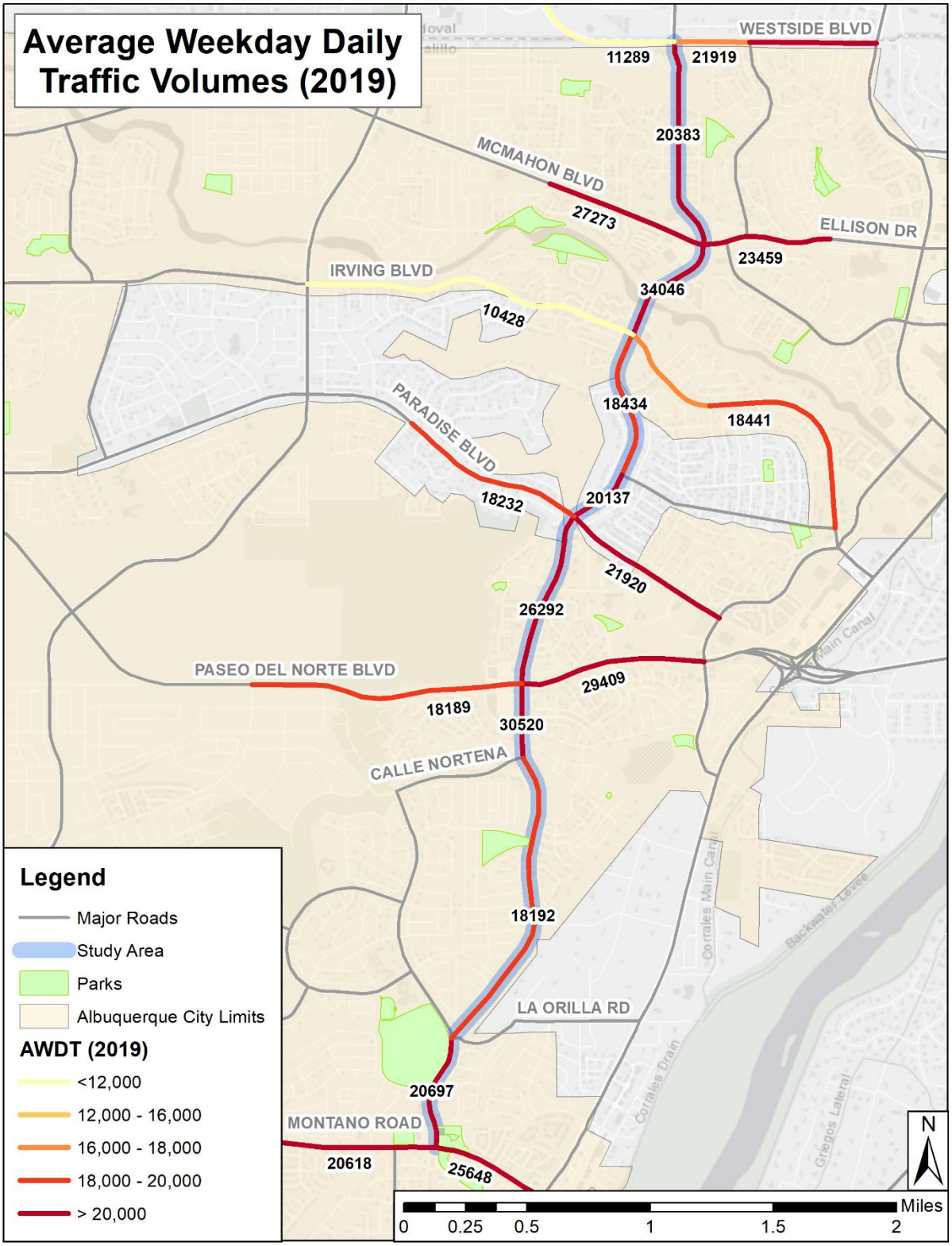
The changes in volume from segment to segment indicate that most motorists are not driving along the entire length of the corridor but use Golf Course Rd to access major commercial nodes and east-west arterials. (No turning movement traffic volume data are available for this corridor but travel patterns can be inferred from changes between segments.) These east-west arterials then provide links to major north-south corridors (i.e. Coors Blvd and Unser Blvd) and bring drivers across the Rio Grande. As a result, traffic volumes vary significantly between each segment along the corridor. Given the travel patterns along Golf Course Rd and high number of turning movements at major intersections, recommendations for infrastructure improvements at these locations will need to minimize conflicts with pedestrians/bicyclists to the greatest extent possible.

Table 2: Traffic Volumes and Volume-to-Capacity Ratios by Segment

	Segment 1			Segment 2	Segment 3		Segment 4	
Location	**Montaño Rd to La Orilla Rd**	**La Orilla Rd to Calle Norteña**	**Calle Norteña to Paseo del Norte**	**Paseo del Norte to Paradise Blvd**	**Paradise Blvd to Congress Ave**	**Congress Ave to Irving Blvd**	**Irving Blvd to Ellison Dr**	**Ellison Dr to Westside Blvd**
Daily Traffic Volume (2019)	20,697	18,192	30,520	26,292	20,137	18,434	34,046	20,383
Northbound AM Peak Hour V/C	0.44	0.27	0.49	0.36	0.31	0.3	0.5	0.24
Northbound PM Peak Hour V/C	0.7	0.97	0.74	0.91	0.64	0.55	1.14	0.78
Southbound AM Peak Hour V/C	0.88	0.61	0.66	0.93	0.67	0.62	1.24	0.51
Southbound PM Peak Hour V/C	0.45	0.46	0.91	0.57	0.44	0.41	0.81	0.44

Source: MRCOG Traffic Counts Program

Figure 12: Average Weekday Daily Traffic Volumes Along the Corridor and East-West Arterials



Peak Hour Congestion

To understand the level of congestion along segments of a corridor, MRCOG utilizes a "volume-to-capacity" (V/C) ratio to measures the roadway's peak hour traffic volume compared to its capacity (based on the number of vehicles the roadway can accommodate per hour using a capacity per travel lane value). V/C ratios above 1.0 indicate that the roadway is operating at above capacity. MRCOG considers a corridor to be approaching congestion if the V/C ratio is 0.7 or higher (or 70% or more of capacity during the peak period). As a four-lane minor arterial, the capacity is assumed to be 1,630 vehicles per hour in each direction.

Analysis of V/C ratios along each roadway segment indicates that the corridor has strong directional travel patterns by time of day with various segments approaching capacity or operating above capacity during the peak periods. As shown in Table 2 and Figure 13, the southbound segment between Ellison Dr and Irving Blvd is the most congested in the corridor during the **morning (AM) peak hour**. Generally, the southbound direction of the corridor is more congested than the northbound direction, indicating that the dominant direction of travel in the morning is south. Similar to the changes in AWDT values around Irving Blvd and Paseo Del Norte, the V/C ratios rise and fall dramatically across these roads, providing further indication of the role that Golf Course Rd plays in connecting drivers to east-west arterials.

The dominant direction in the **evening (PM) peak hour** is northbound. The level of congestion is generally higher throughout the corridor in the PM peak hour than in the AM peak hour (see Figure 14). Contrary to the AM peak hour, where congestion along different segments is highly variable, congestion in the PM peak hour is also more uniform. Such patterns of PM peak hour congestion are to be expected as drivers may make both work and non-work trips, such as shopping, whereas the AM peak hour generally has a larger share of drivers making commute to work trips than non-work trips. Similar to the AM peak hour, V/C ratios increase and decrease significantly around Paseo del Norte and Irving Blvd. The most congested segment of the corridor in both the AM and PM peak hour is located between Irving Blvd and Ellison Dr.

Figure 13: Morning (AM) Peak Hour Congestion Shown as Volume-to-Capacity Ratios by Segment

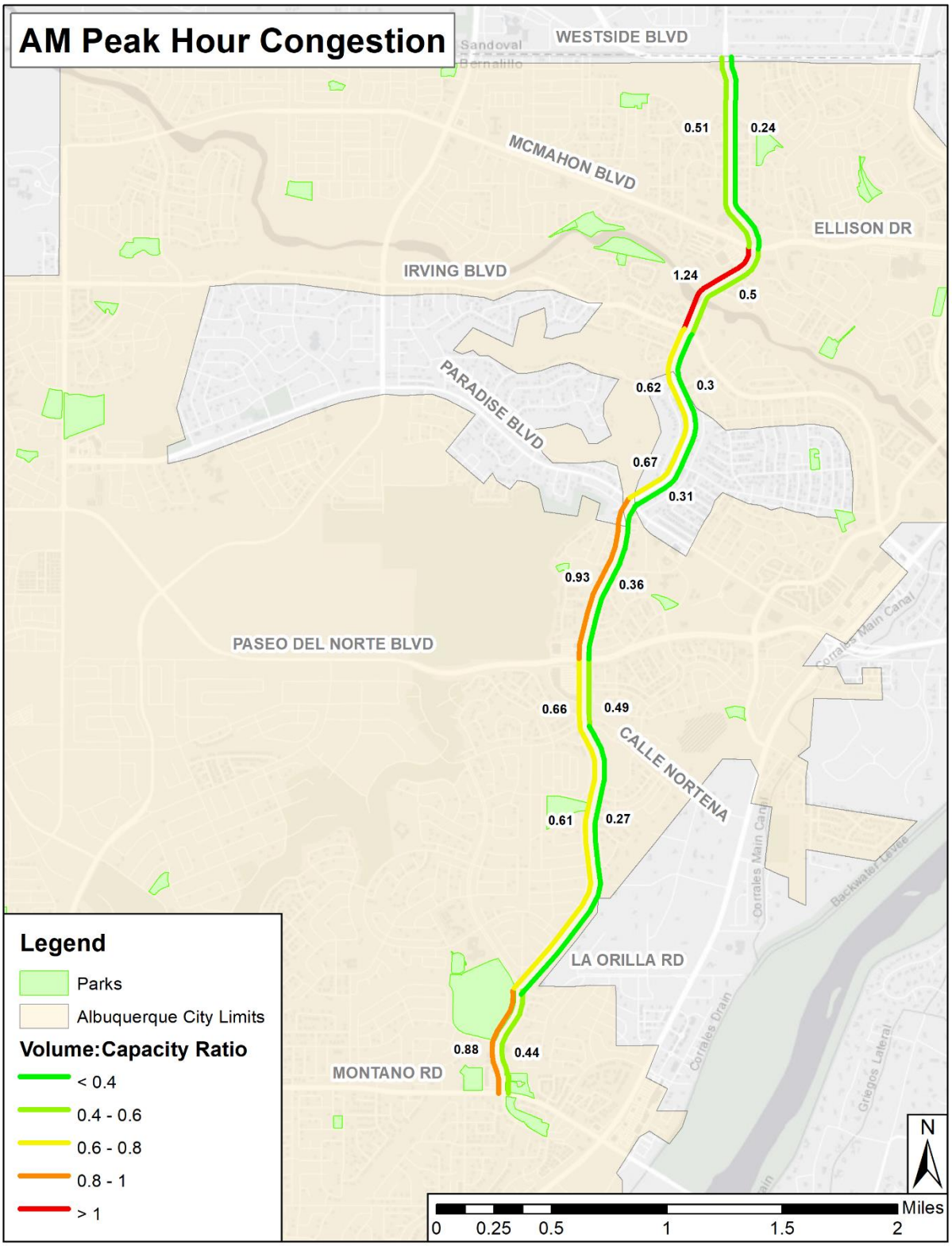
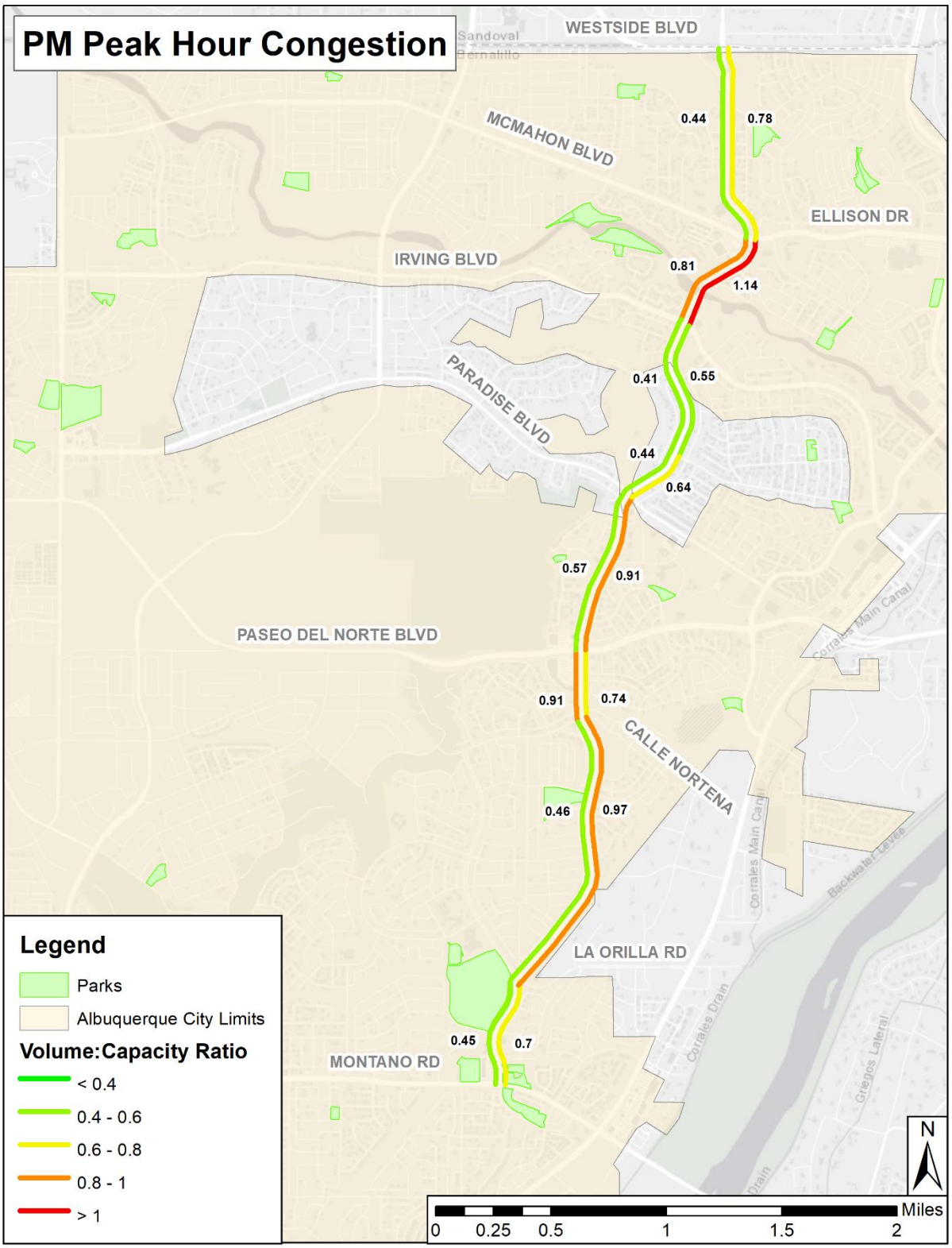


Figure 14: Evening (PM) Peak Hour Congestion Shown as Volume-to-Capacity Ratios by Segment



Future Year Traffic Levels

An analysis of future traffic levels sheds light on whether existing roadway capacity is likely to be sufficient or whether changes in roadway configuration, such as adding or removing lanes, are appropriate. Figure 15 and Table 3 contain projected traffic volumes from the travel demand forecast utilized in the *Connections 2040 MTP* and depict the change in volume relative to the baseline (year 2016). Traffic levels are projected to increase by an average of 8.5% in the next two decades. Given the existing congestion along the corridor the projected increases in traffic volume, it is not appropriate to remove travel lanes or pursue a road diet along the corridor, despite the fact that Complete Streets improvements are desired.

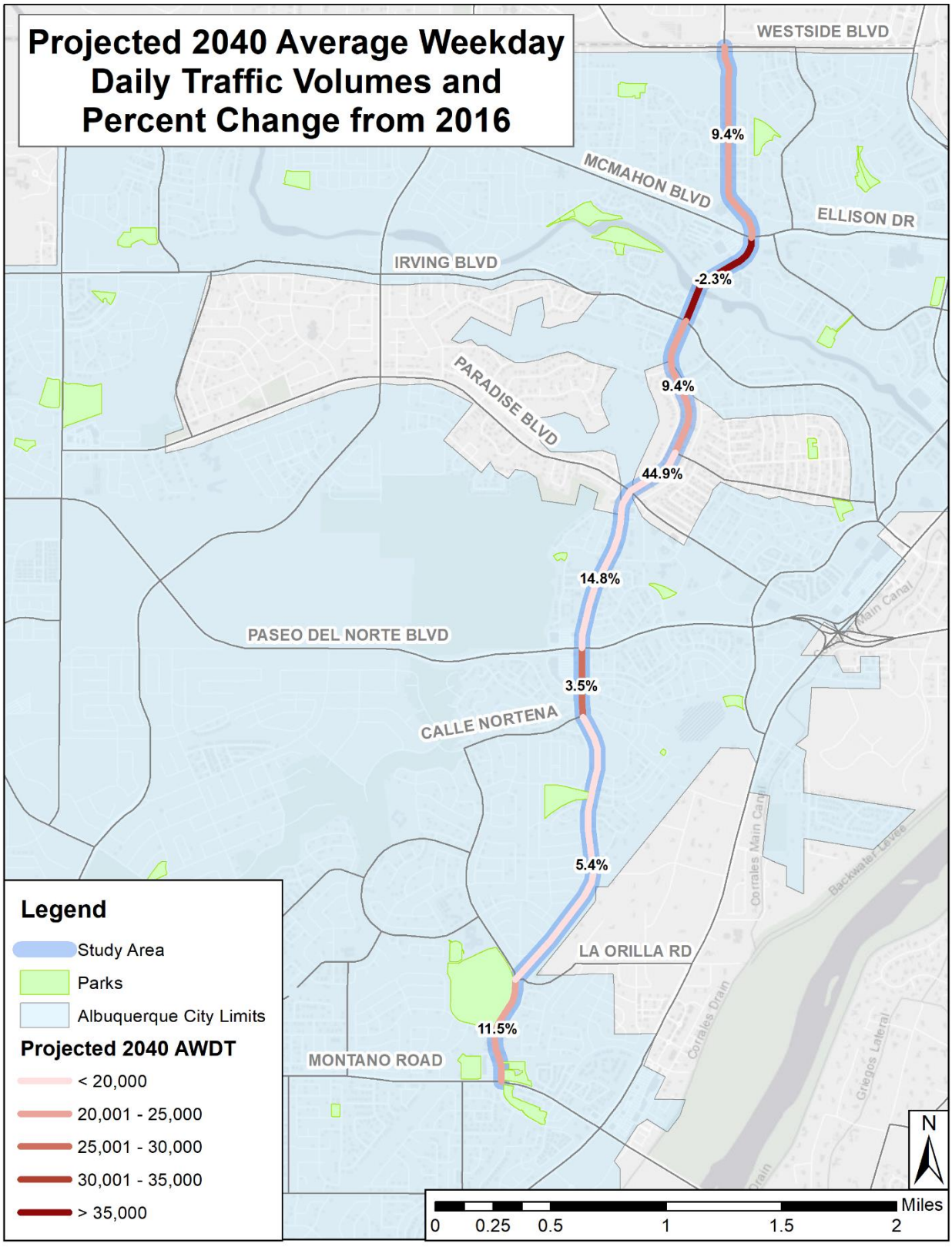
The only segment where the traffic volume is projected to decrease over time is between Irving Blvd and Ellison Dr/McMahon Blvd, which a modest decrease of 2.3% is projected in the regional travel demand model. However, this segment has the highest current and projected traffic volumes of any segment along the corridor.

Table 3: Travel Demand Model Estimated and Projected Traffic Volumes by Segment

Segment	2016 (Model Estimate)	2040 (Model Projection)	Difference	Change
Montaño Rd to La Orilla Rd	19,960	22,248	2,288	11.5%
La Orilla Rd to Calle Norteña	15,243	16,066	823	5.4%
Calle Norteña to Paseo del Norte	24,929	25,804	875	3.5%
Paseo del Norte to Paradise Blvd	13,805	15,854	2,049	14.8%
Paradise Blvd to Progress Ave	10,438	15,126	4,688	44.9%
Progress Ave to Irving Blvd	21,202	23,193	1,991	9.4%
Irving Blvd to Ellison Dr	36,412	35,572	-840	-2.3%
Ellison Dr to Westside Blvd	21,202	23,193	1,991	9.4%
Average	***163,191***	***177,056***	***13,865***	***8.5%***

Source: MRCOG

Figure 15: Projected Traffic Volume in 2040 and Change in Volume versus Current Conditions



TRAFFIC OPERATIONS AND ACCESS MANAGEMENT

Arterial, Intersection, and Timing Analysis

The following sections provide an analysis of the arterial and traffic signal system present on Golf Course Rd. This section is divided into three components: 1) Arterial Analysis, which documents generalized levels of service using data provided by MRCOG; 2) Signal Configuration and Operations, which documents each signalized intersection's configuration and operations; and 3) Signal Timing Assessment, which provides an assessment of current signal timings using the City of Albuquerque's Automated Traffic Signal Performance Measures System (ATSPM System).

Arterial Analysis

Speed data was collected by MRCOG for three segments along Golf Course Rd in June 2021. Locations where data were collected include:

- La Orilla Rd to Paradise Blvd
- Paradise Blvd to Irving Blvd
- North of Irving Blvd

Average speeds in the AM peak period across all three locations were around 40 MPH, indicating that mid-block traffic flows were either consistent with or above posted speeds. Average speeds in the PM peak period were around 40 MPH for the segment north of La Orilla Rd, but only 22.2 MPH to the north of Paradise Blvd and 21.3 MPH to the north of Irving Blvd (see Table 4).

Section 3.5.1 of the Highway Capacity Manual (HCM) was used to estimate a generalized level of service (LOS). LOS is a measure of traffic operations based on factors such vehicle speed and delay at intersections and is designated with a letter grade from A to F, with A representing the highest grade.

See Table 4 for the average speeds and LOS for these locations and Table 5 for the HCM criteria. The analysis for Golf Course Rd uses urban street class II (suburban) as "suburban" typically applies to arterial and collector roads. Based on the HCM criteria, the generalized LOS at mid-block locations for Golf Course Rd is A in the AM peak period and C for the PM peak period. It is important to note that the data was collected approaching the intersection and that vehicle LOS values do not indicate whether or not there is delay at intersections (see Table 5).

Table 4 Arterial Level of Service along Golf Course Rd

Location	Posted Speed (MPH)	AM Peak Period		PM Peak Period	
		Average Speed (MPH)	Level of Service (LOS)	Average Speed (MPH)	Level of Service (LOS)
North of La Orilla Rd	40	42.6	A	39.3	A
North of Paradise Blvd	35	36.9	A	22.2	C
North of Irving Blvd	40	40	A	21.3	D
Average		**39.8**	**A**	**27.6**	**C**

Table 5: Criteria for Determining Arterial Level of Service

Urban Street Class	I	II	III	IV
Range of free-flow speeds (FFS)	55-45 mph	45-35 mph	35-30 mph	35-25 mph
Typical FFS	50 mph	40 mph	35 mph	30 mph
LOS	Average Travel Speed (mph)			
A	> 42	> 35	> 30	> 25
B	> 34-42	> 28-35	> 24-30	> 19-25
C	> 27-34	> 22-28	> 18-24	> 13-19
D	> 21-27	> 17-22	> 14-18	> 9-13
E	> 16-21	> 13-17	> 10-14	> 7-9
F	≤ 16	≤ 13	≤ 10	≤ 7

Signal Configuration and Operations

Traffic signals control intersections operate at eight (8) intersections along the Golf Course Rd corridor. These include (from south to north):

- Montaño Rd
- Kachina St
- Taylor Ranch Rd/La Orilla Rd
- Calle Norteña
- Paseo del Norte
- Paradise Blvd
- Irving Blvd
- McMahon Blvd/Ellison Dr
- Westside Blvd

Table 6 presents a summary of each intersection's signal timing coordination, vehicle detection system, and communications. The AM period generally runs from 6:30 AM to 9 AM, the mid-day period generally runs from 9 AM to 3 PM, and the PM period generally runs from 3 PM to 10 PM.

Table 6: Signal Configuration and Operations

Intersection	Coordinated Street	Weekday Time-of-Day Operations Plans	Detection	Communications
Westside Blvd	Golf Course Rd	AM / Mid-Day / PM	Video / All Movements Except NBT & SBT	Fiber Optic Network
McMahon Blvd	McMahon Blvd	AM / Mid-Day / PM	Video	Fiber Optic Network
Irving Blvd	Golf Course Rd	AM / Mid-Day / PM	Video	Fiber Optic Network
Paradise Blvd	Golf Course Rd	AM / Mid-Day / PM	Inductive Loops on left movements	Fiber Optic Network
Paseo del Norte	Paseo del Norte	AM / Mid-Day / PM	Video	Fiber Optic Network
Calle Norteña	Golf Course Rd	AM / Mid-Day / PM	Inductive Loops on left movements	Fiber Optic Network
La Orilla Rd	Non-Coordinated	Free	Inductive Loops on left movements	Fiber Optic Network
Kachina St	Non-Coordinated	Free	Inductive Loops on left movements	Fiber Optic Network
Montano Rd	Montano Rd	AM / MD / PM	Inductive Loops on left movements	Fiber Optic Network

Consideration of Additional Traffic Signal at Marna Lynn Rd

In response to requests from area residents, the City of Albuquerque Traffic Engineering Division evaluated the need for a traffic signal at Marna Lynna Rd between Paseo del Norte and Paradise Blvd. Based on the daily and hour volumes and crash rates, the City found that the intersection did not meet the warrants for a signal. Specifically, there were 57 westbound vehicles in the AM peak period from 7:30 to 9 AM, which coincided with the 9 AM bell time for Petroglyph Elementary (located east of Golf Course Rd). Per the MUTCD, using the 70% factor for an 85th percentile speed above 40 mph, the busier side street direction would need a minimum of 80 vehicles during the peak hour in order to meet a warrant. Though crashes were recorded in the study period (2010-2016), the City's analysis found that the rate of crashes did not indicate a safety problem.

Signal Timing Assessment

A brief assessment of current signal timings was performed along the corridor using the City of Albuquerque Traffic Engineering Division's ATSPM. Using this system, movement "split failures" may be summarized for each of the intersections on the corridor. A split failure occurs when a signal does not clear waiting vehicles from a movement and are determined by vehicle presence actuations after a signal changes from green to red. A high number of sequential split failures could indicate that traffic patterns have changed or traffic volumes have increased since the in-operation signal timings were implemented and could benefit from adjustment or re-timing.

The tables below provide a summary of results from the signal timing assessment for McMahon Blvd/Ellison Dr, Irving Blvd, and Paseo del Norte. Data for other locations is not available at this time. A construction project was in progress on Westside Blvd and the traffic signal was under temporary construction traffic control. Therefore, this intersection was omitted from the signal timing analysis.

The Utah Department of Transportation provides the following definition of an ATSPM System:

"Automated Traffic Signal Performance Measures show real-time and a history of performance at signalized intersections. The various measures will evaluate the quality of the progression of traffic along the corridor and displays any unused green time that may be available from various movements. This information informs (The Agency) of vehicle and pedestrian detector malfunctions, measures vehicle delay, and lets us know volumes, speeds, and travel time of vehicles. The measures are used to optimize mobility and manage traffic signal timing and maintenance to reduce congestion, save fuel costs and improve safety. There are several measures currently in use with others in development."

McMahon Blvd/Ellison Dr

Table 7 shows time-of-day split failures for McMahon Blvd/Ellison Dr. The data indicates there are a high number of split failures in each of the signal phase periods. Both the southbound left (3) and southbound through (8) movements have the highest split failures at 46 and 56 occurring during the Mid-Day and PM timing plan, respectively. The southbound left (3) and northbound through (4) movements generally have the highest split failures during all three timing plans (AM, Mid-Day, and PM).

Table 7: McMahon Blvd/Ellison Dr Split Failures

Phase	Movement	AM Failures (06:30 – 09:00)	Mid-Day Failures (09:00 – 15:00)	PM Failures (15:00 – 22:00)
1	WBL	4	7	24
2	EB	3	17	13
3	SBL	21	41	46
4	NB	20	32	25
5	EBL	2	12	14
6	WB	0	2	8
7	NBL	1	14	12
8	SB	1	16	56

Irving Blvd

Table 8 shows split failures for McMahon Blvd/Ellison Dr for the AM timing plan (other timing plan could not be obtained at this time). The westbound left phase (3 and 8) movement has the highest split failure at 19, occurring during the AM timing plan, followed by the southbound left movement (phase 5).

Table 8: Irving Blvd Split Failures

Phase	Movement	AM Failures (06:30 – 09:00)	Mid-Day Failures (0:900 – 15:00)	PM Failures (15:00 – 22:00)
1	NBL	1	-	-
2	SB	0	-	-
3 (8)	WBL	19	-	-
3	WB	1	-	-
4 (7)	EBL	7	-	-
4	EB	0	-	-
5	SBL	12	-	-
6	NB	0	-	-
7	EBL	5	-	-
8	WBL	2	-	-

Paseo del Norte

Table 9 displays time-of-day split failures for Paseo del Norte. The greatest number of split failures in the AM period occurred in the northbound and northbound left movements (phase 2 and phase 5 respectively). The northbound through movement (phase 2) has the highest split failures occurring during the mid-day timing plan, followed by the westbound left (phase 3). The split failures for the PM timing plan were not available for this intersection.

Table 9: Paseo del Norte Split Failures

Phase	Movement	AM Failures (06:30 – 08:45)	Mid-Day Failures (08:45 – 15:00)	PM Failures (15:00 – 22:00)
1	SBL	4	7	-
2	NB	7	26	-
3	WBL	3	11	-
4	EB	3	1	-
5	NBL	6	1	-
6	SB	0	4	-
7	EBL	1	4	-
8	WB	0	1	-

Discussion

Data from the ATSPM System indicates where there is room for potential improvement at the traffic signals. However, some of the split failures cannot be easily resolved. A primary reason for delay along Golf Course Rd is that the timing plans for signals at major intersections, such as Paseo del Norte, are coordinated for

east-west travel. Other potential sources of split failures include traffic volumes that exceed capacity, which is true for various segments along the corridor. Next steps in traffic signal analysis will be to consider whether split failures at key intersections could be minimized and to judge the potential benefits of strategies that could improve efficiency along the corridor, such as additional turn lanes, against other desired features, such as reduced pedestrian crossing distances.

Access Management

General Considerations

Access management refers to a set of techniques that control access points to land parcels from adjacent roadways. There are five primary techniques used in access management, including:

- Access spacing
- Driveway spacing
- Safe turning lanes
- Median treatments
- Right-of-way management

This study focuses on driveway spacing as the primary technique for access management. Table 10 provides the number of driveways and average driveway spacing for each segment of Golf Course Rd. The actual driveway spacing can be contrasted against Table 7.4.45 of the City of Albuquerque Development Process Manual (DPM), which indicates that site access points on a minor arterial should be 100 to 150 feet apart, or approximately 35 to 50 driveways per mile.

A comparison of existing versus desired conditions indicates that most of the corridor features access points with spacing that meets or exceeds desired conditions. However, the segment from Irving Blvd to Paradise Blvd features driving spacing at a rate of more than 50 access points per mile, or almost 50% above DPM guidance (assuming 150 feet between driveways). The high level of access and potential conflict points is noteworthy as the intersections of Golf Course Rd with Paradise Blvd and Irving Blvd both feature high rates of crashes. See the Safety Considerations section for additional discussion.

Table 10: Number and Spacing of Driveways along Golf Course Rd

Segment Name	Number of Driveways	Length (Ft)	Driveway Spacing (Driveways per Mile)
Westside Blvd to McMahon Blvd/Ellison Dr	3	4,450	4
McMahon Blvd/Ellison Dr to Irving Blvd	9	2,480	20
Irving Blvd to Paradise Blvd	44	4,540	52
Paradise Blvd to Paseo del Norte	9	3,810	13
Paseo del Norte to Calle Norteña	3	1,530	11
Calle Norteña to La Orilla Rd	0	6,600	0
La Orilla Rd to Kachina St	0	1,300	0
Kachina St to Montaño Rd	6	1,200	27

Petroglyph Plaza Shopping Center

Numerous members of the public identified traffic and safety challenges associated with access to the Petroglyph Plaza Shopping Center at the northwest corner of Paseo del Norte and Golf Course Rd. The most commonly cited issue is the presence of queues for the Starbucks that back onto Golf Course Rd (see Figure 16 for location of Starbucks within the shopping center). The presence of back-ups onto Golf Course Rd appears to be the result of insufficient driveway length (also referred to as throat length) to support the volume of traffic associated with the drive-thru combined with the fact that the drive-thru entrance is made via a right turn from the site access driveway. Improvements to the internal site circulation could mitigate these issues. However, since the site plan was approved by the City improvements to circulation within the shopping center are the responsibility of the landowner.

In addition to the spillover of queues onto Golf Course Rd, there are safety concerns associated with turning movements into and out of the shopping plaza. All access is via Golf Course Rd; however, many motorists leave the site and access eastbound Paseo del Norte, which requires a left turn across southbound traffic along Golf Course Rd. Motorists are forced to look for gaps in traffic and utilize the median to make a two-stage turn. This movement can create stacking in the median across oncoming traffic. See Figure 17 for a depiction of conflict points associated with site access and turning movements at the Petroglyph Plaza Shopping Center.

Figure 16: Petroglyph Plaza Shopping Center and Starbucks on Golf Course Rd

Figure 17: Conflict Points around Petroglyph Plaza Shopping Center

Lighting Analysis

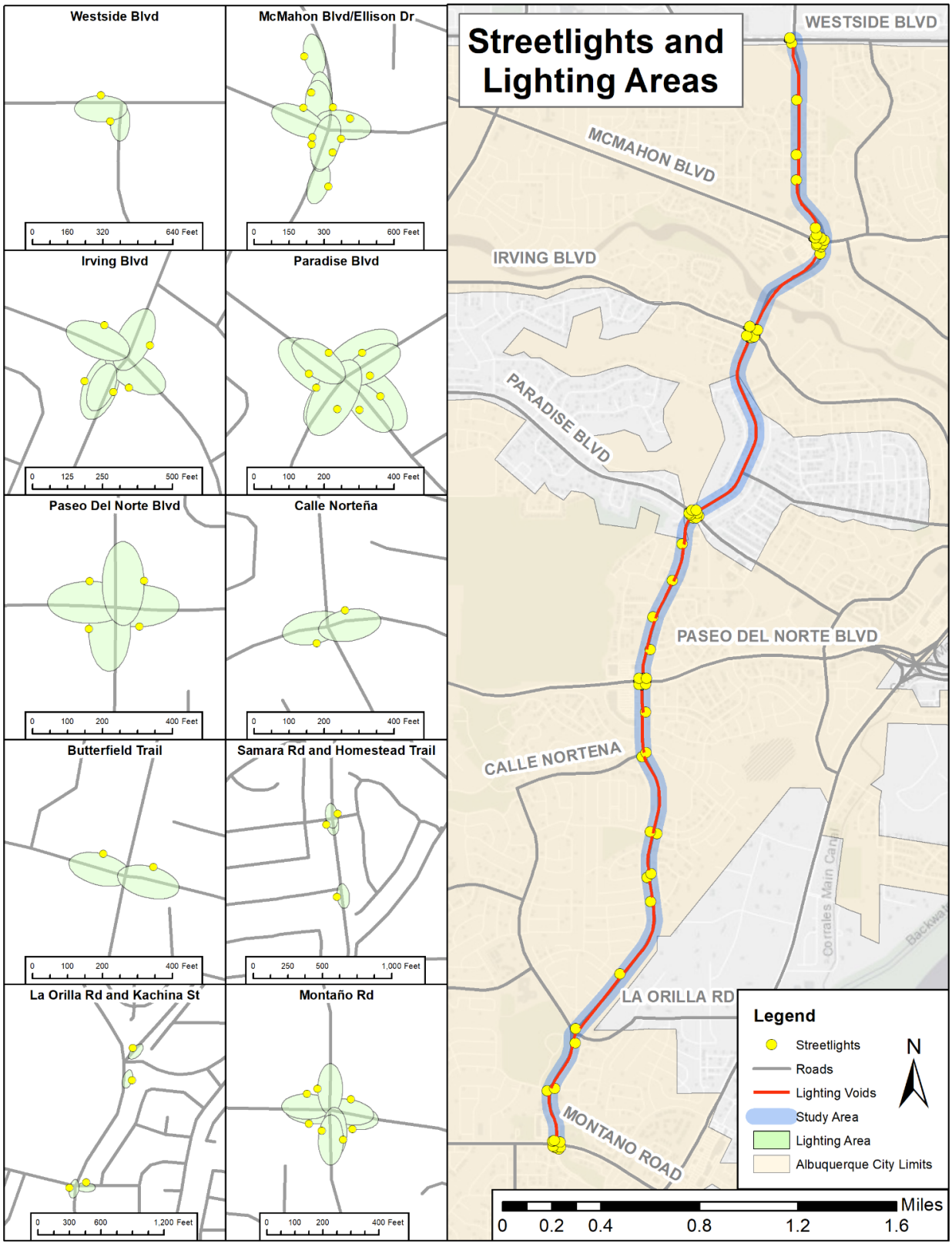
Existing Conditions

Adequate street lighting can play a major role in vehicular and pedestrian safety along a corridor and support the application of a Complete Street design concept. Streetlights are present at each intersection along Golf Course Rd; signalized intersections feature illumination for each approach and the center of the intersection, while un-signalized intersections feature a single streetlight positioned near the side-street stop signs a short distance upstream on the approach to the intersection. Figure 18 depicts the locations and illumination patterns of existing streetlights on Golf Course Rd. Streetlight GIS data, including the location of existing streetlights on the corridor, was provided by the City of Albuquerque.

Since only the intersections are illuminated, there are sometimes long stretches between intersections that do not currently have any streetlighting. Figure 18 also depicts lighted and un-lighted areas of Golf Course Rd by approximating lighting throw distance from each existing streetlight. Lighting throw distance is depicted as an ellipse, where the major axis radius is three times the height of the streetlight pole, and the minor axis radius is half the major axis radius. For the 38 existing streetlights with 30 ft poles identified, lighting throw distance is projected at a diameter of 180 ft (major axis). For the 18 existing streetlights with 40 ft poles, their lighting throw distance is projected at a diameter of 240 (major axis). Based upon this estimation, the total unlighted roadway length is more than 21,800 ft, meaning only about 17% of the study area corridor is illuminated.

The right-of-way from Taylor Ranch Rd/La Orilla Rd to Homestead Tr in which the Riverview Trail is located is also un-lighted, as well as various trail crossings along the corridor.

Figure 18: Existing Street Lighting Along Golf Course Rd



SAFETY CONSIDERATIONS

Overall Conditions

Vehicle traffic presents significant safety challenges along the Golf Course Rd corridor. The combination of vehicle speeds and limited crossing opportunities between major intersections also creates barriers for non-auto users and contributes to the fact that when crashes do occur, they are likely to be severe. (A crash is considered severe if there is an injury or fatality involved.) This section considers the location and severity of motor vehicle and bicyclist and pedestrian-involved crashes in both the study area and overall totals for the City of Albuquerque to allow for comparative analysis. Conditions that affect bicyclist and pedestrian safety are discussed in other sections of this report.

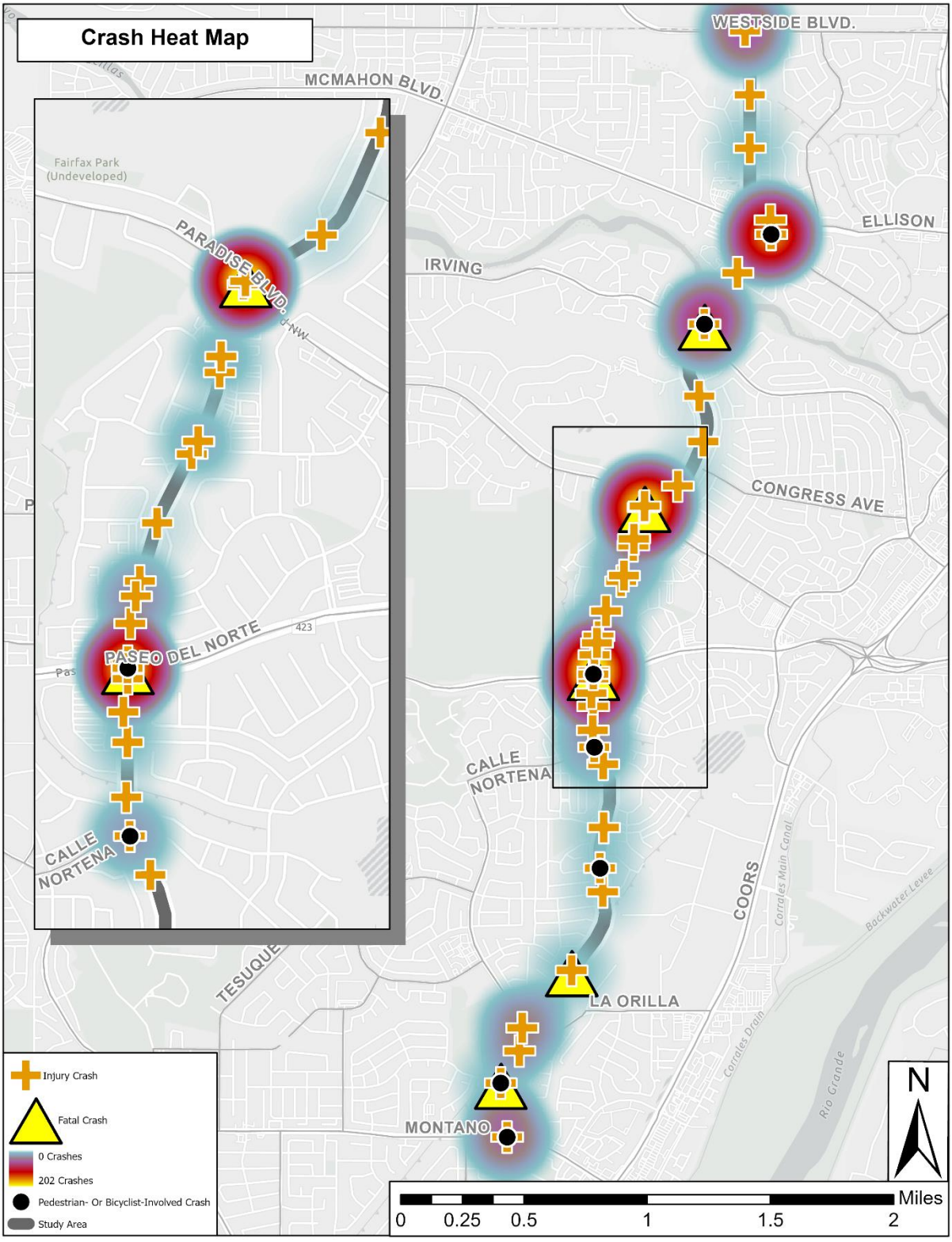
Overall, from 2014 to 2018 there were 1,137 total crashes and 349 severe crashes in the study area. Annually, there were about 70 severe crashes, or one severe crash every five days, including five total fatal crashes along the corridor. As a result of the frequency and severity of crashes, much of Golf Course Rd is included in the MRCOG HFIN, which highlights intersections and road segments that are prone to high rates of crashes and severe crashes in particular. Per MRCOG data, vehicle crashes occur along the corridor at rates above the City-wide average, while crashes around the intersection of Paradise Blvd occur at rates more than twice the City-wide average. Table 11 contains total crashes, fatal and injury crashes (i.e. severe crashes), and non-severe crashes for signalized intersections in the study area. Figure 19 depicts concentrations of crashes along the Golf Course Rd corridor.

Table 11: Total Crashes at Major Intersections (2014-2018)

Intersection	Total Crashes	Total Fatal Crashes	Total Injury Crashes	Total Non-Severe Crashes	HFIN Intersection Crash Rates Compared to City Average
Golf Course Rd and Westside Blvd	74	0	23	51	0-100% above Mean
Golf Course Rd and McMahon Blvd	178	0	62	116	0-100% above Mean
Golf Course Rd and Irving Blvd	95	1	25	69	0-100% above Mean
Golf Course Rd and Paradise Blvd	202	1	68	133	100-200% above Mean
Golf Course Rd and Paseo del Norte	161	1	44	116	0-100% above Mean
Golf Course Rd and Calle Norteña	33	0	5	28	Below Mean
Golf Course Rd and La Orilla Rd	52	0	17	35	0-100% above Mean
Golf Course Rd and Montaño Rd	65	0	16	49	Below Mean
All Other Locations	277	2	84	191	
Total	**1,137**	**5**	**344**	**788**	

Source: NMDOT (2014 to 2018); HFIN data is based on the rate of crashes between 2011 and 2015
Note: A crash is considered severe if it results in an injury ot fatality.

Figure 19: Crash Heat Map



Crash Severity

The share of crashes from 2014 to 2018 along the corridor that resulted in a fatality or injury are similar to those found for the City overall (30.7% v. 29.9%). However, the rate of severe crashes at major intersections is generally above the City average (as indicated by the MRCOG HFIN network).

Table 12: Severity of Crashes by Location

	Study Area		City	
	Count	**Percent**	**Count**	**Percent**
Fatal	5	0.4%	279	0.4%
Injury	344	30.3%	23,517	29.5%
Non-Severe	788	69.3%	55,899	70.1%
Total	**1,137**	**100.0%**	**79,695**	**100.00%**

Source: NMDOT (2014-2018)
Note: A crash is considered severe if it results in an injury ot fatality.

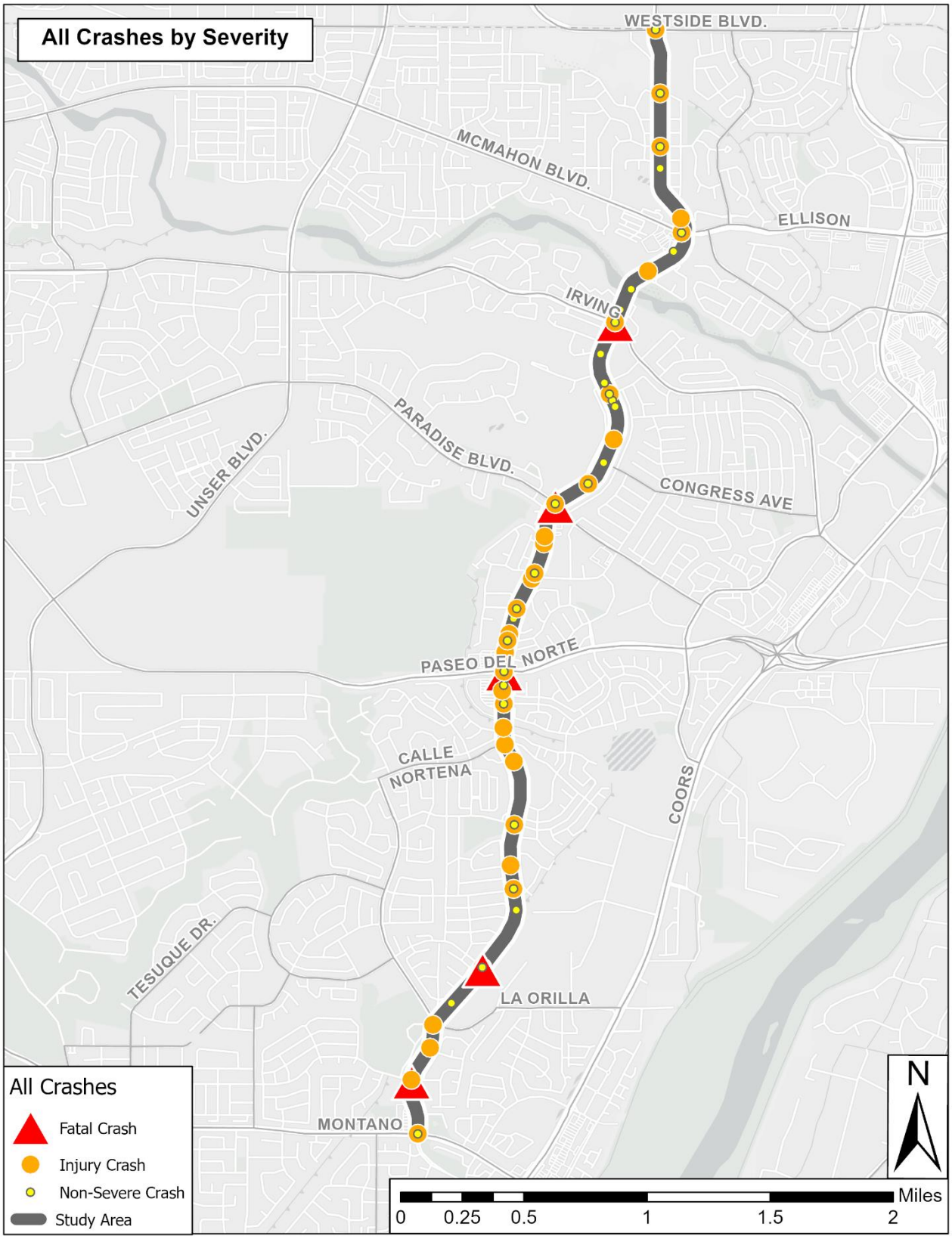
Hot Spots and High Crash Rate Intersections

The individual intersections along the Golf Course Rd corridor with the highest number of crashes from 2014 to 2018 are Paradise Blvd (n=244) and McMahon Blvd (n=178); about 33% of all crashes in the study area took place at these two intersections. Other hot spots along the corridor include Irving Blvd and Paseo del Norte. The majority of injury crashes are concentrated between Calle Norteña and Paradise Blvd, as shown in Figure 19. The intersections of Golf Course Rd and McMahon Blvd and Paseo del Norte are particularly concerning as they experience some of the highest total and severe crashes in addition to being locations with pedestrian-involved crashes. Another safety consideration is the need for access management between Paradise Blvd and Irving Blvd, as the presence of conflict points corresponds closely with locations with high numbers of crashes. See Figure 20 for severity of crashes by location.

Note on Crash Data Sources

This safety analysis consists of individual crash location data from NMDOT from 2014 to 2018 and intersection and link-level crash rate values from MRCOG for the years 2011 to 2015. MRCOG rates are based on the frequency of crashes per vehicle mile traveled and compared to the City average.

Figure 20: Crashes by Severity



Pedestrian and Bicyclist-Involved Crashes

There were a total of 12 pedestrian- or bicyclist-involveld crashes along the entirety of the corridor (see Figure 21). Ten of the 12 pedestrian or bicyclsit-invovled crashes were severe, with two fatalities and eight crashes resulting in injuries. These crashes were dispersed along Golf Course Rd with multiple pedestrian or bicyclist involved crashes at Ellison Dr/McMahon Blvd (n=2), Irving Blvd (n=2), Paseo del Norte (n=2), and Montaño Rd (n=3). Of the five fatalities within the study area, two were pedestrian-involved and located at Irving Blvd and Paseo del Norte.

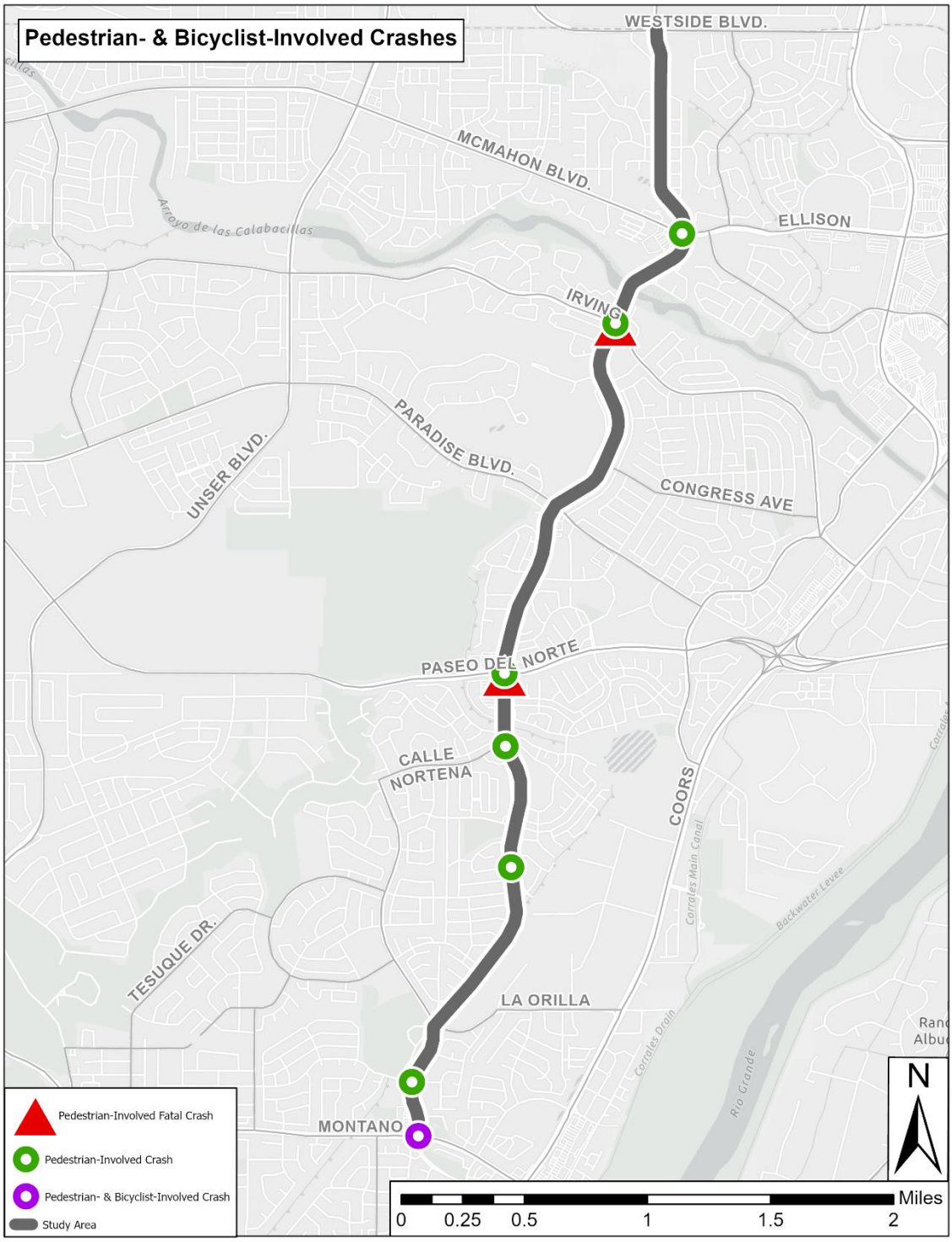
Table 13 indicates the count and share of pedestrian and bicyclist-involved crashes in the study area and the City as a whole. Overall, pedestrian and bicyclist-involved crashes along Golf Course Rd cumulatively make up a lower share of total crashes (about 1.0% v. 3.0%). However, the low share of pedestrian and bicycle-involved crashes may be related to incomlete facilities along the corridor, which may limit the number of non-auto users, rather than because the design of the corridor promotes safe walking and biking conditions. The rate of pedestrian and bciycle-involved crashes is also not known definitively, as limited data exists on the total number of non-auto users along the corridor.

Table 13: Pedestrian and Bicyclist-Involved Crashes by Location

Crash Type	Study Area		City	
	Count	Percent	Count	Percent
Pedestrian-Involved Crashes	10	0.9%	1,418	1.8%
Bicyclist-Involved Crashes	2	0.2%	829	1.0%
All Other Crashes	1,125	98.9%	77,448	97.2%
Total	**1,137**	**100.0%**	**79,695**	**100.0%**

Source: NMDOT (2014-2018)

Figure 21: Pedestrian- and Bicyclist-Involved Crashes



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 (25.7%)
- Failure to yield (19.9%)
- Driver error (11.1%)

These factors are attributed to crashes at similar rates to the City overall, though failure to yield incidences take place at somewhat higher rates (19.9% v. 13.8%). Excessive speeding also accounts for a comparable share of crashes along the corridor as the City overall. However, lower vehicle speeds and Complete Streets roadway design patterns would also likely reduce the frequency and severity of crashes along the corridor that result from common factors such as driver inattention and driver error. Though not considered a contributing factor, limited access management and conflicts around driveways can lead to driver error or crashes that may be attributed to driver inattention.

Table 14: Top Contributing Factors for All Crashes in the Study Area

Top Contributing Factor	Study Area		City	
	Count	Percent	Count	Percent
Driver Inattention	292	25.7%	19,414	24.4%
Failure to Yield	226	19.9%	11,026	13.8%
Other	216	19.0%	16,093	20.2%
Driver Error	126	11.1%	10,295	12.9%
Following Too Closely	97	8.5%	7,814	9.8%
Excessive Speed	76	6.7%	5,618	7.0%
Disregard Traffic Signal	63	5.5%	5,790	7.3%
Alcohol/Drug Involved	37	3.3%	3,049	3.8%
Pedestrian Error	4	0.4%	596	0.7%
Total	**1137**	**100%**	**79,695**	**100%**

Source: NMDOT (2014-2018)

PUBLIC TRANSIT SERVICES

Existing Services

ABQ RIDE operates two bus routes that travel along the Golf Course Rd corridor for a portion of their alignments. **Route 157** operates on 30 minute headways between the Northwest Transit Center and Kirtland Air Force Base. The route follows a 21.4 mile path and traverses Golf Course Rd, Montaño Rd, and Louisiana Blvd. **Route 92** is a commuter route that makes one morning trip inbound from the Northwest Transit Center and the UNM Main Campus via Golf Course Rd, Unser Blvd, and I-40. The total path of the route is 29.2 miles and requires about an hour to complete the one-way trip. Transit stops for each route are located about 0.2-0.25 miles apart along the corridor.

Table 15: Summary of Existing Transit Services

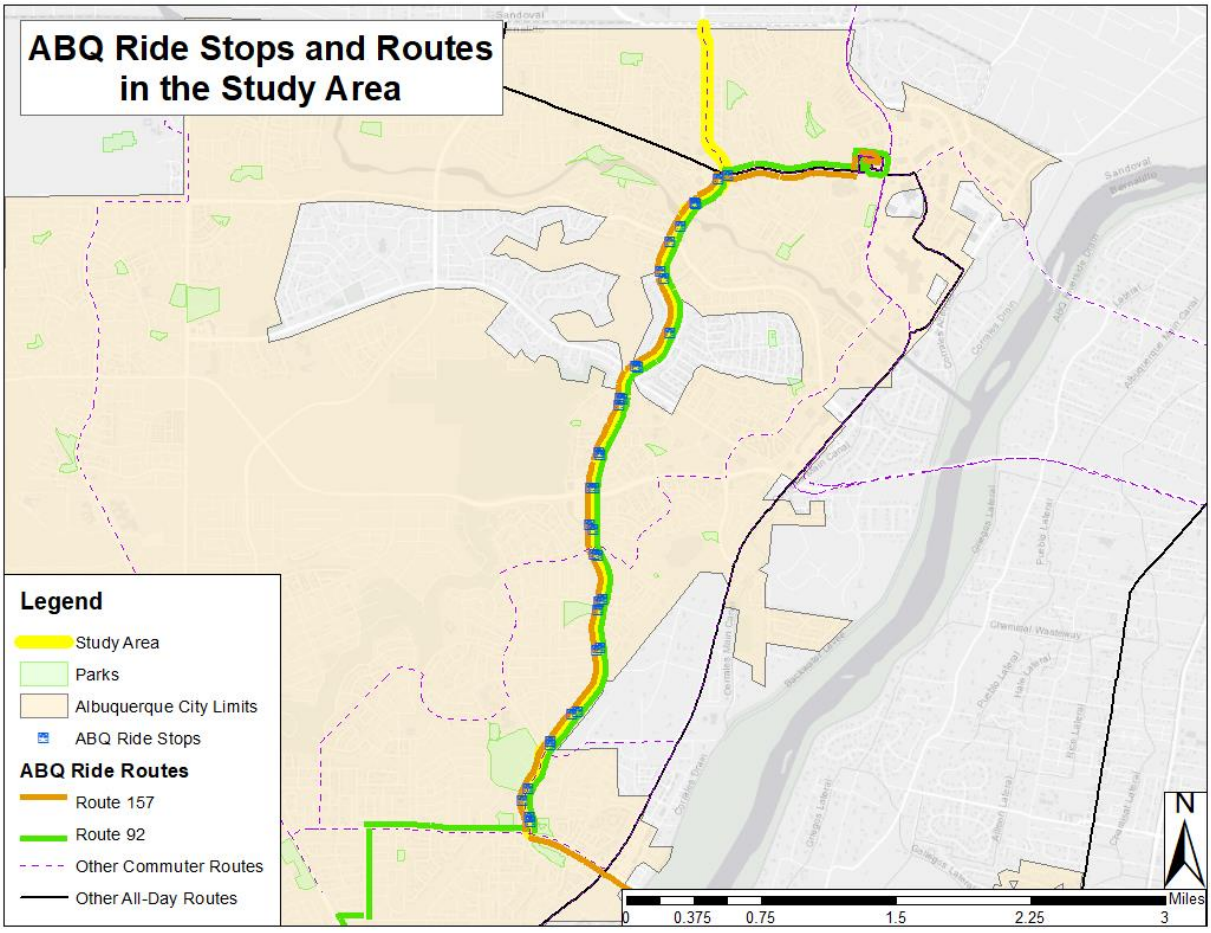
Route	Service Type	Frequency	Span	Annual Ridership	Activity in Study Area
157 – Montaño / Uptown / Kirtland	Local (all day)	Weekdays: every 30 min. Weekends: every 45 min.	Weekdays: 5:30 AM – 10 PM Saturdays: 7:30 AM – 10 PM Sundays: 8 AM – 5:30 PM	594,599	5.8% of daily activity, or about 115-120 trips per day
92 – Taylor Ranch Express	Commuter (peak periods only)	Weekdays only; one trip inbound in AM, one return trip in PM		8,163	No data

Daily ridership for Route 157 is about 2,000 trips per day and about 33 trips per day on Route 92. Based on boarding and alighting data collected in August 2019, an estimated 115-120 daily trips, or 5.8% of the total ridership activity along Route 157, occur in the study area. By contrast, about 20% of the stops are located along Golf Course Rd. (No such data is available for Route 92). The modest number of users is likely a function of the challenges associated with providing transit service in northwest Albuquerque. These challenges include limited access to transit for pedestrians due to both the physical environment and relatively low residential density in the area; demographic characteristics of study area residents (households generally have higher vehicle ownership rates and median household income levels than the city at large); and limited options to access regional destinations, such as Downtown or the University of New Mexico, without requiring a transfer.

Potential Transit Improvements

Though ABQ RIDE has not formally identified specific service changes or future routes along Golf Course Rd, MRCOG has designated Taylor Ranch Rd/Golf Course Rd as a Primary Transit Route in its Long Range Transit Network map. The Primary Transit Route designation indicates the corridor has high ridership potential and plays a critical role in regional transit mobility. Expanded service along Primary Transit Routes is also a key component in achieving the Target Scenario for future growth and land use patterns identified in the *Connections 2040 MTP*. Per the Long Range Transit Network and the recommendations of the *Connections 2040 MTP*, Primary Transit Routes should provide service every 15 minutes. Such a level of service could generate higher ridership and improve the usability of the transit network for all trip types. Golf Course Rd is also designated as a Major Transit Corridor in the Comprehensive Plan. See the Planning/Policy Context section for additional discussion.

Figure 22: Existing Transit Service and Bus Stops in the Study Area



BIKEWAYS AND TRAILS

General Conditions along Golf Course Rd

Bikeways and trails along Golf Course Rd provide critical access to shopping centers and recreational destinations. Facilities along Golf Course Rd are particularly critical as there are few parallel facilities or alternative options for traveling long distances north and south. Residential areas along either side of the corridor in particular featured limited network connections and obligate pedestrians and bicyclists to use major roads to access nearby destinations. Figure 23 provides existing and proposed bikeways and trails through the Golf Course Rd study area.

At present, there are various segments along Golf Course Rd with on-street bike lanes and/or multi-use trails at sidewalk level. However, there are critical gaps in these networks that limit opportunities for bicyclists to safely reach their destinations. In other instances, there may be a quality facility such as a 10-foot multi-use trail on one side of the roadway, though there may be limited opportunities for area residents to cross the street and access the trail. There are also few parallel facilities that could be used as an alternative, making it particular critical for bicyclists and pedestrians to safely complete trips along Golf Course Rd. The following discussion summarizes the bicycle facilities in the study area, going from south to north. See the Pedestrian Facilities section for additional discussion as multi-use trails are utilized by both pedestrians and bicyclists.

In addition to the presence of bicycle facilities, it is important to consider the facility type as on-street bike lanes and multi-use trails appeal to different user types. Given the speeds and traffic volumes along the corridor, and the fact that existing bike lanes are generally narrow (i.e. 4-5 feet in width, while at least 6 feet is the standard) and do not feature any separation from motorists, only more confident riders are likely to ride along Golf Course Rd. In general, the City may aspire to provide physical separation for bicyclists from traffic to the extent possible, through facilities such as buffered bike lanes and/or multi-use trails. Where space allows, both multi-use trails and on-street bike lanes may be considered to encourage a wider range of users.

Montaño Rd to Paseo del Norte

Golf Course Rd Facilities

The southernmost segment of the study area, between **Montaño Rd and La Orilla Rd**, has bike lanes on both sides of the street that are five (5) feet wide as well as an off-street multi-use trail to the west of the corridor associated with Mariposa Basin Park. However, this multi-use trail is not directly adjacent to the roadway and as a result and is more likely to be used for recreational users and by visitors to the park.

There are no on-street bike lanes present to the **north of La Orilla Rd**, though there is a 10-foot wide multi-use trail on the northbound side of the road. This path, referred to as the Riverview Trail, runs along the corridor until south of Homestead Tr where it turns to the east away from Golf Course Rd. There are no bicycle facilities between **Homestead Tr and Paseo del Norte**, representing the largest gap in the bike network in the study area.

Table 16: Bicycle Facilities Between Montaño Rd and Paseo del Norte

Segment	Facility Type	Daily Traffic Volume (2019)	Width (feet)	Bicycle LOS
Montaño Rd to La Orilla Rd	Bike lanes	21,000	5	C
La Orilla Rd to Homestead Tr	Off-Street Multi-use Trail (northbound side only)	18,000	10	B*
Homestead Tr to Calle Norteña	None	18,000	No facilities	D
Calle Norteña to Paseo del Norte	None	30,500	No facilities	D

**Level of service values for off-street multi-use trail segments were imputed based on FHWA guidance that discussed the impact of trail width, centerline presence, and user levels (is available).*

Cross Streets and Trails

La Orilla Rd has buffered bike lanes on the east side of Golf Course Rd and bike lanes on the west side of Golf Course Rd. In addition, Homestead Circle has bike lanes that terminate at its intersection with Golf Course Rd. The Piedras Marcadas Trail connects from Paseo del Norte to the Riverview Trail near Butterfield Well Park. The trail features a designated crossing of Golf Course Rd to the north of Calle Norteña – the only such crossing of Golf Course Rd that is not at a signalized intersection. Calle Norteña features bike lanes between Golf Course Rd and Taylor Ranch Rd.

Table 17: Intersecting Trails and Bicycle Facilities Between Montaño Rd and Paseo del Norte

Roadway/Trail Name	Facility Type
La Orilla Rd	5’ buffered bike lanes
Homestead Circle	4’ bike lanes
Piedras Marcadas Trail	10’ multi-use trail
Calle Norteña	4’ bike lanes (west of Golf Course Rd Only)

Paseo del Norte to Paradise Blvd

Golf Course Rd Facilities

There is a continuous 10-foot wide off-street multi-use trail on the northbound side of Golf Course Rd between Paseo del Norte and Paradise Blvd. This facility tapers down to a six (6) foot wide sidewalk at the entrance to Walgreens and Speedway located at the northeast corner of the intersection of Golf Course Rd and Paradise Blvd. The only pedestrian crossings along this segment of Golf Course Rd are located at the signalized intersections.

Table 18: Bicycle Facilities Between Paseo del Norte and Paradise Blvd

Segment	Facility Type	Daily Traffic Volume (2019)	Width (feet)	Bicycle LOS
Paseo del Norte to Paradise Blvd	Off-street multi-use trail (northbound side only)	26,000	10	B

* Level of service values for off-street multi-use trail segments were imputed based on FHWA guidance that discussed the impact of trail width, user volume, centerline presence, and user mode share.

Cross Streets and Trails

This portion of the corridor intersects with existing bicycle facilities on both Paseo del Norte and Paradise Blvd. Paseo del Norte has six (6) foot wide buffered bike lanes on both sides of the street to the west of Golf Course Rd. Additional bikeways are in design for the area to the east of Golf Course Rd. Paradise Blvd has a 10-foot wide multi-use trail located at sidewalk level on the eastbound (i.e. south) side of the road on both sides of Golf Course Rd.

Table 19: Bicycle Facilities on Major Cross Streets Between Paseo del Norte and Paradise Blvd

Roadway/Trail Name	Facility Type
Paseo del Norte	6’ buffered bike lanes (west of Golf Course Rd Only)
Paradise Blvd	10’ multi-use trail (Eastbound Side Only)

Paradise Blvd to Westside Blvd

Golf Course Rd Facilities

There are four (4) foot wide bike lanes on both sides of the street between Paradise Blvd and the northern terminus of the study area at Westside Blvd. This stretch of the corridor boasts the longest continuous bicycle facility, though bike lanes are narrower than desired and do not feature buffers. These conditions force bicyclists to ride next to vehicle traffic with a speed limit of 35-40 MPH, resulting in a relatively low bicycle LOS and poor user comfort levels.

Table 20: Bicycle Facilities Between Paradise Blvd and Westside Blvd

Segment	Facility Type	Daily Traffic Volume (2019)	Width (feet)	Bicycle LOS
Paradise Blvd to Westside Blvd	Bike lanes	18,500-34,000	4	C

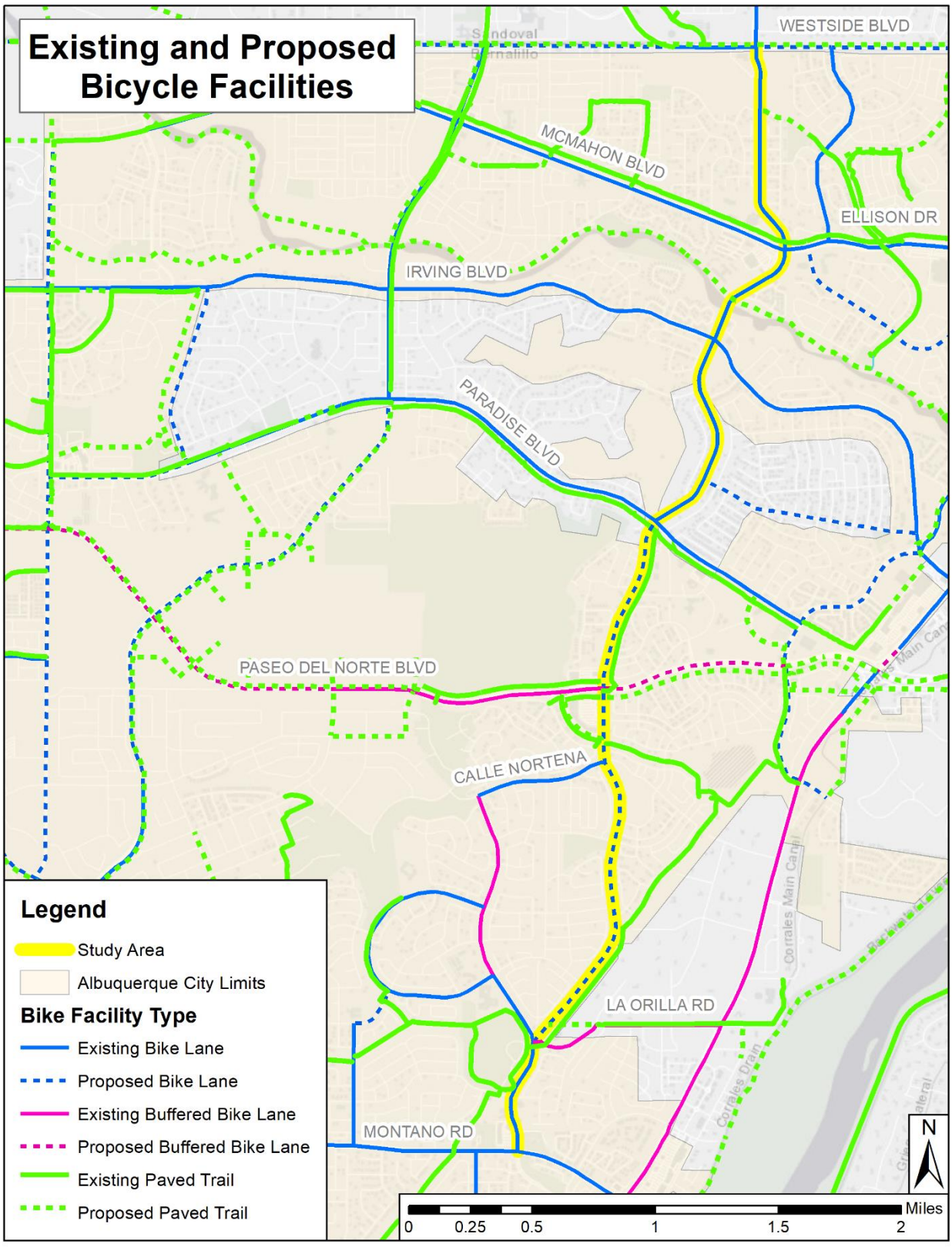
Cross Streets and Trails

This segment of the corridor intersects with bicycle facilities on Irving Blvd, Ellison Dr/McMahon Blvd, and Westside Blvd. The portion of **Irving Blvd** east of Golf Course Rd has bike lanes on both sides of the street; however, these lanes disappear west of Golf Course Rd. **McMahon Blvd/Ellison Dr** features bike lanes on both sides of the street as well as a 10-foot wide multi-use trail on the westbound (i.e. north) side of the road. On the portion of **Westside Blvd** west of Golf Course Rd, there are bike lanes on both sides of the street and a 10-foot wide off-street multi-use trail on the westbound side of the street. At present, there are no bicycle facilities currently on Westside Blvd east of Golf Course Rd.

Table 21: Bicycle Facilities on Major Cross Streets Between Paradise Blvd and Westside Blvd

Roadway/Trail Name	Facility Type
Irving Blvd	4' bike lanes (east of Golf Course Rd only)
Ellison Dr/McMahon Blvd	5' bike lanes 10' multi-use trail (westbound side only)
Westside Blvd	5' bike lanes

Figure 23: Existing and Proposed Bikeways through the Study Area



Proposed Bicycle Facilities

A number of bicycle facilities are proposed around the study area in the Long Range Bikeway System (maintained by MRCOG), including bike lanes along Golf Course Rd and a variety of multi-use trails, bike lanes, and buffered bike lanes that intersect with the corridor. If implemented, these facilities would help create a well-connected bicycle network across Northwest Albuquerque.

On **Golf Course Rd** itself, bike lanes are proposed for the portion between La Orilla Rd and Paradise Blvd, which would fill in the major gap along the corridor. See the Planning and Policy Context section for additional discussion.

The bulk of proposed facilities in close proximity to Golf Course Rd are multi-use trails or on-street bike lanes along intersecting streets. These include:

- **La Orilla Rd**, there is a short proposed off-street multi-use trail spur that would connect to the Riverview Trail.
- Bikeway improvements along **Paseo del Norte** include buffered bike lanes to the east of Golf Course Rd as well as a multi-use trail on both sides of Golf Course Rd. The path would connect to the existing Piedras Marcardas Trail and follow the south side of Paseo del Norte. The City of Albuquerque has programmed over $2.5 million for the construction of the multi-use trail along Paseo del Norte.
- Between Paradise Blvd and Irving Blvd, bike lanes are proposed for **Congress Ave**, which is located in unincorporated Bernalillo County.
- A paved multi-use trail is proposed along the **Calabacillas Arroyo**, located between Irving Blvd and Ellison Dr/McMahon Blvd.
- A paved multi-use trail and on-street bike lane are both proposed on **Westside Blvd** east of Golf Course Rd, with the path to be located on the south side of the corridor. These facilities will be constructed as a component of the Westside Blvd widening project east of Golf Course Rd.

Table 22: Proposed Bicycle Facilities

Roadway/Trail Name	Proposed Facility Type(s)
Golf Course Rd (La Orilla Rd to Paradise Blvd)	Bike lanes
La Orilla Rd multi-use trail	Multi-use trail
Paseo del Norte	Multi-use trail Buffered bike lanes (east of Golf Course Rd)
Congress Ave	Bike lanes
Calabacillas Arroyo	Multi-use trail
Westside Blvd	Multi-use trail (east of Golf Course Rd) Bike lanes

PEDESTRIAN FACILITIES

Sidewalks and Trails

Similar to bikeways, Golf Course Rd is a critical route for accessing nearby shopping areas and recreational sites as there are few alternative routes in the area. Golf Course Rd can also play an important role in the City of Albuquerque 10-minute walk initiative, which aspires to provide access to a park, open space, or trail within ½-mile for all City residents. Creating continuous, high-quality pedestrian facilities is therefore critical for meeting various transportation and quality of life objectives.

Existing Facilities

Sidewalk facilities along the corridor vary in width, and separation from vehicle traffic. Although there are sidewalks on at least one side of the road for the entirety of the corridor, there are significant gaps in the sidewalk network. Altogether, about 0.64-0.7 miles of the 5.0-mile corridor lack sidewalks, depending on the side of the road. The sidewalk width also varies throughout the corridor. Table 23 summarizes the width and cumulative length of sidewalk and multi-use trail facilities on the northbound and southbound sides of the corridor. The majority of the corridor has six (6) foot wide sidewalks or a 10-foot wide multi-use trail on at least one side of the street, thereby meeting the City's standard for six (6) foot wide sidewalks.

One issue that is not accounted for in the assessment of sidewalk width is the fact that sidewalks along some portions of the corridor are located adjacent to subdivision walls with no setback area or shy zone, which decreases the functional width of the pedestrian way. The Long Range Transportation Systems Guide, developed by MRCOG, recommends including two additional feet to the streetside width in such cases as a means of "reduc(ing) conflicts from people exiting buildings and address the effect of people shying away from walls or other vertical structures which effectively reduces the clear sidewalk area" (52).

Also, could discuss status of street trees here

Table 23: Summary of Pedestrian Facilities along Golf Course Rd

Sidewalk/Trail Width	Length on Northbound Side	Length on Southbound Side
None	3,771 feet (0.64 miles)	3,663 feet (0.7 miles)
4 Feet	0	491 feet (0.09 miles)
5 Feet	4,724 feet (0.8 miles)	9,270 feet (1.76 miles)
6 Feet	11,226 feet (2.13 miles)	12,919 feet (2.45 miles)
10 Feet	7,021 feet (1.33 miles)	0

Note: These numbers are estimates based on analysis of Google Earth data.

Network Gaps

Although there is sidewalk or a multi-use trail on at least one side of the street for the entirety of the corridor, sidewalks are not continuous on both sides of the street and are not consistent in width (see Figure 24 for sidewalk widths by segment). The lack of continuity in the provision and width of sidewalks creates challenging conditions for pedestrians and forces users to cross the street multiple times to get from one side of the corridor to the other, often at uncontrolled crossing locations.

Gaps on the southbound side of the corridor include the segment north of Paradise Blvd fronting the Desert Green Golf Course as well as the segment between La Orilla Rd and Kachina St. This latter portion of the southbound corridor has a 10-foot wide multi-use trail that is associated with Mariposa Basin Park; however, a portion of the trail has a relatively steep grade and lacks a connection to the curb ramp at the northwest corner of the intersection of Golf Course Rd and Kachina St. There is a short but notable gap in the network on the northbound side near Homestead Tr where the Riverview Trail turns towards the east and a new five (5) foot wide sidewalk begins. This location also lacks a connection between the trail and existing sidewalk, which may be difficult for people using mobility devices to navigate.

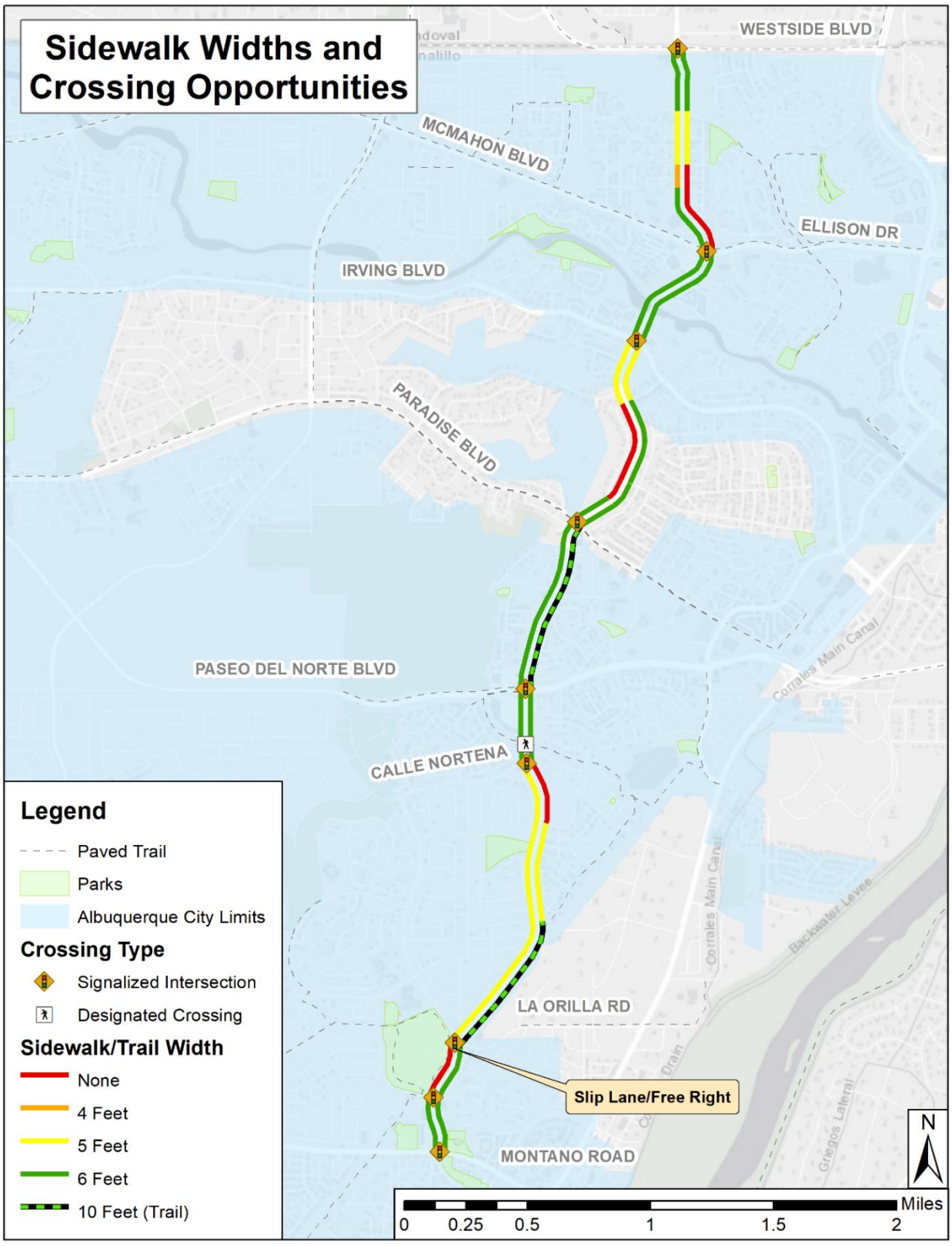
Landscape/Buffer Areas

Landscape/buffer areas provide separation between pedestrians and motorists and promote safety and user comfort levels. About 2.8 miles of the corridor features some amount of separation between the sidewalk and the curb line. Overall, about 1.5-1.6 miles depending on the side of the street, or slightly more than 30% of the corridor, lacks separation from vehicle traffic, meaning that the sidewalk is directly adjacent to the curb line. Areas without landscape/buffer areas to separate motorists from pedestrian areas are concentrated between Paradise Blvd and Westside Blvd.

Table 24: Pedestrian Facilities by Segment along Golf Course Rd

Location	Sidewalks / Multi-Use Trails	Landscape Buffers
Montaño Rd to La Orilla Rd	Montaño Rd to Kachina St: 6 ft both sides Kachina St to La Orilla Rd: 6 ft on NB side only	Present in both directions; widths vary from 3-4 ft
La Orilla Rd to Calle Norteña	La Orilla Rd to Homestead Tr: 5 ft on SB side only Homestead Tr to Butterfield Tr: 5 ft both sides Butterfield Tr to Calle Norteña: 5 ft on SB side only	Present in both directions; widths vary from 4-20 ft
Calle Norteña to Paseo del Norte	Entire segment: 6 ft both sides	Gaps present; widths vary from 0-8 ft
Paseo del Norte to Paradise Blvd	Entire segment: 6 ft SB side only	Gaps present; widths vary from 0-8 ft
Paradise Blvd to Congress Ave	Paradise Blvd to Greene Ave: 6 ft both sides Greene Ave to Congress Ave: 6 ft NB side only	None
Congress Ave to Irving Blvd	Congress Ave to Greene Ave: 6 ft NB side only Greene Ave to Irving: 5 ft both sides	No buffers south of Greene Ave; buffers up to 3 ft wide with gaps north of Greene Ave
Irving Blvd to Ellison Dr	Entire segment: 6 ft both sides	None
Ellison Dr to Westside Blvd	Ellison Dr to Crestridge Ave: 6 ft SB side only Crestridge Ave to Driftwood Ave: 4 ft SB side only Driftwood Ave to Benton Ave: 5 ft both sides Benton Aveto Westside Blvd: 6 ft both sides	None

Figure 24: Existing Pedestrian Facilities by Type and Width along Golf Course Rd



Crossing Opportunities

Existing Spacing and Crossing Type

Crossing opportunities are an integral piece of the pedestrian environment. Safe crossing treatments that are provided frequently throughout a corridor allow pedestrians to make a variety of trips and increase the number of destinations that can be accessed by walking. If a corridor has limited crossing opportunities, however, pedestrians are forced to cross at locations that may lack stop controls that enhance pedestrian and driver safety. A corridor that lacks frequent pedestrian crossings can also create unpredictable conditions for drivers, thereby reducing safety and increasing crash risk for all road users.

Crossing treatments along Golf Course Rd include protected crossings provided at signalized intersections and trail crossings designated by overhead signage. Over the roughly five (5) mile corridor, there are 10 designated crossing opportunities at signalized intersections and trail crossings, averaging a crossing location about every 2,640 feet (1/2 mile). Not including the trail crossing, there are nine (9) signalized intersections, meaning that there are signalized intersections (and by extension signalized pedestrian crossings) about every 2,930 feet. See Table 25 for existing crossing locations and the distance to the nearest crossing to the north.

Table 25: Designated Crossing Locations and Spacing along Golf Course Rd from South to North

Crossing Location	Crossing Type	Distance to Next Crossing
Montaño Rd	*Signalized Intersection*	*1,190 ft (0.235 miles)*
Kachina St	*Signalized Intersection*	*1,290 ft (0.24 miles)*
La Orilla Rd	Signalized Intersection	6,720 ft (1.27 miles)
Piedras Marcadas Trail	*Designated Crossing*	*410 ft (0.08 miles)*
Calle Norteña	*Signalized Intersection*	*1,180 ft (0.22 miles)*
Paseo del Norte	Signalized Intersection	3,800 ft (0.72 miles)
Paradise Blvd	Signalized Intersection	4,610 ft (0.87 miles)
Irving Blvd	Signalized Intersection	2,580 ft (0.49 miles)
McMahon Blvd/Ellison Dr	Signalized Intersection	4,550 ft (0.86 miles)
Westside Blvd	Signalized Intersection	N/A

Note: Italics indicate crossing locations that are spaced less than or equal to one-quarter mile apart.

Recommended Spacing for Pedestrian Crossings

The frequency of pedestrian crossings can be contrasted against the guidance for spacing of signalized and designated (unsignalized) crossings in the DPM. Specifically, the DPM recommends signalized pedestrian crossings along Major Transit Corridors every 1,320–2,640 ft and a designated crossing every 1,320 ft. As shown in Table 25, distances between pedestrian crossings vary widely throughout the corridor. Although there are segments of the corridor that have signalized pedestrian crossings located at distances that align with the DPM, most corridor segments do not meet this standard. The largest gap between signalized pedestrian crossings is 7,132 feet (1.35 miles), located between La Orilla Rd and Calle Norteña (the Piedras Marcadas Trail crossing is unsignalized).

Potential Conflict Points at La Orilla Rd

The La Orilla Rd and Golf Course Rd intersection is noteworthy as it is the sole location along the corridor that has a slip lane. Slip lanes, also known as free right turns, can create dangerous conditions for pedestrians wishing to cross the street. Because slip lanes have larger turning radius than a standard intersection, drivers are able to carry more speed through the turn, decreasing their ability to properly identify and stop for pedestrians in the crosswalk. In addition, drivers using slip lanes for right turns typically looking to their left to avoid conflicts with vehicles when merging into the travel lane and often do not look for pedestrians. To mitigate safety issues associated with the slip lane from northbound Taylor Ranch Rd to eastbound La Orilla Rd, the City installed a pedestrian-activated RRFB at the crosswalk. All other crosswalks across slip lanes at this intersection are designated by striping and some signage, although the signage used is inconsistent.

Crosswalk Design

In addition to the distance between signalized pedestrian crossings, the type of crosswalk markings used at intersections is important to note. Most of the crosswalks at signalized intersections are marked with either continental or ladder style markings on each leg of the intersection; continental and ladder style markings are considered to be "high-visibility" crosswalk markings. The crosswalk markings at Kachina St, Calle Norteña, Irving Blvd, and Westside Blvd have at least one leg of the intersection marked only with parallel lines, which are less visible to drivers compared to continental and ladder markings (see Figure 25 for examples). Irving Blvd and Westside Blvd both feature parallel line crosswalk markings only, while Westside Blvd only has crosswalk markings on three legs of the intersection, which may be a result of a sidewalk gap north of the intersection on the northbound side of the road. The Piedras Marcadas Trail crossing lacks any type of crosswalk marking, despite being a signed crossing location.

Figure 25: Crosswalk Striping Patterns at Paseo del Norte (Left) and Westside Blvd (Right)

LAND USE

General Considerations

The range of destinations along Golf Course Rd means that the corridor plays a unique role and function compared to other major roadways in Northwest Albuquerque. A review of existing land uses can help inform traffic and pedestrian generators and provide guidance about where improvements in the pedestrian and bicycle environment would deliver the greatest benefits, while consideration of zoning districts offers insight into how the corridor could develop or redevelop over time. Although single-family residential is the most common land use type and zoning district, the corridor also features many mixed-use areas, commercial areas, and amenities, such as grocery stores, recreation, medical services, and retail shopping. Additional discussion on opportunities to create a Main Street-type character along the corridor can be found in the Main Street Opportunities and Desired Roadway Conditions section.

Existing Conditions

The existing land uses along the Golf Course Rd corridor are primarily residential with commercial nodes located at intersections with major east-west arterials. Generally, the **residential areas** are comprised of detached single-family homes with a handful of multi-family apartment complexes scattered throughout the corridor, particularly near Irving Blvd and McMahon Blvd/Ellison Dr. Along most of the corridor, residential housing is separated from the corridor by subdivision walls. The segment between Paradise Blvd and Irving Blvd is particularly noteworthy as residences and driveways access Golf Course Rd directly. The Alban Hills neighborhood to the northeast of the La Orilla Rd intersection in unincorporated Bernalillo County land is also notable for its very low density residential patterns. Planned multi-family developments are located along Golf Course Rd to the south of Westside Blvd and to the south of Montaño Rd.

Table 26: Land Uses by Acreage in the City of Albuquerque within One-half Mile of Golf Course Rd

Land Use Type	Acres
Single-family Residential	1355.4
Multi-family	98.1
Commercial	103.9
Institutional / Medical	18.2
Educational	36.9
Parks and Open Space	261.9
Vacant	103.9
Community Facilities	180.8
Other	196.5
Total	**2,355.6**

Note: This analysis includes only the portions of parcels that are within ½-mile of Golf Course Rd and that are located within the City of Albuquerque.

Major **commercial nodes** are located around the intersections of Montaño Rd, Paseo del Norte, and McMahon Blvd/Ellison Dr, while the segment between Paseo del Norte and Paradise Blvd features a high

concentration of services and retail establishments (see Figure 26). The Petroglyph Plaza, located at the southwest corner of the Paseo del Norte intersection, is one of the prominent commercial nodes in the corridor and features a grocery store, a hardware store, and restaurants, including a Starbucks with a drive-thru. The shopping center can only be accessed via Golf Course Rd, which creates a variety of traffic challenges. See the Traffic Operations and Access Management section for additional discussion on the Petroglyph Plaza. Other major traffic generators along the corridor include the Lovelace Westside Hospital, located to the northwest of the intersection with McMahon Blvd, and other medical offices and urgent care facilities. The corridor also features a handful of small to medium-sized office buildings.

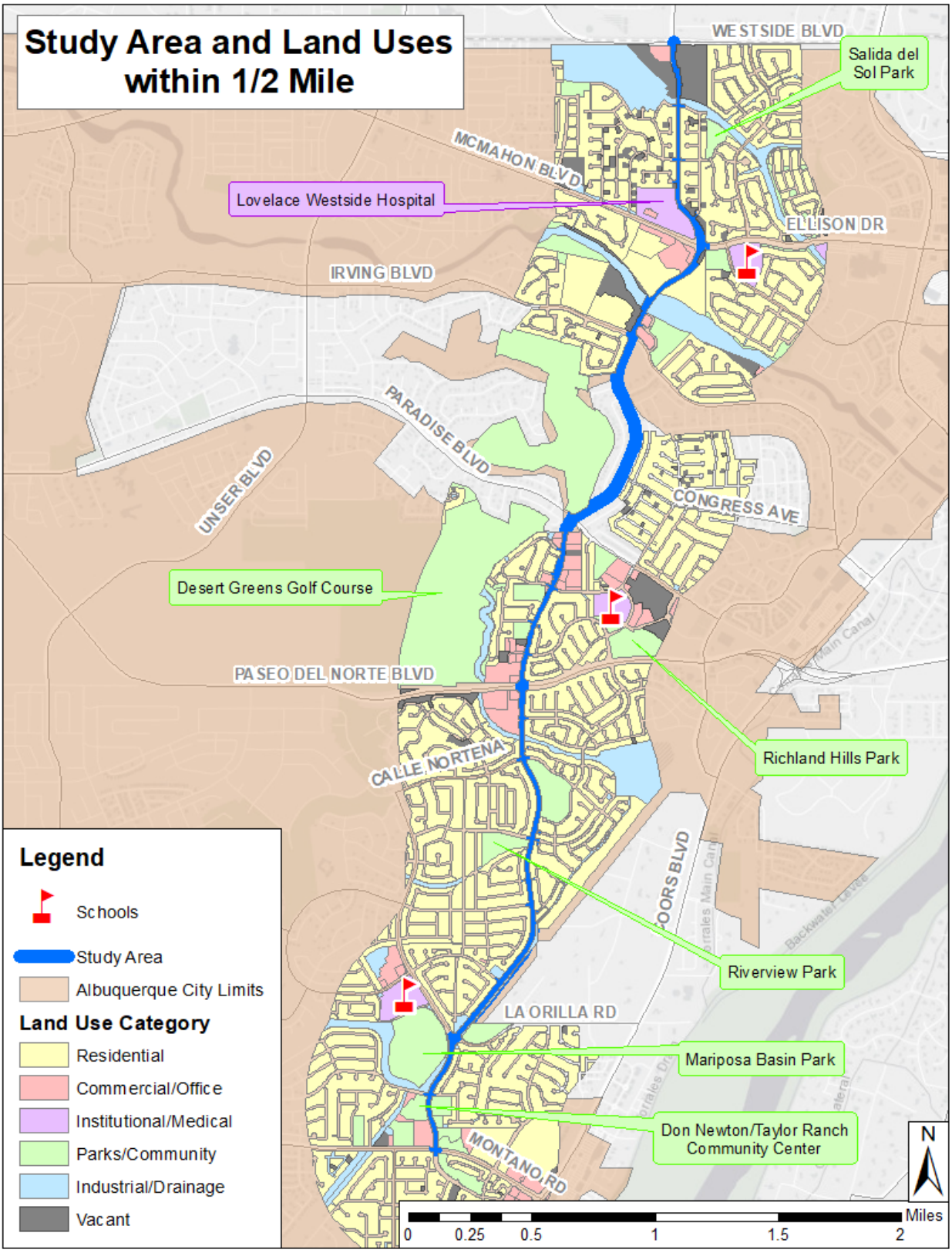
While there are no **schools** located directly along Golf Course Rd, there are three schools within a short radius of the corridor. In each of these cases, Golf Course Rd may be utilized by students, parents, and staff for school access, and the presence of bikeways, trails, and sidewalks and safe crossings can promote walking and biking trips to schools. Educational facilities near Golf Course Rd include:

- LBJ Middle School – located along Taylor Ranch Rd about ¼-mile northwest of the La Orilla Rd intersection
- Seven Bar Elementary School – located along Ellison Dr to the east of Golf Course Rd
- Petroglyph Elementary School – located on Marna Lynn Rd about ¼-mile east of Golf Course Rd

Golf Course Rd also provides access to various **recreation sites and community facilities**, such as the Don Newton – Taylor Ranch community center, located at the intersection of Kachina St and Taylor Ranch Rd, and various public parks. Mariposa Basin Park, located between Kachina St and La Orilla Rd, is a major recreational destination with various athletic fields, a playground, and networks of walking trails. The principal access point to the Piedras Marcadas Unit of the Petroglyph National Monument is via Golf Course Rd to the south of Paradise Blvd. Other recreation destinations include the Sierra Vista Tennis Center, located along Montaño Rd to the immediate west of Taylor Ranch Rd; Desert Greens Golf Course, which is located to the northwest of the Paradise Blvd intersection; and the Black Arroyo Dam, which is a major regional stormwater management facility and is used for recreational purposes.

There is a total of 103.9 acres of **vacant land** within a ½-mile radius of the corridor. The three largest tracts of vacant land are located south of the Westside Blvd intersection and are owned by the Calabacillas Group, a general partnership. As of March 2021, the site plan for a large multi-family complex was approved by the Development Review Board in this location.

Figure 26: Existing Land Uses within One-half Mile of Golf Course Rd

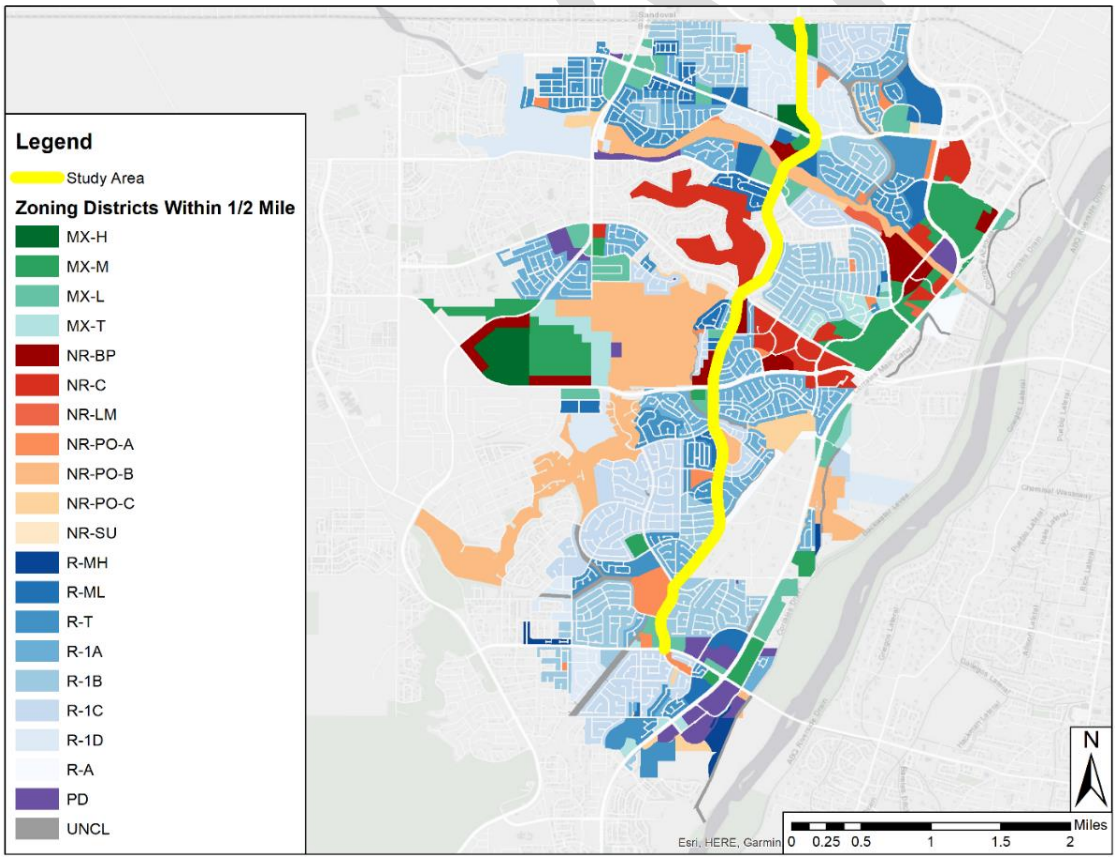


Zoning

Zoning affects the way land can develop and the future uses and activities that may take place along the corridor. The study area is mostly developed, though there may be opportunities to redevelop the corridor over time. Zoning along the corridor is a mixture of single-family residential districts, townhouse and multi-family residential districts, mixed use districts, City-owned or managed public parks districts, major public open space districts, and non-residential business park and commercial districts. Residential districts are the dominant zoning type in the corridor, with single-family small lot, single-family medium lot, and single-family large lot all located along Golf Course Rd. A small number of townhouse districts are also located within a ½-mile vicinity of the corridor and are generally concentrated south of Montaño Rd and between Irving Dr and Ellison Dr/McMahon Blvd.

The non-residential parcels around the study area corridor feature a roughly equal distribution of mixed-use parcels, city-owned or managed public parks parcels, major public open space parcels, business park parcels, and commercial parcels. The mixed-use districts range in intensity from transition to high intensity, with low intensity being the most frequent designation. Mixed-use parcels are generally concentrated at intersections with east-west arterials such as Montaño Rd, Paseo del Norte, Irving Blvd, McMahon Blvd/Ellison Dr, and Westside Blvd, and offer the greatest potential for development or redevelopment with pedestrian and transit-friendly design patterns.

Figure 27: Zoning Districts for Parcels within One-half Mile of Golf Course Rd



Note: MX = Mixed use; NR = Non-Residential; R = Residential; PD = Planned Development

Residential Layouts and Impacts on Transportation

Accessing Golf Course Rd and the major commercial nodes along the corridor by foot, bicycle, or transit, can be difficult due to the limited number of streets that intersect with Golf Course Rd. Much of the street design adjacent to the corridor features a street hierarchy consistent with post-World War II tract housing in which connections to larger streets are limited and access to individual parcels is generally provided by dead-end cul-de-sacs or loop roads. In addition, subdivision walls that line much of Golf Course Rd create barriers that provide additional privacy for residents but restrict access to the street. Although subdivision layouts with cul-de-sacs and loop roads are easily navigated by private vehicles, they affect people's willingness to travel by foot, bicycle, or transit. In some cases, a pedestrian may have to travel as much as ½-mile to access Golf Course Rd even though their home may be less than 200 feet from the road itself.

KEY TAKEAWAYS

Roadway improvements along Golf Course Rd must balance the need to maintain traffic flows and enhance facilities and promote safety for other modes. This section summarizes the key takeaways and observations from the existing conditions analysis. These considerations will inform the development of recommendations and design concepts during the second phase of this study.

Roadway Conditions

- Road Configuration: Golf Course Rd features two continuous general purpose travel lanes throughout the study area. Access is generally limited, and there are wide medians with turn bays along various portions of the corridor. Travel lanes vary in width but are generally 11', with some 12' travel lanes to the north of Irving Blvd.
- Lighting: Lighting is limited in intersections along the corridor with higher levels of illumination at signalized intersections. There are long gaps in the illuminated portions of the corridor between the signalized intersections.
- Congestion: Traffic levels along Golf Course Rd are highly variable, with 18,000-34,000 vehicles per day, depending on the segment. Various segments are approaching congested conditions or above the intended roadway capacity today. Traffic levels are projected to increase on average 5-10% in the next two decades, based on the projections contained in the *Connections 2040 MTP*.
- Potential Improvements: Although Complete Streets improvements are desired, it is not appropriate to remove travel lanes or pursue a road diet along the corridor. Roadway widening is likewise not under consideration at this time. Although roadway widening may be technically feasible in some portions of the corridor, right-of-way is limited and installation of additional travel lanes would preclude enhancements to other modes. The wide medians could be narrowed and space could be reallocated to bike lanes, wider sidewalks, and landscape buffers with street trees.
- Traffic Operations: Traffic signal timing plans are oriented toward east-west travel at major intersections. Various intersections experience delay as demonstrated by traffic signal split failures. Strategies to reduce delay and enhance operations (e.g. additional turn lanes) may be in conflict with other objectives along the corridor, such as improved pedestrian crossings.

Access Management

- Driveway Spacing: The spacing of driveways and access points along the corridor generally meet the desired thresholds provided in the DPM. The one segment where the frequency of driveways exceeds desired spacing thresholds is the segment from Paradise Blvd to Irving Blvd, which features residences that directly access Golf Course Rd. Other segments of the corridor feature driveways spacing that is above the desired minimum values from the DPM.
- Petroglyph Plaza: There are numerous conflict points around the Petroglyph Plaza shopping center at the southwest corner of Paseo del Norte and Golf Course Rd. Queues that spill onto Golf Course Rd could be mitigated through on-site improvements. However, improvements to circulation within the shopper center are the responsibility of the landowner.

Safety

- General Conditions: The combination of vehicle speeds and limited crossing opportunities creates barriers for non-auto users and contributes to the severity of crashes. Most of Golf Course Rd is included on the MRCOG High Fatality and Injury Network indicating that total and severe crashes occur along the corridor at rates about the City-wide average. Common sources of crashes are driver inattention and driver error, which are associated with high speeds and auto-oriented roadways.
- Areas of Concern: Crash hot spots are located at major intersections along the corridor – including Paseo del Norte, Paradise Blvd, and McMahon Blvd/Ellison Dr – where there are numerous turning movements as motorists connect from Golf Course Rd to east-west arterials or access major commercial areas. Crashes are generally concentrated between Calle Norteña and Paradise Blvd.

Bicycle and Pedestrian Facilities

- General Conditions: Golf Course Rd plays a critical role in regional mobility for bicyclists and pedestrians as there are few options for north-south travel on alternative or parallel routes. On-street bike lanes, multi-use trails, and sidewalks are present along the corridor, though there are gaps in each of these networks.
- Infrastructure Quality: Where bicycle lanes exist, they are often narrow and located adjacent to traffic with little separation from motor vehicles, which decreases user comfort levels and discourages people from biking along the corridor. About 0.64-0.7 miles of the corridor features gaps in the sidewalk network. Enhanced bicycle and pedestrian facilities along this portion of the corridor would create further separation from motor vehicle travel and promote traffic calming.
- Crossing Opportunities: The corridor features limited opportunities to cross the roadway, creating uncomfortable and potentially dangerous conditions for pedestrians and bicyclists. Spacing between designated crossing opportunities exceeds the guidance from the DPM for a Major Transit Corridor for most segments of Golf Course Rd.

Land Use

- Residential Areas: Residential subdivisions are the primary land use type along corridor. However, subdivisions generally feature walls facing Golf Course Rd, which encourage higher speeds by motorists and limit access to the corridor for pedestrians and bicyclists. Residences between Paradise Blvd and Irving Blvd feature direct driveway access onto Golf Course Rd.

- Commercial Nodes: Shopping plazas around major intersections and along portions of the corridor serve as focal points for surrounding neighborhoods. Improved access to these areas is desired.
- Recreational Destinations: There are various recreational destinations along the corridor that attract regional trips and could be better connected via trails, on-street bikeways, and sidewalks.
- Corridor Designation: Golf Course Rd is currently designated as a Major Transit Corridor. The Corridor designation affects roadway design guidance, allowable land uses, and parking requirements along the corridor.