

GOLF COURSE RD COMPLETE STREETS STUDY

FEBRUARY 2022



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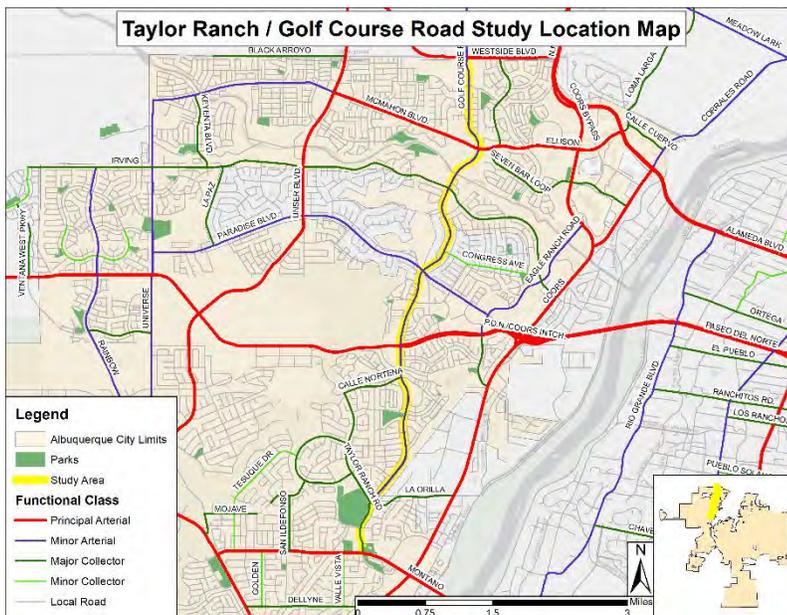
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EXECUTIVE SUMMARY

Background and Purpose

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



Golf Course Rd facilitates shorter distance travel and serves a more community-oriented role than parallel arterials such as Coors Blvd and Unser Blvd. Though existing infrastructure for bicyclists and pedestrians are incomplete, there are opportunities to create a Main Street-type corridor by providing greater opportunities to walk, bike, and take public transit along the corridor. However, there are significant concerns related to high motor vehicle travel speeds, limited opportunities to cross the roadway, and gaps in the bicycle and pedestrian networks. Crashes also occur along the corridor occur at rates above the municipal average.

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.

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

Existing Conditions

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 key observations from the existing conditions analysis.

Roadway Conditions: 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 feet, with some 12-foot travel lanes to the north of Irving Blvd. 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. 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*.

Wide Median South of Calle Norteña; Segment Constrained by Subdivision Walls: Images North of Irving Blvd



Traffic Operations: Traffic signal timing plans prioritize 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. Though the spacing of driveways and access points generally meets City guidance, there are numerous conflict points around the Petroglyph Plaza shopping center at the southwest corner of Paseo del Norte and Golf Course Rd. Queues associated with the Starbucks drive-thru 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: 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 above the City-wide average. Common sources of crashes are driver inattention and driver error, which are associated with high speeds and auto-oriented roadways. Lighting is limited to 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.

Bicycle and Pedestrian Facilities: Golf Course Rd plays a critical role in regional mobility for bicyclists and pedestrians as there are few options for north-south travel on parallel routes. On-street bike lanes, multi-use trails, and sidewalks are present along portions of the corridor, though there are gaps in each of these networks. Where bicycle lanes and sidewalks 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 walking or biking along the corridor. Enhanced bicycle and pedestrian facilities along the corridor would create separation from motor vehicle travel and promote traffic calming. The corridor also has limited opportunities to cross the roadway, creating uncomfortable and potentially dangerous conditions for pedestrians and bicyclists.

Multi-use Trail and Bike Lanes along Portions of Golf Course Rd



Land Use: 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. 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. There are various recreational destinations along the corridor that attract regional trips – including various parks and open space sites and the Piedras Marcadas Unit of the Petroglyph National Monument – and that could be better connected via trails, on-street bikeways, and sidewalks.

Desired Street Elements for Golf Course Rd

Improving Golf Course Rd such that it functions similar to a Main Street will require reconfiguration of significant portions of the corridor. Priority elements include wider sidewalks, additional crossings, landscape buffers with street trees, and a complete network of on-street bikeways and multi-use trails. However, based on the current and projected traffic volumes, Golf Course Rd is not a candidate for a road diet (i.e. removal of travel lanes) and the two general purpose lanes in each direction should be retained. Enhancements to bicycle and pedestrian facilities must therefore be accomplished through reallocating the remaining space in the public right-of-way.

Design Recommendations

Key Opportunities

Complete Streets improvements can be accomplished by reallocating the space from wide medians and excess travel lane widths along portions of the corridor for other uses. The changes to the roadway configuration can be complemented with additional pedestrian crossings as means of traffic calming and increasing access to commercial areas and recreational destinations. Due to presence of wide medians, there

is significantly greater flexibility for alternative road design options for the portion of the corridor south of Paradise Blvd. Constrained conditions north of Paradise Blvd limit options to minor reallocation of roadway space through restriping. Additional considerations include recommended traffic signal upgrades to enhance the efficiency of travel through the study area, reducing the posted speed from 40 to 35 MPH, improvements to existing trails, and streetlight improvements to increase motorist awareness and visibility for non-auto users.

Montaño Rd to Paradise Blvd

This study considered two sets of design alternatives for the segment between Montaño Rd and Paradise Blvd in which the median is narrowed and space is reallocated for bikeway and/or pedestrian facilities. The primary design alternatives are intended to maintain traffic flows along a busy roadway while improving safety and comfort levels for users of other modes.

Existing and Proposed Conditions along Golf Course Rd – North of Calle Norteña



As funding permits, this study recommends a design alternative for the southern portion of the Golf Course Rd corridor, referred to in the report as the **Complete Street roadway design alternative, or Alternative 2**, in which the median is narrowed and curb lines are extended into the roadway to provide enhanced bike lanes, pedestrian facilities, landscape buffers, and a continuous multi-use trail at sidewalk level. See the figures below for an image of existing conditions and a rendering of the Complete Street alternative for the corridor. Typical sections and other renderings can be found throughout the report.

A major component of the recommended design for Golf Course Rd is the installation of on-street bike lanes along the extent of the corridor and a continuous multi-use trail at sidewalk level from Montaño Rd to Paradise Blvd. The adjacent figure depicts existing trails and new facilities along the segment north of Montaño Rd. With the exception of the segment between Montaño Rd and La Orilla Rd, the trail would be located on the east side of the roadway.

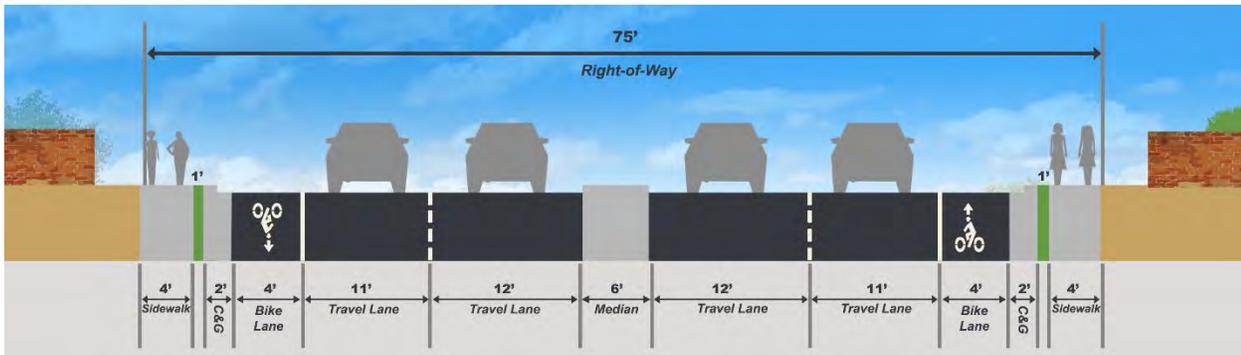
Estimated costs for this comprehensive set of roadway improvements is \$8.6 million, plus additional costs for recommended pedestrian crossings and lighting enhancements.



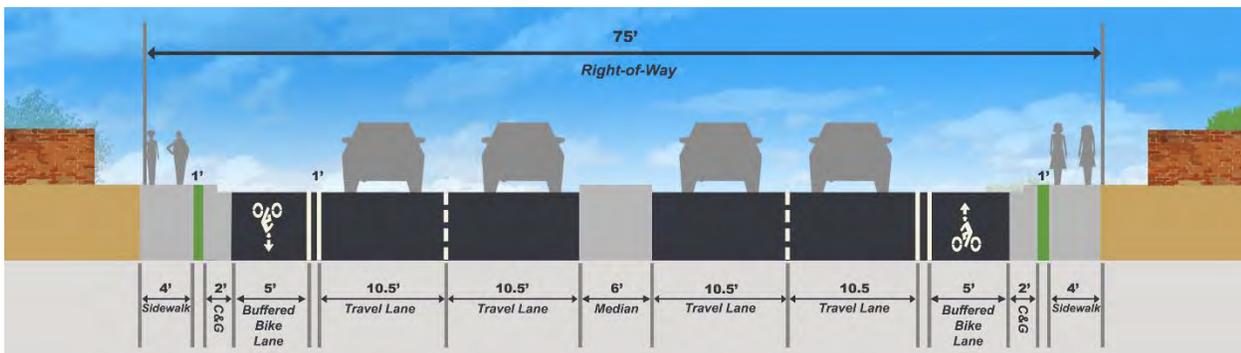
Paradise Blvd to Westside Blvd

Given the constraints along this portion of the corridor, the preferred **short-term alternative** between Irving Blvd and Westside Blvd is to retain existing curb lines on both sides of the street and reallocate space for wider bike lanes by narrowing the general purpose lanes. In addition to enhancing the existing bicycle facilities, the proposed cross section with narrower travel lanes would have a moderate traffic calming effect. Over the **long-term**, medians along the corridor that exceed 4 feet in width could be narrowed during roadway rehabilitation or reconstruction to create additional space for bikeways and/or wider sidewalks. The cost of restriping this portion of the corridor is approximately \$360,000.

Existing Conditions for Irving Blvd to Westside Blvd



Preferred Short-Term Alternative for Irving Blvd to Westside Blvd



INTRODUCTION

Study Background

Purpose and Need

The Taylor Ranch Rd/Golf Course Rd corridor (referred to in this study Golf Course Rd) is a five-mile corridor located between Montañño Rd and Westside Blvd in Northwest Albuquerque that plays an important role in both regional and neighborhood mobility. (The study corridor follows Taylor Ranch Rd for about 0.5 miles north of Montañño 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. Golf Course Rd 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.

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, as well as gaps in the bicycle and pedestrian networks.

Golf Course Rd is also included in the regional High Fatality and Injury Network (HFIN) as total and injury-involved vehicle crashes along the corridor occur at rates above the municipal average.

This planning study, conducted by Bohannon Huston, Inc. and Lee Engineering for the City of Albuquerque Council Services Department and 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 include

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

connections to commercial nodes via roadway improvements and potential redevelopment opportunities within shopping plazas.

Finally, the study provides **recommendations** for improvements that would enhance the safety and the quality of pedestrian and bicycle infrastructure, as well as traffic signal upgrades and potential lighting enhancements. 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 and operate. 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 improvements to existing roadways generally focus on to the pedestrian, bicycle, and transit environments because most transportation facilities have well-established facilities that cater to vehicle use. Golf Course Rd is typical of many Albuquerque arterial roadways in that there is high-quality infrastructure for vehicle use but incomplete pedestrians and bikeway facilities.

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.

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, which documents existing and proposed bikeways across the metropolitan area. The Long Range Bikeway System 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 Montañño 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 for the project. Planned improvements 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.
- **Westside Blvd Widening Project:** A widening project on Westside Blvd will improve the 0.85-mile stretch to the east of Golf Course Rd 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 Golf Course Rd corridor is designated as a Major Transit Corridor from Montañó 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 these locations 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.

Segment 1: Montañó 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 (where turn lanes are present) to 35 feet wide. Access 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 Montañó 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 Montañó Rd and Calle Norteña



Figure 3: Photographs of Segment Between Calle Norteña and Paseo del Norte



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

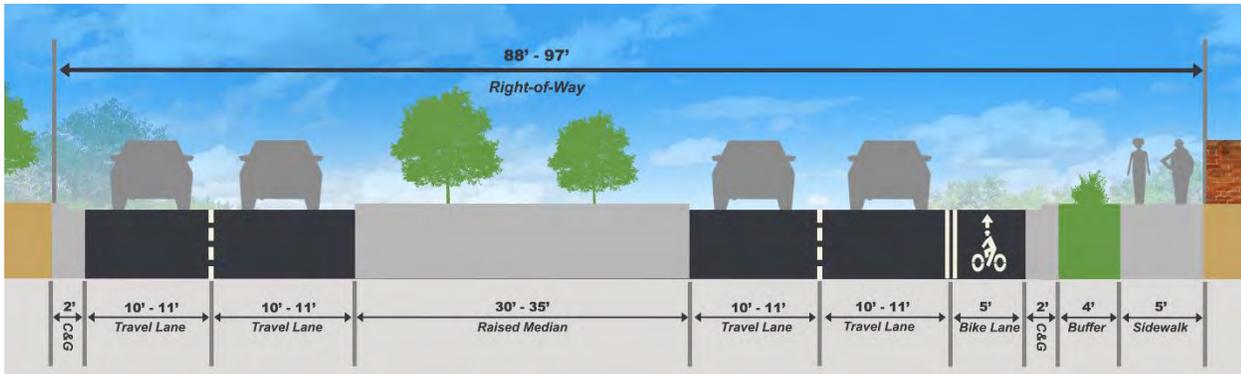


Figure 5: Typical Section for La Orilla Rd to Homestead Tr

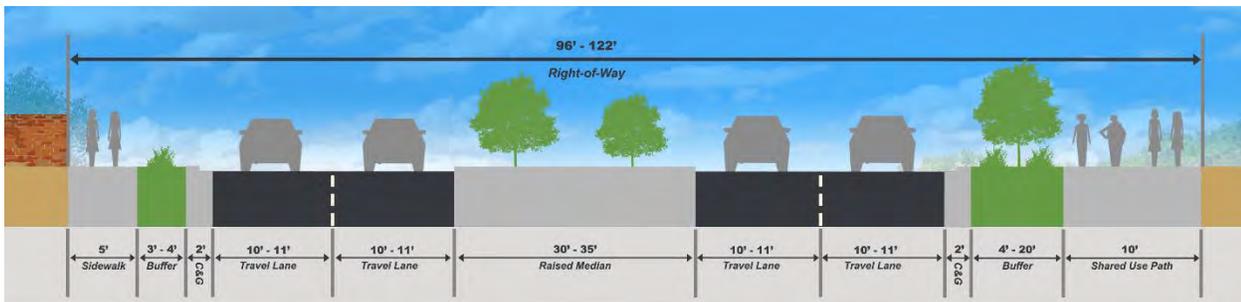
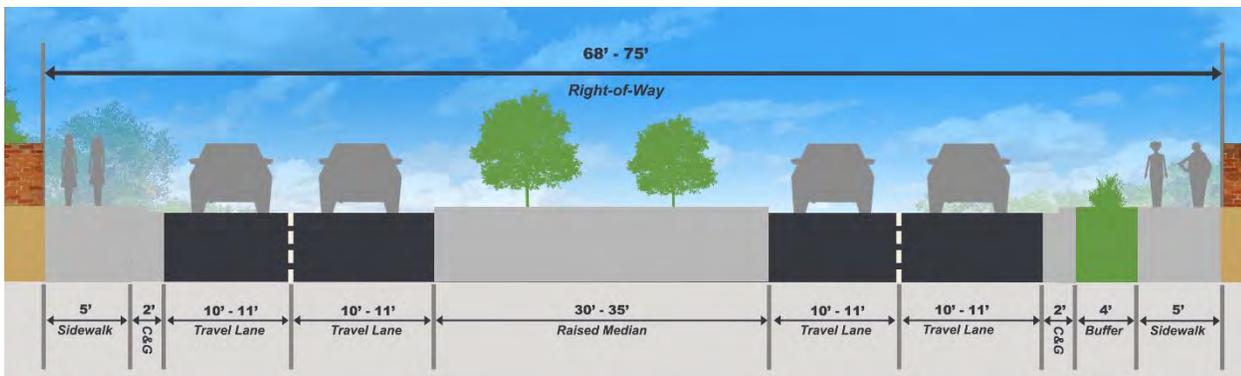


Figure 6: Typical Section for Homestead Tr to Paseo del Norte



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

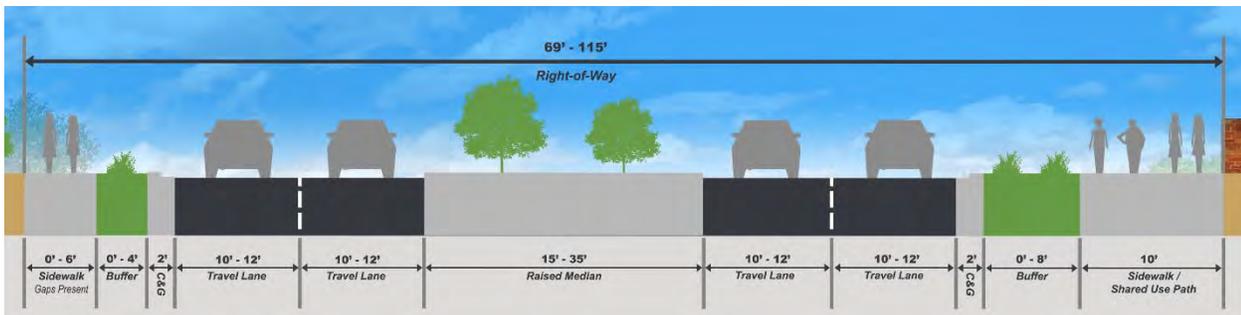


Figure 8: Photographs of Segment Between Paseo del Norte and Paradise Blvd



Segment 3: Paradise Blvd to Irving Blvd

The segment of Golf Course Rd between Paradise Blvd and Irving Blvd 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 also 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.

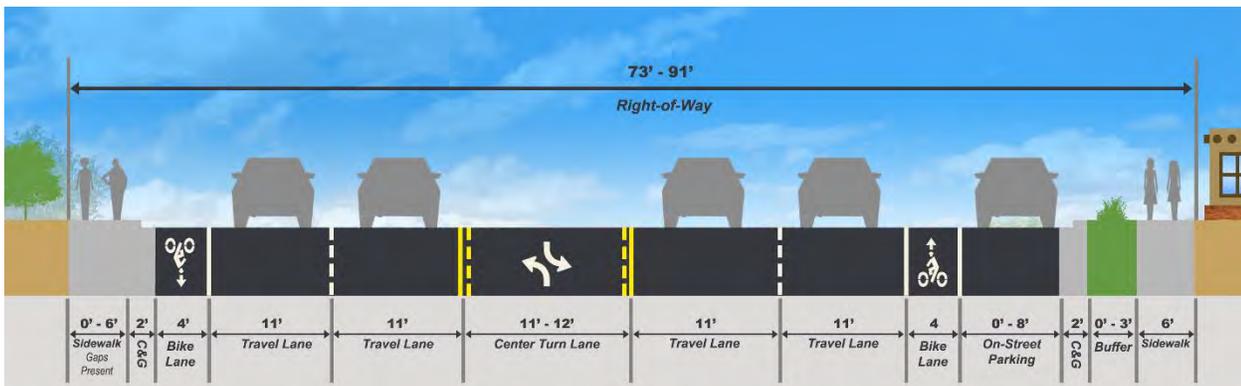
Sidewalks are present on both sides of the street with the exception of the gap to the north of Greene Ave on the northbound side of the street. There are narrow bike lanes on both sides of the road but there are no off-street bikeways or multi-use trails along this segment.

Figure 9: Image of Segment 3 Between Paradise Blvd and Irving Blvd



Source: Google Streetview

Figure 10: 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 5 feet to 15 feet wide, though the majority of medians are on the narrower end of the range. 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 with a gap present north of Ellison Rd on the east side 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 11: Photographs of Segment 4 Between Irving Blvd and Westside Blvd



Figure 12: Typical Section for Irving Blvd to Westside Blvd

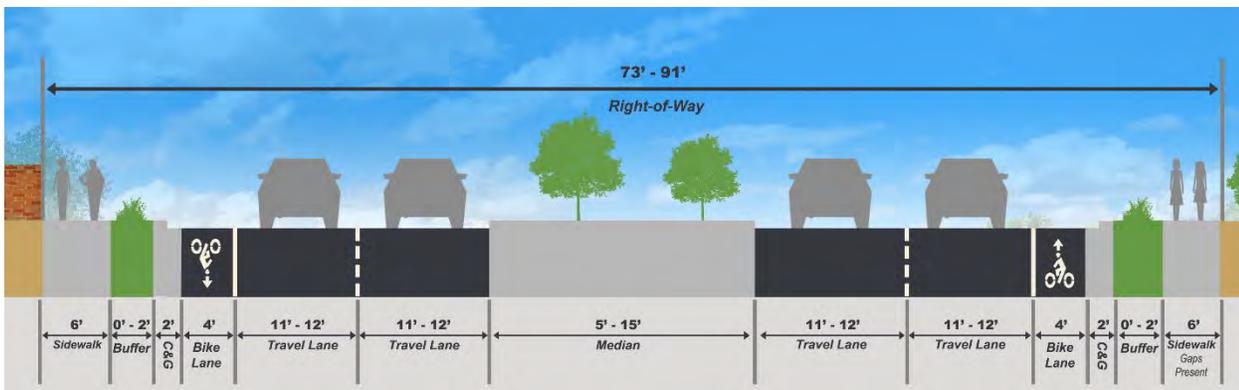


Table 1: Roadway Elements by Segment

| | 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 southbound 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 on northbound side | None | None | 83' | 108-160' | Subdivision walls on both sides |
| | Calle Norteña to Paseo del Norte | Median: 25-35' | Sidewalks on both sides | None | 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 between intersections with Greene 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. Traffic volumes along the corridor range from 18,000 to over 34,000 vehicles per weekday 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 13 show the average weekday daily traffic (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.

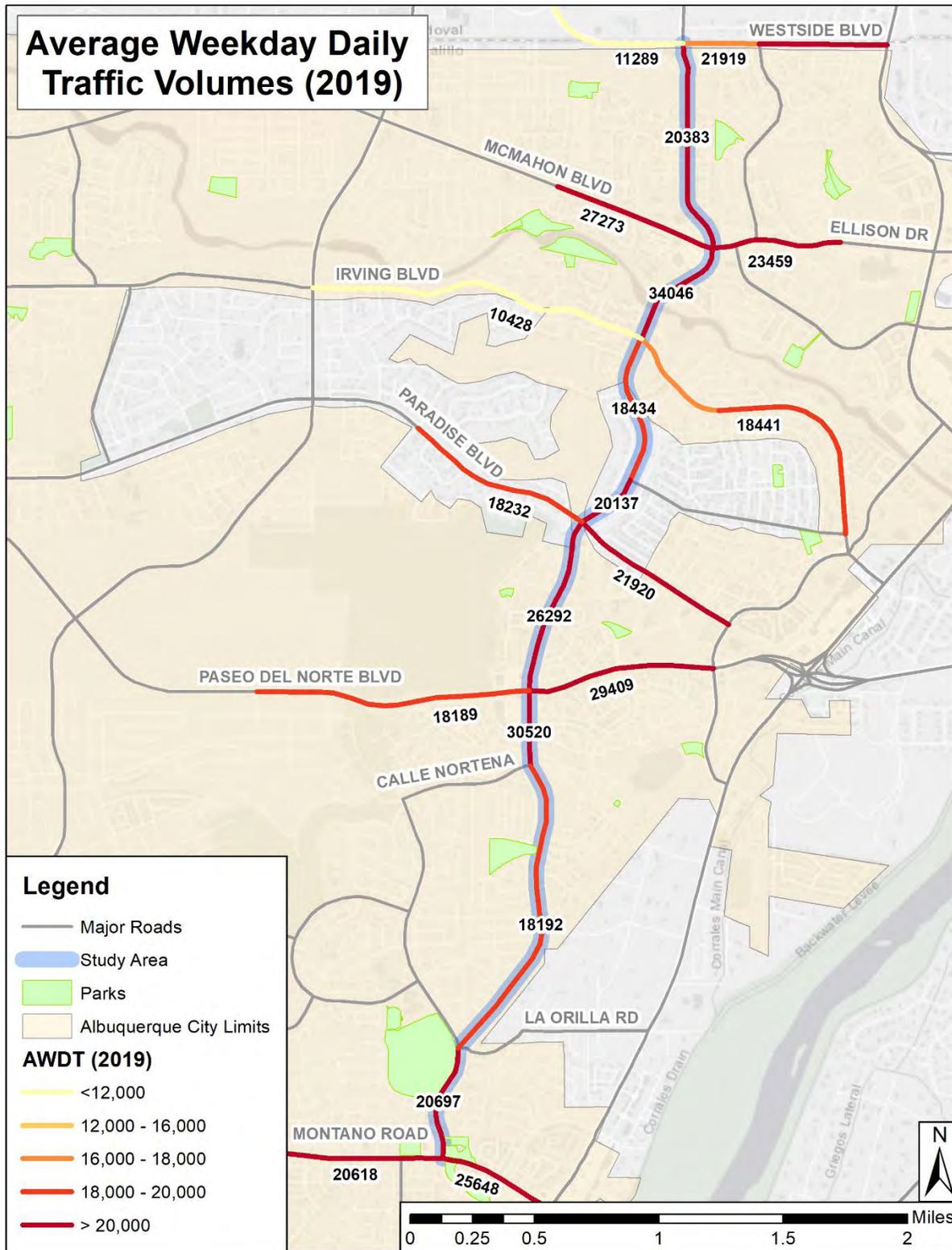
The changes in volume from segment to segment indicate that most motorists are not driving along the entire length of the corridor but use Golf Course Rd to access major commercial nodes and east-west arterials. (No turning movement traffic volume data are available for this corridor, but travel patterns 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 allow drivers to ultimately cross 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, 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

| Location | Segment 1 | | | Segment 2 | Segment 3 | | Segment 4 | |
|-----------------------------|----------------------------|-------------------------------|----------------------------------|----------------------------------|-------------------------------|-----------------------------|---------------------------|-----------------------------|
| | 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 13: 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 “volume-to-capacity” (V/C) ratios to measure 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

AM Peak Hour: As shown in Table 2 and Figure 14, 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. 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.

PM Peak Hour: The dominant direction in the evening (PM) peak hour is northbound, and the level of congestion is generally higher throughout the corridor in the PM peak hour than in the AM peak hour (see Figure 15). 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 commuting trips. The most congested segment of the corridor in both the AM and PM peak hour is located between Irving Blvd and Ellison Dr.

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

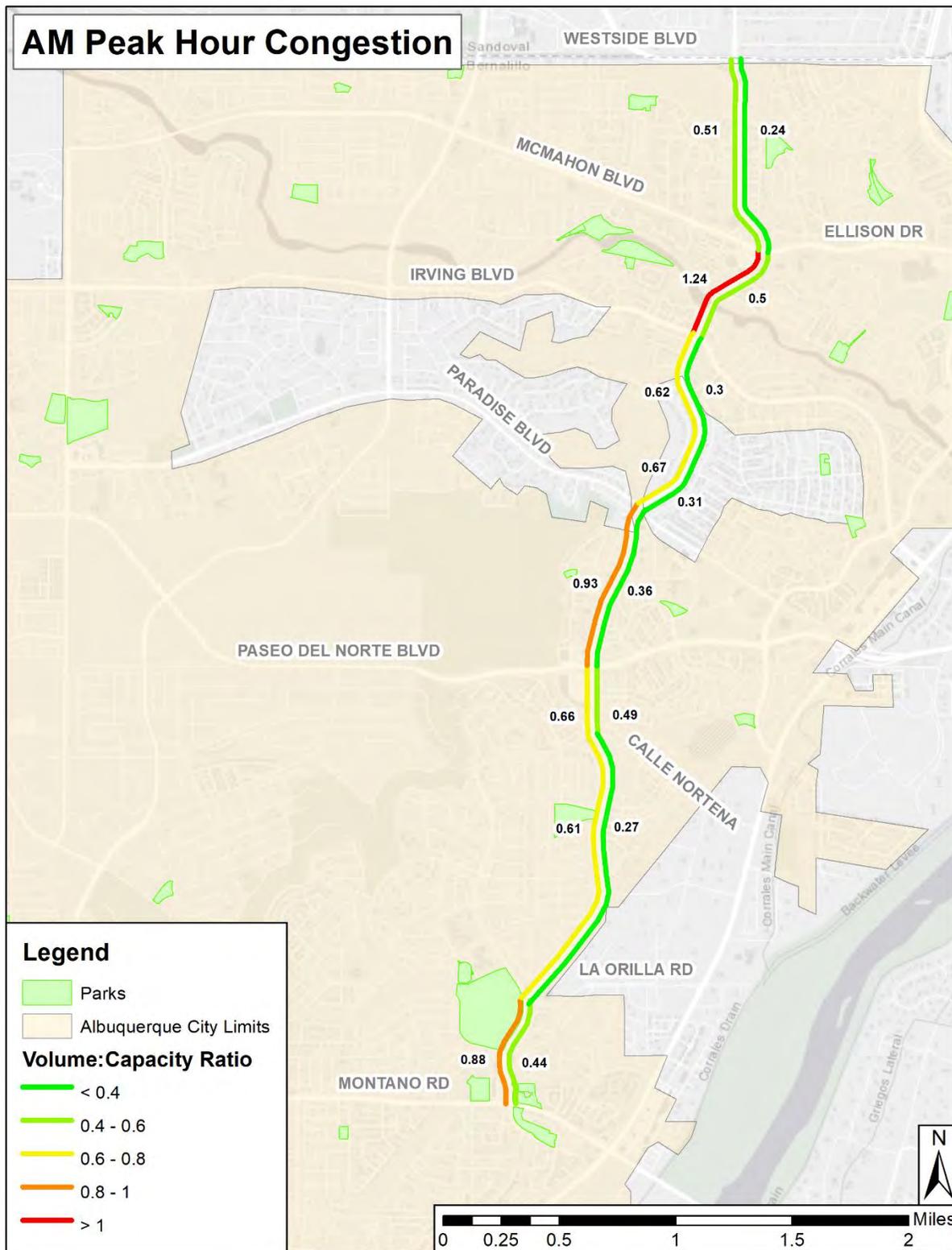
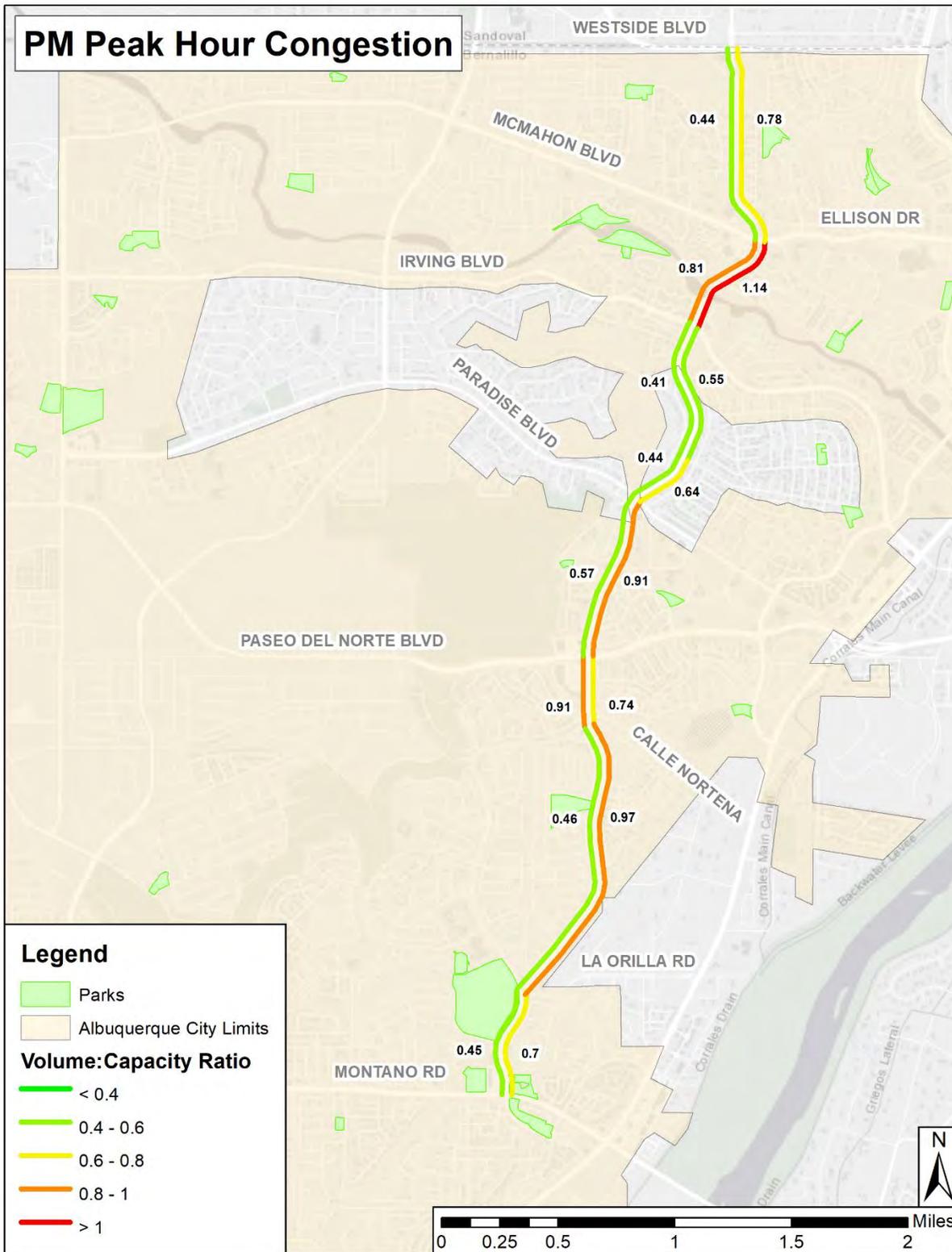


Figure 15: Evening (PM) Peak Hour Congestion Shown as Volume-to-Capacity Ratios by Segment



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 16 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.

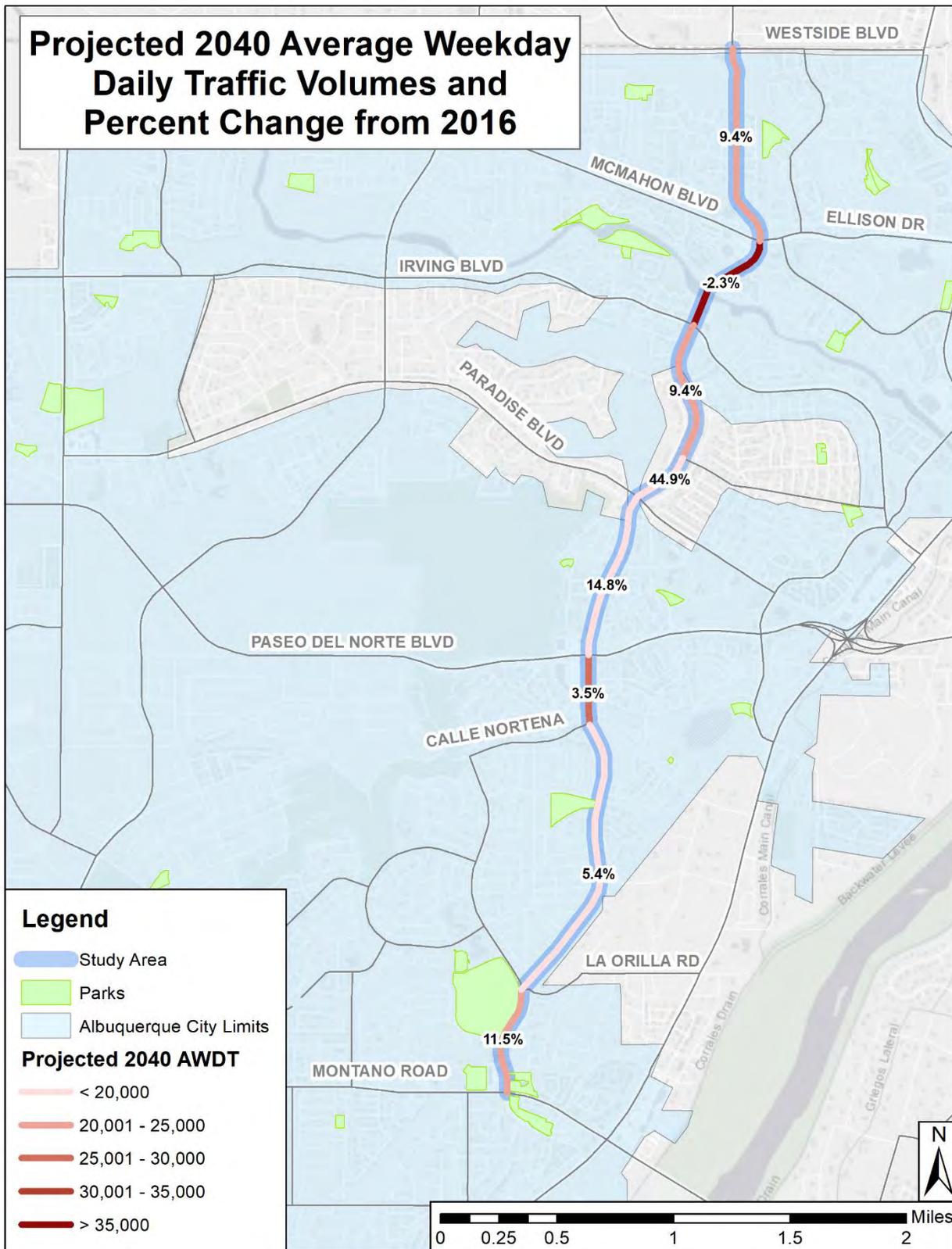
The only segment where the traffic volume is projected to decrease over time is between Irving Blvd and Ellison Dr/McMahon Blvd, which a modest change of -2.3% projected in the regional travel demand model. However, this segment has the highest current and projected traffic volumes of any segment along 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 16: Projected Traffic Volume in 2040 and Change in Volume versus Current Conditions



TRAFFIC OPERATIONS AND ACCESS MANAGEMENT

The following section provide an analysis of the traffic operations and access management along Golf Course Rd. Traffic operations and signal systems analysis 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.

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

- Montañño 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 by time of day, 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 Ave

In response to requests from area residents, the City of Albuquerque Traffic Engineering Division evaluated the need for a traffic signal at Marna Lynn Ave 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 McMahan 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.”

McMahan Blvd/Ellison Dr

Table 7 shows time-of-day split failures for McMahan 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: McMahan 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. Future steps in traffic signal analysis include considering whether split failures at key intersections could be minimized through timing and signal equipment upgrades. The desire to minimize split failures and improve efficiency along the corridor must also be weighed 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, safe turning lanes, and median treatments. This study focuses on driveway spacing as a 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) |
|--|---------------------|-------------|---------------------------------------|
| Montaño Rd to Kachina St | 6 | 1,200 | 27 |
| Kachina St to La Orilla Rd | 0 | 1,300 | 0 |
| La Orilla Rd to Calle Norteña | 0 | 6,600 | 0 |
| Calle Norteña to Paseo del Norte | 3 | 1,530 | 11 |
| Paseo del Norte to Paradise Blvd | 9 | 3,810 | 13 |
| Paradise Blvd to Irving Blvd | 44 | 4,540 | 52 |
| Irving Blvd to McMahan Blvd/Ellison Dr | 9 | 2,480 | 20 |
| McMahan Blvd/Ellison Dr to Westside Blvd | 3 | 4,450 | 4 |

Petroglyph Plaza Shopping Center

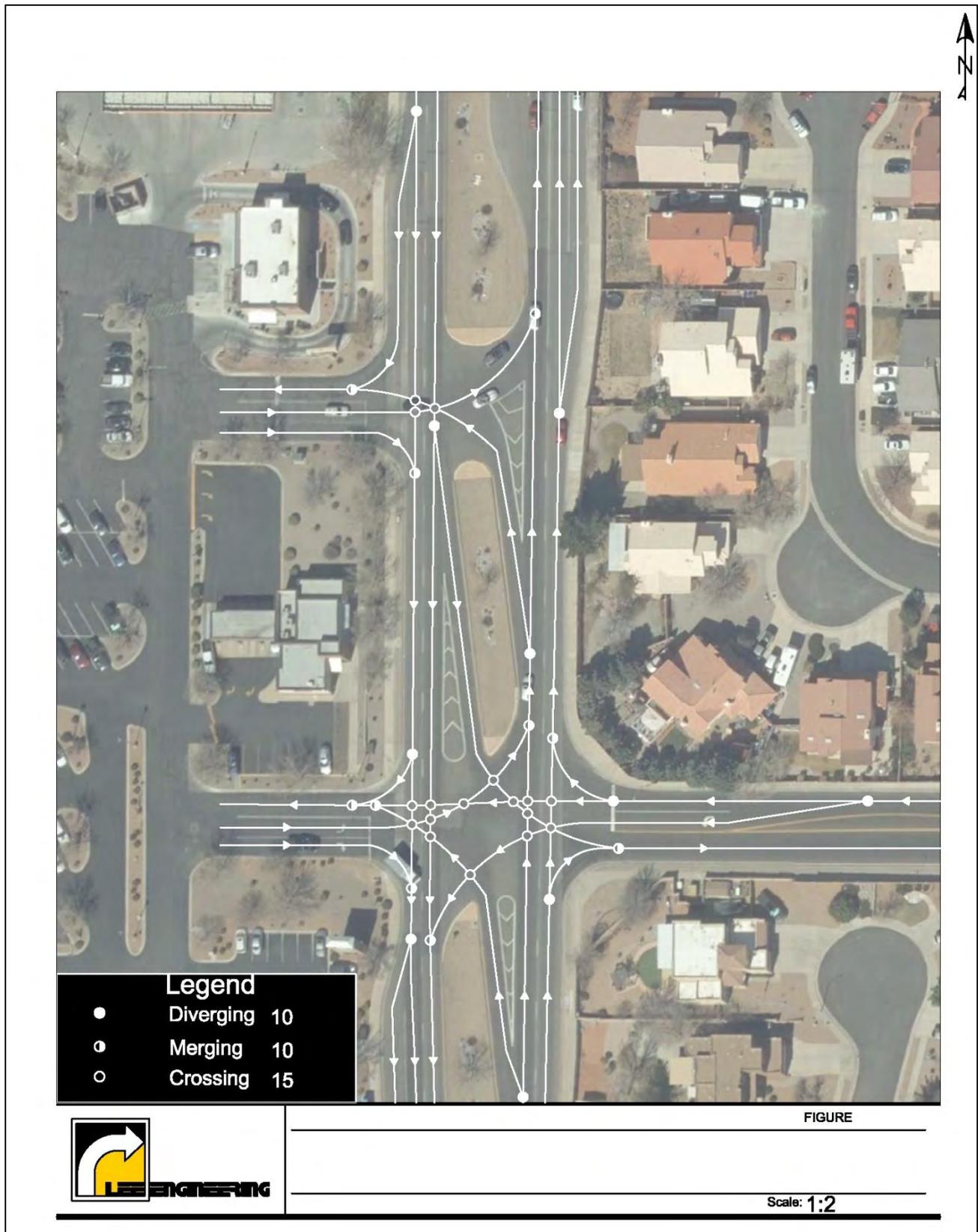
Numerous members of the public identified traffic and safety challenges associated with access to the Petroglyph Plaza Shopping Center at the southwest corner of Paseo del Norte and Golf Course Rd. The most commonly cited issue is the presence of queues for the Starbucks that back onto Golf Course Rd (see Figure 17 for the 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 18 for a depiction of conflict points associated with site access and turning movements at the Petroglyph Plaza Shopping Center.

Figure 17: Petroglyph Plaza Shopping Center and Starbucks on Golf Course Rd



Figure 18: Conflict Points around Petroglyph Plaza Shopping Center



SAFETY CONSIDERATIONS

Overall Conditions

Vehicle traffic presents significant safety challenges along Golf Course Rd. 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.

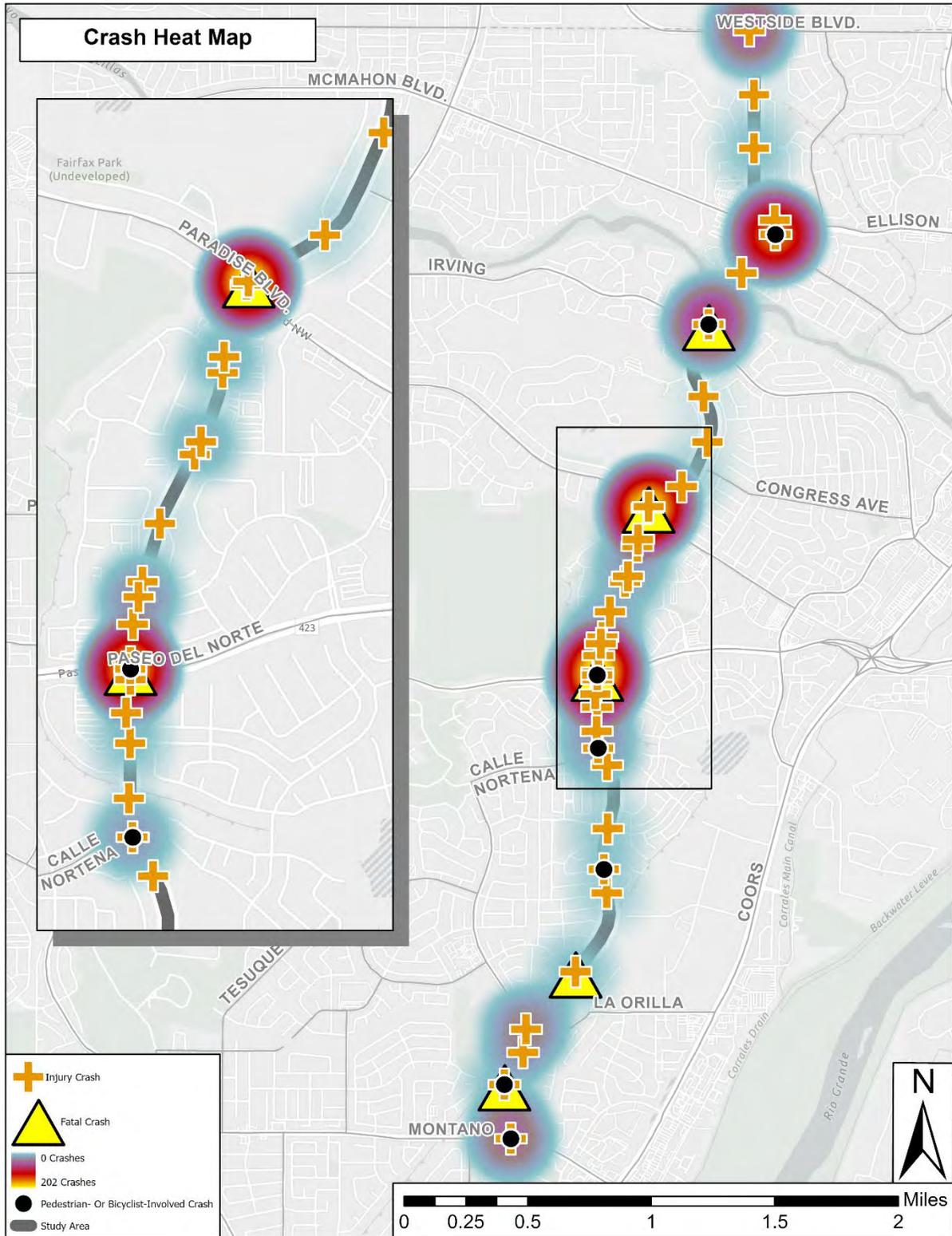
Table 11: Total Crashes at Major Intersections (2014-2018)

| Intersection | Total Crashes | Total Fatal Crashes | Total Injury Crashes | Total Non-Severe Crashes | HFIN Intersection Crash Rates Compared to City Average |
|---------------------|---------------|---------------------|----------------------|--------------------------|--|
| Montaño Rd | 65 | 0 | 16 | 49 | Below Mean |
| La Orilla Rd | 52 | 0 | 17 | 35 | 0-100% above Mean |
| Calle Norteña | 33 | 0 | 5 | 28 | Below Mean |
| Paseo del Norte | 161 | 1 | 44 | 116 | 0-100% above Mean |
| Paradise Blvd | 202 | 1 | 68 | 133 | 100-200% above Mean |
| Irving Blvd | 95 | 1 | 25 | 69 | 0-100% above Mean |
| McMahon Blvd | 178 | 0 | 62 | 116 | 0-100% above Mean |
| Westside Blvd | 74 | 0 | 23 | 51 | 0-100% above 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 or 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 or fatality.

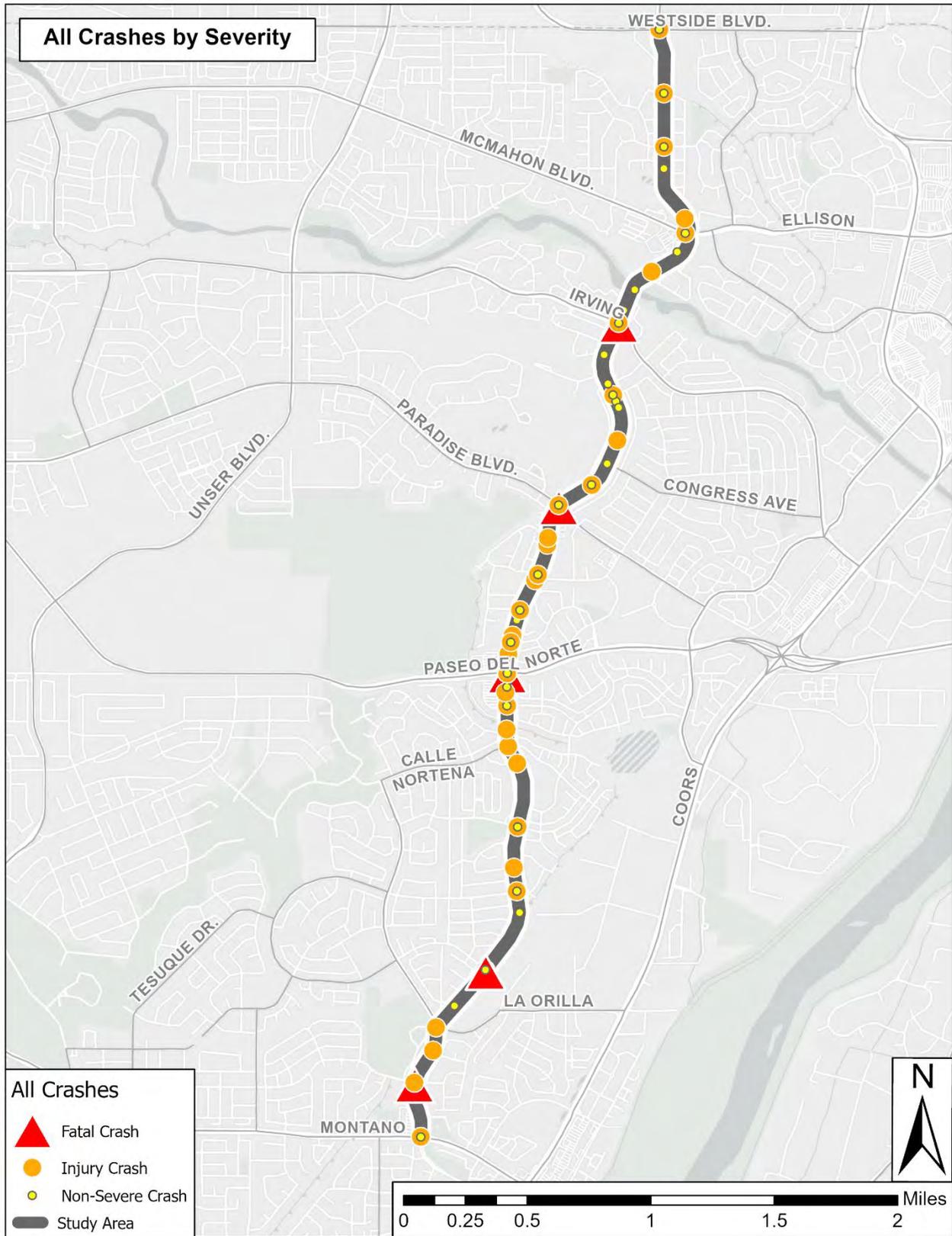
Hot Spots and High Crash Rate Intersections

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-involved crashes along the entirety of the corridor (see Figure 21). Ten of the 12 pedestrian or bicyclist-involved 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 Montaña Rd (n=3). Of the five fatalities within the study area, two were pedestrian-involved and located at Irving Blvd and Paseo del Norte.

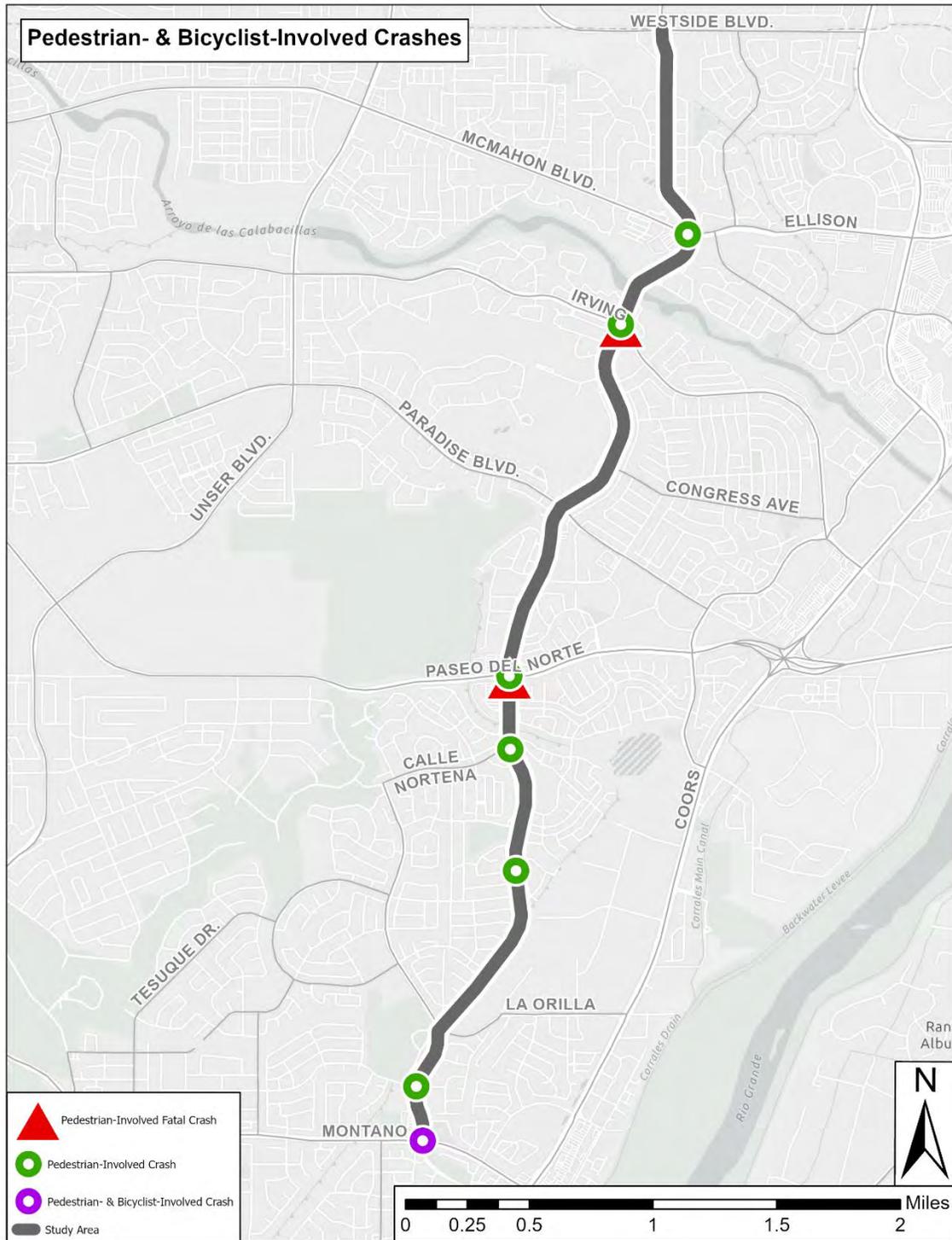
Table 13 indicates the count and share of pedestrian and bicyclist-involved crashes in the study area and the City as a whole. Overall, pedestrian and bicyclist-involved crashes along Golf Course Rd cumulatively make up a lower share of total crashes (about 1.0% versus 3.0%). However, the low share of pedestrian and bicycle-involved crashes may be related to incomplete facilities along the corridor, which can 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 bicycle-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.

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)

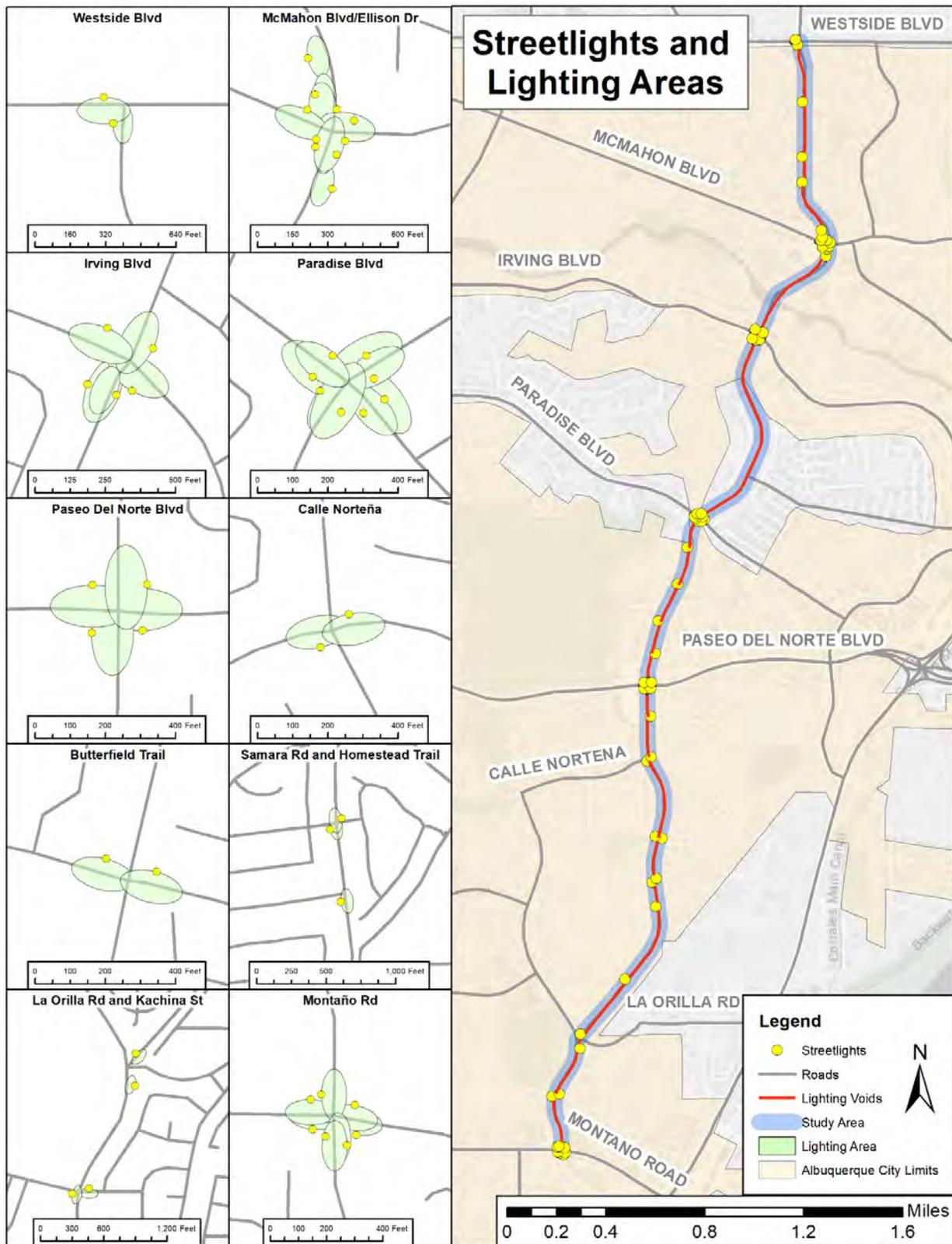
Lower vehicle speeds and Complete Streets roadway design patterns would likely reduce the frequency and severity of crashes along the corridor that result from common factors such as driver inattention and driver error. Though not considered a contributing factor, limited access management and conflicts around driveways can lead to driver error or crashes that may be attributed to driver inattention.

Lighting 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. Since only the intersections are illuminated, there are long stretches between intersections that do not currently feature any streetlighting. 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 22 depicts the locations and illumination patterns of existing streetlights on Golf Course Rd. Streetlight GIS data, based on data provided by the City of Albuquerque. Figure 22 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-foot poles identified, lighting throw distance is projected at a diameter of 180 feet (major axis). For the 18 existing streetlights with 40-foot 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 feet, meaning only about 17% of the study area corridor is illuminated.

Figure 22: Existing Street Lighting Along Golf Course Rd



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, Montañó Rd, and Louisiana Blvd. **Route 92** is a commuter route that makes one morning trip inbound from the Northwest Transit Center to 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

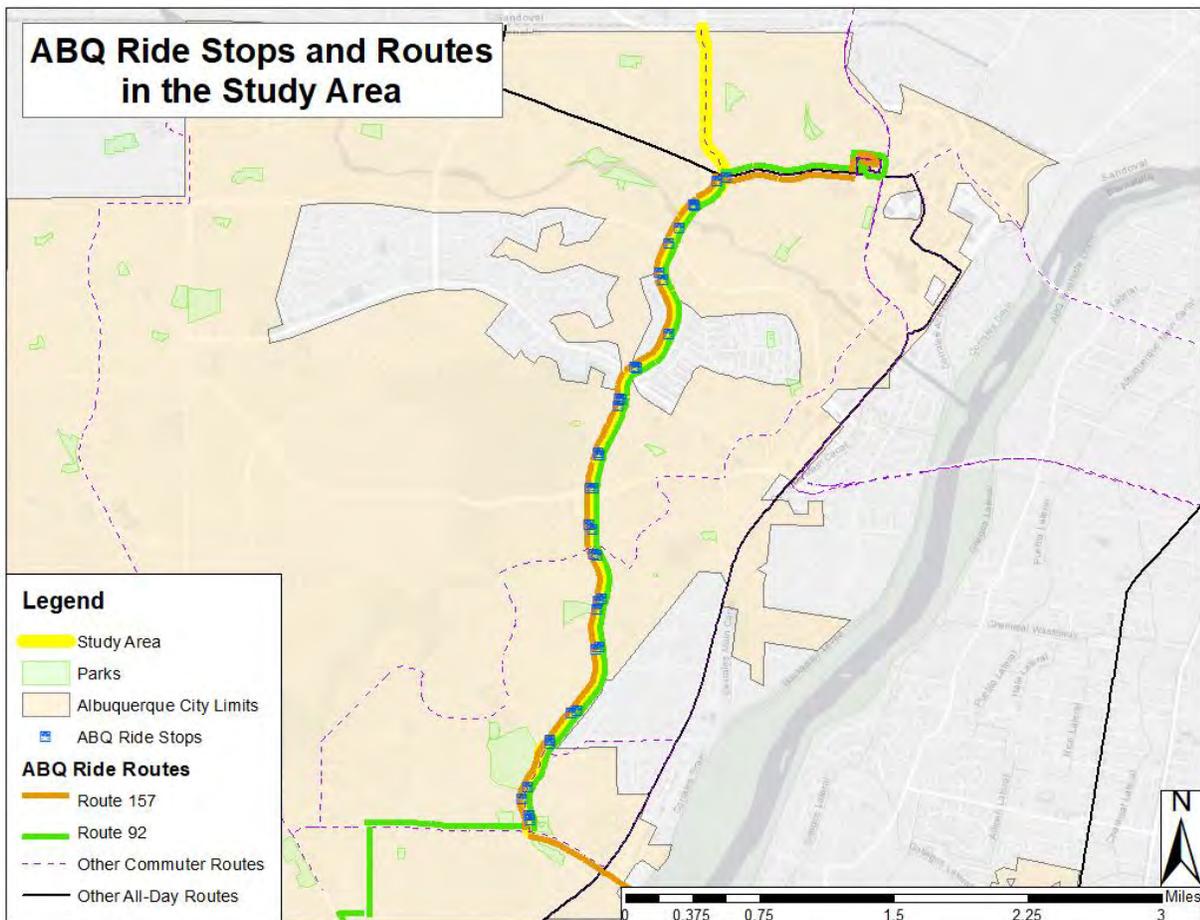
| Route | Service Type | Frequency | Span | Annual Ridership | Activity in Study Area |
|--|------------------------------|--|---|------------------|--|
| 157 – Montañó / Uptown / Kirtland | Local (all day) | Weekdays: every 30 min. Weekends: every 45 min. | Weekdays: 5:30 AM – 10 PM Saturdays: 7:30 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 23: 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 24 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 particularly 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 should 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 5 feet wide as well as an off-street multi-use trail to the west of the corridor associated with Mariposa Basin Park. This multi-use trail is not directly adjacent to the roadway is most commonly used by recreational bicyclists 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 Montañó Rd and Paseo del Norte

| Segment | Facility Type | Daily Traffic Volume (2019) | Width (feet) | Bicycle LOS |
|----------------------------------|---|-----------------------------|---------------|-------------|
| Montañó 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 Cr has bike lanes that terminate at the 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 Montañó 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 6-foot wide sidewalk at the entrance to Walgreens and Speedway at the southeast 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 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 features 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 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, no bike lanes are present 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 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 |

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.

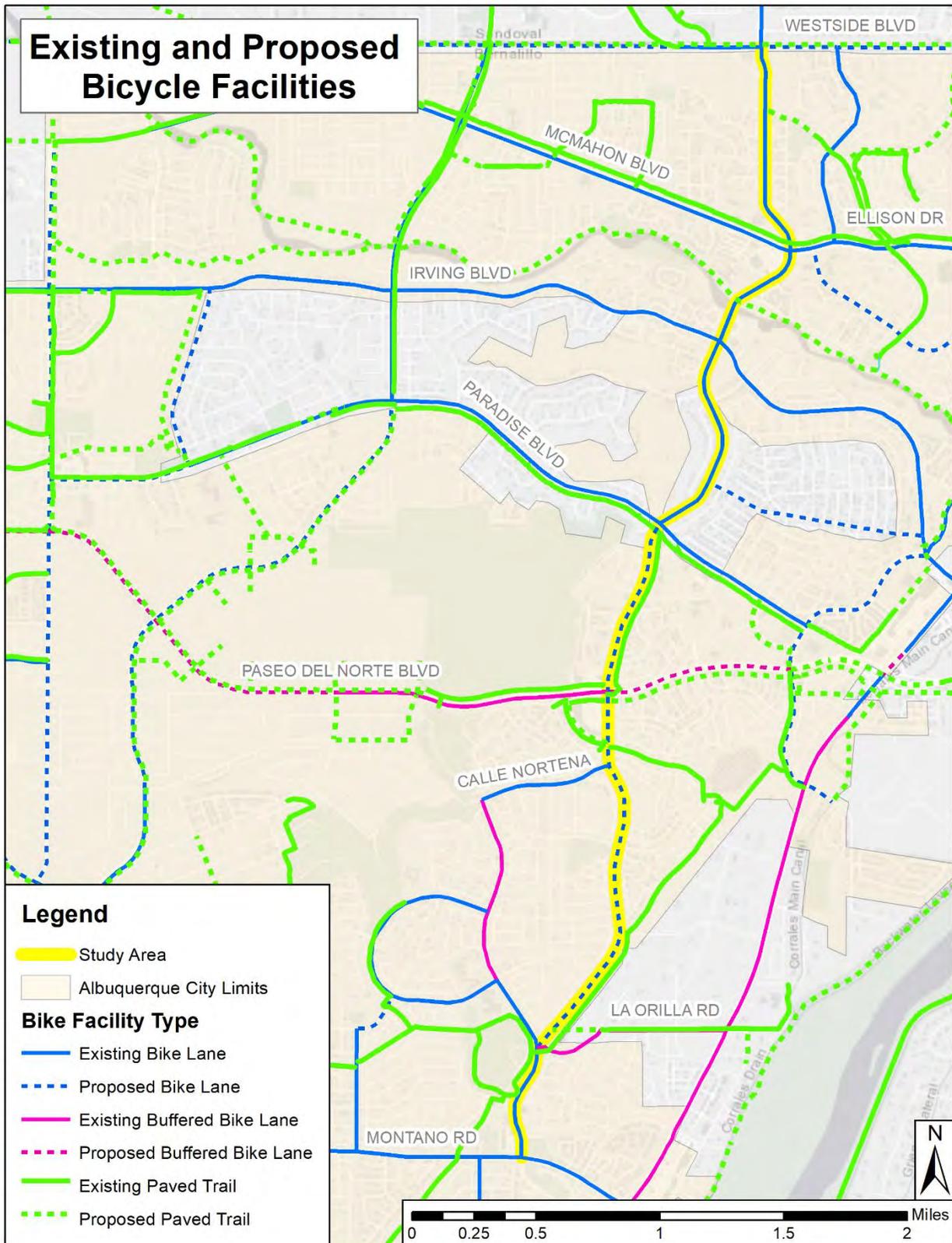
The bulk of proposed facilities in close proximity to Golf Course Rd are multi-use trails or on-street bike lanes along intersecting streets. These include:

- **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 Marcadas Trail and follow the south side of Paseo del Norte. The City of Albuquerque has programmed funds 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 |

Figure 24: Existing and Proposed Bikeways through the Study Area



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's 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 level of 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 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 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).

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 25 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 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. Other gaps include the frontage along vacant parcels, though sidewalks would be installed as new development occurs. A gap is also present along the ½-mile segment on the northbound side from Ellison Rd to Driftwood Ave, as well as

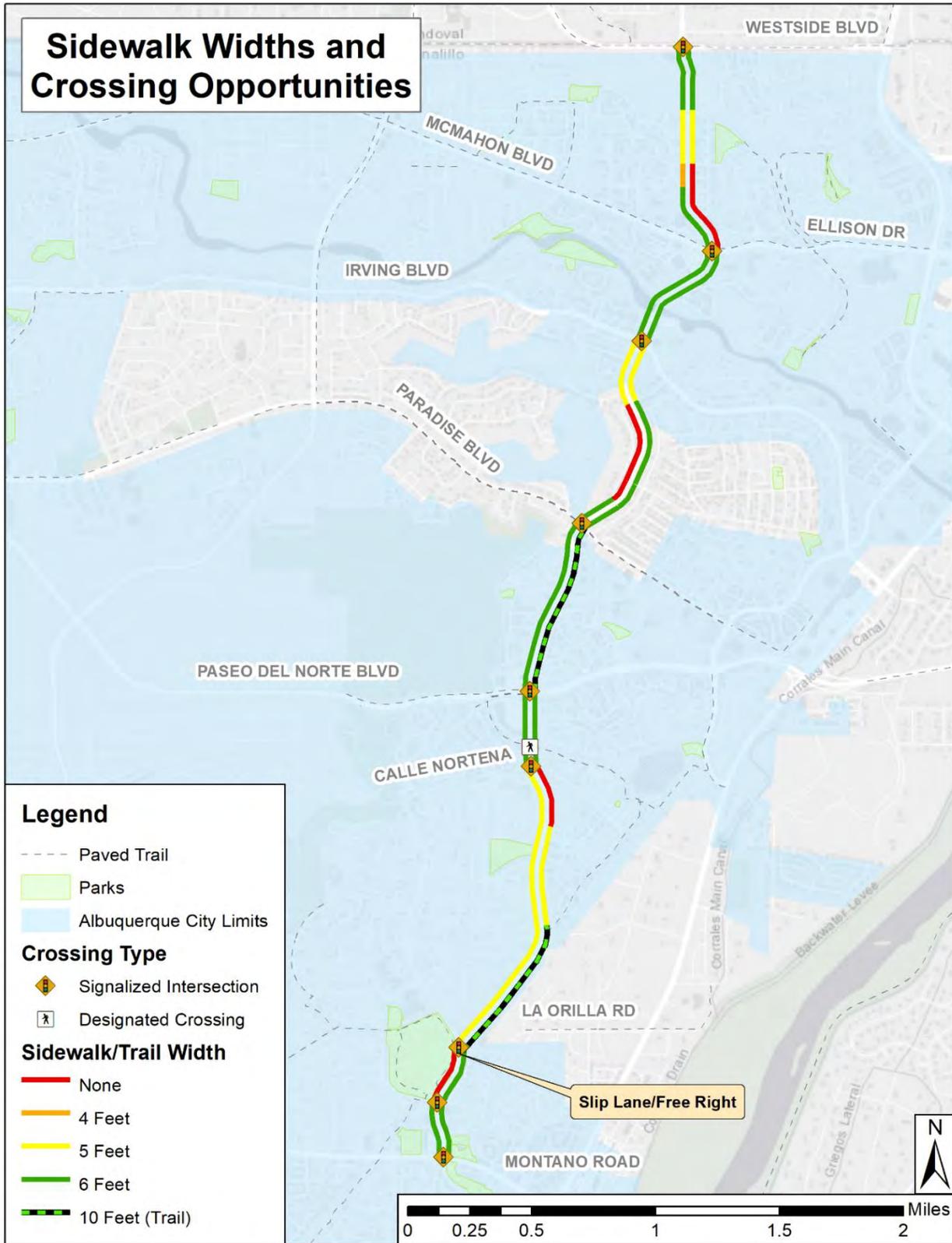
Landscape/Buffer Areas

Landscape/buffer areas provide separation between pedestrians and motorists and promote safety and user comfort levels. 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. This lack of separation is noteworthy as traffic volumes and commercial activity are greater along the northern portion of the corridor.

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

Figure 25: 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 mile corridor, there are 10 designated crossing opportunities at signalized intersections and trail crossings, for an average of about one crossing location every 2,640 feet (1/2 mile). 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 to the North |
|--------------------------------|--------------------------------|--|
| Montaño Rd | Signalized Intersection | 1,190' (0.23 miles) |
| Kachina St | Signalized Intersection | 1,290' (0.24 miles) |
| <i>La Orilla Rd</i> | <i>Signalized Intersection</i> | <i>6,720' (1.27 miles)</i> |
| Piedras Marcadas Trail | Designated Crossing | 410' (0.08 miles) |
| Calle Norteña | Signalized Intersection | 1,180' (0.22 miles) |
| Paseo del Norte | <i>Signalized Intersection</i> | <i>3,800' (0.72 miles)</i> |
| <i>Paradise Blvd</i> | <i>Signalized Intersection</i> | <i>4,610' (0.87 miles)</i> |
| <i>Irving Blvd</i> | <i>Signalized Intersection</i> | <i>2,580' (0.49 miles)</i> |
| <i>McMahon Blvd/Ellison Dr</i> | <i>Signalized Intersection</i> | <i>4,550' (0.86 miles)</i> |
| Westside Blvd | Signalized Intersection | N/A |

Note: *Italics indicate crossing locations that are spaced greater than 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 (signalized or unsignalized) crossings in the DPM. Specifically, the DPM recommends signalized pedestrian crossings along Major Transit Corridors every 1,320 to 2,640 feet and a designated crossing every 1,320 feet. As shown in Table 25, distances between pedestrian crossings vary widely throughout the corridor. Although there are portions of the corridor that have pedestrian crossings located at distances that align with the DPM, most corridor segments do not meet this standard. The largest gap between pedestrian crossings is 7,132 feet (1.35 miles), located between La Orilla Rd and the Piedras Marcadas Trail crossing.

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.

Figure 26: Slip Lane at La Orilla Rd



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 27 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 designated crossing location. Other locations, such as La Orilla Rd and Paseo del Norte, feature continental striping that meets DPM guidance.

Figure 27: 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 section.

Existing Conditions

The Golf Course Rd corridor is generally built out with few vacant parcels or areas that are likely to redevelop. Existing land uses 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 McMahan 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 Montañño 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 Montañó 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 28). 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, 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.

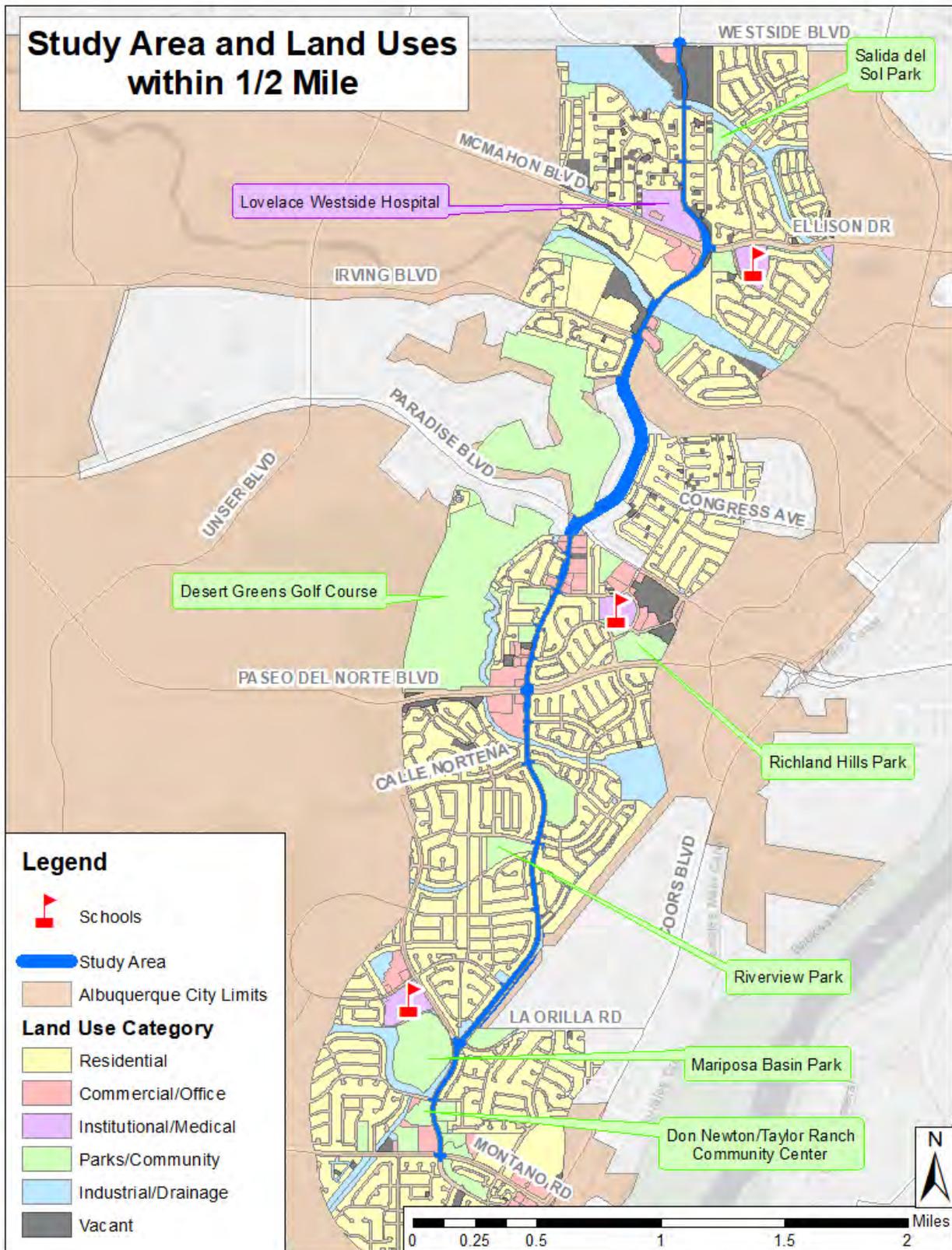
While there are no campuses located directly along Golf Course Rd, there are three **schools** within a short radius of the corridor. In each of these cases, Golf Course Rd may be utilized by students, parents, and staff for school access, and the presence of bikeways and sidewalks and safe crossings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

- Lyndon B. Johnson 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 Ave 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 Montañó 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. In March 2021, a site plan for a large multi-family complex was approved by the Development Review Board in this location.

Figure 28: Existing Land Uses within One-half Mile of Golf Course Rd



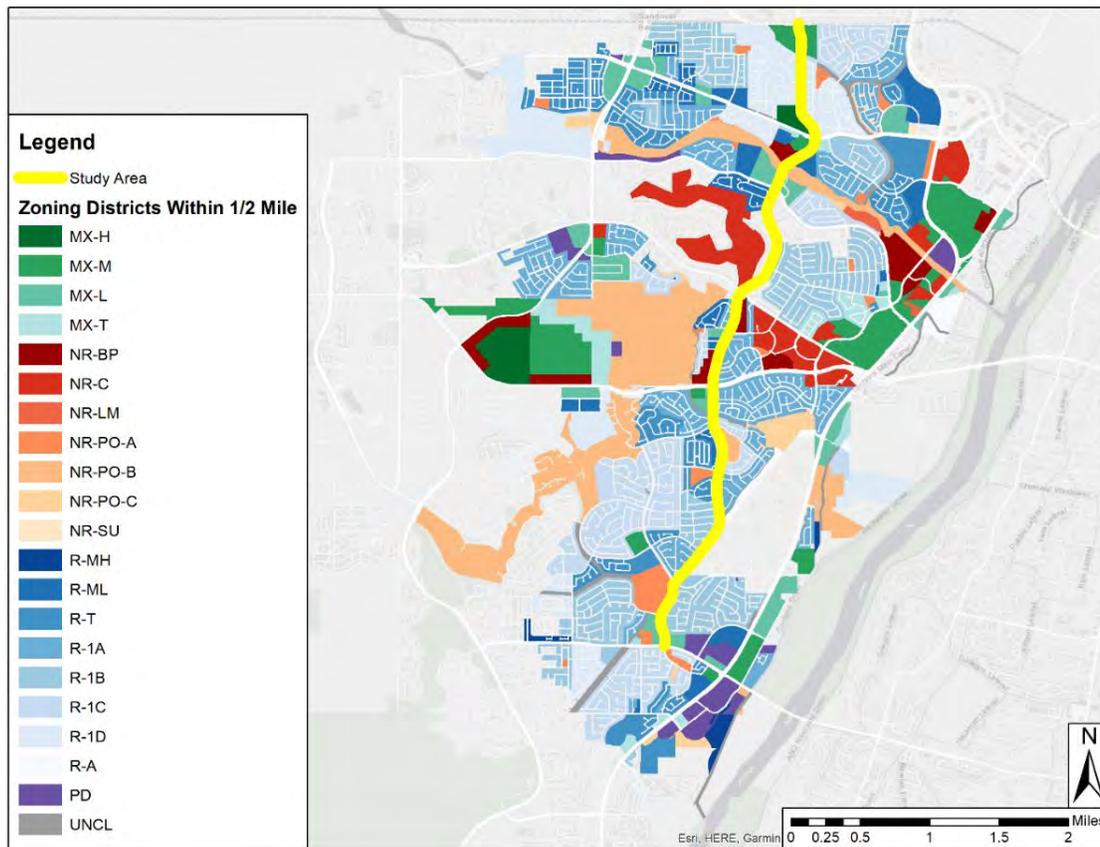
Zoning

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 Montañó 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 Montañó 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 29: 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 design patterns along the corridor feature 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.

EXISTING CONDITIONS: KEY TAKEAWAYS

Roadway improvements along Golf Course Rd must balance the need to maintain traffic flows while enhancing facilities and promoting safety for other modes. This section summarizes the key takeaways and observations from the existing conditions analysis. These considerations informed 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 feet, with some 12-foot travel lanes to the north of Irving Blvd.
- **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*.
- **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.
- **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.

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 associated with the Starbucks drive-thru 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 McMahan 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.
- Lighting: Lighting is limited to 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.

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 parallel routes. On-street bike lanes, multi-use trails, and sidewalks are present along portions of the corridor, though there are gaps in each of these networks.
- Infrastructure Quality: Where bicycle lanes and sidewalks 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 walking or biking along the corridor. Enhanced bicycle and pedestrian facilities the corridor would create 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 – including various parks and open space sites and the Piedras Marcadas Unit of the Petroglyph National Monument – and that 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.

OPPORTUNITIES FOR CREATING A MAIN STREET IDENTITY

Purpose of Analysis

As part of the Golf Course Rd Complete Streets Study, the Project Team was tasked with considering how the corridor could better support a Main Street-type character. Among the specific considerations include improved access from residential areas to commercial nodes and policy options to create more pedestrian or community-oriented land uses along the corridor. This section complements the design recommendations provided in this study with initial ideas for improving the urban design characteristics along Golf Course Rd.

A major challenge is that the majority of the corridor has been developed with auto-oriented land uses, while long stretches feature subdivision walls that limit access to Golf Course Rd and make conditions uninviting for pedestrians. However, there are opportunities to both enhance the character of commercial nodes and shopping plazas and to ensure that undeveloped parcels along the corridor build out in a manner that better supports Main Street-type character.

Definition of Main Street

The term “Main Street” typically evokes images of a compact, bustling commercial center with a variety of shops, restaurants, and stores that attract visitors and serve people’s daily needs. Although Main Streets throughout the country vary with regards to architecture and scale of development, Main Street is usually comprised of a common set of characteristics. These include **pedestrian-scale buildings** nestled closely together with **small setbacks** from the street. In addition, Main Street typically features **public spaces** that can be used for programming – including closing streets to traffic for special events – and generally encouraging visitors and patrons to linger in the area, enhancing the social environment.

Main Street itself is usually a **low-speed roadway** with a narrow roadway footprint. **Wide sidewalks** improve pedestrian comfort levels and are activated by window displays, signs, and the patrons who frequent the businesses and restaurants along the corridor. Main Streets may also have bicycle facilities such as protected bike lanes. The location and characteristics of vehicle parking encourage a “**park once approach**” as parking is primarily located on-street. Additional off-street parking may be provided behind buildings (where applicable) or in surface lots a short walk away from Main Street.

In addition to being a recognizable type of road corridor, Main Street also speaks to a more general idea of a **centralized business district** where people are able to travel between destinations in the area without using a vehicle. In this way, a given area might have a different look and feel than a traditional Main Street but still serve a similar function for residents.

Figure 30: Examples of Main Streets in Savannah, GA and Silver City, NM



[Savannah, GA](#)



[Silver City, NM](#)

Applicability of a Main Street Concept to the Study Area

Residents and the City of Albuquerque have expressed a desire for Golf Course Rd to become a Main Street corridor that fosters a distinct identity for the Northwest Mesa area and allows residents to access the variety of destinations along the corridor via walking, bicycling, or transit. This vision may be attainable despite the fact the corridor does not meet the typical definition of a Main Street. Although Golf Course Rd does not feature dense clusters of buildings with small setbacks from the street, the corridor does offer a wide variety of businesses and services that one might find on a Main Street, including a hospital, grocery stores, restaurants, and a variety of retail stores that cater to daily needs. The retail sites are clustered in shopping plazas around major intersections, which generally function as commercial nodes and focal points for area residents.

Developing a true Main Street character for Golf Course Rd will involve leveraging the existing transportation assets along the corridor. Pedestrian and bicycle infrastructure includes sidewalks, off-street multi-use trails, and on-street striped bike lanes along the corridor; however, there are gaps in these networks and few opportunities to cross the street, except at signalized intersections. Roadway investments that utilize the available right-of-way and build upon existing active transportation networks would make a tremendous impact in creating a Main Street-type character along the corridor.

At the same time, there are a number of constraints related to the physical environment that create challenges to creating a Main Street-type character. The corridor is largely built-out, which limits the ability to introduce new transportation infrastructure outside of the existing roadway footprint. There is also little vacant land along Golf Course Rd that could be developed with more typical Main Street features (e.g. zero setback lot lines). While major opportunities include modifying the built form of the commercial nodes to achieve the feeling of a Main Street, the shopping plazas are privately owned and would require direct investment by the property holders.

Table 27: Typical Elements of a Main Street and Applicability to Study Area

| Element | Typical Characteristics | Study Area Context |
|------------------------------|---|--|
| Urban Design | Pedestrian-scale buildings; minimal setbacks | Subdivision walls separate neighborhoods from the street; large setbacks at shopping plazas |
| Pedestrian Facilities | Wide sidewalks; frequent crossing opportunities | Gaps in network of sidewalks and shared-use trails; crossing opportunities only at signalized intersections or multi-use trails |
| Traffic Operations | Posted speeds of 30 mph or less; general traffic calming | Posted speeds are 35-40 mph; wide signal spacing encourages higher speed travel |
| Parking | On-street parking, off-street parking behind or along the side of buildings | Off-street parking only, located in front of buildings |
| Commercial Activity | Stores and restaurants serving daily and regular needs | Stores and restaurants serving daily and regular needs |
| Public Spaces | Parks and open spaces with seating and public programming | Parks and open space; Don Newton Community Center; shopping plazas function as gathering places but do not include public spaces |

Corridor Designations and Desired Roadway Characteristics and Urban Form

Corridor Type Designation and Desired Roadway Improvements

COMPARISON OF COMPREHENSIVE PLAN CORRIDOR TYPES

Urban design forms and the transportation infrastructure along a corridor are informed by the City’s planning policy and regulatory framework. In particular, roadway improvements in the City of Albuquerque are guided by the DPM, which provides roadway standards by corridor type and context area. The corridor designation also affects development patterns along a roadway, as allowable uses and densities, parking requirements, building setbacks, and other elements of the Zoning Code may vary depending on the designation.

Golf Course Rd is currently designated as a Major Transit Corridor and classified as a minor arterial. (Corridor designations are typically applied to Principal Arterials, though Golf Course Rd is designated as such because it is included in the MRCOG Long Range Transit Network.) This section considers the roadway design and land use implications of the Major Transit Corridor and other formal designations contained in the Comprehensive Plan, including Main Street and Multi-Modal Corridors. Considering these designations helps determine whether desired improvements along the corridor can be achieved within the existing City planning framework. See Table 28 for a comparison of land use and transportation guidance by corridor type.

Note on Use of the Term Main Street

This study uses the term Main Street-type character to describe desired features and amenities along Golf Course Rd. The term Main Street Corridor comes with specific policy guidance and regulatory standards in the City of Albuquerque that may not be appropriate for Golf Course Rd.

Table 28: Comparison of Corridor Designations in the Comprehensive Plan

| | General Definition | Transportation Guidance | Land Use Guidance |
|-------------------------------|--|--|---|
| Major Transit Corridor | The Comprehensive Plan defines Major Transit Corridors as roadways that “[p]rioritize transit users in street design and improvements, encouraging pedestrian amenities such as bulb-outs, pedestrian-activated signals, and refuge medians at intersections and near transit stops and stations,” (p. 6-37). Golf Course Rd is currently designated as a Major Transit Corridor. | These corridors should aim to achieve a balance between all travel modes, with transit amenities and pedestrian infrastructure highly prioritized in designated Centers. Priority elements along Major Transit Corridors include frequent pedestrian crossings with median refuge islands as needed, transit stop amenities, and multi-modal intersection design to promote ease of crossings for pedestrians. Dedicated transit infrastructure is appropriate where premium transit, such as BRT, is present. | Major Transit Corridors are intended to support a mix of land uses, allow for flexibility in terms of setback requirements, and provide various opportunities to reduce the minimum number of required off-street parking spaces. Development should be more intense around transit stops or major nodes along the corridor. |
| Main Street Corridor | Main Street Corridors function as linear activity centers with a continuous set of pedestrian-oriented land uses. Main Street Corridors should support connections to transit and “(p)rioritize pedestrians in street design and improvements, emphasizing safety, accommodation, and amenities by slowing auto traffic, limiting or prohibiting curb cuts, and requiring primary auto access to parking lots to be provided from intersecting, auto-oriented streets,” (p. 6-36). | Main Street Corridors generally prioritize pedestrian activity over other modes and feature wide sidewalks and on-street parking. Other high priority elements include reduced crossing distance at intersections, transit amenities, and landscape/buffer zones. Main Street Corridors should feature lower posted speeds than other corridor types, and a lower vehicle LOS is acceptable compared to other corridors. | Main Street Corridors feature mixed-use zoning and urban design forms that support walking. Desired urban design forms include short block lengths with minimal building setbacks and parking located on the side and the rear of buildings. Main Street Corridors allow for reductions in required levels of off-street parking. |
| Multi-Modal Corridor | Multi-Modal Corridors are defined as roadways that “balance the competing needs of pedestrians, bicyclists, autos, and transit in street design and improvements by slowing auto traffic, minimizing curb cuts, and encouraging primary auto access to parking lots to be provided from intersecting streets,” (p. 6-38). | Multi-Modal Corridors aim to accommodate all road users by fostering safety and mobility for pedestrians, bicyclists, and people with disabilities. Multi-Modal Corridors apply a “medium priority” level to street design elements such as bicycle facilities, medians, wide sidewalks, and landscape/buffer zones but give single-occupancy vehicle capacity a high priority. | Multi-Modal Corridors are intended to support commercial activity that is complemented by safe, multi-modal transportation options. The intent of the designation is for auto-oriented commercial strip areas to redevelop into mixed-use, pedestrian-oriented spaces. However, there are no specific incentives such as reduced parking requirements or increased density associated with Multi-Modal Corridors. |

DEVELOPMENT PROCESS MANUAL REQUIREMENTS BY CORRIDOR TYPE

Table 29 provides design criteria for key roadway elements and the priority level for those elements. The roadway element priority level is taken from the Urban Design chapter of the Comprehensive Plan (Table 7-5) and is based on the principle that right-of-way for existing corridors is often constrained and not all desired elements can be included on all roadways. As such, some elements should be prioritized more highly than others.

Table 29: Roadway Design Criteria by Corridor Type

| Roadway Design Criterion | Main Street Corridor | Major Transit Corridor | | Multi-Modal Corridor | | Minor Arterial | |
|----------------------------|----------------------|------------------------|-----------------|----------------------|-----------------|----------------|-----------------|
| | | Standard | Activity Center | Standard | Activity Center | Standard | Activity Center |
| Priority Travel Mode | Pedestrian | Balanced | Transit | Balance | Balance | Auto | Balance |
| Design Speed (MPH) | 25-30 mph | 35-40 | 30-35 | 35-40 | 30-35 | 35-40 | 30-35 |
| Auto LOS | E | D-E | E | D-E | E | D | D-E |
| Pedestrian Realm Priority | High | Medium | High | Medium | High | Low | High |
| Sidewalk Width (ft) | 10-12' | 6-10' | 10-12' | 6-10' | 10-12' | 6' | 10' |
| Landscape/Buffer Zone (ft) | 6-8' | 6-8' | 6-8' | 6-8' | 6-8' | 5-6' | 6-8' |
| Bike Lane Width (ft) | 5-6.5' | 6-7' | 5-6.5' | 6-7' | 5-6.5' | 6-6.5' | 5-6' |
| Bike Buffer (ft) | 0-3' | 1.5-3' | 0-3' | 1.5-3' | 0-3' | 1.5-3' | 0-3' |
| Bikeways Priority Level | Medium | Low | Medium | Medium | High | N/A | N/A |
| Travel Lane Width (ft) | 10-11' | 10-12' | 10-12' | 10-11' | 10-11' | 10-11' | 10-11' |
| Access Management | Limited Access | Full Access | Limited Access | Full Access | Limited Access | Full Access | Moderate |
| Intersection Spacing | Frequent | Moderate | Frequent | Moderate | Frequent | Moderate | Frequent |

Sources: DPM Figure 7.2.41, Comprehensive Plan Table 7-5, Goal 6.1 (and supporting tables)

Discussion and Recommendation to Retain Major Transit Corridor Designation

The existing policy and regulatory framework of the City of Albuquerque should be applied along Golf Course Rd to achieve a Main Street-type character to the extent feasible. Based on the review of potential corridor designations and the associated design standards and land use implications, **this study recommends that the Major Transit Corridor designation along Golf Course Rd be retained.** In general, the Major Transit Corridor designation provides appropriate policy support, land use flexibility, and appropriate design guidance. An additional benefit of retaining this designation is that no updates would be required to the Comprehensive Plan.

This recommendation is based in part on the fact that other terms do not provide the same level of policy support for desired features, or in the case of Main Street Corridors, have policy or design implications that are not appropriate for Golf Course Rd. Multi-Modal Corridors, in particular, do not provide meaningful land use or urban design incentives that would foster a Main Street-type character. By contrast, the Major Transit Corridor designation supports more flexible land use and parking requirements than Multi-Modal Corridors, and an urban design form that is more consistent with Northwest Albuquerque than a designated Main Street Corridor. Priority transportation elements for Major Transit Corridors include enhanced pedestrian infrastructure and frequent crossings, which are identified needs along Golf Course Rd. The destination also

supports the long-term policy toward increased transit service, which would greatly increase access to commercial nodes and destinations along the corridor.

Activity Center Designation

The Comprehensive Plan designates a variety of Centers where a mix of users or greater intensity of detail is desired. The objective is for these Centers to be linked together by corridors that provide a range of transportation options. Roadway design within Centers is intended to promote walking and biking, with lower speeds, wider sidewalks and landscape buffers, and improved pedestrian crossings.

There are no designated Centers along Golf Course Rd, though such an Activity Center designation may be appropriate for one or more of the commercial nodes along the corridor due to the concentration of services and the role those areas play as neighborhood focal points. Further consideration of such a designation is warranted. Designation as an Activity Center would allow for higher densities and a greater set of allowable land uses, and would modify the desired roadway characteristics for the surrounding area, including greater emphasis on pedestrian crossings and comfort level. Properties located in Activity Centers are also eligible for a 20 percent reduction in the amount of required off-street parking spaces, while outdoor dining areas in Activity Centers have no requirements for off-street parking.

Desired Street Elements for Golf Course Rd

Improving Golf Course Rd such that it functions similar to a Main Street will require improvements to the existing bicycle and pedestrian infrastructure along the corridor. The desired street elements and associated guidance for Golf Course Rd are discussed below. These design criteria are consistent with the existing designation as a Major Transit Corridor and, if implemented, will make traveling via walking, bicycling, and transit more appealing, safer, and more convenient and will foster a community-focused identity for Golf Course Rd. Among potential transportation improvements, prioritizing pedestrian elements such as sidewalks, trails, landscape buffers with street trees, and additional crossings would have the most significant impacts in terms of promoting a Main Street-type character along the corridor.

Pedestrian Areas: All segments of Golf Course Rd should include sidewalks along each side of the corridor. As a Major Transit Corridor, landscape/buffer areas are desired where space allows. *Sidewalks* should be at least 6 feet wide and should feature *landscape buffers* to separate pedestrians from motor vehicle travel and provide a traffic calming effect. *Multi-use trails* may take the place of sidewalks and should be at least 10 feet wide, with a preferred width of 12 feet.

Bikeways: Though not highly prioritized for Major Transit Corridors, improved bikeways and trails are critical for Golf Course Rd as a means of bringing area residents to commercial nodes and recreational destinations along the corridor. Golf Course Rd should feature some form of continuous bikeways along each side of the corridor, with both on-street bikeways and multi-use trails, where space allows, to support bicyclists of varying comfort levels. Bicycle lanes should be six (6) feet wide. Protected or striped bike buffers of 18 inches to three (3) feet are also desirable.

General Purpose Travel Lanes: The DPM standards for general purpose travel lanes on a Major Transit Corridor are 10 to 12 feet wide, with widths on the low end of this range preferred to allow roadway space to be allocated for bicyclists and pedestrians. General purpose travel lane widths along the corridor may be

reduced to 10.5 or 11 feet wide for the outside travel to accommodate transit vehicles (with 11 feet preferred) and 10 feet wide for the interior travel lane.

Median/Center Turn Lanes: Some form of median or center turn lane should be provided throughout the corridor to manage access, enhance safety, and improve traffic operations. Raised medians are generally preferred given the speed and volume along the corridors. Where turn lanes are incorporated as part of the median, the total width should be a minimum of 12 feet but no more than 14 feet. Where accommodating turning movements is not necessary, medians may be as narrow as 6 feet and still support street trees and landscaping. Medians greater than 14 feet in width may be reconfigured to provide space for other roadway elements. Two-way left turn lanes are not recommended where traffic volumes exceed 30,000 but are recommended in areas with high degrees of access and frequent driveways. Where present, two-way left turn lanes should be 12 feet in width.

Pedestrian Crossing Opportunities: Designated crossing opportunities should be provided on average one-quarter (1/4) mile from each other, in accordance with the DPM. Crossings not located at major intersections may be signalized or unsignalized, depending on the conditions.

Activating the Commercial Nodes

In addition to enhancements to the corridor itself, achieving a Main Street vision for this area may require changes to the commercial nodes along the corridor. Such improvements may prove challenging as the shopping plazas are privately-owned. However, there are options for the redevelopment of shopping malls and commercial strip development to create more walkable experience for pedestrians with public spaces and greater visitor amenities. This section describes the opportunities and characteristics for creating a Main Street character within the Golf Course Rd shopping plazas.

Parking Layout: One of the primary characteristics associated with Main Streets is the ability for residents and visitors who drive to the area to “park once” and access numerous destinations via walking. The corridor has a wealth of commercial and service destinations, arranged in a series of commercial nodes along the corridor, generally at or near intersections with east-west arterials.

Parking Supply: The commercial nodes feature large supplies of parking stalls that enable easy access for drivers. However, they generally lack pedestrian facilities for easy and stress-free travel within or between commercial nodes. The large quantity of parking stalls presents an opportunity to share parking among the businesses in each node. Reductions in parking supply would create space that could be utilized for additional landscaping, pedestrian improvements, and public spaces or mini-plazas among other uses.

Pedestrian Ways: Constructing new walkways within these nodes and at commercial areas may help increase the viability and attractiveness of walking. Improved internal pedestrian ways are important as public sidewalk facilities generally stop at the entrance to commercial nodes, thereby forcing pedestrians onto the general parking area and placing them in potential conflicts with motor vehicles.

Figure 31: Example of Landscaping and Pedestrian Ways through a Shopping Plaza



Source: humantransit.org

Landscaping: Increasing the provision of landscaping and shade trees in the commercial nodes will contribute to the community-focused identity of the area by enhancing visual aesthetics and providing shade during hotter parts of the year. Expanding the supply of shade trees and landscaped areas would also mitigate the impacts of the urban heat island effect of parking lots and contribute to better management of stormwater runoff.

Public Spaces: The ample supply of parking stalls in the commercial nodes along the corridor presents an opportunity to reallocate space for public use. These public spaces could have seating, landscaping and shade trees, adequate nighttime lighting, and public art or sculptures, and could be utilized for public events and programming such as musical acts and other performances that encourage residents to gather. To nurture a strong sense of safety and security, the spaces should be prominently located such that visitors are visible to each other and passersby along the corridor, thereby increasing the “eyes on the street” in the area and discouraging nefarious behavior.

Recommended Next Steps

A follow-up study is recommended that evaluates a range of land use strategies and policies for creating a Main Street-type character along the Taylor Ranch/Golf Course corridor from Montañó Rd to Westside Blvd. The follow-up study should work with property owners and members of the community to better define desired development patterns and to consider a range of policy options to guide urban form in areas zoned for commercial and mixed uses. Ultimately, any land use policy changes for the corridor should strike a balance between meeting the needs of the surrounding context and the ability to create a sense of place. Among the policy options for the corridor include:

- Creation of a **character protection overlay (CPO)**
- Development of a **stand-alone design book** with specific design standards for the corridor
- Designation of one or more **Activity Centers** along the corridor through amendments to the Comprehensive Plan

In addition to general land use policies and design strategies for the corridor, the supplemental study should further consider whether the existing designation as a Major Transit Corridor should be retained, as well as opportunities and appropriate locations for multi-family residential housing along the corridor. Additional considerations include a review of previous regulations for shopping centers and an evaluation of desired design characteristics for shopping centers compared to strip development. The City of Albuquerque may also conduct proactive outreach to property owners to present redevelopment options, including additional housing within commercial nodes, and demonstrating how shopping plazas could be redeveloped with more community-oriented features and amenities.

PUBLIC OUTREACH

This study included two general phases of public outreach: 1) Information gathering and 2) Recommendations and design concepts. Outreach efforts took place in the form of formal public meetings (one in each study phase), meetings with Neighborhood Associations, which took place on an ongoing basis, a presentation to the Greater Albuquerque Active Transportation Committee, and a project website, which served as an information hub for the project.

Public Meetings

Two public meetings, one in each phase, served as important milestones in the study development process. These meetings featured presentations on key findings and design concepts and allowed members of the Project Team to gather feedback before recommendations were finalized. In addition to the formal public meetings, the Project Team conducted a series of meetings with Neighborhood Associations, including a joint meeting in September 2021 open to all Neighborhood Associations within a vicinity of the project area. All outreach was conducted virtually, with the exception of the Villa de Villago HOA meeting, which was conducted outdoors in a public park.

See Appendix D for meeting notes from the formal public meetings and Appendix E for an inventory of written and online comments collected throughout the study period.

Project Website

Council Services staff maintained a project website during the course of the study. Materials posted to the website included general project information, the Existing Conditions Report (posted in October 2021), and presentation slides from the public meetings on August 5 and October 21 and the joint Neighborhood Association Meeting on September 7.

General comments were accepted throughout the study via the project website, while comments on the Existing Conditions Report and draft recommendations and design concepts were accepted from mid-October through December 31, 2021.

Public Comments

This section highlights the general categories of public comments received during the study outreach process. Overall, participants indicated safety is a major concern and voiced strong support for managing vehicle speeds and improving conditions for non-auto users along the corridor.

Access to the Starbucks and the Petroglyph Plaza Shopping Center: A common concern among attendees is the queue from the Starbucks south of Paseo del Norte, which creates safety problems traveling along the corridor and can make it difficult to access and exit the shopping plaza. Attendees expressed interest in hearing the specific concerns and priorities among business owners, as well as their willingness to invest in changes to site access and improvements to site circulation.

Speeding Concerns: Numerous attendees expressed concerns about speeding along the corridor as well as observations of motorists racing. While reducing travel speeds is widely desired and necessary for improving conditions for bicyclists and pedestrians, there is a general recognition that changing behavior will be challenging. Specific comments included the observation that speeding seems to decrease south of Paseo del Norte (where medians and landscaping are present), and that speeding is greatest along the stretches of Golf Course Rd with significant grade changes. Various participants also related stories of vehicles crashing into properties and subdivision walls along the corridor.

Lighting: One meeting attendee asked that any additional lighting along the corridor should strive to enhance visibility without impacting residents along or near Golf Course Rd.

Crossing Golf Course Rd: Participants indicated Golf Course Rd is difficult to cross as a pedestrian or bicyclist, while the spacing of crossings also make it difficult to access connecting trails or commercial nodes. Various participants also indicated it is difficult for motorists to make left turns at unsignalized intersections, with Marna Lynn Ave particularly challenging. A dedicated left turn lane along Calle Norteña in the eastbound direction was also requested by multiple participants. The width of the roadway is also a barrier for crossings as the distance makes it difficult to cross safely and comfortably for some users. The locations with the most frequently cited safety concerns related to crossing were Marna Lynn Ave, Samara Rd, Calle Norteña, and Butterfield Tr (to access Riverview Park).

Bicycle and Pedestrian Comfort Levels: In addition to the challenges crossing the road, most participants indicated that they did not feel comfortable walking or biking along Golf Course Rd. Attendees generally supported the notion of providing additional transportation options, though some attendees expressed some

skepticism that new facilities would change individual behavior without dramatically changing the travel speeds along the corridor. One attendee noted that the single-family land uses across the larger area contributes to higher speed travel.

Technical Working Group

The Project Team convened a Technical Working Group during the course of the project to guide the overall study, provide input on existing condition analysis, and ensure that all appropriate aspects of the project were considered. Working Group members also reviewed initial design concepts, provided feedback on technical feasibility and challenges related to implementation, and discussed recommended improvements and priorities. Stakeholders represented jurisdictions and agencies affected by the study or with interests along the corridor. Participating agencies included:

- ABQ Ride
- Albuquerque Metropolitan Arroyo Flood Control Authority
- Bernalillo County Public Works Department
- City of Albuquerque – Council Services, Planning Department, Municipal Development, Parks and Recreation
- City of Rio Rancho – Public Works and Planning Departments
- Mid-Region Council of Governments
- New Mexico Department of Transportation – Planning Division and District 3

The Project Team convened three formal meetings. Additional coordination with these stakeholders took place on an ongoing basis. See Appendix C for notes from the Technical Working Group meetings.

RECOMMENDATIONS

DESIGN ALTERNATIVES FOR GOLF COURSE RD

General Approach

Key Opportunities

This section presents the primary design alternatives for enhancing bicycle and pedestrian facilities along the corridor and balancing the need to maintain traffic flows along a busy roadway with improved safety and comfort levels for users of other modes. Based on the current and projected traffic volumes, Golf Course Rd is not a candidate for a road diet (i.e. removal of travel lanes) and the two general purpose lanes in each direction should be retained. Enhancements to bicycle and pedestrian facilities must therefore be accomplished through reallocating the remaining space in the public right-of-way. In particular, excess travel lane widths and wide medians along portions of the corridor can be repurposed for other uses. The changes to the roadway configuration can be complemented with additional pedestrian crossings as means of traffic calming and increasing access to commercial areas and recreational destinations.

See the **Other Recommendations** section for additional improvements along the corridor that would complement the proposed changes to the roadway configuration.

Among the considerations include recommended traffic signal upgrades to enhance the efficiency of travel through the study area, reducing the posted speed from 40 to 35 MPH, improvements to existing trails, and streetlight improvements to increase motorist awareness and visibility for non-auto users.

Alternatives Analysis

Recommendations for Golf Course Rd can be effectively summarized by dividing the corridor into two segments:

- Montañó Rd to Paradise Blvd
- Paradise Blvd to Westside Blvd

For the segment from **Montañó Rd to Paradise Blvd**, this study considered two main alternatives. These alternatives include:

- Alternative 1: Enhance Bike Lanes within Existing Curb Lines
- Alternative 2: Complete Street with Continuous Multi-use Trail

Short and long-term recommendations for the segment from **Paradise Blvd to Westside Blvd** include restriping and minor changes to the roadway configuration, respectively.

Traffic Calming Techniques

In addition to improving bicycle and pedestrian facilities, a primary means of enhancing safety and creating a Main Street-type corridor is through traffic calming measures that reduce motor vehicle speeds. The recommended design concepts for this study address traffic calming through the following techniques:

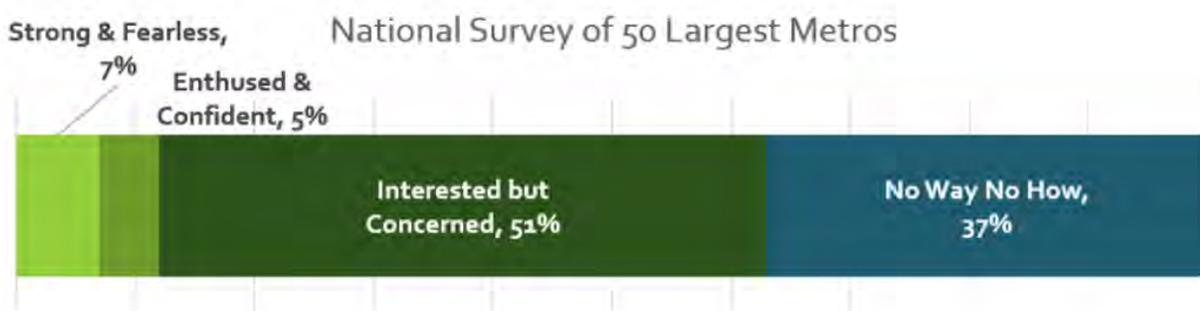
- **Narrow travel lanes**, which have been demonstrated to reduce travel speeds and enhance safety with only a minimal impact on roadway capacity
- Create a **sense of enclosure** through the use of street trees
- **Reduce the posted speed limit** along the corridor from 40 MPH to 35 MPH
- Install additional **pedestrian crossings**

Consideration of Bicyclist User Types

At present there are multi-use trails at sidewalk level and narrow on-street bike lanes along portions of the corridor, though there are significant gaps in the bikeway network. Outreach efforts also revealed that, at present, pedestrians and bicyclists do not feel safe either walking or biking along Golf Course Rd or crossing the roadway to access connecting trails or commercial nodes. The recommended facilities along Golf Course Rd must therefore address the current challenges and safety issues experienced by non-auto users and consider potential types of users along the corridor.

Bicyclist typologies can help define which segments of the population need lower stress facilities to try bicycling or to bicycle more often. A national survey conducted by Portland State University researchers found that more than half of individuals are interested in riding a bicycle and would be more inclined to do so if conditions were improved. These respondents may be categorized as “interested but concerned” bicyclists. Only about 12 percent of total respondents indicated they were either “confident” or “fearless bicyclists” (see Figure 32).

Figure 32: Bicyclist User Types, Based on Survey of 50 Largest Metropolitan Areas in the US



Source: Jennifer Dill and Nathan MacNeill, Portland State University, Transportation Research Record, January 2016

Given the conditions along Golf Course Rd – including high speeds and volumes – it is unlikely that on-street bike lanes will appeal to the “interested by concerned” category. At present, Golf Course Rd is only appealing for the “strong and fearless” and perhaps the “enthused and confident” bicyclists. Additional facilities are therefore desired to attract a greater range of users.

Alternative Design Concepts: Montañó Rd to Paradise Blvd

General Issues and Design Challenges

The segment between Montañó Rd and Paradise Blvd offers greater flexibility for alternative roadway designs as opposed to the segment north of Paradise Blvd due to the wider apparent right-of-way between the outside edges of the sidewalk. The major opportunity along this portion of Golf Course Rd is to narrow the wide raised median and reallocate space to on-street bike lanes, buffers, and/or sidewalks. There are further, though more modest opportunities, to narrow vehicle travel lanes.

Addressing the intermittent bikeways and creating a continuous network of bicycle facilities requires reconfiguring the corridor and moving curb lines and/or the raised medians. A key consideration is weighing the increased cost associated with moving curb lines, in addition to narrowing the medians, against the desire to provide a Complete Street corridor with opportunities for a variety of users.

Existing Conditions

Golf Course Rd between Montañó Rd and Paradise Blvd is a mix of residential and commercial land uses, with subdivision walls fronting much of the corridor. The apparent City right-of-way between the edges of the sidewalk ranges from 95 feet to 106 feet, including wide medians (and turn bays) that vary in width from 24 feet to 36 feet. Bike lanes are present to the south of La Orilla Rd only, while parallel multi-use trails are present between La Orilla Rd and Butterfield Tr and between Paseo del Norte and Paradise Blvd. There are no on-street or off-street bikeways between Homestead Tr and Paseo del Norte. Sidewalks and small landscape buffers are present along most of the corridor, though sidewalks are often five feet or less in width with no setbacks from the adjacent subdivision walls. Figure 33 and Figure 34 depict representative conditions along different portions of this segment.

Figure 33: Existing Conditions Between Butterfield Tr and Calle Norteña

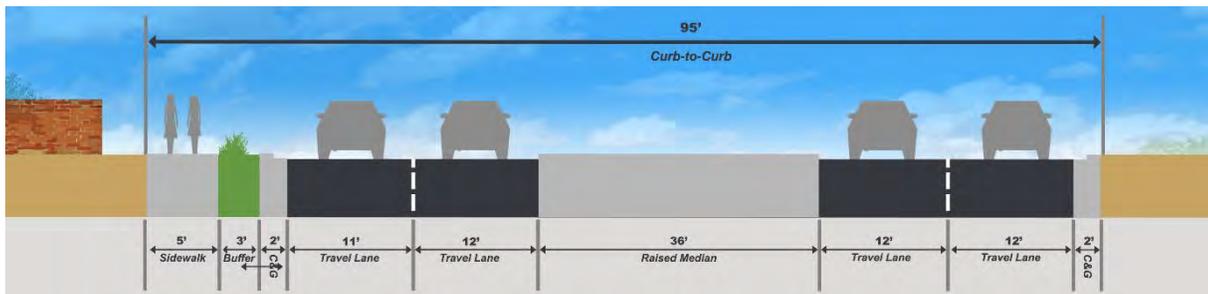
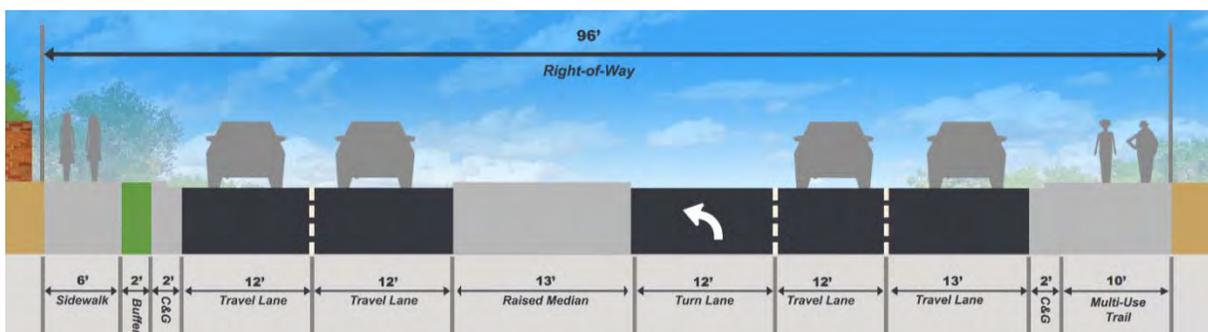


Figure 34: Existing Conditions Between Marna Lynn Ave and Paradise Blvd



Alternative 1: Enhance Bike Lanes Within Existing Curb Lines

The first alternative for the southern portion of the corridor would reduce the median width and reallocate space for enhanced on-street bike lanes. Even after narrowing, wide medians would remain in place to support access management and landscaping.

To minimize costs and disruptions to the corridor, this alternative maintains the existing curb lines on the roadway edges. While the roadway reconfiguration would allow for buffered bike lanes in both directions (6-foot bike lanes plus 1.5 to 3-foot buffer), improved on-street facilities are not likely to appeal to interested but concerned bicyclists. This alternative does not address gaps in the sidewalk or multi-use trail networks or provide additional landscaping or buffers along the roadway edges.

Figure 35 and Figure 36 provide representative examples of the “enhanced bike lanes” scenario between Montañó Rd and Paradise Blvd. Note that sidewalks are not necessary on the southbound side of the corridor from La Orilla Rd to Kachina St if an improved connection is made to the Mariposa Basin Park trail just west of Taylor Ranch Rd/Golf Course Rd.

Figure 35: Alternative 1 – Enhanced Bike Lanes Between Butterfield Tr and Calle Norteña

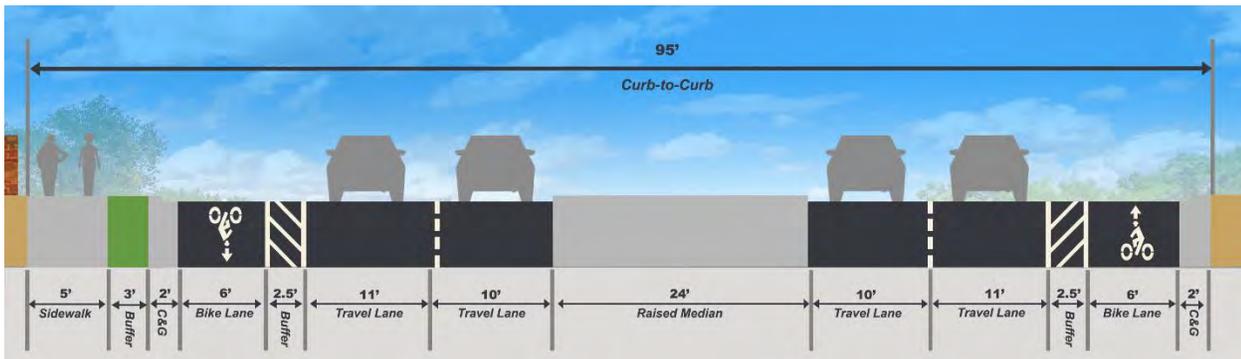
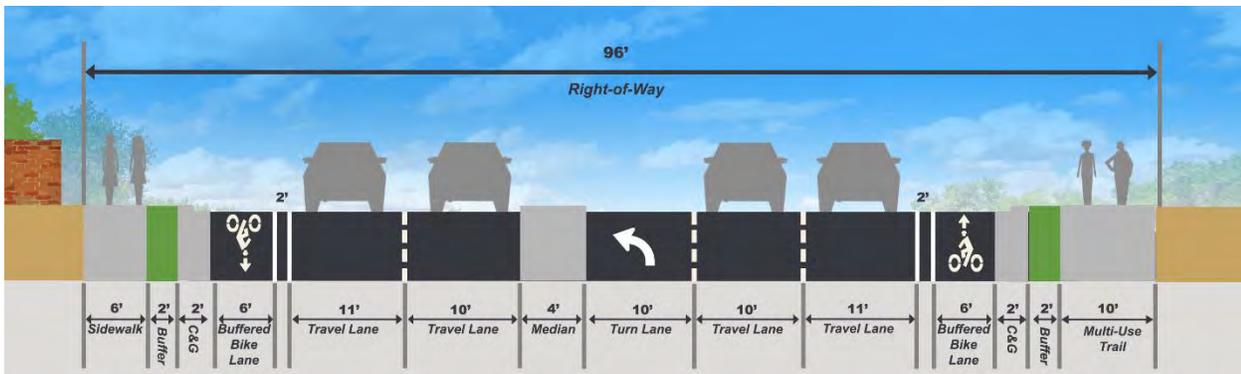


Figure 36: Alternative 1 – Enhanced Bike Lanes Between Marna Lynn Ave and Calle Norteña



Alternative 2: Complete Street Reconfiguration with Continuous Multi-use Trail

A more comprehensive set of improvements can be made by both narrowing the medians and moving the curb lines. This “Complete Street” scenario involves a significant reconfiguration of the roadway to provide 6-foot on-street bike lanes with small buffer (i.e. 1 to 1.5 feet) where space allows, additional space for landscaping buffers, and a continuous multi-use trail at sidewalk level on northbound side. Medians would be wide enough to support landscaping in most parts of the corridor.

The multi-use trail can take the place of sidewalk and should be located on the west side of the roadway from Montañó Rd to La Orilla Rd and the east side of the roadway from La Orilla Rd to Paradise Blvd. The trail should be wide enough (i.e. 10 feet) to support bicyclists and/or pedestrians traveling in opposite directions. Due to the greater range of bikeway facility options, this alternative is more likely to appeal to “interested by concerned” bicyclists.

Figure 37 and Figure 38 are representative of the proposed conditions for the Complete Streets alternative between Montañó Rd and Paradise Blvd.

Figure 37: Alternative 2 – Complete Streets Design Between Butterfield Tr and Calle Norteña

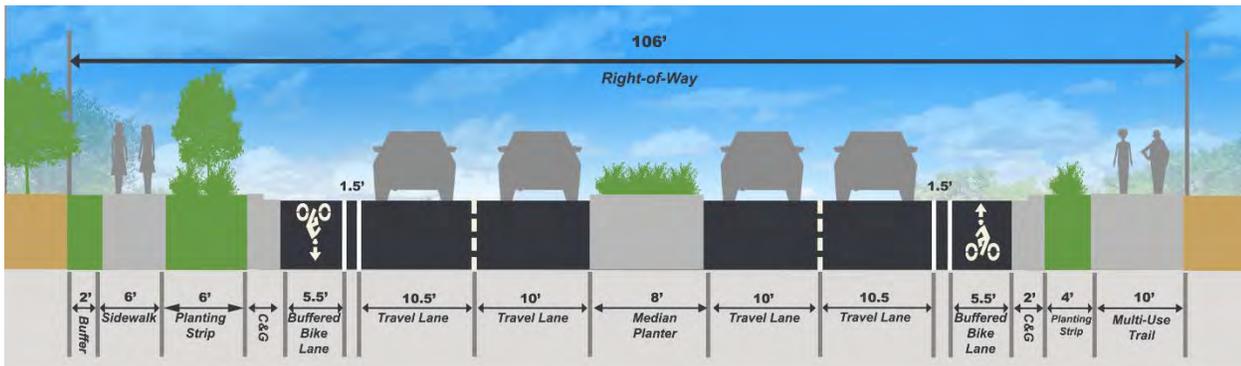
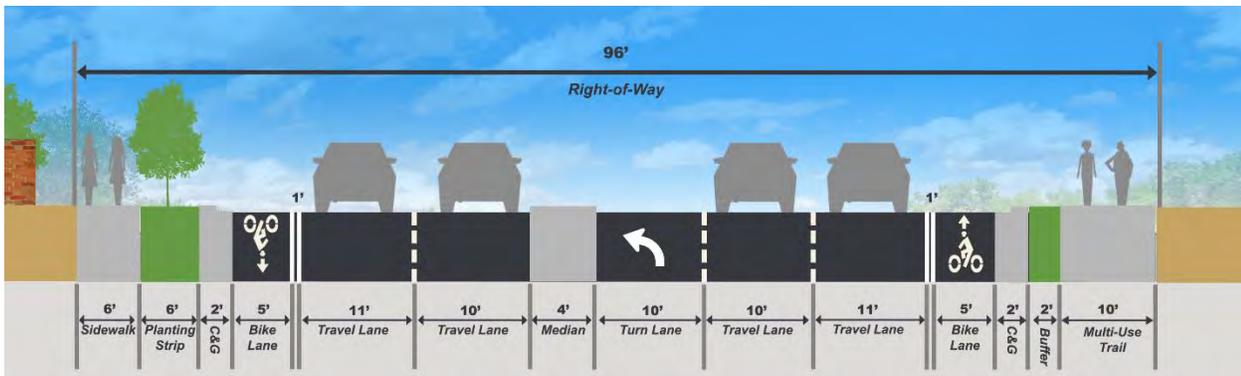


Figure 38: Alternative 2 – Complete Streets Design Between Marna Lynn Ave and Calle Norteña



Summary of Proposed Alternatives

Table 30 summarizes the existing and proposed conditions for roadway features under the two proposed alternatives for the segment between Montañó Rd and Paradise Blvd. Medians are narrowed under both scenarios to provide room for on-street bike lanes. Curb lines are moved in Alternative 2 to support landscape buffers and a continuous multi-use trail at sidewalk level in the northbound direction. See Appendix A for cross sections of the existing conditions and each alternative at various points along the corridor.

Table 30: Roadway Features of Proposed Alternatives – Montañó Rd to Paradise Blvd

| Roadway Feature | Existing Conditions | Alternative 1: Enhanced Bike Lane | Alternative 2: Complete Street with Multi-Use Trail |
|-----------------------------|--|---|---|
| Medians | Wide medians: 25-35' | Medians are narrowed to provide space for on-street bike lanes; medians may still be used for landscaping | Medians narrowed to provide space for bike lanes and landscape buffers; medians may still be used for landscaping |
| Curb Lines | Curb and gutter present | Curb lines are not moved | Curb lines are moved (increases cost) |
| Travel Lanes | Two travel lanes in each direction; generally 11-12' | Two travel lanes in each direction; 10' inside lane and 11' outside lane to accommodate transit | Two travel lanes in each direction; 10' inside lane and 11' outside lane to accommodate transit |
| On-street Bike Lanes | Portions of corridor only | Throughout corridor with buffers (1.5-3') | Throughout corridor with small buffers |
| Multi-Use Trails | Portions of corridor only | Portions of corridor only | Continuous trails at sidewalk level |
| Sidewalks | Present along majority of corridor | Present along majority of corridor; no improvements | Continuous along entire corridor (except where a trail is provided) |
| Landscape Buffers | Portions of corridor only | Portions of corridor only; no improvements | Provides 4-6' landscape buffers on both sides of road for most of corridor |

Table 31 compares the benefits of each alternative for the segment between Montañó Rd and Paradise Blvd. In general, Alternative 2 provides greater overall benefits but a higher cost and would result in more significant impacts during construction.

Table 31: Summary Comparison of Proposed Alternatives: Montañó Rd to Paradise Blvd

| | Alternative 1: Enhanced Bike Lane | Alternative 2: Complete Street with Multi-Use Trail |
|------------------------------------|---|---|
| Operations | No major impacts to operations; potential traffic calming effects from narrower lanes and streets trees along edges | No major impacts to operations; potential traffic calming effects from narrower lanes and streets trees along edges |
| Costs | Medium; major costs include median narrowing, resurfacing, and restriping | High; major costs include median narrowing, moving curb lines, resurfacing, and restriping |
| Impacts During Construction | Moderate impacts | Significant impacts |
| Impacts to Pedestrians | Gaps remain in sidewalks; no additional buffers | Complete sidewalks on both sides of the street, with buffers between sidewalks and driving lanes along most of corridor |
| Impacts to Bicyclists | Improved conditions for bicyclists who feel comfortable along on-street bike lanes | Improved conditions for bicyclists who feel comfortable along on-street bike lanes OR separated trails |
| Medians / Landscaping | Wide medians remain; no landscaping on sides of the roadway | Landscaping opportunities in medians and buffers on each side of the roadway |

Note: The colors in the chart above reflect a spectrum of impacts with green indicating positive impacts and red indicating negative impacts.

Recommended Alternative: Montañó Rd to Paradise Blvd

General Approach and Design Considerations

As funding permits, this study recommends the **Complete Street roadway design (Alternative 2)** for the Golf Course Rd corridor in which the median is narrowed and curb lines are extended into the roadway to provide enhanced bike lanes, pedestrian facilities, a continuous multi-use trail, and landscape buffers. See Figures 39-41 for images of existing conditions and renderings of the Complete Street alternative for the corridor.

Figure 39: Existing Conditions along Golf Course Rd North of Calle Norteña



Figure 40: Complete Street Alternative for Golf Course Rd North of Calle Norteña



Figure 41: Potential Improvements at Piedras Marcadas Trail**Existing Conditions****Rendering of Proposed Complete Street**

Though this study found Alternative 2 to be generally feasible within the apparent City right-of-way, some tradeoffs may be necessary for segments where space is more constrained or turn lanes are necessary, such as removing landscape buffers at signalized intersections. Other design considerations are listed below:

- Lane widths and dimensions for other street elements should follow the DPM to the greatest extent feasible (see DPM Figure 7.2.41)
- Landscape buffers should be at least 4 feet wide for plants and 6 feet wide for street trees; narrower buffers should feature gravel or pavers
- If there is insufficient space for on-street bike lanes and an adjacent multi-use trail, the on-street bike lane may be eliminated
- The combined width of bike lanes and striped buffers should be at least 6 feet, where space permits

Design Concepts

In addition to roadway cross sections, the Project Team developed conceptual design layouts for the portion of Golf Course Rd between Samara Rd (north of La Orilla Rd) and Paradise Blvd to more thoroughly consider the technical feasibility of the Complete Streets alternative. See Figure 42 and Figure 43 for examples and Appendix B for additional design concepts for the segment between Samara Rd (north of La Orilla Rd) to Paradise Blvd.

The design concepts demonstrate that the preferred alternative – including four total general purpose lanes, turn bays, narrow raised medians, on-street bike lanes, and a multi-use trail at sidewalk level on the northbound side – can be accommodated within the apparent City right-of-way (i.e. the space between the outside edges of the sidewalk). Landscape buffer areas also generally fit within the roadway cross-section, though buffers may need to be narrowed or eliminated at intersections to accommodate turn lanes.

Among the considerations for the portion of Golf Course Rd between Butterfield Tr and Calle Norteña is the use of lateral shifts (also referred to as chicanes) for traffic calming purposes that force drivers to pay greater attention to the roadway. If such a technique is applied, the City should consider rumble strips along the outside striping or vertical features such as separator curbs or bollards between the outside general purpose lanes and the bike lanes to ensure motorists follow the path of the roadway.

Figure 42: Design Concept Layout from Butterfield Tr to Calle Norteña



Figure 43: Design Concept Layout from Calle Norteña to Las Terrazas St



Considerations for Installation of the Multi-use Trail

This study recommends creating a continuous network of multi-use trails at sidewalk level between Montañó Rd and Paradise Blvd. This section describes other opportunities and considerations to make the trails as user-friendly as possible and to encourage a wide range of bicyclists along the corridor.

ALIGNMENT

From **Montañó Rd to La Orilla Rd**, the multi-use trail should be located on the west side of the roadway and can be integrated with the existing multi-use trail along Mariposa Basin Park between Kachina St and La Orilla Rd. An improved connection is needed from the trail to the intersection with Kachina St.

North of La Orilla Rd, the continuous multi-use trail should follow the east side of the corridor to Paradise Blvd. The existing Riverview Trail runs from La Orilla Rd to south of Homestead Tr.

Figure 44: Placement of Multi-use Trail along Golf Course Rd



SIGNAGE AND WAYFINDING

A comprehensive network of wayfinding signs along Golf Course Rd could help users navigate the area, connect to other trails, and access a range of recreational destinations via the corridor, including City parks and open space, and the Piedras Marcardas unit of the Petroglyph National Monument. Signs could indicate distances to shopping centers such as Petroglyph Plaza and connecting trails and roadways, and could provide opportunities for placemaking through public art installations and icons that highlight local destinations and landmarks.

IMPROVE CONNECTIONS TO EXISTING TRAILS

Once improvements are made, the proposed multi-use trail along Golf Course Rd would connect with various existing trails. Key connections include:

- **Mariposa Basin Trail:** A connection can be provided from the paved trail along the east side of Mariposa Basin Park to the intersection of Golf Course Rd and Kachina St.
- **Piedras Marcadas Trail:** Piedras Marcadas Trail provides a connection from west of Petroglyph Plaza to Eagle Ranch Rd. The crossing is located between Calle Norteña and Paseo del Norte; this roadway segment is currently without on-street or off-street bikeways.
- **Paradise Blvd:** An east-west multi-use trail is located on the south side of the Paradise Blvd corridor at sidewalk level. The existing trail along Golf Course Rd terminates south of the intersection (see Figure 45).

Figure 45: Potential Trails Connection at Golf Course Rd and Paradise Blvd



CONSIDERATION OF SLOPE/GRADE OF THE ROADWAY

The recommendation for a multi-use trail at sidewalk level on the northbound side of Golf Course Rd means southbound bicyclists must travel both downhill and against the flow of traffic. While the slope along the corridor is mostly gradual to the south from Paradise Blvd, bicyclists may feel uncomfortable riding next to the roadway without additional separation from high-speed traffic.

Several design characteristics will promote bicyclist comfort level and address concerns about bicyclists going downhill against traffic. First, landscape buffers are present between the existing trail segments and the roadway. Additional landscape buffers are recommended where new trail segments are proposed in the preferred alternative. The on-street bike lanes will also create further separation (i.e. 10 feet or more) between the multi-use trail and motorists compared to existing conditions.

ADDITIONAL CROSSINGS

At present, pedestrian crossings are spaced far apart and are located at signalized intersections only. This study recommends a series of additional crossings at unsignalized locations to reduce the gaps between

designated crossings and to provide greater access to multi-use trails. See the discussion on Pedestrian Crossings for more information.

SPATIAL CONSTRAINTS

If final engineering analysis determines that insufficient space is available for buffered bike lanes in both directions plus the multi-use trail, then the multi-use trail at sidewalk level with landscape buffers should be prioritized over the adjacent bike lane. Areas where space may be constrained include Montañó Rd to Kachina St and from Paseo del Norte to Paradise Blvd.

Recommended Alternative: Paradise Blvd to Westside Blvd

General Issues and Design Challenges

Alternative design options for this portion of the corridor are limited by the fact that the corridor is generally built out on both sides. Where medians are present, they are narrow, which limits the ability to reallocate space for wider bike lanes or enhanced pedestrian facilities. Such Complete Street changes are desirable, as there are some gaps in sidewalks and minimal buffers against traffic.

Short-Term Recommendation: The primary short-term recommendation is to restripe the corridor and reallocate excess paved surface area for wider bike lanes and striped buffers, where space permits. Striped buffers are desired to create separation between motorists and bicyclists. Bike lanes in this portion of the corridor should be a minimum of 5 feet wide, with additional width desired due to the high speeds and traffic volumes on this portion of the corridor. General purpose travel lanes should be 10 to 10.5 feet, while the outside driving lane should be 11 feet to accommodate transit vehicles, where present. Restriping efforts can occur as part of a stand-alone project or at the time of pavement surfacing.

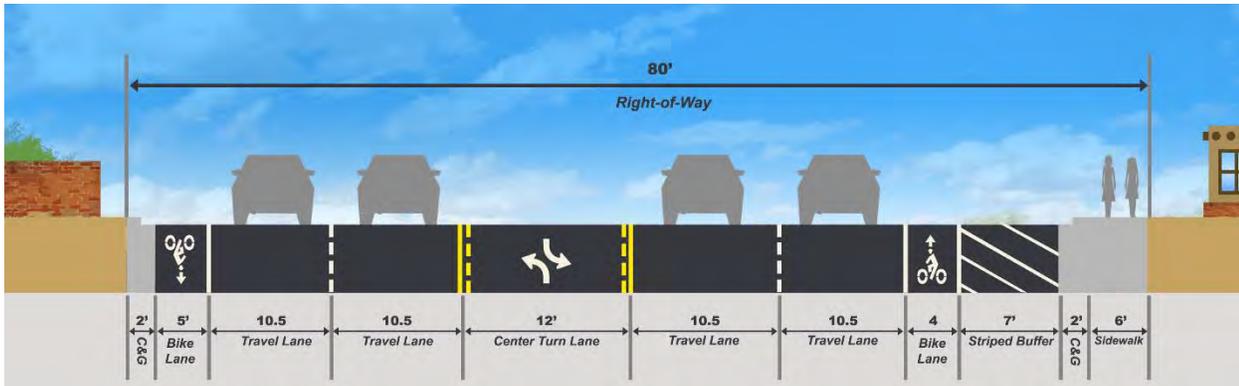
Long-Term Recommendation: There is an opportunity to make additional modifications during major rehabilitation or full roadway reconstruction, such as narrowing medians by small amounts (e.g. from 6 feet to 4 feet) and widening bike lanes or sidewalks during full reconstruction. Stand-alone projects to narrow medians and adjust roadway geometry across this portion of Golf Course Rd are not considered a high priority as they would be high cost relative to the potential benefit. Therefore, this study recommends pursuing these improvements at the time the roadway reaches the end of its useful life and requires corridor-wide rehabilitation.

Paradise Blvd to Irving Blvd

EXISTING CONDITIONS

This portion of the corridor – located in unincorporated Bernalillo County – features constrained right-of-way due to the Paradise Hill Golf Course and subdivision walls on the west side of the roadway and homes that front Golf Course Rd on the east side. The available paved roadway space is 70 feet and the roadway cross section features narrow on-street bike lanes and a striped buffer used for on-street parking that separates the sidewalk from the northbound bike lane. Gaps are present in the sidewalks in the southbound direction, but new pedestrian facilities are not practical or feasible in this segment. See the discussion on Sidewalk Gaps for additional information.

Figure 46: Existing Conditions for Paradise Blvd to Irving Blvd

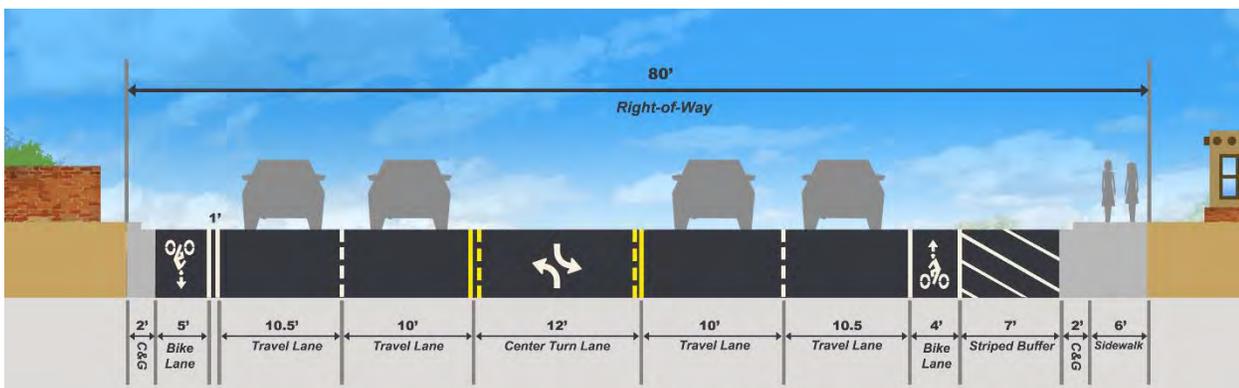


PROPOSED ALTERNATIVE

This study recommends restriping of the roadway cross section north of Paradise Blvd that reallocates small amounts of space from driving lanes to bike lanes. Various alternatives with minor differences were considered for this segment (see Appendix A); all options retain the existing curb lines on both sides of the roadway.

The selected alternative narrows the inside driving lanes to 10 feet and maintains the outside lane at 10.5 feet wide. This alternative also keeps the striped buffer of 7 feet on the northbound side. This buffer area, when combined with the gutter pan, provides at least 8 feet for on-street parking and meets DPM standards for a higher-speed roadway. Narrowing the inside driving lanes would allow for the street to be realigned to provide a 1-foot bike lane buffer in the southbound direction in addition to the existing 5-foot bike lane. While the northbound bike lane is only 4 feet wide due to the constrained space available, a narrow bike lane is acceptable in this situation since the striped buffer area is only intermittently used for on-street parking and may also be used by bicyclists. Figure 47 depicts the proposed striping concept for the segment between Paradise Blvd and Irving Blvd.

Figure 47: Proposed Alternative for Paradise Blvd to Irving Blvd



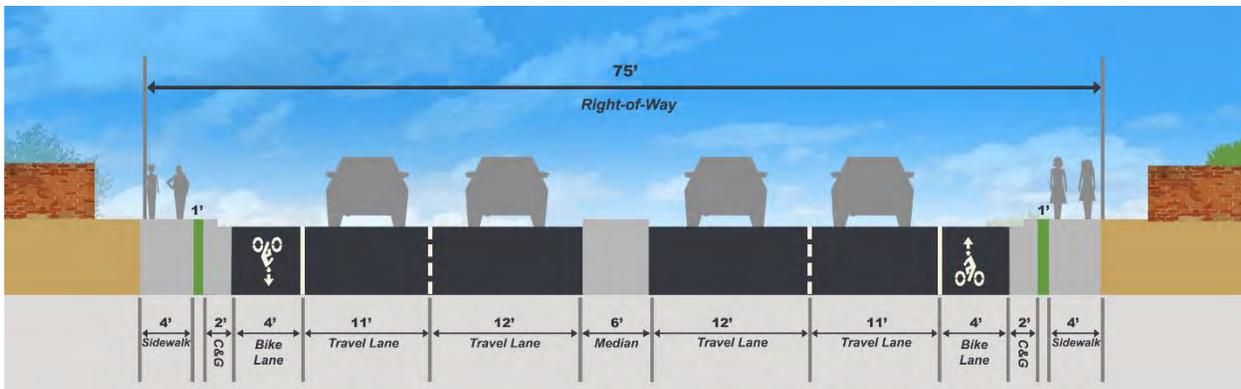
Irving Blvd to Westside Blvd

EXISTING CONDITIONS

The available paved roadway space between Irving Blvd and Westside Blvd varies by segment but is generally about 60-65 feet wide with additional space for curb and gutter and sidewalks. Raised medians are present along most of this segment and are generally 4-6 feet wide, though small sections approaching intersections have wider medians to accommodate turn lanes.

The presence of subdivision walls along much of this segment limits options for changing the roadway configuration. Travel lanes generally exceed minimum widths, while bikeway and sidewalk widths are narrower than desired. Landscape buffers are generally not present along this portion of the corridor. Figure 48 depicts the existing conditions along Golf Course Rd to the south of Benton Ave and between McMahon Blvd/Ellison Rd and Westside Blvd.

Figure 48: Existing Conditions for Irving Blvd to Westside Blvd



PROPOSED ALTERNATIVE

Given the constraints along this portion of the corridor, the preferred **short-term alternative** between Irving Blvd and Westside Blvd is to retain existing curb lines on both sides of the street and reallocate space for wider bike lanes by narrowing the general purpose lanes. In addition to enhancing the existing bicycle facilities, the proposed cross section with narrower travel lanes would have a moderate traffic calming effect. Over the **long-term**, medians along the corridor that exceed 4 feet in width could be narrowed during roadway rehabilitation or reconstruction to create additional space for bikeways and/or wider sidewalks.

Figure 49 depicts the potential short-term alternative between Irving Blvd and Westside Blvd. It is important to note that conditions may vary depending on the width of the paved roadway area and where transit is present. Between Irving Blvd and Ellison Rd, the width of inside travel lanes is proposed at 10 feet while outside travel lanes should be 11-feet wide to better accommodate transit vehicles (transit service along Golf Course Rd turns east at Ellison Rd). North of Ellison Rd, 10.5-foot driving lanes are proposed.

Figure 49: Preferred Short-Term Alternative for Irving Blvd to Westside Blvd

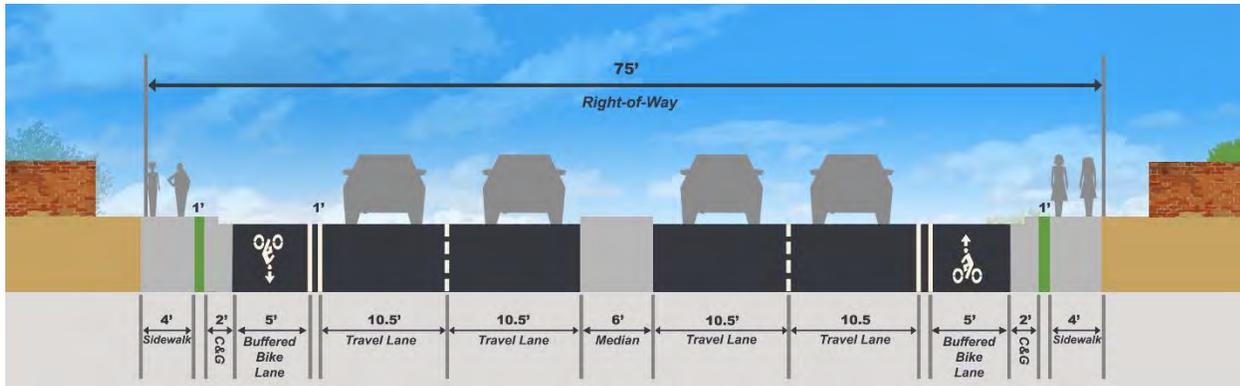


Table 32: Summary of Existing Conditions and Proposed Alternatives: Paradise Blvd to Westside Blvd

| | Existing Conditions | Alternatives |
|-----------------------------|---|---|
| Medians | Two-way left-turn lanes south of Irving Blvd; narrow medians north of Irving Blvd | <i>Near-term:</i> No changes <i>Long-term:</i> Potential to narrow medians during reconstruction |
| Curb Lines | Curb and gutter present along corridor | No changes |
| Travel Lanes | Two travel lanes in each direction; generally 11-12' | Two travel lanes in each direction; 10' inside lane and 11' outside lane to accommodate transit |
| On-street Bike Lanes | Narrow bike lanes (less than 5') along most of corridor | Bike lanes widened to 5' plus buffers, where space permits |
| Multi-Use Trails | None present | None proposed |
| Sidewalks | Some gaps and narrow sidewalks | <i>Near-term:</i> No changes <i>Long-term:</i> Potential to widen sidewalks |
| Landscape Buffers | Minimal | No changes |

Sidewalk Gaps

City Open Space South of Calle Norteña

The parcel southeast of Calle Norteña is likely to be developed as open space, which creates an opportunity for the City to construct a multi-use trail on the western edge of the property that is both integrated into the open space site and serves transportation needs along Golf Course Rd. The 1/3-mile stretch south of Calle Norteña currently does not have any pedestrian facilities on the east side of the roadway.

Paradise Blvd and Irving Blvd

ANALYSIS AND RECOMMENDATIONS

A sidewalk gap of almost 1/2-mile is present along the portion of Golf Course Rd through unincorporated Bernalillo County between both intersections of Greene Ave on the west side of the street. Right-of-way along this segment is constrained due to subdivision walls on the west side of the street and residences on the east side of the street, and installation of sidewalks would likely require removing a travel lane, eliminating the buffer between the residences and the northbound travel lanes, or purchasing right-of-way from property owners on the east side of the street. These options are either undesirable from a traffic operations standpoint or would negatively affect residents along the corridor.

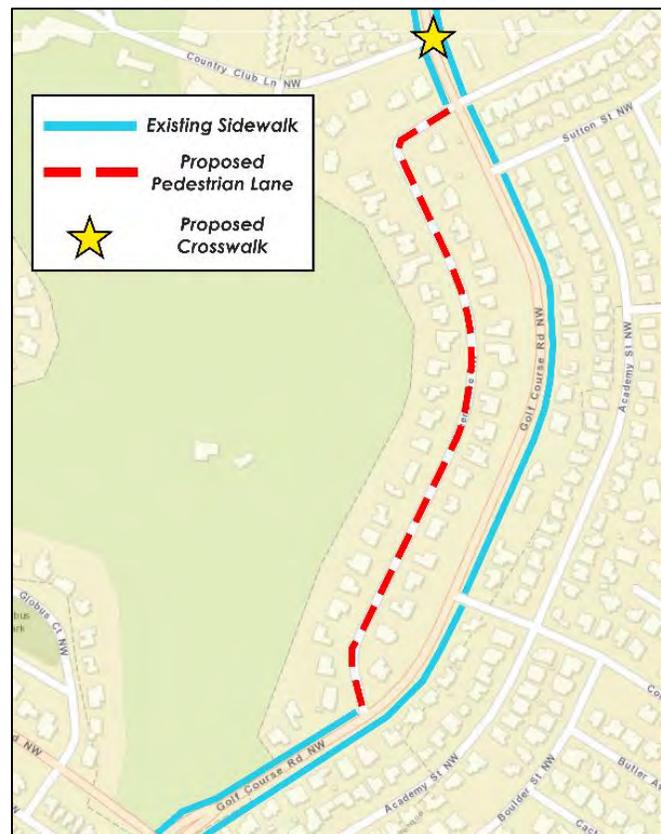
This study recommends two strategies that would allow pedestrians to more safely travel along the corridor and effectively close the gap in the pedestrian network without adding sidewalk (see the figure to the right):

- 1) **Pedestrian Crossing near Greene Ave (north):** Pending further engineering review, a pedestrian crossing should be installed at or near the north leg of Greene Ave. (See the discussion on Pedestrian Crossings for additional details.)
- 2) **Pedestrian Route along Greene Ave:** Bernalillo County should create a pedestrian route through signage and the installation of a striped pedestrian lane along Greene Ave that runs parallel to Golf Course Rd.

PEDESTRIAN LANE

A pedestrian lane is a striped space on the edge of a local road that is intended to be used exclusively by pedestrians. Pedestrian lanes are typically applied in rural areas, though such a treatment is appropriate for Greene Ave due to the wide paved area, low traffic volumes, and absence of sidewalks.

Figure 50: Existing and Proposed Pedestrian Facilities around Greene Ave and Golf Course Rd



Routing pedestrians along Greene Ave would not require any additional travel distance and would remove the need for sidewalks along the southbound segment of Golf Course Rd. Such a route could be utilized by bicyclists as well as pedestrians who wish to avoid Golf Course Ave.

Figure 51: Example of a Pedestrian Lane on a Residential Street



Source: FWHA, *Small Town and Rural Multi-Modal Networks*

North of McMahon Blvd/Ellison Rd

A gap in the northbound sidewalk is present from Ellison Rd/McMahon Blvd about 0.35 miles north to Driftwood Ave (sidewalk is present on the southbound side of the street). Addressing this gap would be both costly and technically challenging due to the steep grade and the constrained right-of-way related to the presence of subdivision walls on both sides of the roadway. Sidewalks in this segment would also be of only minor utility as there are no major destinations or access from surrounding neighborhoods. The east side of the corridor to the north of Ellison Rd is built out and new sidewalks are not likely to be added through private improvements. Due to these constraints, closing this gap in the sidewalk network is not included in the recommendations and cost estimates for this study.

Figure 52: Gap in Pedestrian Facilities and Constrained Right-of-way along Golf Course Rd North of McMahon Blvd/Ellison Rd



Development Area South of Westside Blvd

At this time of this study, a multi-family complex was under consideration southeast of the intersection of Golf Course Rd and Westside Blvd. This project presents an opportunity to close gaps in the bicycle and pedestrian

networks through infrastructure improvements that take place as part of new developments. City staff will need to ensure that bikeway and pedestrian facilities along the property edge meet or exceed DPM standards, including wide bike lanes and sidewalks with landscape buffers.

Table 33: Summary of Recommendations for Gaps in the Golf Course Rd Sidewalk Network

| Location | Existing Conditions | Recommendations |
|---|---|--|
| South of Calle Norteña (east side) | Undeveloped City open space property; gap of 1/3-mile | Multi-use trail on west side of property outside of existing curb line. Add a landscaping buffer if space permits |
| Paradise Blvd to Irving Blvd (between intersections of Greene Ave) | Subdivision walls directly adjacent to roadway on the west side of the street; gap of just under 1/2-mile | Provide pedestrian crossing around north intersection of Greene Ave; create pedestrian lane along Green Ave parallel to Golf Course Rd |
| North of Ellison Rd (east side) | Gap of 1/3-mile on east side of roadway along subdivisions | Impractical to install sidewalks along this segment; no improvements proposed |
| South of Westside Blvd (east side) | Gap of 1/4-mile along vacant parcel without sidewalk | Ensure adequate bikeways and sidewalks are installed as part of new development project(s) |

Pedestrian Crossings

This study recommends four new pedestrian crossings along the Golf Course Rd corridor, pending further engineering analysis. The crossings are described in sequential order from south to north and are depicted in Figure 54. In addition, all existing pedestrian crossings should feature continental or ladder style markings that meet DPM standards.

Pedestrian crossing locations and design options are informed by the general conditions along the corridor, including high speed and traffic volumes and wide roadways with four general purpose travel lanes plus turn lanes at major intersections. Per guidance from FHWA and the City’s Development Process Manual, and based on the conditions along Golf Course Rd, **the most appropriate pedestrian crossing treatments are pedestrian hybrid beacons (PHB) or rectangular rapid flashing beacons (RRFB). Median refuge islands** are desired for all proposed crossings to reduce the crossing distance and allow pedestrians to cross in two-stages, particularly at crossing locations without a traffic signal or PHB.

Homestead Tr

Benefits: In addition to reducing the gap in crossings between La Orilla Rd and Calle Norteña, a crossing at Homestead Tr would improve bikeway connectivity by linking neighborhoods west of Golf Course Rd with the Riverview Trail – located about 400 feet south of the intersection – as well as the proposed multi-use trail at sidewalk level on the east side of the roadway. Homestead Tr is a particularly critical east-west route since it is one of the few through streets through the area and connects to Taylor Ranch Rd and Chamiza Elementary School.

Location and Design Options: The proposed crossing at Homestead Tr should be located on the north side of the intersection. This location would avoid any conflicts with turn lanes and would bring bicyclists and

pedestrians closer to the transit stops on either side of Golf Course Rd. The crossing should feature an RRFB with a high visibility crosswalk. A pedestrian refuge island should be created in the median.

Butterfield Tr

Benefits: A crossing near Butterfield Tr would provide access to Riverview Park and through the neighborhoods on either side of Golf Course Rd and would further reduce the spacing between existing crossings at La Orilla Rd and Calle Norteña.

Location and Design Options: The crossing could be located at the intersection depending on if there is sufficient space for a refuge island once the median is narrowed. If there is insufficient width, the crossing could be located mid-block across from the walking path that provides access to Riverview Park. This location, approximately 200 feet south of the intersection, would bring pedestrians and bicyclists near the transit stop in the southbound direction and would avoid the turn bay for the northbound left turn lane. The crossing should feature an RRFB with a high visibility crosswalk. A pedestrian refuge island should be created in the median.

Marna Lynn Ave

Benefits: Marna Lynn Ave was cited by numerous participants as a dangerous place to cross for motorists and pedestrians. Though an analysis performed by the City determined a full traffic signal is not warranted at this time, a pedestrian crossing is desirable to enhance access to nearby transit stops and Petroglyph Elementary School. Marna Lynn Ave also provides connections through neighborhoods on either side of Golf Course Rd and links to Paradise Blvd.

Location and Design Options: Placement of a crossing at Marna Lynne Ave is affected by the angle of the roadway, which impacts sight lines. A major limitation is that there may not be sufficient space for a refuge island and turn lanes at the intersection.

Further study is needed to refine the crossing option and determine potential impacts to access. Preferred crossing treatments include a PHB at the intersection that brings traffic to a complete stop, which could be combined with a raised median that restricts access to Marna Lynn Ave. This option would force motorists to find alternative access to the neighborhoods, though such restrictions could enhance safety by eliminating left turns at a dangerous crossing.

Other options include a roundabout, though right-of-way and property acquisition would likely be required. The City may also further consider a traffic signal at the intersection, pending additional study. A pedestrian crossing with a raised median could be located 200 feet south of the intersection, though such a crossing would be out of direction for most pedestrians and would likely result in lower usage rates.

Greene Ave

Benefits: A crossing is desired around the north end of Greene Ave to provide access to transit for residents on both sides of the roadway and to ensure options for continuous bicycle and pedestrian travel along the corridor. The crossing, along with the proposed pedestrian lane along Green Ave, would collectively address the gap in the sidewalk network on the west side of Golf course Rd. See the Sidewalks Gaps discussion for additional information.

Location and Design Options: Further engineering analysis is required to assess the potential effects of the roadway slope and curves along Golf Course Rd on sightlines and pedestrian safety. In addition, there are

various challenges associated with locating a crossing at or near this intersection. Due to the speeds and crossing distance for pedestrians, a median refuge island is desired. However, a crosswalk with median refuge island at the north side of the intersection would block access to the neighborhoods east of Golf Course Rd for southbound motorists. Conversely, the crossing cannot be located at the south side of the intersection because there is no sidewalk or curb ramp at the southwest corner.

A crossing with a median refuge island could be located north of Greene Ave near Country Club Ln. However, the crossing would need to be located at the intersection to avoid blocking driveways that open onto Golf Course Rd. A median refuge island would be necessary at this location to provide adequate sightlines and would support a two-stage crossing. The crossing would require an RRFB or a PHB.

Piedras Marcadas Trail

The Piedras Marcadas Trail intersects with Golf Course Rd between Calle Norteña and Paseo del Norte. The crossing features a median refuge and overhead signage, but additional treatments could be added to increase motorist awareness. This study recommends the City add an RRFB and crosswalk markings to the trail.

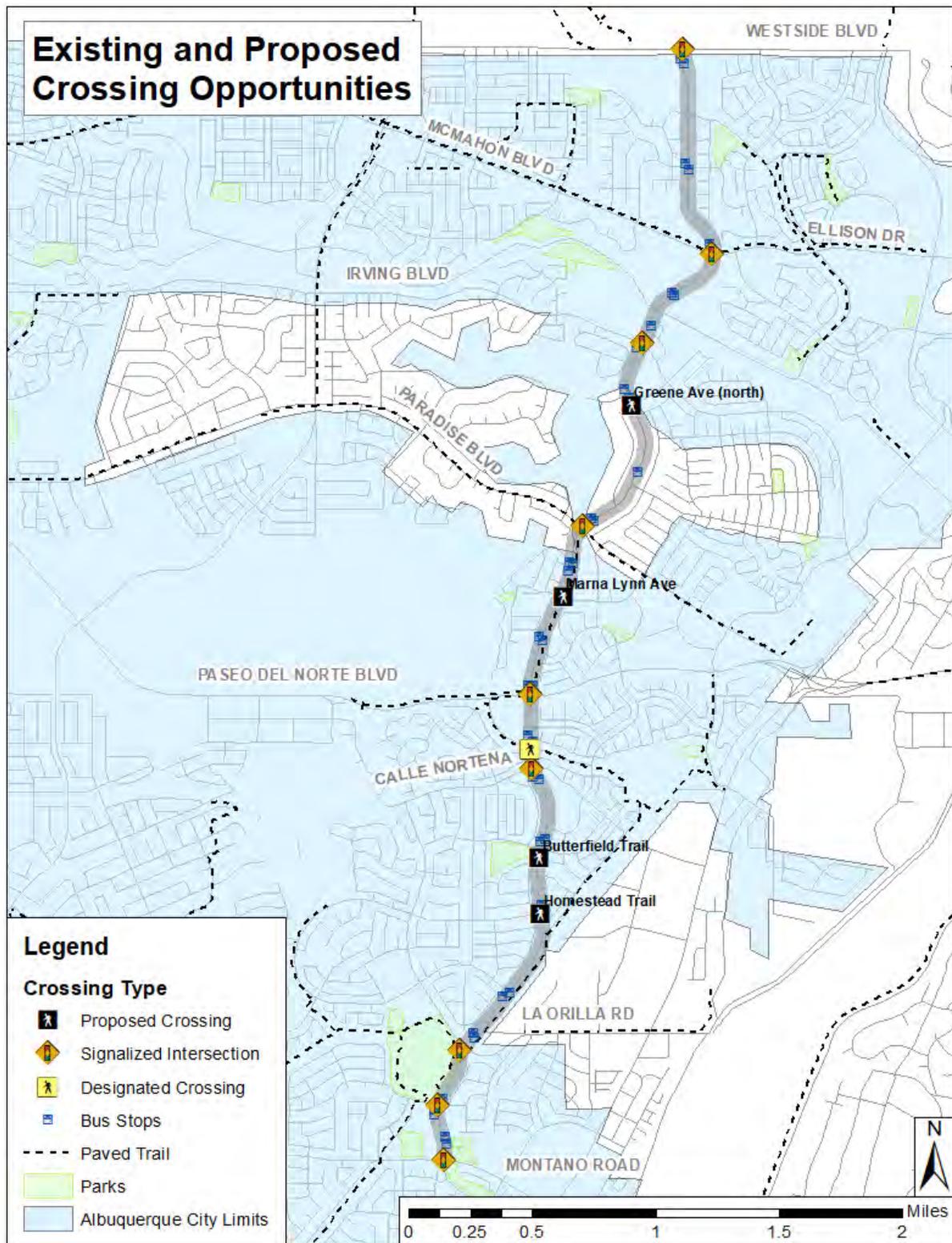
Figure 53: Existing Crossing of Piedras Marcadas Trail



Other Considerations

Though not formally recommended, an additional crossing may be considered between Ellison Dr and Westside Blvd, pending the development of housing in the area and future trail improvements along the Black Arroyo drainage facility. In addition to providing access to proposed recreational facilities, a crossing near Driftwood Ave or the Black Arroyo would reduce the distance between existing designated crossings of more than 3/4-mile.

Figure 54: Existing and Proposed Crossing Locations



OTHER RECOMMENDATIONS

Improvements to Existing Trails

Ongoing maintenance is critical for the usability of multi-use trails. The existing trail along Golf Course Rd to the south of Paradise Blvd feature prominent cracks and deterioration at the trail edges. This study recommends the following improvements to existing trails:

- Rehabilitate pavement to address cracks and deterioration of trail edges
- Provide dashed center striping to better indicate the trail is intended for two-way use

Figure 55: Conditions along Multi-Use Trail South of Paradise Blvd



Access to Starbucks and the Petroglyph Plaza

The queues associated with the Starbucks Coffee located to the south of Paseo del Norte conflicts with access and egress to the Petroglyph Plaza Shopping Center and are critical issues that affect safety and operations along the corridor. A first step for addressing these issues is for the City to conduct outreach to property and business owners in the area as the best near-term solutions may be located on private property. However, further study is required to address this conflict area in a comprehensive manner. Below are recommendations to address site access issues:

Conduct Outreach to Property Owner Over Potential On-site Improvements: The City should consult with the property owner to consider internal site circulation improvements that would lengthen the queueing area for the Starbucks drive-thru and reduce the frequency with which queues extend onto Golf Course Rd.

Extend Southbound Right-Turn Lane along Golf Course Rd: The City may consider a short-term project to extend the southbound right-turn lane from Golf Course Rd south of Paseo del Norte into the Petroglyph Plaza Shopping Center. As a discrete investment, this change to the roadway may have a small benefit in reducing the number of vehicles that queue in the roadway. Benefits are likely to be greater if this change is made in combination with other site access and site circulation improvements.

Site Access Study: The City should undertake a larger study to assess access to Petroglyph Plaza from multiple directions. Among the considerations include reconfiguration of access from Golf Course Rd in both the northbound and southbound directions to reduce the number of conflict points and enhance access and egress to the site. Additional consideration can be given to extending the length of the right turn bay in the southbound direction along Golf Course Rd.

The study should also evaluate options for a right-in right-out access via Paseo del Norte. Due to the differences in grade and the current design of Paseo del Norte, providing an access point would be expensive, but would reduce conflicts and the volume of turning movements along Golf Course Rd. Since Paseo del Norte is an access-controlled facility, such an improvement would require the involvement of NMDOT and MRCOG through the Roadway Access Committee.

Improving access via Paseo del Norte and/or southbound Golf Course Rd could be combined with access management along Golf Course through raised medians to better control turning movements and reduce conflicts. The study would need to establish that any potential changes to site access would not only improve general circulation in the area but would meet the required access levels guaranteed in the development agreement.

GSI/LID Opportunities along Golf Course Rd

Green stormwater infrastructure / low impact development (GSI/LID) treatments should be considered in the median and landscape buffers along the corridor to assist with stormwater management and promote the use of native plants in landscaping. A specific opportunity exists on the east side of Golf Course Rd between Paradise Blvd and Irving Blvd, which currently features a buffer space used for on-street parking but provides an opportunity for the installation of GSI/LID best management practices, including stormwater bumpouts as part of curb extensions.

The use of stormwater bumpouts or curb extensions – which are highlighted in the recently-completed *Bernalillo County Green Stormwater Infrastructure / Low Impact Development Standards* – are particularly appropriate along Golf Course Rd as they may provide both a traffic calming benefit and a place for stormwater harvesting. Potential locations for stormwater bumpouts include the segment between Greene Ave and Sutton Ave. This area was identified due to the fact that the residences are oriented perpendicular to local streets, meaning changes to Golf Course Rd would be located along the side yards where installations would not impact front yards or on-street parking opportunities. Other portions of Golf Course Rd may be considered where on-street parking is not appropriate or not necessary and where individual property owners are supportive of the installations.

Figure 56: Example of Stormwater Bumpout along Central Ave



Traffic Signal Upgrades

Traffic signal recommendations focus on equipment modernization and better accommodation for non-auto users along the corridor and are divided into the following components:

- Vehicle detection systems
- ITS equipment
- Phasing upgrades
- ADA pedestrian push button upgrades
- Signal timing renewals

The traffic signal recommendations will ensure consistency with City initiatives and compliance with current City standards. Summaries of upgrades by component type and the desired improvements for each intersection are provided below.

Vehicle Detection Systems

This study recommends that the vehicle detection systems at each intersection be upgraded to the latest City standards. As part of these system upgrades, stop bar detection should be provided for all movements and phases, and advance detection should be provided for all approaches where intersections are timed with adjacent intersections along coordinated arterials. Examples include Paseo del Norte and Golf Course Rd where Paseo del Norte is the coordinated arterial, and Montaña Rd and Golf Course Rd, where Montaña Rd is the coordinated arterial. Subsequent in-cabinet equipment will be required for specific vehicle detection technology. To accommodate the added vehicle detection channels required, traffic signal cabinets and controllers should be upgraded to TS2 environments.

ITS Equipment

To interface with the City's current traffic management system and traffic management center, it is recommended that existing ITS equipment present at each intersection be upgraded to the latest City standard. This equipment includes traffic signal controllers, CCTV Cameras, and local fiber-optic network switches.

Phasing Upgrades

Under current conditions, traffic signals on Golf Course Rd utilize conventional 5-section signal heads to control protected-permissive left turn movements. This study recommends that, consistent with CABQ Traffic Engineering Division initiatives, these movements be converted to Flashing-Yellow-Arrow (FYA) operations. Generally, the conversion to FYA operations provides some level of safety improvement for left turns and their conflicting movements. Additionally, the implementation of FYA operations would allow for time-of-day control variations (to protected control) where traffic volumes preclude safe and efficient permissive vehicle actions at the City Traffic Engineer's discretion.

This study also recommends that FYA operations be further studied and evaluated for implementation at existing exclusive left turn movements under permissive control. Intersections with such configurations include all left turn movements at Kachina St and Calle Norteña.

Traffic Signal Timings

With the implementation of new detection and phasing operations, all traffic signals should be re-timed and added to the City's ATSPM system. New signal timings should maintain current coordination schemes and coordination cycles where signals are within a coordinated arterial, such as Paseo del Norte and Montañó Rd.

ADA Pedestrian Push Button Upgrades

As included in PROWAG guidelines, when signal heads or traffic signal controllers are replaced, accessible pedestrian push buttons should be installed. Therefore, push buttons along Golf Course Rd should be replaced with accessible push buttons per MUTCD standards.

Traffic Signal Upgrades Summary

The traffic signal upgrades described here would cost an estimated \$1.37 million, based on planning level cost estimates per equipment item and assuming a contingency of 35% to account for design, installation, and unanticipated costs (see Table 34). Traffic signal timings are not included in the table below as this is a corridor-wide recommendation not subject to existing conditions at specific intersections. Improvements to Westside Blvd are also excluded from the table as the intersection was under design for re-construction at the time of this study.

Table 34: Summary of Traffic Signal Recommendations by Intersection

| | Stop Bar Vehicle Detection Upgrades (Approach) | Advance Vehicle Detection Upgrades (Approach) | Cabinet and Controller Upgrades | CCTV & Fiber Optic Switch Replacement | FYA Implementation (Movements) | FYA Evaluation (Movements) | Push Buttons (Pair) | Total ROM Cost + 35% Contingency |
|--|--|---|---------------------------------|---------------------------------------|--------------------------------|----------------------------|---------------------|----------------------------------|
| Planning Level Cost Estimate (Per Item) | \$9,500 | \$12,000 | \$38,000 | \$7,500 | \$5,750 | \$1,200 | \$1,500 | |
| Montañó Rd | 4 | 2 | 1 | 1 | 0 | 0 | 4 | \$153,225 |
| Kachina St | 4 | 2 | 1 | 1 | 0 | 4 | 4 | \$159,705 |
| La Orilla Rd / Taylor Ranch Rd | 4 | 2 | 1 | 1 | 4 | 0 | 4 | \$184,275 |
| Calle Norteña | 4 | 2 | 1 | 1 | 0 | 4 | 4 | \$159,705 |
| Paseo del Norte | 4 | 4 | 1 | 1 | 0 | 0 | 4 | \$185,625 |
| Paradise Blvd | 4 | 4 | 1 | 1 | 0 | 0 | 4 | \$185,625 |
| Irving Blvd | 4 | 2 | 1 | 1 | 0 | 0 | 4 | \$153,225 |
| Ellison Rd / McMahon Blvd | 4 | 4 | 1 | 1 | 0 | 0 | 4 | \$185,625 |
| Total | 32 | 22 | 8 | 8 | 4 | 8 | 32 | \$1,367,010 |

Note: Westside Blvd is currently under reconstruction and is not included in this analysis.

Streetlighting System

Approach to Streetlight Recommendations

As detailed in the Existing Conditions section of this report, streetlights are present at select locations along Golf Course Rd, though a continuous system is not in operation. The streetlight recommendations seek to mitigate the following issues:

- Existing streetlights behind stop signs casting a shadow on the sign
- Existing streetlights behind crosswalks casting a shadow on pedestrians
- Unlighted areas with high pedestrian activity (e.g. trail crossings)
- Unlighted areas with high un-controlled (i.e. non-signalized) vehicle interactions
- Unlighted traffic signal approaches and stop controlled intersections

This section describes streetlight recommendations under two scenarios and includes planning-level cost estimates that may be used for budgeting purposes. The two scenarios include:

1. **Targeted lighting enhancements** to provide additional lighting at intersections, commercial areas, and along existing multi-use trails. This lighting scenario is consistent with the Enhanced Bike Lanes scenario (Alternative 1) for the segment between Montañó Rd and Paradise Blvd.
2. **Continuous lighting** scenario in which a high level of illumination is provided along the extent of Golf Course Rd in a manner consistent with a Main Street type corridor. This scenario includes pedestrian-scale lighting along all proposed multi-use trails and is consistent with Complete Street scenario (Alternative 2) for the segment between Montañó Rd and Paradise Blvd.

Note on cost estimates: The estimates provided here utilize general unit prices and general assumptions about spacing and lighting types. The estimates are intended for planning and budgeting purposes only and are intended to demonstrate the range of potential users. More refined cost estimates should be developed during the final design phase.

Targeted Lighting Enhancements Scenario

Three types of additional lighting features are identified that would address issues and shortcomings in existing lighting along the corridor. Potential enhancements include lighting associated with pedestrian features and traffic control, commercial areas, and existing multi-use trails. The total cost for the targeted lighting enhancements scenario is \$1.05 million.

COMPONENT 1: PEDESTRIAN FEATURES AND TRAFFIC CONTROL

Additional streetlighting is desired for intersections and other crucial areas of the corridor where motorists and pedestrians may come into conflict. These areas include lighting of the crossings for the Piedras Marcadas Trail and at Homestead Tr between Calle Norteña and Las Terrazas St, and lighting of cross street intersections including traffic signals and stop signs. Per City standards, 30-foot “residential/collector” type poles should be placed in advance of trail crossings and approaches to intersections per City standards. Luminaires should be shielded so that light does not leave the roadway right-of-way. Approximately 45 to 55 streetlight poles and luminaires are required to address this lighting component.

COMPONENT 2: LIGHTING OF COMMERCIAL AREAS

Additional streetlighting around commercial areas would enhance safety where vehicle crossing maneuvers and vehicle-pedestrian interactions are most frequent. These areas include the commercial areas from immediately south of Paseo del Norte to Paradise Blvd. Poles should be placed at side street crossings and when median-access is allowed to access commercial developments, and luminaires should be shielded so that light does not leave the roadway right-of-way. Per City standards, 40-foot “arterial” style poles should be used for these types of lighting needs. Approximately 20 to 30 streetlight poles and luminaires are required to address this lighting component.

COMPONENT 3: LIGHTING OF MULTI-USE TRAIL

The portion of the Riverview Trail between Kachina Rd to Homestead Tr is unlit at present, while minimal lighting is provided for the multi-use trail at sidewalk level between Paseo del Norte and Paradise Blvd. These trail segments could be illuminated using 20-foot “pedestrian” style or “bollard” style lighting poles spaced at approximately 100-foot intervals, depending on the luminaire chosen. Approximately 54 streetlight poles and luminaires are required to address this lighting component.

Figure 57: Examples of Pedestrian-Scale Lighting



Arterial and pedestrian-scale lighting along Central Ave; lighting for multi-use trail along Girard Blvd

Table 35: Estimated Costs Associated with Targeted Lighting Scenario

| Component | Lighting Type | Number | Cost per Unit | Initial Cost | Contingency (35%) | Total Cost |
|--|-------------------------------------|--------|---------------|--------------|-------------------|-------------|
| Pedestrian Features and Traffic Control | 20-ft Pedestrian-Scale | 45-55 | \$5,850 | \$321,750 | \$112,613 | \$434,363 |
| Commercial Areas | 30-ft Residential / Collector Style | 54 | \$6,050 | \$326,700 | \$114,345 | \$245,025 |
| Multi-Use Trails | 40-ft Arterial Style | 20-30 | \$5,050 | \$151,500 | \$53,025 | \$368,145 |
| Total Cost | | | | | | \$1,047,533 |

*Cost estimates are based on the high value in the range.

Continuous Lighting Scenario

Continuous lighting could be applied to either roadway improvement scenario and represents the recommended level of lighting to support a Main Street-type corridor with high levels of illumination for bicyclists and pedestrians along Golf Course Rd.

Lighting type would vary depending on the land use context, with higher levels of illumination provided in commercial areas compared to residential neighborhoods. Per City standards, 30-foot poles would be used in residential sections and 40-foot poles near signalized intersections and non-residential sections. Luminaires should be shielded so that light does not leave the roadway right-of-way. Additional pedestrian-scale lighting with 20-foot poles would be provided along the portion of the corridor where multi-use trails are present (i.e. from Montañó Rd to Paradise Blvd).

Figure 58 depicts the distribution of poles under the continuous lighting scenario with poles spaced at approximately 200-foot intervals. Actual pole spacing and placement should be determined by lighting analysis software based on chosen luminaires. This scenario would require an estimated 605 to 660 streetlight poles and luminaires. The total cost for the continuous lighting scenario is approximately \$4.93 million.

Table 36: Estimated Costs for Continuous Lighting Scenario

| Lighting Type | Number* | Cost per Unit | Initial Cost | Contingency (35%) | Total Cost |
|-----------------------------|---------|---------------|--------------|-------------------|--------------------|
| 20-ft Pedestrian-Scale | 250-275 | \$5,050 | \$1,388,750 | \$486,063 | \$1,874,818 |
| 30-ft Residential/Collector | 310-325 | \$5,850 | \$1,901,250 | \$665,438 | \$2,566,688 |
| 40-ft Arterial Style | 45-60 | \$6,050 | \$363,000 | \$127,050 | \$490,050 |
| Total Cost | | | | | \$4,931,550 |

*Cost estimates are based on the high value in the range.

Figure 58: Proposed System of Continuous Lighting along Golf Course Rd Study Corridor



COST ESTIMATES

The tables below represent cost estimates as of January 2022 for the proposed improvement along Golf Course Rd. The estimates provided here utilize general unit prices and general assumptions about spacing and lighting types. The estimates are intended for planning and budgeting purposes only. More refined cost estimates should be developed during the final design phase.

Roadway Improvement Assumptions

The cost estimate for the **Enhance Bike Lanes scenario (Alternative 1)** assumes that no work occurs outside of the roadway and that all curb lines stay in place. This estimate assumes that all existing landscaping is removed and replaced with new trees and plants, as well as a new irrigation system. The cost estimate does not include lighting or signals.

The cost estimate for the **Complete Street scenario (Alternative 2)** assumes that both curb lines and medians are reconfigured to create room for bikeway and pedestrian facility improvements. The cost estimate take a conservative approach by assuming that all sidewalk on both sides of the street plus existing multi-use trails must be replaced. Similarly, all existing landscaping is removed, with new trees, plants, and irrigation systems provided in the median and buffer zones along the edges of the roadway. This scenario also includes improvements to ADA ramps along side streets. The cost estimate does not include lighting or signals.

The cost estimate for the segment from **Paradise Blvd to Westside Blvd** includes restriping efforts only.

Table 37: Roadway Improvements Cost Estimate by Location

| Location | Alternative | Subtotal of Bid Items | Inflation from 2020 (25%) | Mobilization (10% above Subtotal) | Base Total |
|--------------------------------|-------------------------|-----------------------|---------------------------|-----------------------------------|--------------------|
| Montaño Rd to Paradise Blvd | Alternative 1 | \$3,094,735 | \$773,684 | \$309,474 | \$4,177,892 |
| Montaño Rd to Paradise Blvd | Alternative 2 | \$6,396,465 | \$1,599,116 | \$639,647 | \$8,635,228 |
| Paradise Blvd to Westside Blvd | Restriping (Short-Term) | \$265,670 | \$66,418 | \$26,567 | \$358,655 |

Lighting Improvements

The **targeted lighting enhancements** scenario assumes the provision of additional lighting at intersections, commercial areas, and along existing multi-use trails. This lighting scenario is consistent with the Enhanced Bike Lanes scenario (Alternative 1) for the segment between Montaña Rd and Paradise Blvd.

The **continuous lighting** scenario assumes a high level of illumination across the extent of the corridor. This scenario includes pedestrian-scale lighting along all proposed multi-use trails between Montaña Rd and Paradise Blvd, as in the Complete Street scenario (Alternative 2).

Table 38: Cost Estimate for Targeted Lighting Scenario

| Component | Lighting Type | Number | Cost per Unit | Initial Cost | Contingency (35%) | Total Cost |
|--|-------------------------------------|--------|---------------|--------------|-------------------|--------------------|
| Pedestrian Features and Traffic Control | 30-ft Pedestrian-Scale | 45-55 | \$5,0550 | \$321,750 | \$112,613 | \$434,363 |
| Commercial Areas | 40-ft Residential / Collector Style | 54 | \$6,050 | \$326,700 | \$114,345 | \$245,025 |
| Multi-Use Trails | 20-ft Arterial Style | 20-30 | \$5,050 | \$151,500 | \$53,025 | \$368,145 |
| Total Cost | | | | | | \$1,047,533 |

Table 39: Cost Estimate for Continuous Lighting Scenario

| Lighting Type | Number | Cost per Unit | Initial Cost | Contingency (35%) | Total Cost |
|------------------------------------|---------|---------------|--------------|-------------------|--------------------|
| 20-ft Pedestrian-Scale | 250-275 | \$5,050 | \$1,388,750 | \$486,063 | \$1,874,818 |
| 30-ft Residential/Collector | 310-325 | \$5,850 | \$1,901,250 | \$665,438 | \$2,566,688 |
| 40-ft Arterial Style | 45-60 | \$6,050 | \$363,000 | \$127,050 | \$490,050 |
| Total Cost | | | | | \$4,931,550 |

Signal Equipment Upgrades

The table below summarizes the proposed traffic signal upgrades for the signalized intersections along the Golf Course Rd corridor between Montaña Rd and Westside Blvd. Improvements to Westside Blvd are also excluded from the table as the intersection was under design for re-construction at the time of this study.

Table 40: Summary of Traffic Signal Recommendations by Intersection

| | Stop Bar Vehicle Detection Upgrades (Approach) | Advance Vehicle Detection Upgrades (Approach) | Cabinet and Controller Upgrades | CCTV & Fiber Optic Switch Replacement | FYA Implementation (Movements) | FYA Evaluation (Movements) | Push Buttons (Pair) | Total ROM Cost + 35% Contingency |
|--|--|---|---------------------------------|---------------------------------------|--------------------------------|----------------------------|---------------------|----------------------------------|
| Planning Level Cost Estimate (Per Item) | \$9,500 | \$12,000 | \$38,000 | \$7,500 | \$5,750 | \$1,200 | \$1,500 | |
| Montaña Rd | 4 | 2 | 1 | 1 | 0 | 0 | 4 | \$153,225 |
| Kachina St | 4 | 2 | 1 | 1 | 0 | 4 | 4 | \$159,705 |
| La Orilla Rd / Taylor Ranch Rd | 4 | 2 | 1 | 1 | 4 | 0 | 4 | \$184,275 |
| Calle Norteña | 4 | 2 | 1 | 1 | 0 | 4 | 4 | \$159,705 |
| Paseo del Norte | 4 | 4 | 1 | 1 | 0 | 0 | 4 | \$185,625 |
| Paradise Blvd | 4 | 4 | 1 | 1 | 0 | 0 | 4 | \$185,625 |
| Irving Blvd | 4 | 2 | 1 | 1 | 0 | 0 | 4 | \$153,225 |
| Ellison Rd / McMahon Blvd | 4 | 4 | 1 | 1 | 0 | 0 | 4 | \$185,625 |
| Total | 32 | 22 | 8 | 8 | 4 | 8 | 32 | \$1,367,010 |

Pedestrian Crossings

The table below provides the estimate per pedestrian crossing treatment type. These values should be multiplied by the number of crossings to calculate total costs. The estimates for each crossing type include median refuge islands, equipment, signage, and striping.

Table 41: Cost Estimate by Pedestrian Crossing Treatment Type

| Crossing Treatment Type | Subtotal of Bid Items | Inflation from 2020 (25%) | Mobilization (10% above Subtotal) | Total Cost |
|---|-----------------------|---------------------------|-----------------------------------|------------------|
| Rectangular Rapid Flashing Beacon (RRFB) | \$42,321 | \$10,580 | \$4,232 | \$57,134 |
| Pedestrian Hybrid Beacon (PHB) | \$169,285 | \$42,321 | \$16,928 | \$228,534 |

APPENDIX A: ALTERNATIVE CROSS SECTIONS

The cross sections below depict existing conditions and potential alternatives at representative locations along the Golf Course Rd study corridor. These cross sections are intended to provide guidance during the final engineering design phase. Additional analysis and design are required prior to implementation.

This study considered two options for the segment between Montañó Rd and Paradise Blvd:

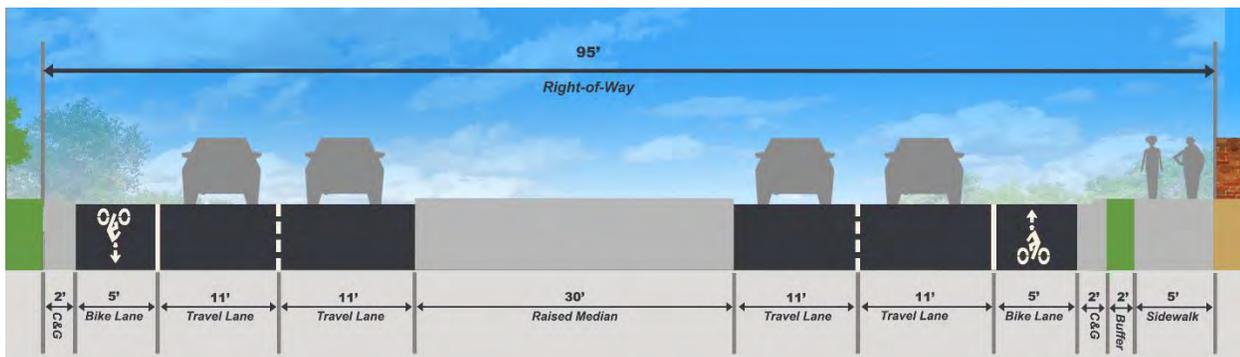
- Alternative 1: Enhance bikeways within existing curb lines
- Alternative 2: Complete Street corridor with multi-use trails

Montañó Rd to Paradise Blvd

South of La Orilla Rd

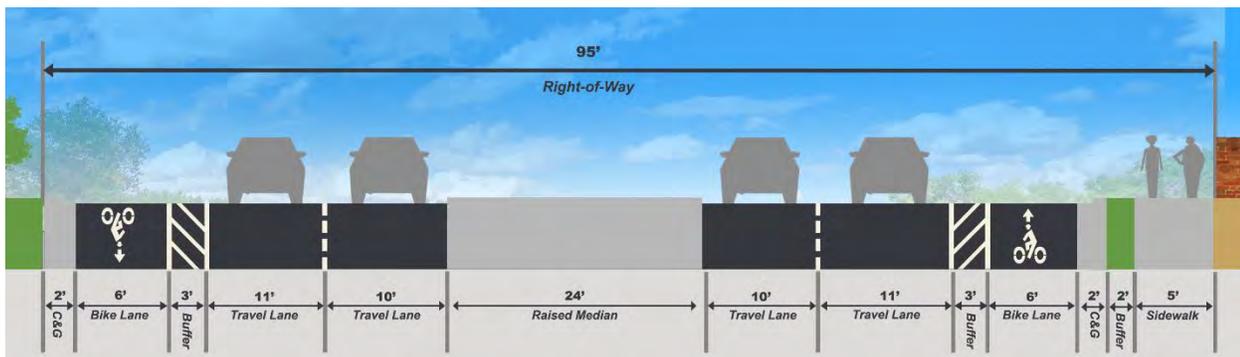
EXISTING CONDITIONS

This segment features 84 feet of available roadway space and about 95 feet of apparent right-of-way, excluding park space on the west side of the roadway. There are no sidewalks in the southbound direction; however, there is a separated multi-use trail on west side of Taylor Ranch Rd that links to the Riverview Trail north of La Orilla Rd via a crosswalk. Bike lanes are present in both directions.



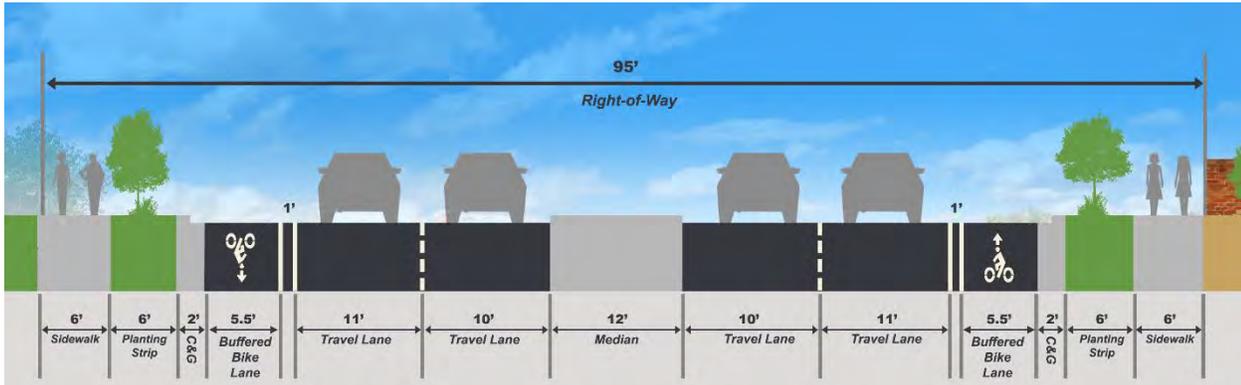
ALTERNATIVE 1: ENHANCE BIKE LANES WITHIN EXISTING CURB LINES

- Maintains existing curb lines.
- Narrows travel lanes and the median and utilizes the space for 6-foot bike lanes with 3-foot striped buffers.



ALTERNATIVE 2: COMPLETE STREET CORRIDOR

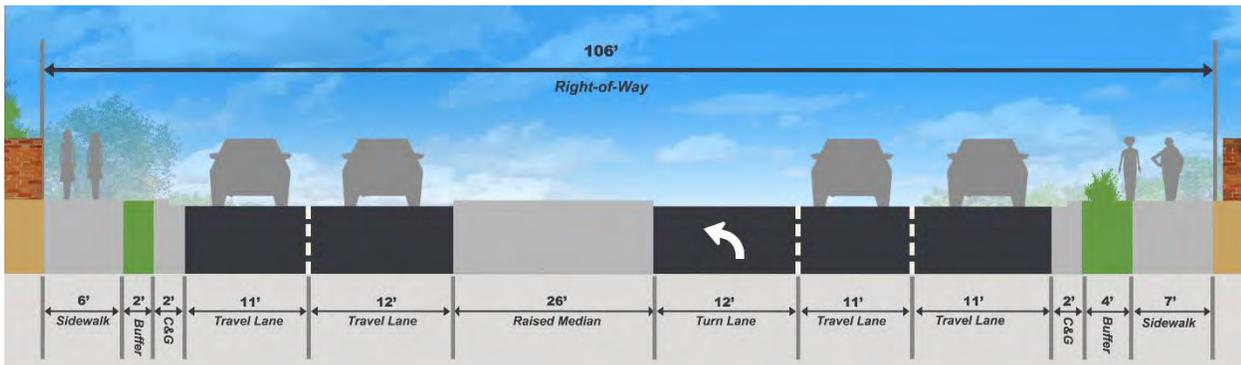
- Narrows the median from 30 feet to 12 feet. Though additional space is required where turn bays are present.
- Reallocates space from medians to buffered bike lanes (narrower buffers than Alternative 1).
- Moves existing curb line 2 feet on either side to allow for landscape buffers with street trees.
- Adds sidewalk on west side of the roadway; multi-use trail is located west of the roadway.
- Landscape buffers can be narrowed at intersections to provide additional width for turn lanes.



North of Samara Rd / South of Butterfield Trail

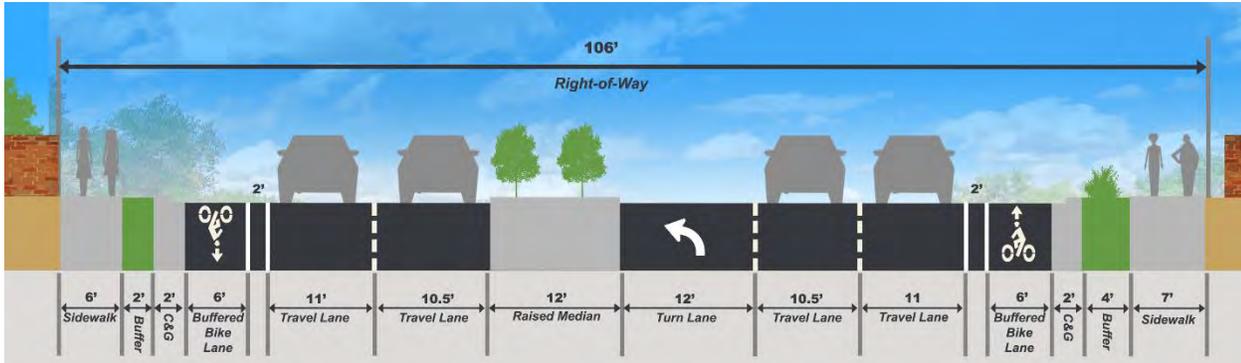
EXISTING CONDITIONS

This segment features 82 feet of available roadway space and about 106 feet between the outside sidewalk edges. Sidewalks with small buffers are present, though there are no bike lanes in either direction. The Riverview Trail is present on east side of Golf Course Rd to the south of Samara Rd.



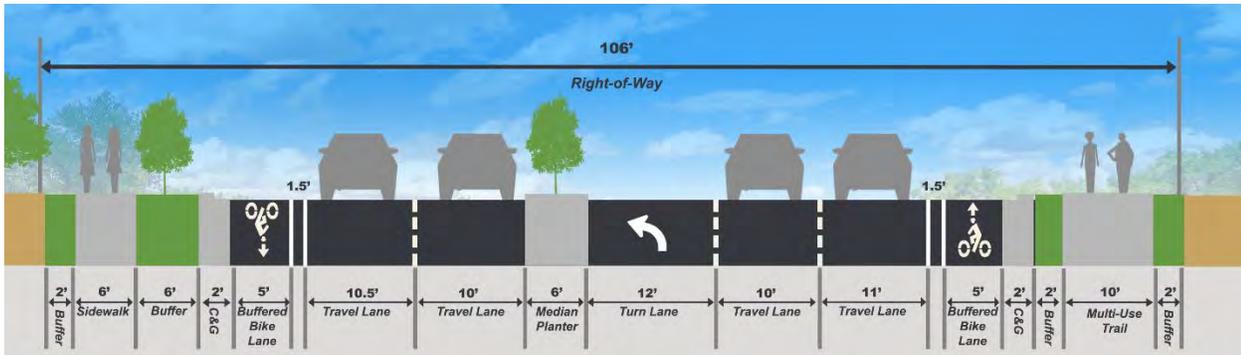
ALTERNATIVE 1: ENHANCE BIKE LANES WITHIN EXISTING CURB LINES

- Keeps existing curb lines on both sides of the street.
- Narrows median and reallocate space for buffered bike lanes (6-foot bike lanes with 1.5-foot buffers).



ALTERNATIVE 2: COMPLETE STREET CORRIDOR

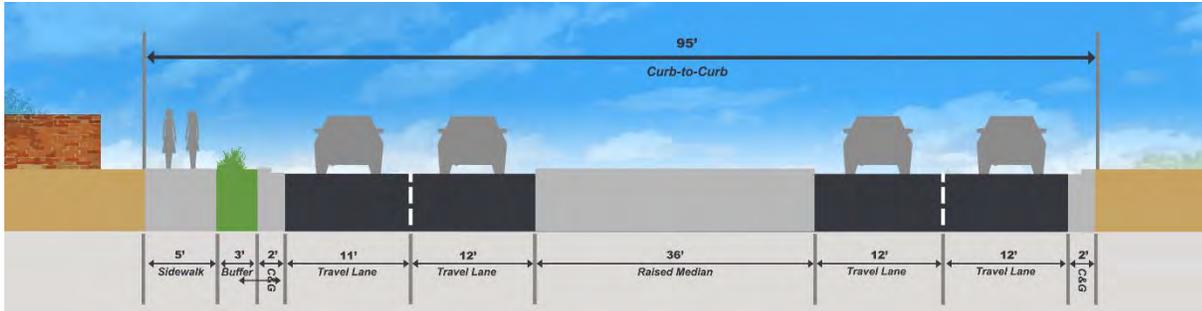
- Narrows the median and travel lanes to create space for bike lanes and streetside improvements.
- Moves existing curb line on both sides to create room for landscape buffers with street trees.
- Provides a multi-use trail on the northbound side.



La Orilla Rd to Calle Norteña

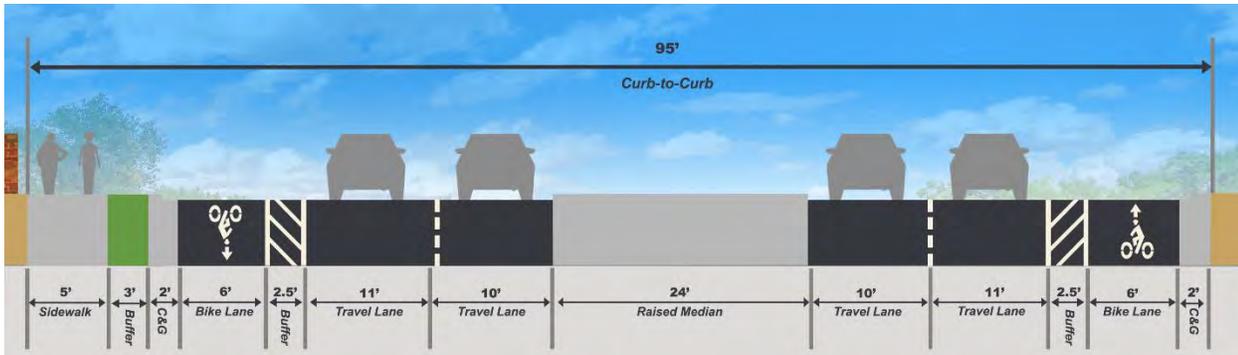
EXISTING CONDITIONS

The figure below depicts the conditions north of Butterfield Tr along the City open space property located to the east of the roadway. This segment features 83 feet of available roadway space between the curb and gutter and 95 feet from the outside sidewalk edge on the west side and the outside curb edge on the east side of the roadway (this total excludes the City open space property on the east side of roadway). There are no bikeways present along this segment, while sidewalks are present on the northbound side of the roadway only.



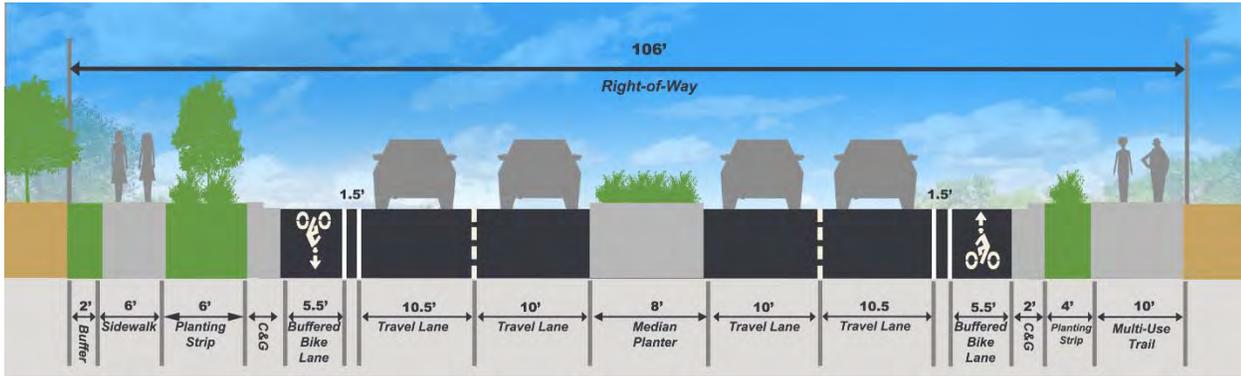
ALTERNATIVE 1: ENHANCE BIKE LANES WITHIN EXISTING CURB LINES

- Keeps existing curb lines on both sides of the street.
- Narrows the median and reallocates space for buffered bike lanes (6-foot bike lanes with 2.5-foot buffers).



ALTERNATIVE 2: COMPLETE STREET CORRIDOR

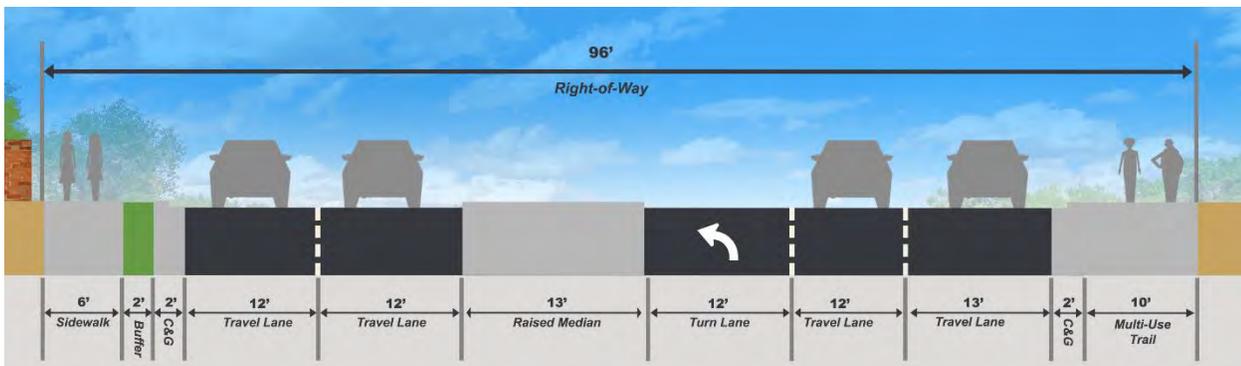
- Narrows the median and moves existing curb line on both sides to add buffered bike lanes and landscape buffers.
- Adds a multi-use trail in place of a sidewalk on the east side of the roadway, assuming a portion of the open space property could be utilized for street improvements.
- This alternative could be applied from southern edge of open space property to the north side of Paseo del Norte and connect to the existing multi-use trail at sidewalk level.



Paseo del Norte to Paradise Blvd

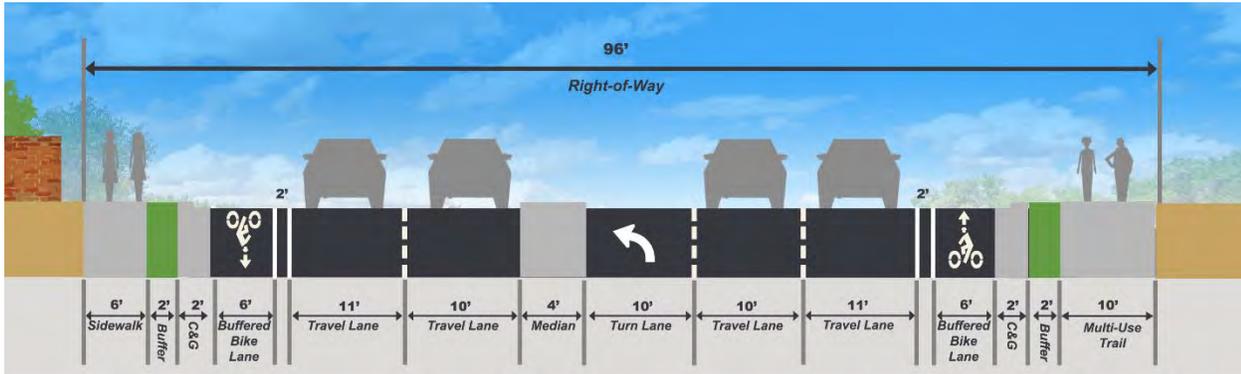
EXISTING CONDITIONS

The figure below depicts conditions north of Marna Lynn Ave. This segment features 74 feet of available roadway space between the curb and gutter and 96 feet of apparent right-of-way between sidewalk edges. Pedestrian facilities include a sidewalk on the west side of the roadway and a multi-use trail on the east side. There are no on-street bikeways. Travel lanes through this segment exceed minimum widths outlined in the DPM.



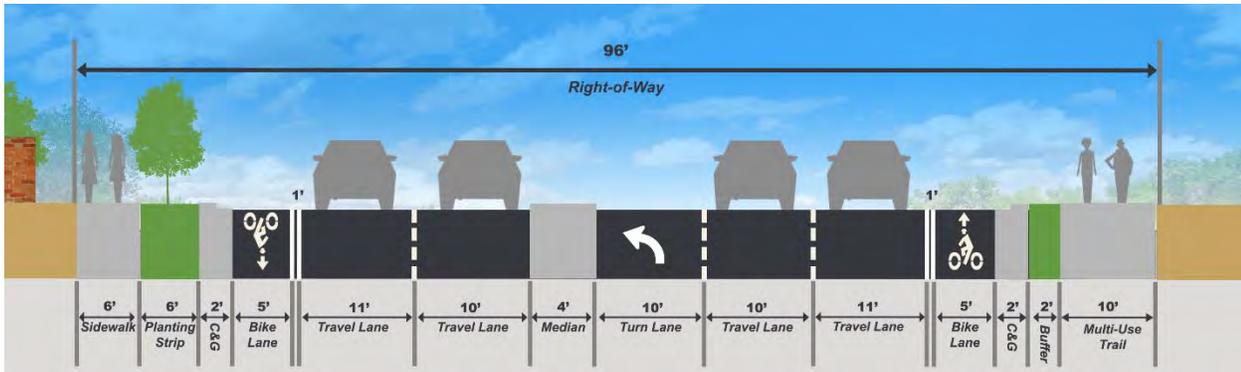
ALTERNATIVE 1: ENHANCE BIKE LANES WITHIN EXISTING CURB LINES

- Keeps existing curb lines on both sides of the street.
- Narrows medians and travel lanes and reallocates space to create buffered bike lanes.



ALTERNATIVE 2: COMPLETE STREET CORRIDOR

- Moves curb lines to accommodate wider landscape buffers; buffers can be narrowed or removed at intersections.
- Provides buffered bike lanes, though facilities are narrower than Alternative 1

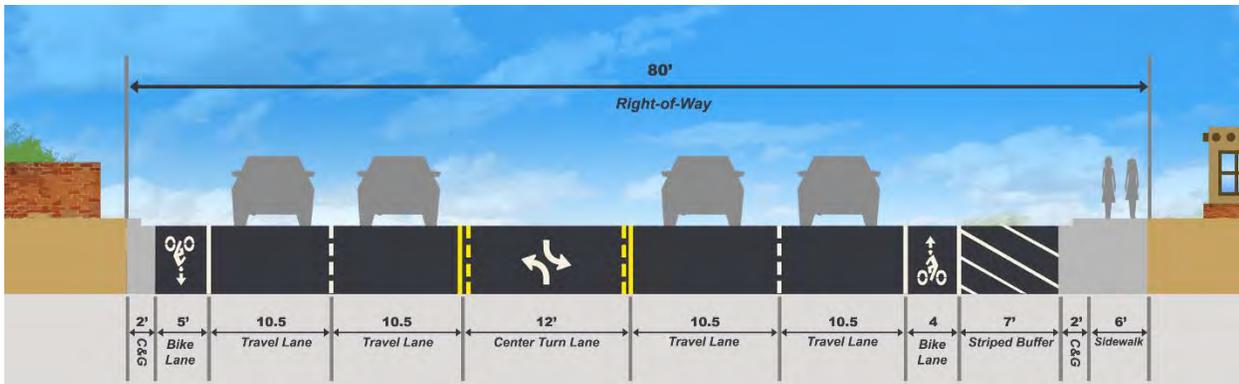


Paradise Blvd to Westside Blvd

Paradise Blvd to Irving Blvd

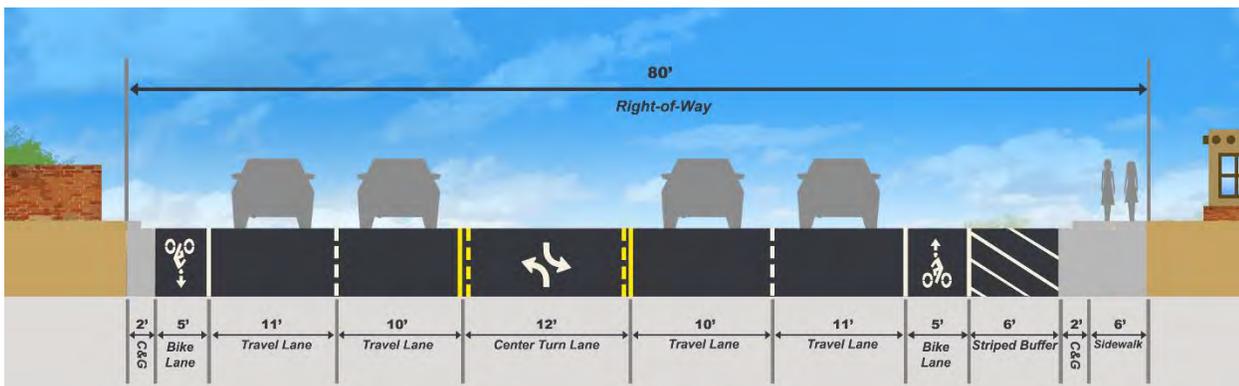
EXISTING CONDITIONS

The figure below depicts conditions north of Congress Ave. This segment features 70 feet of paved roadway space, including a two-way left turn lane and narrow on-street bike lanes. A striped buffer separates the sidewalk from the bike lane, which is also used for on-street parking. There are no sidewalks in southbound direction.



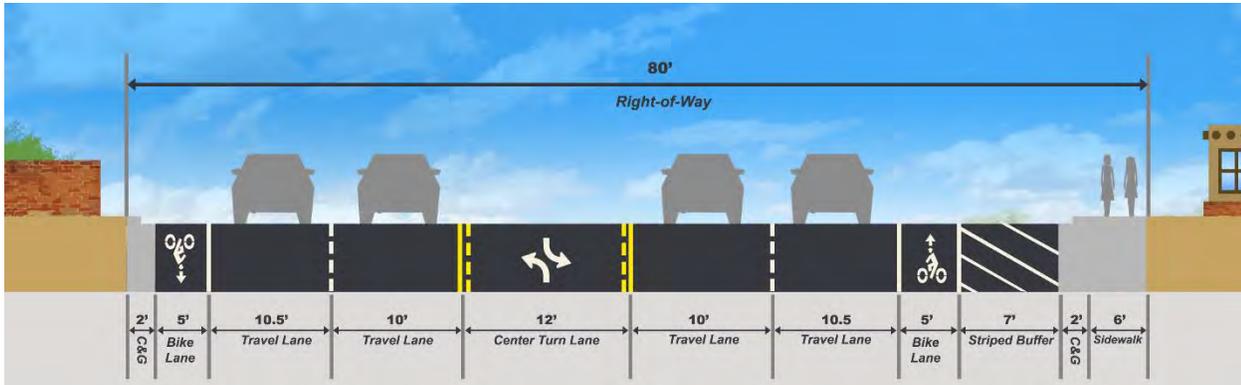
STRIPING OPTION 1

- Maintains existing curb lines.
- Narrows striped buffer to 6 feet (plus additional 1-foot gutter pan provides a total of 7 feet for buffer/on-street parking); however, 8-foot on-street parking is required by the DPM for roads with 35 MPH speed limit.
- Reallocates space from driving lanes to create 11-foot outside lanes for transit use purposes.
- Widens northbound bike lane from 4 feet to 5 feet.



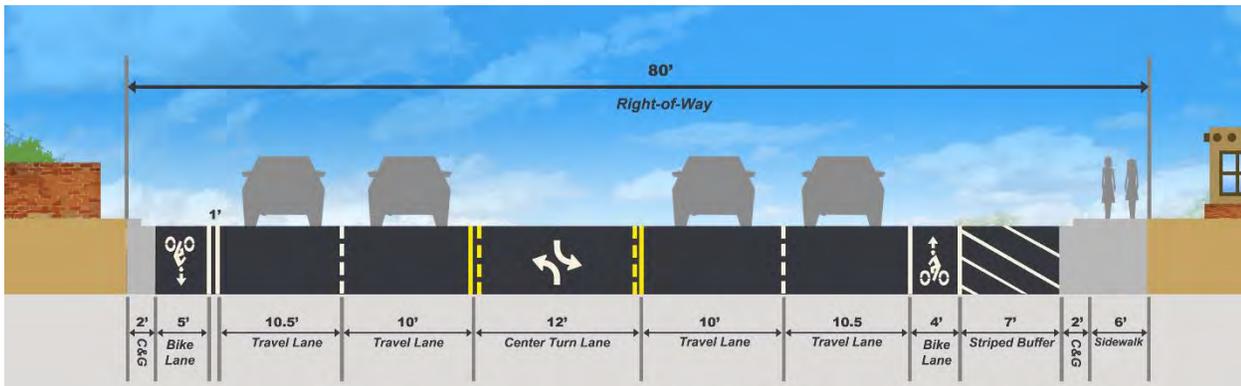
STRIPING OPTION 2

- Maintains existing curb lines.
- Narrows inside driving lanes from 10.5 feet to 10 feet and reallocates space to widen northbound bike lane from 4 feet to 5 feet.
- Keeps outside travel lanes at existing width of 10.5 feet.



STRIPING OPTION 3

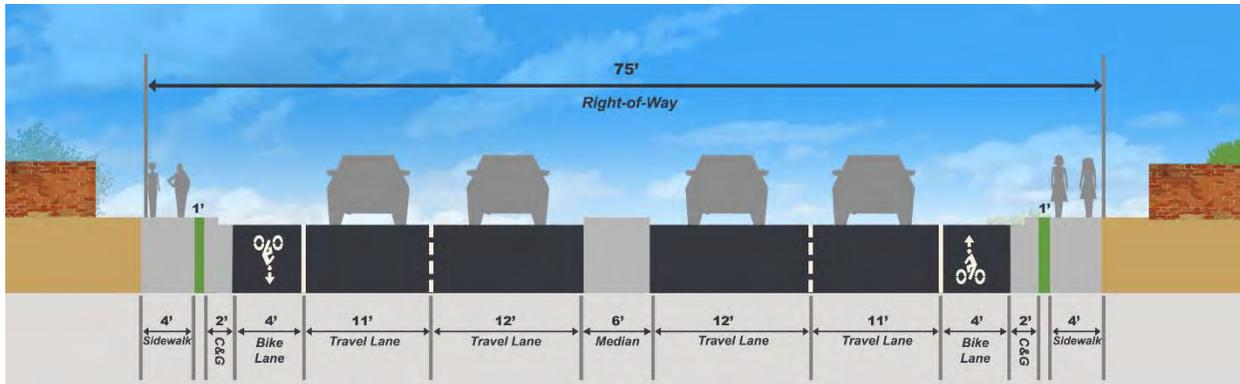
- Maintains existing curb lines.
- Narrows inside driving lanes by 0.5 feet and reallocates space to provide 1-foot striped bike buffer on the southbound side of the street.
- Keeps outside travel lanes at existing width of 10.5 feet.



Between McMahon Blvd and Westside Blvd

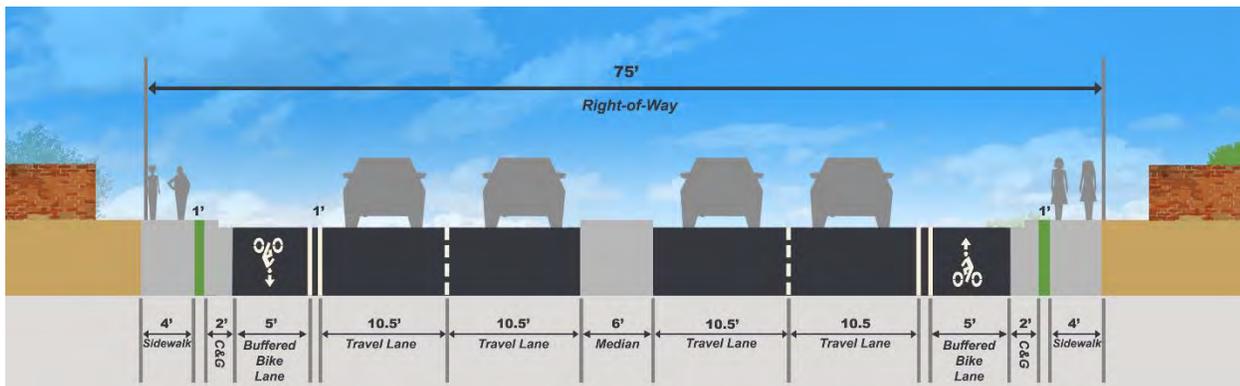
EXISTING CONDITIONS

The figure below depicts conditions south of Benton Ave. This segment features about 61 feet of paved roadway space and 75 feet between the subdivision walls on either side of the roadway. Sidewalks and bike lanes are present but are narrow and feature minimal or no separation from vehicle traffic. Travel lanes are slightly wider than the minimum widths identified in the DPM. The majority of the segment features 6-foot medians, though some portions feature wider medians and paved roadway areas to accommodate turn lanes approaching intersections.



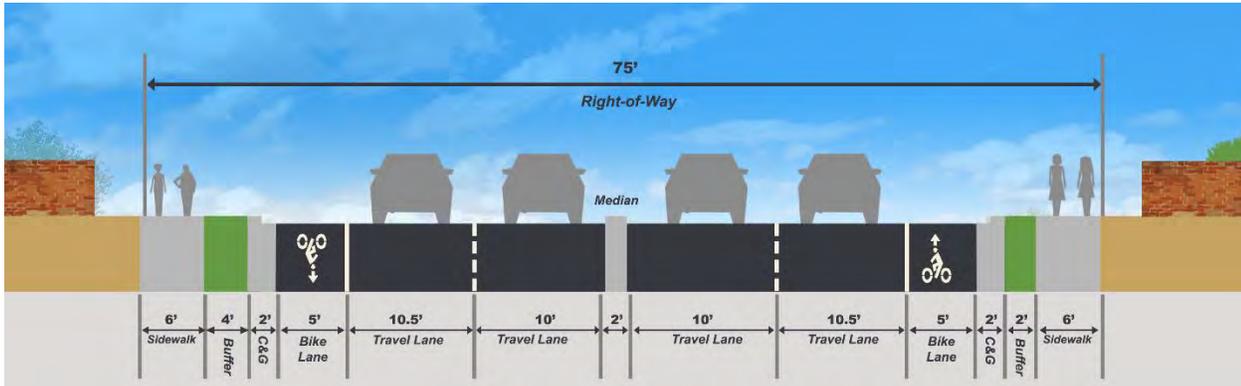
SHORT-TERM ALTERNATIVE VIA RESTRIPIPING

- Retains existing curb lines on both sides of the street.
- Narrows travel lanes and reallocates roadway space for wider bike lanes with striped buffers.



LONG-TERM ALTERNATIVE WITH MEDIAN NARROWING

- Retains existing curb line on the northbound side of the road.
- Narrows the median by 2 feet, where space allows, and moves southbound curb towards the center of the road to create wider sidewalks and small landscape buffers.
- Depending on the available space and the width of the landscaping buffer, narrow bike lanes could be widened or a striped buffer could be provided.



APPENDIX B: DESIGN CONCEPT LAYOUTS FOR COMPLETE STREETS ALTERNATIVE

SAMARA RD TO BUTTERFIELD TR



BUTTERFIELD TR TO CALLE NORTEÑA (PART 1 OF 2)



BUTTERFIELD TR TO CALLE NORTEÑA (PART 1 OF 2)



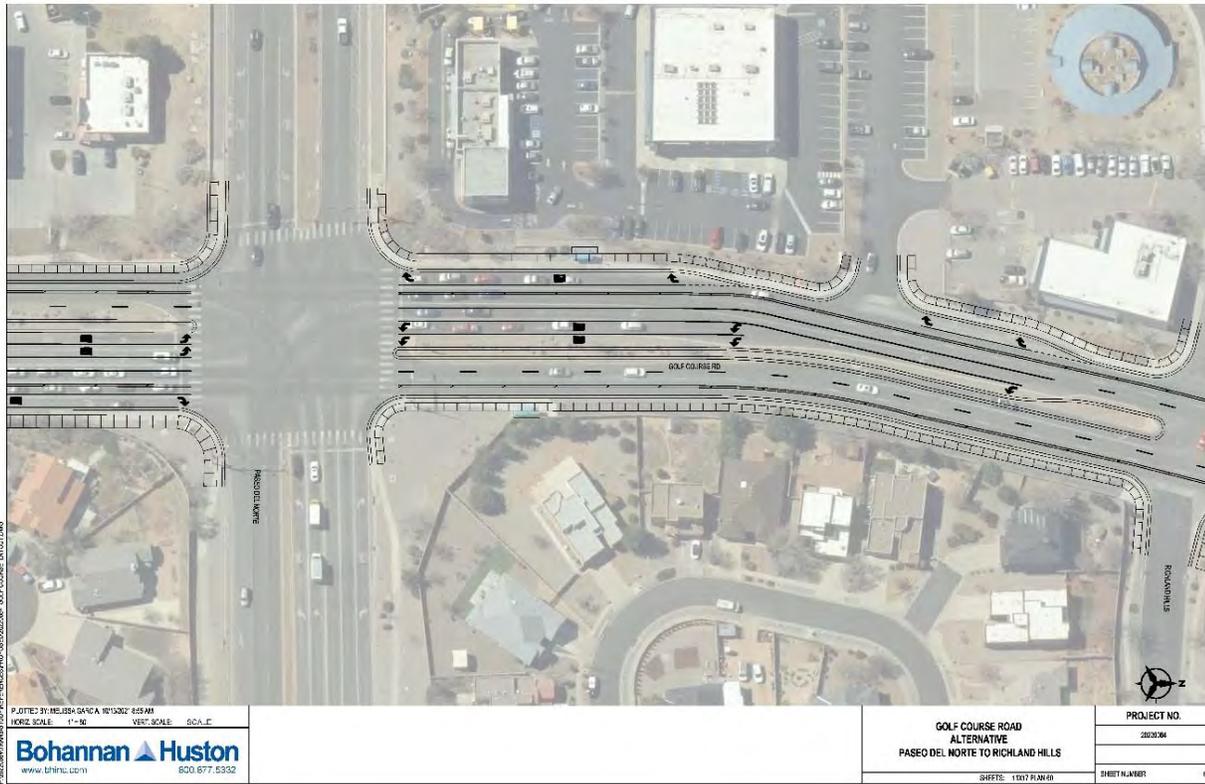
CALLE NORTEÑA TO LAS TERRAZAS ST



LAS TERRAZAS ST TO PASEO DEL NORTE



PASEO DEL NORTE TO RICHLAND HILLS DR



RICHLAND HILLS DR TO SHELLY ROSE RD



SHELLY ROSE RD TO MARNA LYNN AVE



MARNA LYNN AVE TO PARADISE BLVD (1 OF 2)



MARNA LYNN AVE TO PARADISE BLVD (2 OF 2)



APPENDIX C: NOTES FROM TECHNICAL COMMITTEE MEETINGS

Technical Committee Meeting – June 23, 2021

Project Background

- Golf Course Rd connects residents to popular commercial nodes. Per Council Services, the public wants to see more multi-modal transportation options in the corridor.
- Residents have also expressed a desire for increased access to parks along the corridor. Residents like Mariposa Park but the trails along Mariposa Park do not have many connections to other facilities.
- Crash at senior home south of McMahon is an impetus for the study. The speed limit was reduced on this portion of the corridor.
- Traffic issues related to Starbucks drive thru near Paradise was also a reason to pursue the study.

Pedestrian Facilities and Considerations

- There is a gap in sidewalk network in the Bernalillo County portion of the corridor between Paradise Blvd and Irving Blvd
- Mid-block crossing (Piedras Marcadas Trail) was considered for a HAWK signal but was not installed because of the distance between signalized intersections and the poor sightlines.

Trail Improvements and Considerations

- Maintenance of off-street trails is an issue; green space that provides a buffer is expensive to maintain.
- Federal funds can no longer be used to maintain landscaped features/areas.
- Calabacillas Arroyo project: trail study is currently underway, including the intersection with Golf Course Rd.

Residential Access to Golf Course Rd

- Neighborhood access to Golf Course Rd is limited; residents generally expect a high degree of privacy in this district.
- City has not had much success introducing breaks in existing subdivision walls or creating new access points.
- Arroyos might provide access points to use to connect residents to Golf Course Rd. The AMAFCA dam near the Piedras Marcadas Trail has neighborhood access on the north side where there is a break in the subdivision wall. The access point is highly utilized.

Parks Access

- The Parks Department has been working on the “10-minute walk” task to determine how people can walk to parks within 10 minutes. The recommendations from this study may have implications for the 10-minute walkshed and access to parks.

Land Use

- There were questions among Technical Committee members related to the type of development that should occur to realize the “Main Street” vision for the corridor.
 - How should buildings be oriented to the street?
 - What type of land use change would be needed to deliver a more community-oriented facility?
 - The residential areas of the corridor are largely built out and there are few opportunities to change the orientation/design of existing residential areas.
- Alban Hills neighborhood located north of La Orilla Rd and east of Golf Course Rd is part of unincorporated Bernalillo County and is not in the City of Albuquerque. This neighborhood has a different character than the rest of the corridor; residents might want access but generally want to be left alone.

Traffic Operations

- The Paseo del Norte intersection is critical for the operation of the corridor should Golf Course Rd become a more community-oriented roadway; access to Paseo del Norte may need be modified.
- NMDOT performed corridor study for Paseo Del Norte in 2019 that examined traffic operations improvements using micro-simulation. The study included the intersection with Golf Course Rd.

Roadway Improvements on Paseo del Norte

- City is in the process of raising funds for right-of-way acquisition and design along Paseo del Norte from Rainbow Blvd to Calle Norteña. Construction funds have already been programmed.
- The project will widen the facility to two lanes in each direction with a median and an off-street trail that would be parallel to the road.

Additional Data Analysis/Next Steps

- Question regarding **lane widths** along the corridor; assessment to be completed as part of the existing conditions assessment.
- Question regarding **crash data** and locations of frequent and severe crashes; Richard Meadows (Bernalillo County) is particularly concerned about the intersection with Paseo del Norte. Crash data to be evaluated as part of the existing conditions assessment.
- Where are the majority of the crashes taking place?

Discussion on Main Street Concept

- A primary goal of the project is to create a complete street that would help define the identity of the area. Of the streets in the Northwest Mesa, Golf Course Rd presents the greatest opportunity to serve as locally-oriented street. Reducing travel speeds is going to be crucial for delivering the community-oriented character that is desired.
- Use of the term “Main Street” is somewhat confusing to people because of State Main Street label/requirements. The Comprehensive Plan also contains a “Main Street Corridor” designation that applies to Principal Arterials
- Discussion on the alternatives or a more appropriate term:
 - Community minor arterial - Adapted term from MRCOG designations
 - Multi-modal corridor designation from the Comp Plan

Balancing Desire to Create Community Character with Traffic Operations

- Because there are inherent tradeoffs, ensuring that the community gets something that they're happy with is critical for the success of the study.
- Communication with area residents will be critical; how do we convey that traffic calming techniques will not dramatically slow down travel times along the corridor?
- BHI is also evaluating appropriate techniques for at-grade trail crossings. The Golf Course Rd Study can leverage the trail crossing study for recommendations.

Technical Committee Meeting – August 11, 2021

Main Discussion Items

ROADWAY CONFIGURATION

- The Project Team presented its analysis that a road diet is not appropriate given the traffic volumes and role of the roadway. Roadway expansion is also not feasible given the physical constraints along the corridor and the desire to add bicycle and pedestrian facilities.
- Current travel lanes range from 10 to 12 ft. ABQ Ride generally requires at least 10.5 ft lanes for the outside lane used by buses. The DPM indicates that the inside travel lanes on Major Transit Corridors may be 10 ft wide.
- Discussion on Traffic Calming:
 - Adding street trees can help reduce speeds and improve pedestrian safety.
 - Adding street trees should be prioritized over trees in the median.
 - Reducing travel lanes can help slow drivers and decreases crossing distances for pedestrians.

DISCUSSION ON ACCESS TO PETROGLYPH SHOPPING PLAZA

- Attendees asked whether there could be changes to the configuration of the parking lot to increase queuing space in the parking lot, thereby preventing vehicles from queuing on the street.
- The site plan was previously approved and the City cannot compel existing developments to make changes to the parking lot. Instead, the City could approach the property owner and express its concerns and ask if there's anything they are willing to do to address the problem.
- Potential solutions could include signage to indicate where the queue should start and move queue around parking lot island, or new curbs and landscaping to physically direct queues in ways that reduce stacking in the driveway and on Golf Course Rd.

MAIN STREET CONSIDERATIONS

- The Comprehensive Plan corridor designations are a means of influencing land use, development forms, and roadway design. The Project Team presented a discussion on the existing designation as a Major Transit Corridor and a comparison among different corridor types. The Project Team recommended no change in the existing designation as the road design and land use guidance generally support desired improvements along Golf Course Rd.
- Maintaining the designation would require no changes to the Comprehensive Plan, which is an added benefit.
- New developments would be able to take advantage of parking reduction incentives. City Planning staff indicated that workforce housing is permitted along Major Transit Corridors, which would allow developers to build taller buildings.

- One attendee asked whether there is available ROW near the shopping plazas that could be used to provide more amenities at these locations. The Project Team will look into the available information on property lines and public ROW.
- One of the missing land uses along the corridor is multi-family residential; if shopping plazas were to redevelop with more multi-family residential, this could help deliver a more community-oriented street.
 - Multi-family is permitted in mixed use zones along the corridor and could be encouraged as shopping plazas redevelop. The City may consider approaching property owners to explain that they are able to develop mixed-use residential/commercial.
- The Project Team raised the possibility of adding a new Activity Center designation to one or more locations along the corridor. The designation would provide additional land use flexibility but would require an amendment to the Comprehensive Plan. Additional discussion is required.

OTHER DISCUSSION ITEMS

- **Safety:** In response to a discussion on sources of crashes along the corridor, the Project Team indicated that driver inattentiveness and driver error were commonly cited as top contributing factors. The severity of crashes due to these reasons can be reduced if travel speeds are lower. Many crashes were related to turning movements at shopping centers.
- **Future Traffic Levels:** The travel model results from the 2040 MTP indicates 5-10% growth in traffic along by corridor in the next 20 years. However, population growth might not be as rapid under revised projections.
- **Transit:** Though material was not presented the meeting, the Project Team has documented transit service and high-use stop locations. That information will inform recommendations for additional pedestrian crossing locations.

Technical Committee Meeting – October 13, 2021

Main Discussion Items

MEETING BACKGROUND

BHI presented draft alternatives for segments along the Golf Course Rd corridor for feedback and discussion from the Technical Committee. General improvement priorities are based on the existing conditions assessment and the feedback received during the public outreach process.

DISCUSSION ON SEGMENT FROM MONTAÑO RD TO PARADISE BLVD

General Alternatives

- BHI presented two alternatives for improvements to the segment between Montaña Rd and Paradise Blvd. The segment features wide landscaped medians that may be converted to other uses.
- The **first alternative** maintains the existing curb lines and relies on narrowing the medians to create space for buffered bike lanes. Landscaping buffers are only provided on the edges of the roadway in locations where they already exist. The **second alternative** moves curb lines and implements on-street bikeways, landscape buffers, and a multi-use trail at sidewalk level along the extent of the segment. The second alternative would provide a more Complete Street, but would likely be more disruptive and more expensive.

- **Question regarding near-term and long-term strategies:** Could Alternative 1 be a short-term solution with Alternative 2 being the long-term solution? BHI staff indicated that there are few options to create complete streets without narrowing the median. Therefore, the question becomes, should we move curb lines at the same time as narrowing the median?

Discussion about Separated vs On-street Bikeways

- Attendees discussed whether, because of high traffic levels, it would be better to have a separated bike facility to increase comfort.
- Rio Grande Blvd example: While there have not been formal bicycle counts, anecdotally there are many more bicyclists using the new Rio Grande Blvd buffered bike lanes even though the Bosque Trail is nearby. Even kids can ride on it now when they never would have before. However, traffic volumes are much higher on Golf Course Rd and there may not be enough space on Golf Course Rd to create the same experience as users on Rio Grande have.
- Tramway Blvd example: Although it is higher speed than Golf Course, the multi-use facility on the east side gets heavy use. But still many cyclists prefer to ride on the roadway shoulder. NMDOT recently restriped the roadway to make it more comfortable for bicyclists riding on the road.

Level of Use and Before/After Studies

- Question: Would it make sense to do bike counts on existing trails and bike lanes to see if people are using the current facilities? It would be nice to collect data now to see how ridership changes with infrastructure improvements. MRCOG is growing its counts program for non-motorized transportation; they can discuss internally the options for Golf Course Rd before/after studies.
- MRCOG has cameras to do bike counts, they could set them up at a few locations along the corridor. It might be slightly misleading, as there would be more people using the trails if they were continuous. It is possible to look at Strava data to evaluate before/after cyclist data for Rio Grande Blvd to see how much cyclist use increased.
- Using bike counts as a warrant for cyclist infrastructure is tricky because there won't be bicyclists riding on unsafe infrastructure.
- A survey on preferred facility types could be an option; a survey could be placed on City Councilor's website. City staff raised the possibility of speaking to GAATC to get input.

General Discussion on Maintenance

- Though this study represents an early step in the project development process, there will be a need to coordinate with Solid Waste and Parks and Recreation on potential maintenance needs. Solid waste generally maintains medians but not streetscapes outside of medians. Parks and Recreation might not have enough capacity to maintain the sidewalk buffers.

Discussion on Future Congestion along the Corridor

- City DMD staff asked about the impacts of Complete Street improvements along the corridor with respect to congestion. BHI staff responded that the best tool for projecting congestion is the regional travel demand model. However, the travel model does not take into account bike lanes, trails, or sidewalks. This study proposes narrowing but not removing lanes, which should not force re-distribution of trips in the travel demand model.

General Discussion

- Golf Course Rd is fully built-out, so it comes down to how to allocate city funding. Councilor Borrego is also focused on Paseo, Unser, and other road improvements, which are quite expensive. Where does Golf Course fall into the order of importance for funding?

PARADISE BLVD TO IRVING BLVD

General Discussion

- Options for enhancing bicycle and pedestrian facilities are more limited along this portion of the corridor due to the fact that land uses are built out on both sides of the street and much of the corridor is bordered by subdivision walls. Medians are significantly narrower and present only limited options for narrowing and reallocating space to other roadway users and facility types.
- The options presented generally involve maintaining the existing curb lines and narrowing travel lanes by small amounts and reallocating that space to create wider bike lanes.
- Sidewalk gaps are present to the south of Greene Ave. BHI recommends a pedestrian crossing at this location and encouraging pedestrians to utilize Greene Ave, which travels parallel to Golf Course Rd.
- Paradise Hills Zoning Committee is a powerful neighborhood group that should be represented at the meeting.

Lane Widths

- ABQ Ride prefers outside travel lanes of at least 10.5 feet. Committee members discussed options for reducing other roadway elements to provide sufficient width for bike lanes and the outside general purpose lane. Options discussed included reducing the outside buffer to less than 6 feet (which would minimize its utility for on-street parking) and reducing the two-way left turn lane below 12 feet (which may not meet Bernalillo County Technical Standards).
- To leave room for on-street parking, a minimum of 6 feet is needed in the buffer area, which can be combined with 1-foot from the gutter pan to provide 7 feet total, which is the narrowest width permitted in the DPM for on-street parking.
- ABQ Ride will need to check to see if bike lane buffer could be calculated into extra width needed for bus lane.

OTHER DISCUSSION ITEMS

- **Pedestrian crossing locations** were presented to the Technical Committee. City staff asked whether they could be pursued as a near-term solution. BHI staff indicated that pedestrian crossings could be proposed in the report as a near-term recommendation and could be located in places where the future improvements would not affect the usability of the crossing
- **Traffic signal equipment:** In response to a question about the use of leading pedestrian intervals, City staff replied that they aren't ready to implement them categorically, but because this is a high transit-use/pedestrian crossing area, they could be considered.
- **Outstanding items:** BHI to verify if cost estimates are part of the scope

NEXT STEPS

- BHI will send out the presentation slides immediately following the meeting. BHI will also share the draft Existing Conditions Report by Friday, October 15. The section on Main Street Considerations will be provided in the following weeks.
- The final public meeting will be held on Thursday, October 21.

APPENDIX D: NOTES FROM PUBLIC MEETINGS

Virtual Public Meeting – August 5, 2021, 6:00 to 7:30 pm

Background

This meeting was the first formal public event for the Golf Course Rd Complete Streets Study that was formally advertised and open to the general public. Marketing was conducted through the network of Neighborhood Associations and was announced through Councilor Borrego's website and social media platforms.

Attendance at the meeting included members of the consultant team, City staff, and less than ten members of the public.

Meeting Content and Purpose

Members of the Project Team introduced the scope and purpose of the project and described existing conditions. The presentation included a virtual tour traveling along the corridor from south to north and identified key issues and areas of concern, including gaps in the bicycle and pedestrian networks. Other topics included opportunities along the corridor, such as the ability to narrow travel lanes and utilize the wide medians for other roadway uses. The Project Team also introduced the analysis related to Golf Course Rd as a corridor with the character of a Main Street. Members of the public were asked to identify areas of interest and further analysis.

Schedule and Next Steps

The Project Team introduced the schedule and next steps for the study. A second public meeting will be held in October to introduce draft recommendations. Additional meetings with Neighborhood Associations will take place on an ongoing basis.

Discussion Items

- **Access to Open Space:** One attendee asked whether the project would look at access to open space areas. The Project Team indicated that while the focus of the project is more on the corridor itself, the study will also consider the role that the corridor plays in connecting people to other destinations. These include major cross streets and open space areas
- **Conflicts along Unincorporated Portion of the Corridor:** One attendee asked whether the project team had evaluated the entrance to Paradise Hills Golf Course from the northbound side turning left onto Country Club Rd. Southbound folks are turning east onto Greene in that same area. The middle turn lane is often used by folks turning east and west in the same space.
- **Pedestrian Crossings:** Attendees noted the challenges crossing Golf Course Rd. One specific concern is the need for a pedestrian crossing along the Black Arroyo channels leading to the Black Arroyo Dam. Such a crossing is especially important with the new development going on in the northernmost vacant lot at Golf Course Rd and Westside Blvd.

Virtual Public Meeting – October 21, 2021, 6:00 to 7:30 pm

Background

BHI presented a brief review of the existing conditions analysis and a more detailed examination of potential alternatives alignments along Golf Course Rd. General discussion items and participant input are summarized below.

The meeting was recorded and will be posted online. Comments on the project and input on the proposed alternatives will be accepted through December 31, 2021. Fourteen members of the public attended the meeting.

Walking along Golf Course Rd

- Attendees discussed which pedestrian realm designs would help them feel safe walking along Golf Course Rd. Attendees discussed that separation from the street is important and wide sidewalks would also be a positive feature. Attendees thought that both of the proposed designs would be improvements over the current conditions.
- One attendee stated that currently, nowhere is safe for walking except on the east side between La Orilla Rd and Butterfield Tr.
- Additional discussion focused on trees and landscaping in the pedestrian realm, Attendees discussed the importance of shade and that landscaping can improve safety by creating a visual barrier between vehicle lanes and the sidewalk. Some participants were concerned that large trees could block sight lines for drivers, especially if they are not pruned regularly. One participant mentioned that tree roots can intrude onto sidewalks and smaller shrubs might be a better solution.
- A participant noted the absence of sidewalks between Paradise Blvd and Irving Blvd and commented sidewalks should be prioritized that in the constrained section on the east side because of the presence of houses. The project is not proposing to add sidewalks to this section because of the constrained right-of way. Instead, it proposes re-routing pedestrian traffic to Green Ave with pedestrian crossings and wayfinding.
- One participant asked about the plans for the city open space between Calle Norteña and Butterfield Tr, which is currently a dirt trail. BHI staff indicated that it may be possible to construct a sidewalk or multi-use trail along the edge of the property because it is City-owned.

Bicycling along Golf Course Rd

- Attendees briefly discussed which designs would encourage them to bicycle on Golf Course Road. One attendee preferred on-street bike lanes with signage, stating that a multi-use path would create conflict between users.
- Participants discussed that whether they would feel comfortable using the on-street bike lanes would depend on traffic speeds. With higher traffic speeds, participants said they would feel more comfortable on the multi-use path but that overall, they would prefer to be separated from pedestrians.
- One attendee expressed concerns about bicyclist conflict with left-turning vehicles at the intersection of Paseo del Norte. The attendee also mentioned that when the queue for Starbucks backs up on the street, cyclists might be forced to merge with traffic.

- City staff indicated there will be a short survey posted on the project website to identify bicyclist preferences on the corridor.

Pedestrian Crossings

- Attendees discussed different options and locations for pedestrian crossings. Participants thought that pedestrian crossings could be improved or added at Paseo del Norte and Marna Lynn. Project staff responded that a previous traffic study found that a traffic signal was not warranted at Marna Lynn, but the team is documenting public concerns about this location and evaluating the possibility of a pedestrian crossing.
- One participant asked what types of pedestrian crossings are being considered. Project staff responded that the team is considering designated crossings with pavement markings, signage, and refuge islands. HAWK signals which bring traffic to a complete stop may also be considered. Attendees expressed support for pedestrian refuge islands.
- There was discussion about whether cars will stop for pedestrians at designated crossings. While they are legally required to stop, many do not. Participants expressed safety concerns when only one lane of traffic stops for a pedestrian.
- One participant was concerned about pedestrian crossings on road curves where driver sightlines are reduced.
- A participant asked if underground/tunnel pedestrian crossings been considered. BHI staff indicated that tunnels have not been assessed and would be difficult to locate because of the land uses on either side of the corridor.

Lighting

- Attendees discussed some concerns about adding lighting to the corridor. One participant stated that some residents might not want bright lighting outside their houses. Another participant asked if the City has a night sky ordinance.
- Project staff responded that the city does have an ordinance, and the lights that would be installed would be shielded. Shorter poles can also be used in residential areas to reduce the impact of the lights.
- One participant wanted to preserve the view of the city from the open space area and cautioned against adding too many trees or light poles in this area.

Working with Developers and Businesses

- There was a brief discussion about the issue of queuing backing up in the street at the Starbucks near the Paseo del Norte intersection. The project team stated that improving circulation within the shopping center would be the best solution to the issue, but those improvements would be up to private business owners. Addressing access into the shopping plaza is part of the study but will require more detailed design work.
- Another participant asked if the team is working with the new apartment developments south of Westside Blvd to ensure that the developers are building sidewalks. Project team staff indicates that the City requires developers to build wide sidewalks and buffers, which would be of higher quality than what currently exists along much of the corridor.

Project Timeline and Budget

- One participant asked about the cost of the proposed alternatives. The project team responded that they have not been calculated yet, but that cost estimates are part of the study. The first alternative would be less costly.
- Additional discussion focused on whether improvements could be phased over time. The project team stated that the northern segment improvements are lower cost and could possibly be implemented sooner than improvements to the southern segment. The team would like to focus on the areas without bicycle and pedestrian improvements to build first.

Other Comments

- One attendee stated that the Paseo del Norte intersection should be a priority, and another suggested improving the segment north of Calle Norteña first.
- One participant asked whether speed limits could be reduced before the design improvements are made. The project team responded that design treatments are usually the best way to reduce speeding rather than posting new signs.

