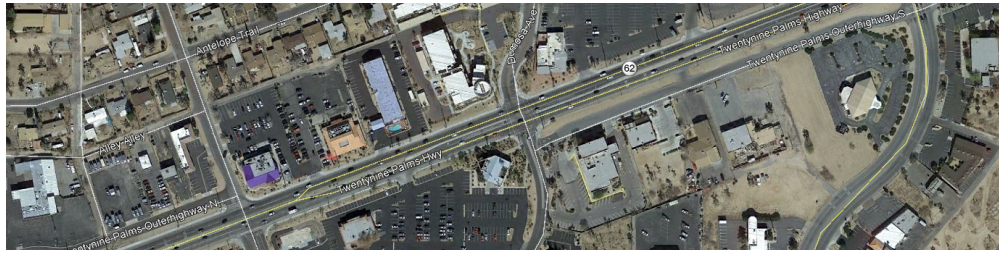
PEDESTRIAN INFRASTRUCTURE TYPOLOGIES

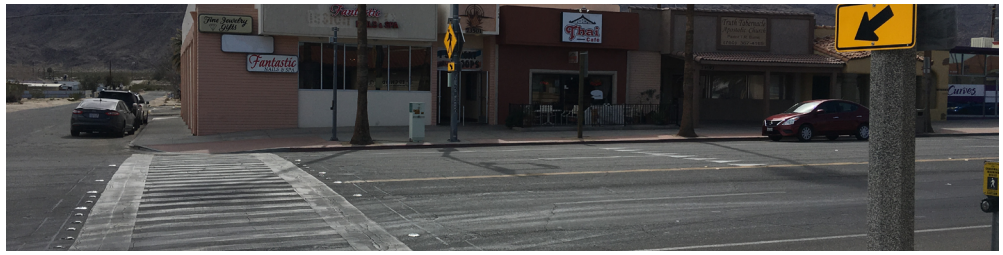
State Route-62 and Commercial Development Corridors

State Route 62 (SR-62) and commercial development corridors (Adobe Road) have expedited pedestrian infrastructure enhancements as these corridors appeal to an increasing flux of tourism traffic and local vitality. Throughout the region sidewalk coverage is largely proximal to the SR-62 and Adobe Road downtown commercial corridors. Sidewalk gaps exist since not all business fronts have been improved, which are typically found on the fringe area of the downtown corridors along SR-62 and Adobe Road. Curb ramps of varying standards are present within the region. In areas experiencing modernizing development ADA compliant curb ramps are present, but not ubiquitous. Overall sidewalk width within this typology ranges from 6' to 10'. The quality of the sidewalk alternates between new, as a result of commercial development, and aged concrete and asphalt.

Infrastructure improvements have been made beyond sidewalks to facilitate tourism and commercial activity, including marked crosswalks, signalized intersections, and pedestrian flashing beacons. Along SR-62 and commercial development corridors there are white marked transverse line crosswalks present at signalized intersections. Painted crosswalks of any kind are not present at stop controlled intersections. Furthermore, a majority of signalized intersections are found along SR-62, which provides pedestrian phasing to enhance crossing accessibility. At some intersections additional pedestrian features have been implemented to enhance crossings where signalized intersections are not installed; pedestrian flashing beacons with pedestrian activation are present within the region as well as refuge islands.



SR-62 and Dumosa Avenue; Yucca Valley



SR-62 and Tamarisk Avenue; Twentynine Palms

SR-62 and Morongo: Pedestrian Hybrid Beacon

Adobe Road and El Paseo Drive; Twentynine Palms

School Areas

School areas within Morongo Basin are generally more developed than other parts of the pedestrian infrastructure network, often within a 600' distance from school boundaries. Streets that are immediately adjacent to school grounds typically include sidewalks (4' – 8' in width), sidepaths that are typically 8' wide, ADA compliant curb ramps, high visibility crosswalks (continental, transverse, and diagonal lines), signage in compliance with MUTCD CA Part 7 guidelines, and speed feedback signs.

In Twentynine Palms, a sidepath network along portions of El Paseo Drive, Two Mile Road, Bagley Avenue, and Utah Trail connects multiple schools and residential neighborhoods. Similar infrastructure exists along Sunburst Avenue in Joshua Tree.

Feedback and observations recorded from conducted Walking Safety Assessments highlighted issues related to high traffic speeds, motorist behaviors, and faded crosswalks or pavement markings.

Onaga Trail & Sage Avenue (Yucca Valley)

Twentynine Palms Junior High School Sidepath (Twentynine Palms)

Black Rock High School Sidewalk (Yucca Valley)

Mesquite Springs & El Paseo Drive (Twentynine Palms)

New Development

As the region experiences an influx in new development, a response to population demands, the enhancements of pedestrian infrastructure features have improved in tandem. The "New development" typology within Morongo Basin is characteristic of residential housing developments and business areas that install new sidewalk and curb ramps. Communities within Yucca Valley and Twentynine Palms both are host to these treatment enhancements. If new development occurs within an already established area, sidewalk spot treatments are common.

Older Residential Neighborhoods

A large proportion of the developed land within Morongo Basin falls in-line with the "Older Residential Neighborhoods" typology. Paved roads are common with minimal paved shoulders available; parking is available along the side of the road in the dirt area between the road and the property line. Throughout the region these areas generally lack sidewalk and curb ramp coverage but provide space for pedestrians in the paved/unpaved shoulder right-of-way. Pavement markings and stop signs are typical control mechanisms for vehicular traffic; however, these intersections are void of marked crosswalks for pedestrians.

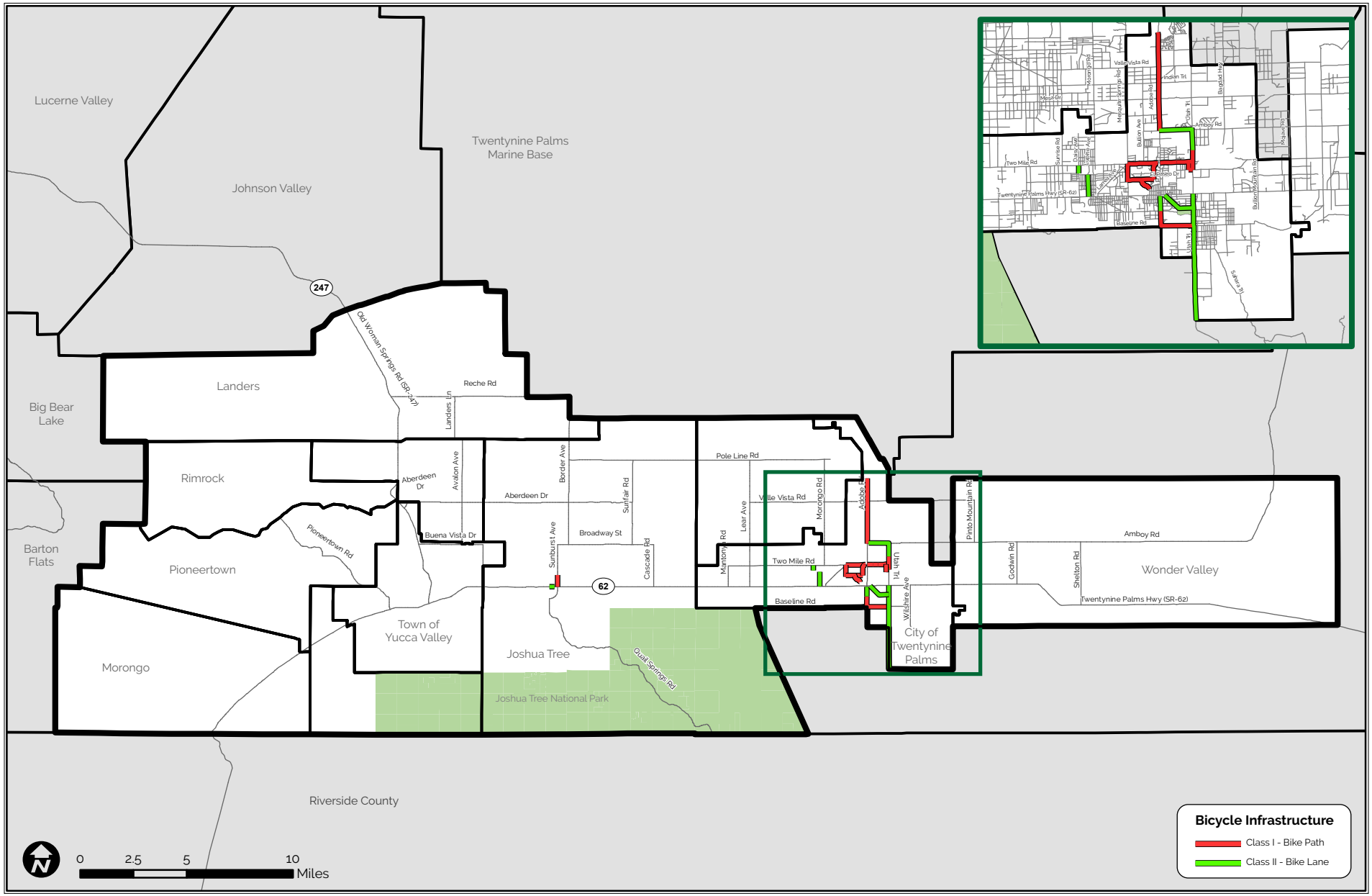
Rural Residential Areas

In Rural Residential Areas where development is limited to sparse residential housing there is often minimal to no pedestrian infrastructure features present. Typical to these areas is low and secluded development with dirt roads connecting to a single paved roadway; these areas are notably farther away from SR-62. Pedestrian shoulders are located along roadways (paved or unpaved) and long stretches of vacant land are common.

3.8. EXISTING BICYCLE INFRASTRUCTURE

The installation of bicycle infrastructure throughout the Morongo Basin is guided by San Bernardino County long range planning documents, such as the Non-Motorized Transportation Plan (NMTP), for the unincorporated areas within the Morongo Basin, and the independent municipalities (Yucca Valley and Twentynine Palms) who develop circulation plans. Existing infrastructure is currently incomplete within each area of the region while the region as a whole, is also void of regional connection.

Figure 3.8.1. Existing Bicycle Facilities



BICYCLE INFRASTRUCTURE TYPOLOGIES

Class I – Bike Path

The region is host to select corridors with existing Class I – Bike Paths, an off-street paved path separated from vehicular traffic. A majority of Class I – Bike Paths are located within the eastern portion of the region (Twentynine Palms). These facilities are characteristic of paved asphalt paths either immediately adjacent to the roadway curb or partially buffered by a variable dirt section; width is typically 8'–12'. Signage is often found along the start of each segment (D11-1 MUTCD CA). Roadways with existing Bike Paths offer connections between residential areas, school sites, and major corridors (i.e. Two Mile Road, Baseline Road, El Paseo Drive, and Mesquite Springs).

The unincorporated San Bernardino Area of Joshua Tree is host to one Class I – Bike Path along the eastern side of Sunburst Avenue, extending from SR-62 north 0.53 miles. This path is separated from the roadway by a dirt section; the width is 8'. Aside from these noted paths no other Class I – Bike Paths are present within the Morongo Basin.

Class II – Bike Lane

Morongo Basin as a whole does not have complete Class II – Bike Lane coverage. Twentynine Palms does have existing Class II – Bike Lanes sporadically across the city, including a roadway stripe and signage in most situations. These facilities are characteristic of on-street shared roadway sections. Roadways within Twentynine Palms that have existing Bike Lanes are: Amboy Road, National Park Drive, Utah Trail, Mojave Avenue, and Encelia Drive.

In most cases across the region, a shoulder stripe is present. However, since these shoulders lack 1) acceptable shoulder width continuity to support bicyclist, 2) well maintained existing pavement conditions, 3) pavement markings/signage, and 4) appropriate separation between motor vehicles traveling at high speeds – they cannot be classified as existing Class II – Bike Lanes. Examples of these incomplete roadways include: SR-62 (across the region), SR-247 (Yucca Valley - Landers), Pioneertown Road (Pioneertown), Park Boulevard (Joshua Tree), Alta Loma Drive (Joshua Tree – Yucca Valley), and Onaga Trail (Yucca Valley). Overall incorporated municipalities' Circulation Plans (Yucca Valley and Twentynine Palms) and unincorporated areas of San Bernardino (Joshua Tree, Morongo, etc.) with proposed Class II facilities.

Class III – Bike Route

Existing Class III – Bike Routes do not exist at present within the Morongo Basin. However, Class III are planned for and found within the represented municipalities' Circulation Plans (Yucca Valley and Twentynine Palms) and SBCTA Non-Motorized Transportation Planning document for unincorporated areas (Morongo and Joshua Tree).

Image 3.8.1: Bicyclists at Knott's Sky Park in Twentynine Palms during the 2018 Park 2 Park Bike Ride

3.9. PEDESTRIAN & BICYCLE USAGE

PROJECT SURVEY RESULTS

The project survey includes questions regarding the locations that people live and work, their walking and bicycling habits and ideals, and the demographics of the survey participants. Surveys were distributed at community events and through stakeholder eBlasts, social media, and to Morongo Basin Active Transportation Plan participating schools.

Approximately 40% and 32% of survey participants live and work in Yucca Valley, respectively. Joshua Tree was the second most common area listed as a residence with 26%. While Joshua Tree and Twentynine Palms accounted for roughly 30% of participants' location of work, 28% did not work within Morongo Basin (Figure 3.7.1).

Several questions in the survey attempted to gauge how commonly and for what purpose respondents use active transportation as a mode of travel. Typical of rural and desert settings, the primary mode of travel is by way of car. Of the 417 survey participants, roughly 53% indicated that they never walk and 61% never bike to a specific destination, while only 25% walk and 17% bike to a destination at least once a week (Figure 3.7.1). Though more than half of participants never walk or bike to a destination, approximately 86% indicated that they walk and 82% bike for exercise or to improve their health. Additionally, 61% or participants walked and 80% of participants biked for run, recreation, or enjoyment (Figure 3.7.3). This is also reflected by the roughly 53% of respondents who noted that they are most likely to walk to and 46% are most likely to bike to trails and parks. Similarly, 50% and 43% were most likely to walk and bike, respectively, to the residencies of neighbors and friends.

Survey participants also had the opportunity to specify the primary reasons why they don't walk or bike more often. The top reasons why participants don't walk more often were because distances are too far (51%), heat or extreme weather (46%), and street or intersection design (42%). Respondents indicated that they did not bike more often because of street or roadway design (49%), vehicles traveling too fast at (38%), and heat or extreme weather (27.3%). In both instances, weather conditions and current roadways in the Morongo Basin region play an important part in dissuading people from walking and biking more.

In being able to identify primary reasons for not walking or biking more, survey respondents were likewise asked what would help encourage them to walk or bike more. Respondents most favorably indicated the addition of more parks and trails (43%), the implementation of safer pedestrian crossings (42%), and the need for additional sidewalks (41%). To bike more, respondents simply indicated the need for more bikeway facilities, including more protected bike lanes (52%), bike lanes (49%), and off-road bike trails (31%).

Lastly, feedback received by survey participants included an indication of specific corridors or intersections that could benefit from active transportation improvements. **Corridors and intersections for pedestrian improvements that were most frequently referenced were:**

Streets / Corridors:

- SR-62
- Adobe Road
- Park Avenue
- Sage Avenue
- SR-247
- Yucca Trail
- Two Mile Road
- Utah Trail

Intersections:

- SR-62 & Adobe Road
- SR-62 & Park Avenue
- SR-62 & Sage Avenue
- SR-62 & SR-247
- SR-62 & Sunset Drive

Corridors for bicycle improvements that were most frequently referenced were:

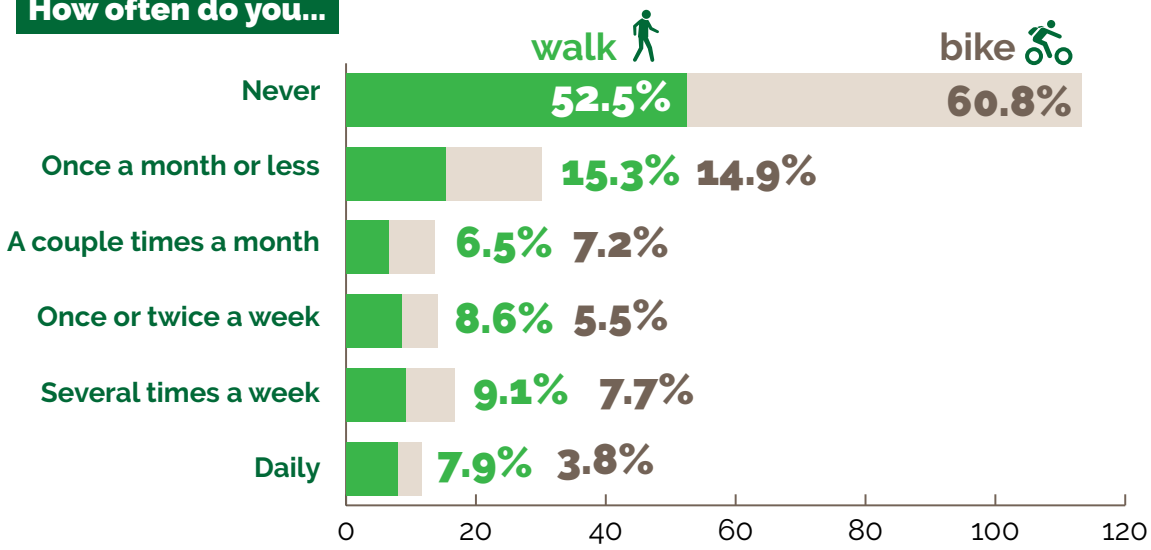
- SR-62
- Palomar Avenue
- Yucca Trail
- Alta Loma Drive

Figure 3.9.1. Project Survey Results Summary

Which community do you...

	LIVE	WORK
Yucca Valley	39.8%	32.0%
Joshua Tree	26.1%	15.0%
Twentynine Palms	14.1%	14.8%
Landers	11.3%	4.6%
Morongo Valley	5.8%	2.4%
Pioneertown	0.7%	0.2%
None	1.7%	27.4%
Other	0.5%	3.4%

How often do you...



Top 3 reasons for walking / biking in the Morongo Basin region

WALKING 85.9% BIKING 82.4%

60.5% 79.9%

26.7% 23.9%

What places are you most likely to walk or bike to...

trails or parks

52.5% WALK 46.3% BIKE

neighbor's or friend's

49.7% WALK 42.6% BIKE

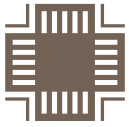
grocery or convenience store

19.5% WALK 17.3% BIKE

Top 3 reasons for not walking more

distances are too far **50.6%**

heat or extreme weather **45.9%**



street / intersection design **41.5%**

Top 3 reasons for not biking more

street / roadway design **48.9%**

vehicles travel too fast **37.8%**

heat or extreme weather **27.3%**

3.10. COLLISION ANALYSIS

Analysis of historical collision data is critical in determining the implementation of specific countermeasures to increase pedestrian and bicyclist safety. Collision data from January 2013 to December 2017 (provisional for 2016 and later dataset) was obtained through the Traffic Injury Mapping System (TIMS) for Morongo Basin. A total of 55 collisions involved a pedestrian while only 12 involved a bicyclist. A total of six collisions were improperly geocoded, one of which involved a bicyclist. Based on the collision data within the time frame, pedestrians are 4.5 times more likely to be involved in a collision than bicyclists. 56% and 36% of all pedestrian-involved and bicyclist-involved collisions occurred on SR-62, respectively. SR-62 connects cities and unincorporated areas within Morongo Basin, making it a frequently traveled highway. It also passes through tourist, commercial, and retail centers, which is where most collisions occurred as seen in Figure 3.7.1. Of the 67 collisions, 75% occurred within 250 feet of an intersection.

The top five intersections based on collision frequency include:

1. SR-62 & Park Boulevard
2. SR-62 & Park Avenue
3. SR-62 & Veterans Way
4. SR-62 & Hallee Road
5. SR-62 & Tamarisk Avenue

64 of the 67 collisions occurred within Morongo Valley, Yucca Valley, Joshua Tree, and Twentynine Palms. The distribution of these collisions can be seen in Figures 3.7.2 through 3.7.3. Within Yucca Valley, most collisions occurred along Twentynine Palms Highway (SR-62) or Yucca Trail. Within Joshua Tree, multiple collisions occurred at the intersection of SR-62 & Park Boulevard and SR-62 & White Feather Road. Within Twentynine Palms, most collisions occurred along SR-62 and Adobe Road.

Figure 3.10.1. Bicycle & Pedestrian-related Collision Heat Map

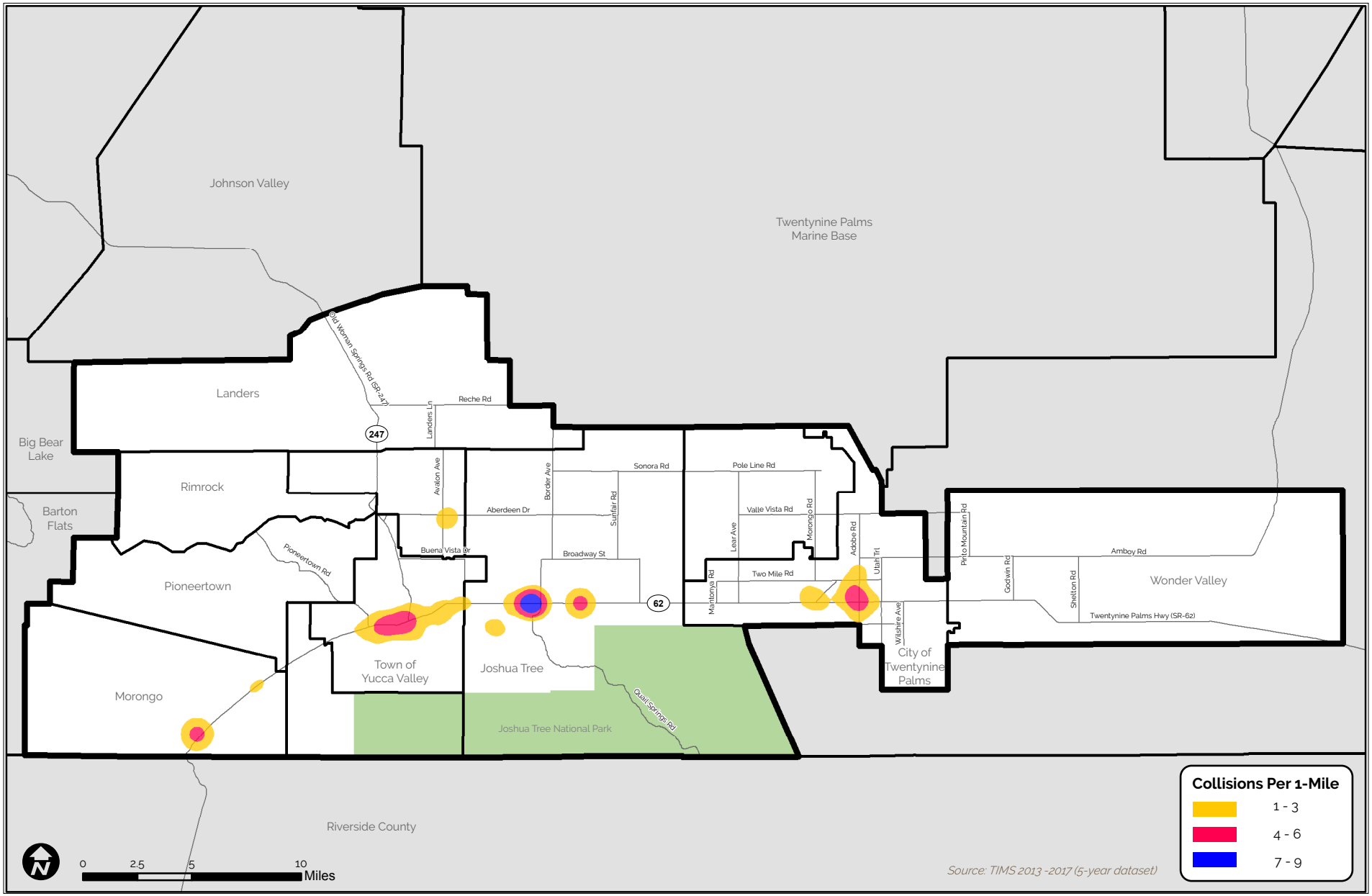


Figure 3.10.2. Bicycle & Pedestrian-related Collision Points (Twentynine Palms)

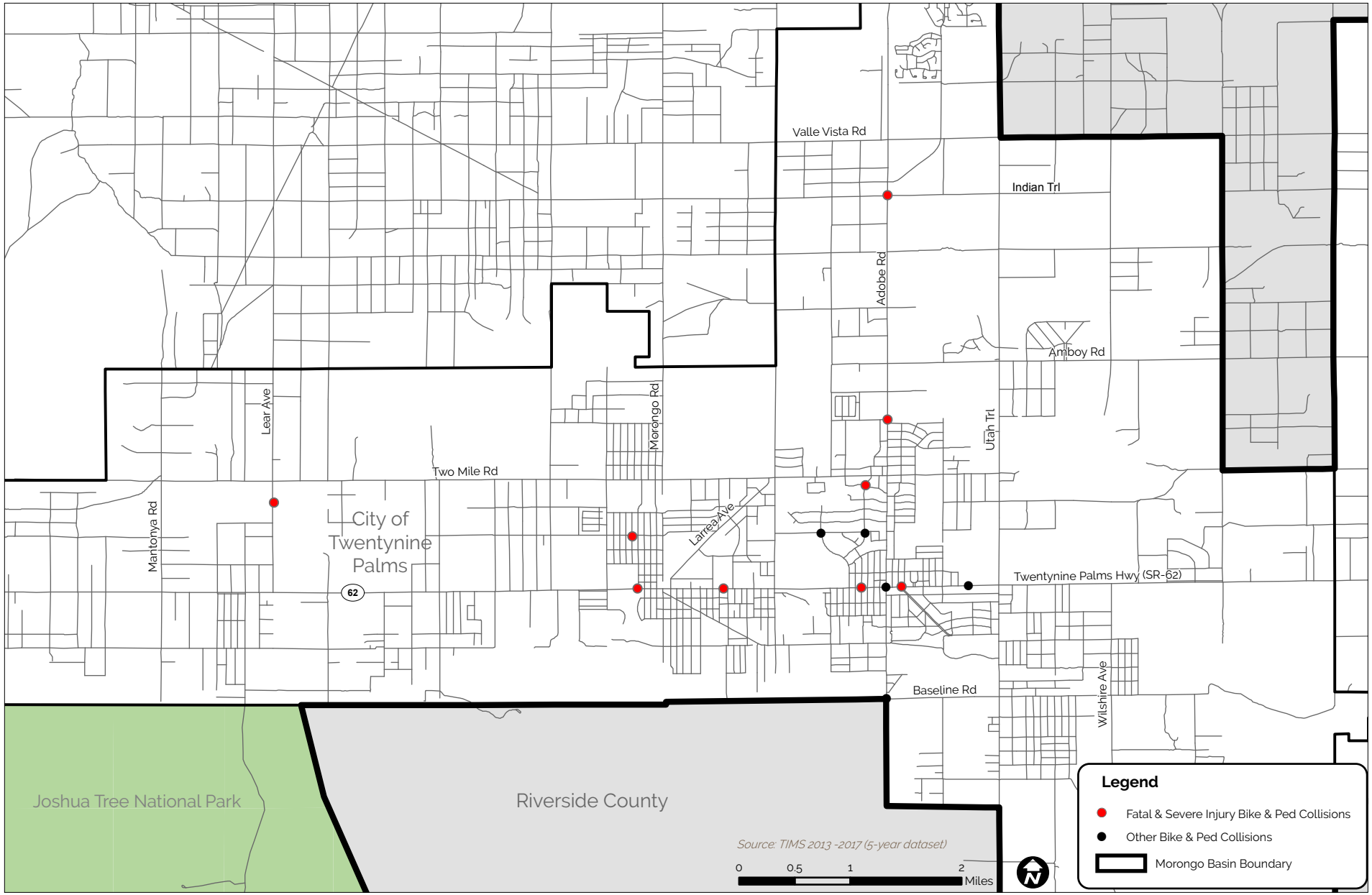


Figure 3.10.3. Bicycle & Pedestrian-related Collision Points (Yucca Valley)

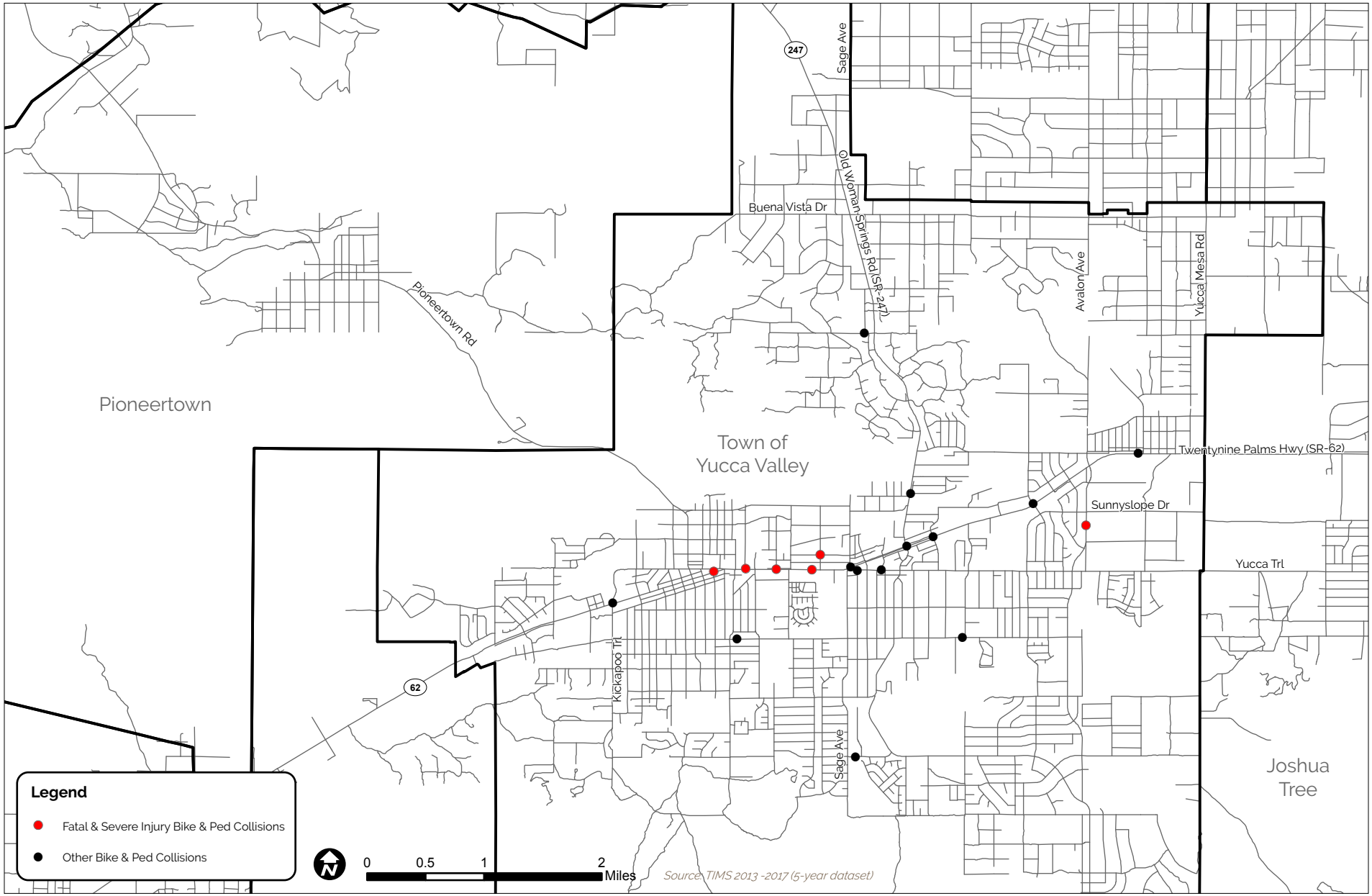


Figure 3.10.4. Bicycle & Pedestrian-related Collision Points (Joshua Tree

COLLISIONS BY SEVERITY

50% of bicycle-involved collisions and 44% of pedestrian-involved collisions included a fatality or a severe injury as seen in Figures 3.7.4 and 3.7.5.

COLLISIONS BY PRIMARY COLLISION FACTOR (PCF VIOLATION CATEGORY)

The primary collision factors for bicyclist-involved collisions were distributed across multiple violation categories as seen in Figure 3.8.7. The "Wrong Side of Road" PCF accounts for 17% of bicyclist-involved collisions, "Unsafe Speed" 17%, "Traffic Signals & Signs" (indicating unclear or poorly maintained signals and signs), "Automobile ROW" (indicating a violation of an automobile right of way) for 17%, and "Driving or Bicycling Under the Influence" for 8%.

The top PCF for pedestrian-involved collisions was "Pedestrian Violation" followed by "Pedestrian ROW". The "Pedestrian Violation" category implies that the pedestrian violated a motor vehicle's right of way. The "Pedestrian ROW" category indicates the pedestrian's right of way was violated by another mode of travel (bicycle or motor vehicle). 88% of the fatal & severe injury pedestrian-involved collisions were due to "Pedestrian Violation".

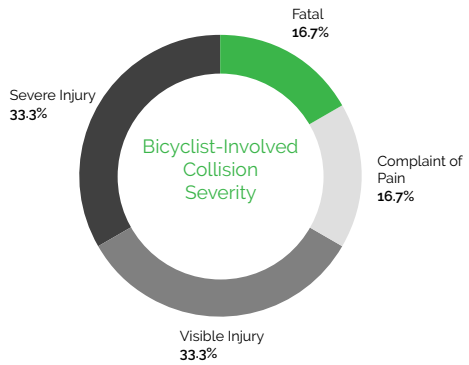


Figure 3.10.5. Bicyclist-Involved Collisions by Severity

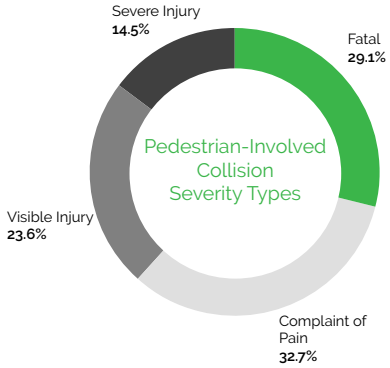


Figure 3.10.6. Pedestrian-Involved Collisions by Severity

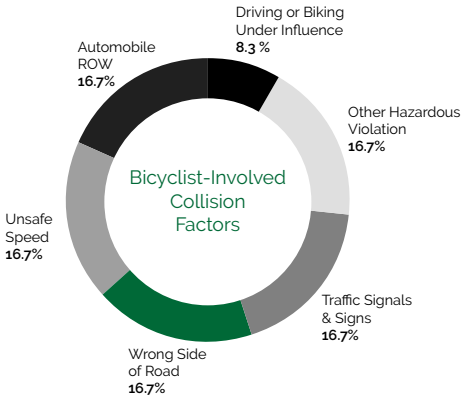


Figure 3.10.7. Bicycle-Involved Collision Factors

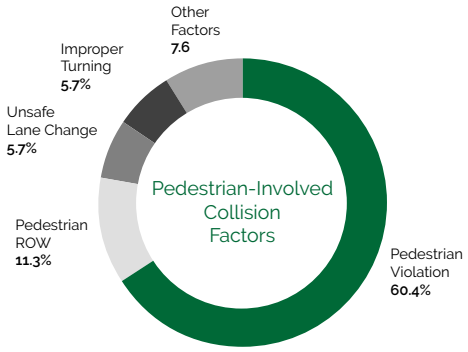


Figure 3.10.8. Pedestrian-Involved Collision Factors

COLLISIONS BY CRASH TYPE

Table 3.10.1. Bicyclist-Involved Collision Types

CRASH TYPE	COUNT	PERCENT	FATAL / SEV. INJURY COUNT	FATAL / SEV. INJURY PERCENT
Broadside	5	42%	**2**	**33%**
Other	3	25%	**2**	**33%**
Head-On	2	17%	**0**	**0%**
Rear-End	1	8%	**1**	**17%**
Sideswipe	1	8%	**1**	**17%**
Vehicle / Pedestrian	0	0%	**0**	**0%**
Hit Object	0	0%	**0**	**0%**
Overturned	0	0%	**0**	**0%**

Table 3.10.2. Pedestrian-Involved Collision Types

CRASH TYPE	COUNT	PERCENT	FATAL / SEV. INJURY COUNT	FATAL / SEV. INJURY PERCENT
Vehicle/ Pedestrian	49	91%	**23**	**100%**
Broadside	2	4%	**0**	**0%**
Sideswipe	2	4%	**0**	**0%**
Overturned	1	2%	**0**	**0%**
Hit Object	0	0%	**0**	**0%**
Head-On	0	0%	**0**	**0%**
Rear-End	0	0%	**0**	**0%**
Other	0	0%	**0**	**0%**

COLLISIONS BY LIGHTING TYPE AND TIME OF DAY

83% of the bicyclist-involved collisions occurred between 3:00 PM and 9:00 PM while 58% of pedestrian-involved collisions occurred between 5:00 PM and 12:00 AM. Morongo Basin is primary rural area and roughly 35% of collisions occur where no street lights exist (Figures 3.7.10 and 3.7.11), which helps to explain the high frequency of collisions in the evening.

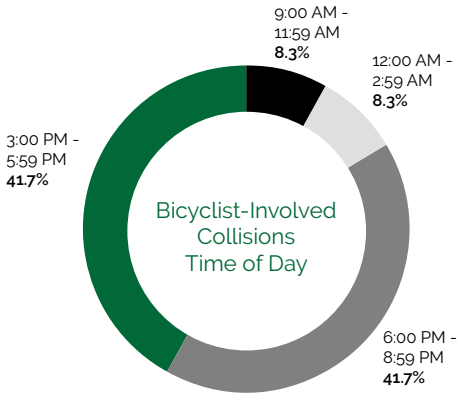


Figure 3.10.9. Bicyclist-Involved Collisions: Time of Day

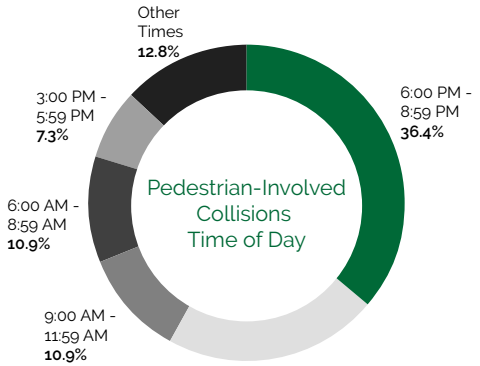


Figure 3.10.10. Pedestrian-Involved Collisions: Time of Day

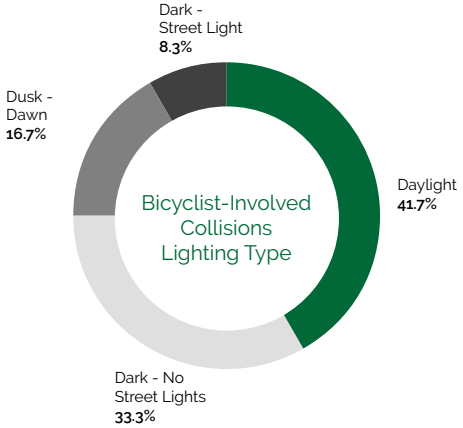


Figure 3.10.11. Bicycle-Involved Collisions: Lighting Type

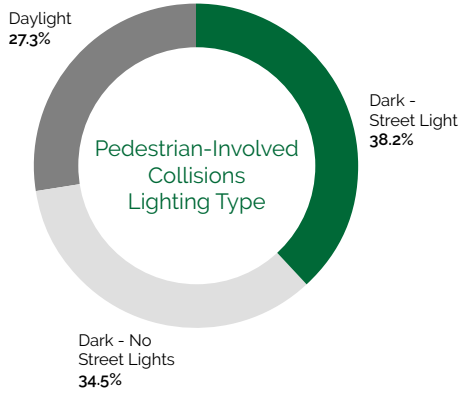


Figure 3.10.12. Pedestrian-Involved Collisions: Lighting Type

PEDESTRIAN-INVOLVED COLLISIONS BY PEDESTRIAN ACTION

80% of pedestrian-involved collisions occurred because the pedestrian was crossing outside of a crosswalk or was using the shoulder of a road. Of the collisions occurring due to the pedestrian not using the crosswalk, 15 resulted in a fatal or severe injury.

Table 3.10.3. Pedestrian Action of Pedestrian-Involved Collisions

PEDESTRIAN ACTION	COUNT	PERCENT	FATAL / SEV. INJURY COUNT	FATAL / SEV. INJURY PERCENT
Crossing Not at Crosswalk	23	41%	**15**	**63%**
In Road, Using Shoulder	18	39%	**7**	**29%**
Using Intersection Crosswalk	10	18%	**1**	**4%**
Not in Road	3	5%	**1**	**4%**
Using Mid-block Crosswalk	0	0%	**0**	**0%**

3.11. MORONGO BASIN & THE LOCAL ARTS COMMUNITY

Cross sector collaboration plays a critical role in the region. Many artists are finding themselves in leadership positions, bringing attention to educational, social justice, veterans and environmental issues. They are integral to the fabric of the community, and existing organizations both recognize and support the role that they have taken on. For example, the Mojave Desert Land Trust, an organization whose mission is to protect the Mojave Desert ecosystem and its scenic and cultural resource values, have worked with individual artists and other agencies to develop a set of artist guidelines known as "Reading The Landscape". The guidelines provides information to artists on how to work responsibly within the desert landscape, *https://www.mdlt.org/discover-learn/reading-the-landscape/.*

Arts Connection, The Arts Council of San Bernardino County, plays a key role in coordinating efforts between local government and the community. Established in 2014 as a nonprofit organization, Arts Connection was designated by the San Bernardino County Board of Supervisors to act as the state and local partner to the California Arts Council. Over the last four years of grant-funded projects, cultural planning efforts, and annual conferences, Arts Connection has built relationships with a wide array of community partners in various sectors within the Morongo Basin and has acted as a liaison between the County government and the local arts community.

Arts Connection recently worked with the Cultural Planning Group and the San Bernardino County Land Use Services Department to bring together 20 arts and civic leaders in the development of the Morongo Basin Strategic Plan for Culture & Arts (MBSPCA). These leaders represented arts, educational, civic, military, and environmental organizations. Together, they strived to envision a model of equitable arts education and programming accessible to all residents, support structures for artists and organizations to make programming sustainable, while also increasing economic opportunities in the region. Some of the participating agencies included Mojave Desert Land Trust, Joshua Tree National Park, Copper Mountain College, Mil-Tree, Joshua Tree Music Festival, the cities of Twentynine Palms and Yucca Valley, Basinwide Foundation, BoxoPROJECTS, Project Sheba, and Harrison House Music & Arts, Taylor Junction, Theatre 29, and Joshua Tree Living Arts among others.

The Morongo Basin has a long and storied history with artists drawn to the natural beauty and vast expanses of the desert landscape, which offers both the space and quietude for creative reflection and production. The area continues to attract creatives, and has become a destination for cultural producers as well as patrons. Supporting this growing population are a variety of existing organizations that provide infrastructure for the arts community and help to champion local, national and international artists in the region. Below is a partial list highlighting a handful of these organizations:

- **The Morongo Basin Cultural Arts Center (MBCAC)**— Their mission is to inspire and enliven the community through the arts, and to enhance the cultural and economic health of the region. They have a cooperative gallery space, curate four offsite "Art in Public Places" venues, and organize the annual HWY 62 open Studio Art Tours
- **Joshua Tree Living Arts (JTLA)** -- is dedicated to strengthening the community through the arts. They provide arts and music education, sponsor special projects, and partner closely with other nonprofits in the region to build capacity and increase accessibility to arts programming for the community at large. They are also the lead organization in the implementation of the MBSPCA.
- **Yucca Valley Visual and Performing Arts Center** -- a new 15,000+ square foot arts facility and annex of the Hi-Desert Cultural Center which hosts a gallery, dance studio, rehearsal space, offices, and outdoor sites for sculpture and installations.
- **Noah Purifoy Foundation (NPF), Outdoor Desert Art Museum** -- NPF's mission is to preserve and maintain the 10 acre site Noah Purifoy developed in Joshua Tree, California as a permanent cultural center and sculpture park open to the public; to promote public recognition and appreciation for the values that Noah Purifoy's work as artist and educator has embodied; and to pursue these goals in a manner that protects Noah Purifoy's contribution as an artist and educator.
- **High Desert Test Sites** is a non-profit organization that supports intimate and immersive experiences and exchanges between artists, critical thinkers, and general audiences – challenging all to expand their definition of art to take on new areas of relevancy. Programs include guides to the high desert's cultural test sites, immersive excursions, solo projects, workshops, publications, and residencies.

For a complete list of organizations and other cultural assets please visit, *https://artsconnectionsb.maps.arcgis.com/apps/webappviewer/index.html?id=798b1fd44c2d4270a1f79e750d30efe2.*