



A freeway widening project was completed by Clark County to improve the section of I-215 between Windmill Lane and St. Rose Parkway/Pecos Road. Another project to implement improvements at the I-11/I-515/I-215 interchange by NDOT and the City has completed the NEPA process and is expected to go into construction by 2025.

2.1 Traffic Congestion

Clark County and the City of Henderson have experienced significant population growth over the last decade. Between 2010 and 2020, Clark County's population grew by over 300,000 residents (an increase of about 20 percent) and the City of Henderson's population grew by over 60,000 residents (an increase of about 25 percent) (U.S. Census Bureau 2010 and 2020). The regional population is projected to continue to grow. This segment of I-215 currently experiences congestion due to the regional population growth, which has increased current traffic volumes that exceed the roadway's capacity.

In addition, high traffic volumes and traffic weaving between interchange on- and off-ramps contribute to traffic congestion and travel delays. Within this approximately 3-mile segment of I-215, there are four interchanges. When vehicles enter or exit the freeway at closely spaced interchanges, they must cross paths with other vehicles. Crossing two or more lanes traveling in the same direction is referred to as "weaving." In general, the speeds decrease and congestion increases as the weave segment shortens.

Under existing conditions, vehicle speeds slow between 27 and 41 miles per hour (mph) during peak AM and PM traffic periods within portions of the study area. By the year 2050, severe congestion (slower than 15 mph) is anticipated in both the AM and PM peak periods for some stretches of the corridor (Figures 2-1 and 2-2) (Jacobs 2023).

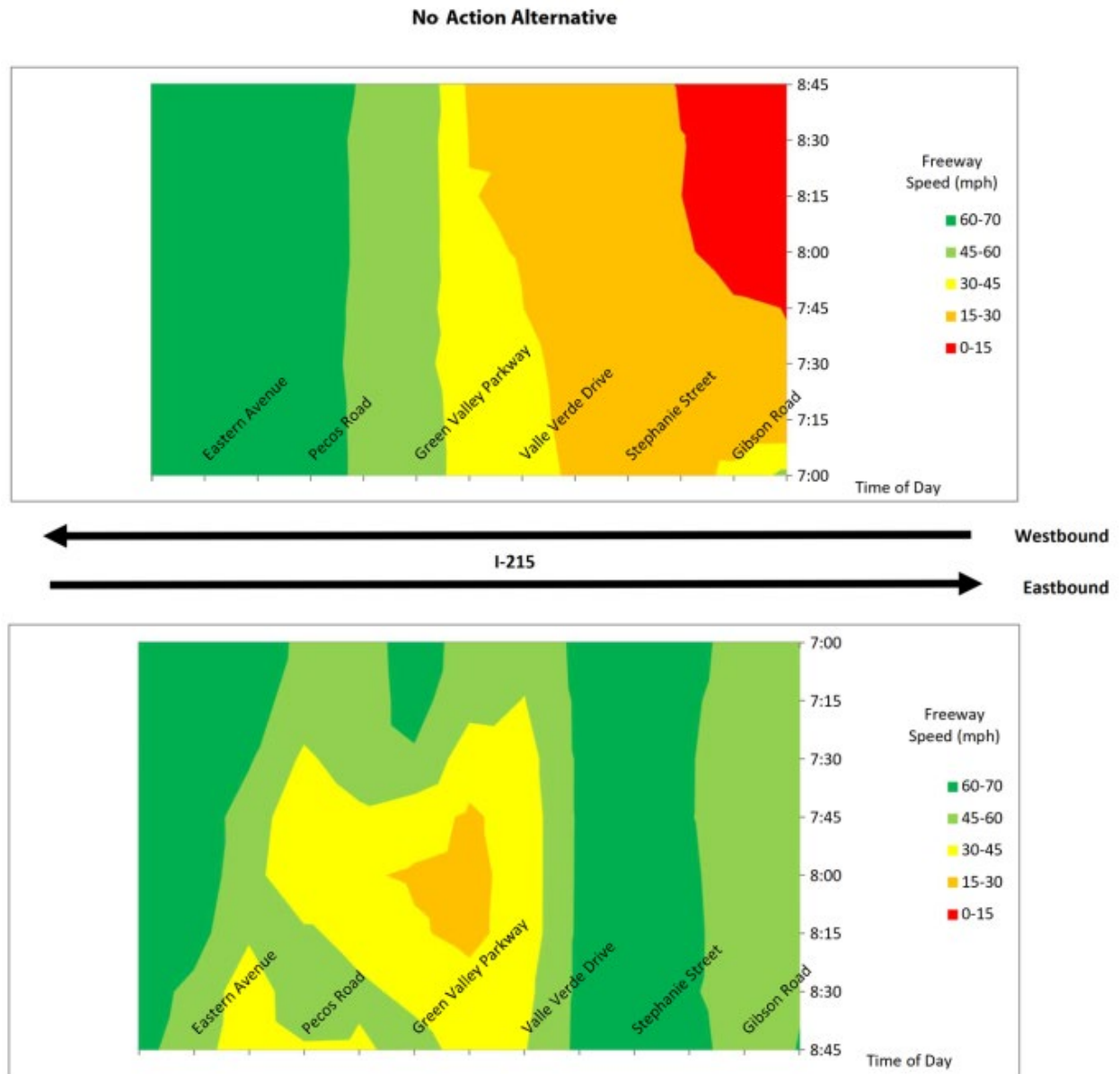


Figure 2-1. No Action Alternative Year 2050 AM Peak Period

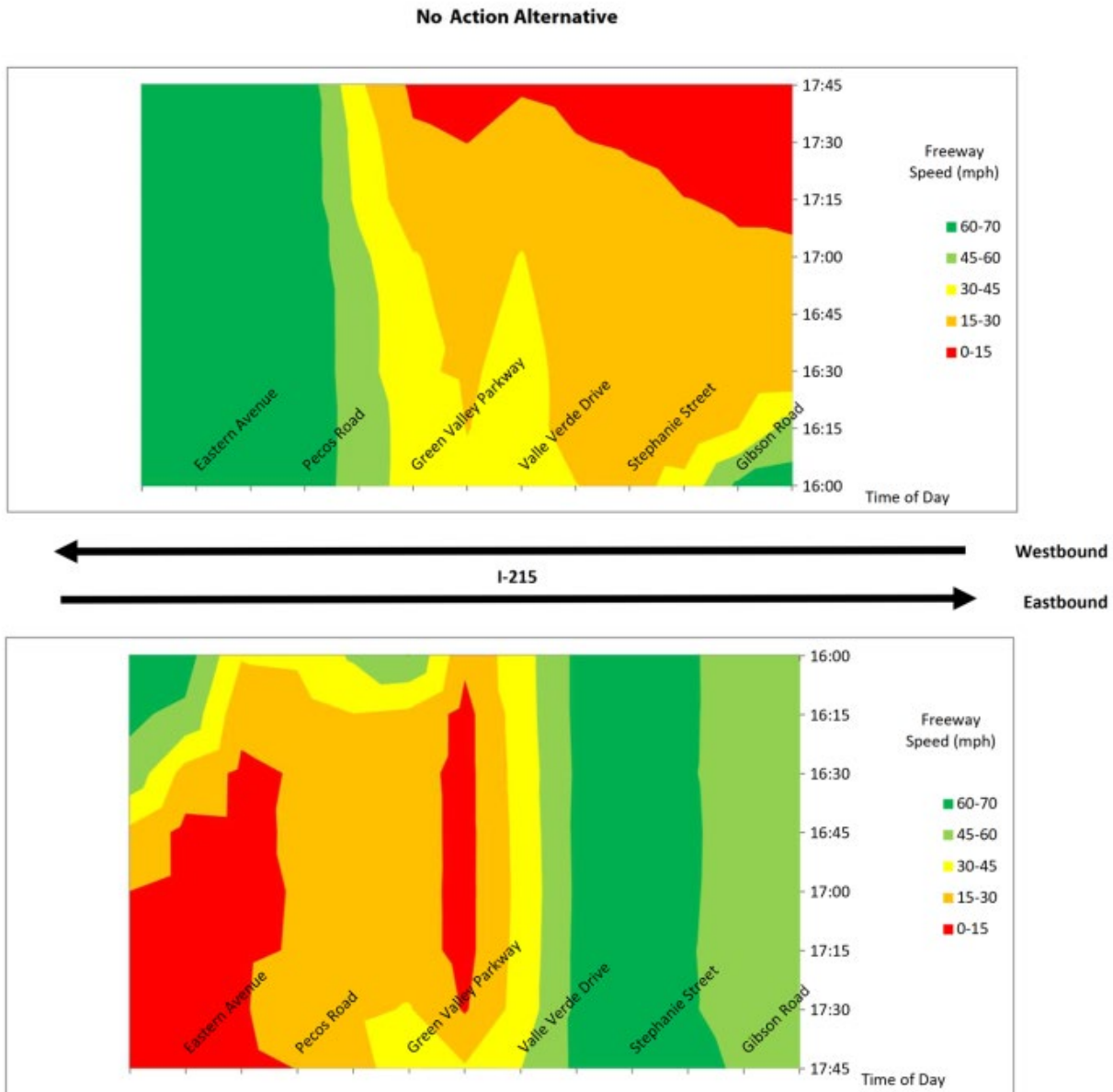


Figure 2-2. No Action Alternative Year 2050 PM Peak Period

2.2 Crashes

Existing roadway deficiencies, specifically weaving movements between interchanges, contribute to accidents within the study area. Roadway safety is measured by the frequency and severity of crashes (i.e., crash type, crash severity, and crash rate).

The most common types of crashes in the study area between 2016 and 2020 were as follows (Figure 2-3):

- **Rear-end crashes** were the most numerous, comprising almost two-thirds of all the crashes in the study area. Almost three-quarters of the crashes that resulted in an injury in the study area were rear-end crashes. High occurrences of rear-end crashes on a freeway are typically the result of peak hour congestion where drivers are stuck in “stop-and-go” traffic and move much slower than the average freeway speed. As a result of congestion, the probability of rear-end crashes is increased, as drivers may be forced to slow and break



suddenly based on what vehicles ahead of them are doing (that is, lane changing, letting other drivers merge, etc.). The high number of rear-end crashes may also be due to higher-speed, free-flow traffic in the through lanes adjacent to slow and stopped traffic attempting to enter or exit I-215.

- **Non-collision crashes** comprised 14 percent of all the crashes in the study area, including two of the fatal crashes in the study area. Non-collision crashes involve only one vehicle going off the road, where the vehicle may strike a fixed object. These crashes may be caused by losing control on wet pavement, avoiding stopped traffic, or leaving the travel lane without enough time to recover.
- **Angle crashes** comprised 11 percent of all the crashes in the study area, including one of the fatal crashes in the study area. Angle crashes often occur where on-ramp traffic merges onto the freeway.
- **Sideswipe/Overtaking crashes** also comprised 11 percent of all the crashes in the study area. Sideswipe crashes occur when two cars going in the same direction hit each other. This often happens when one car leaves its lane of travel and sideswipes the other car. Sideswipe crashes are often indicators of congestion, as well as weaving and substandard ramp spacing.

The frequency of rear-end and non-collision crash types is consistent with congested freeways and short weave/merge sections with high ramp traffic volumes.

Crashes within the study area contribute to traffic congestion on I-215, which leads to increased travel times within the study area. The extent of the congestion depends on the severity of the crash and the number of lanes affected.

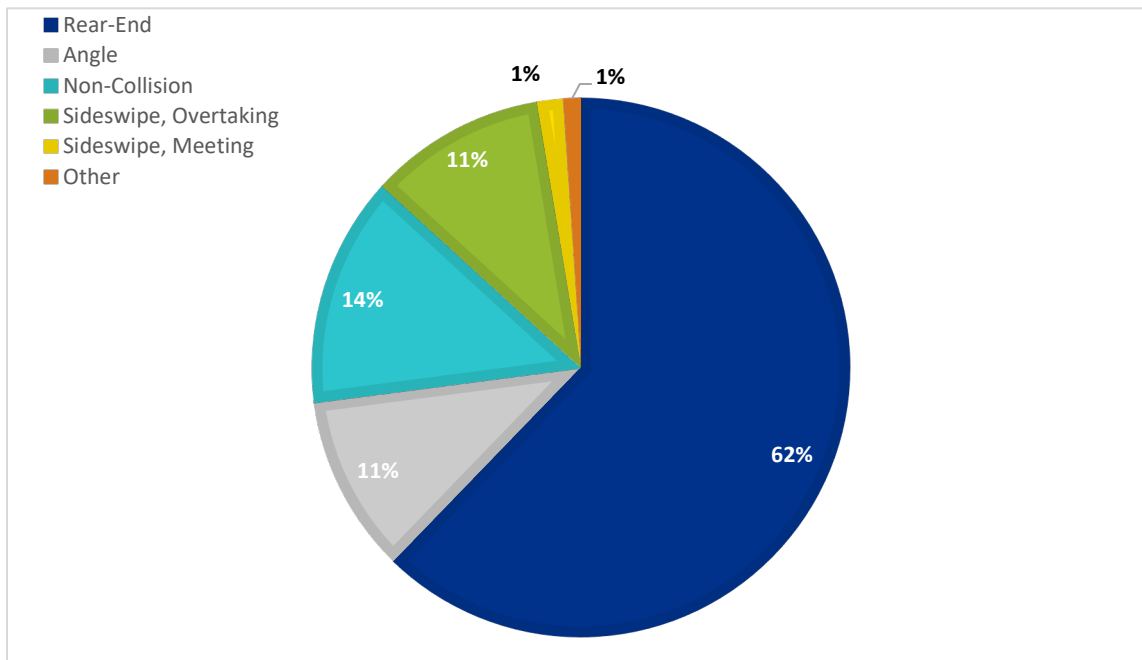


Figure 2-3. Crash Types in the Study Area¹

Crash severity is categorized as fatal, injury, possible injury, and property-damage only as assessed by law enforcement at the scene of the crash. Within the study area between 2016 and 2020, there were four fatal crashes, 493 crashes resulting in an injury, and 1,003 property-damage only crashes (Figure 2-4).

¹ Other crashes include backing, unknown, head-on, and rear-to-rear crashes.

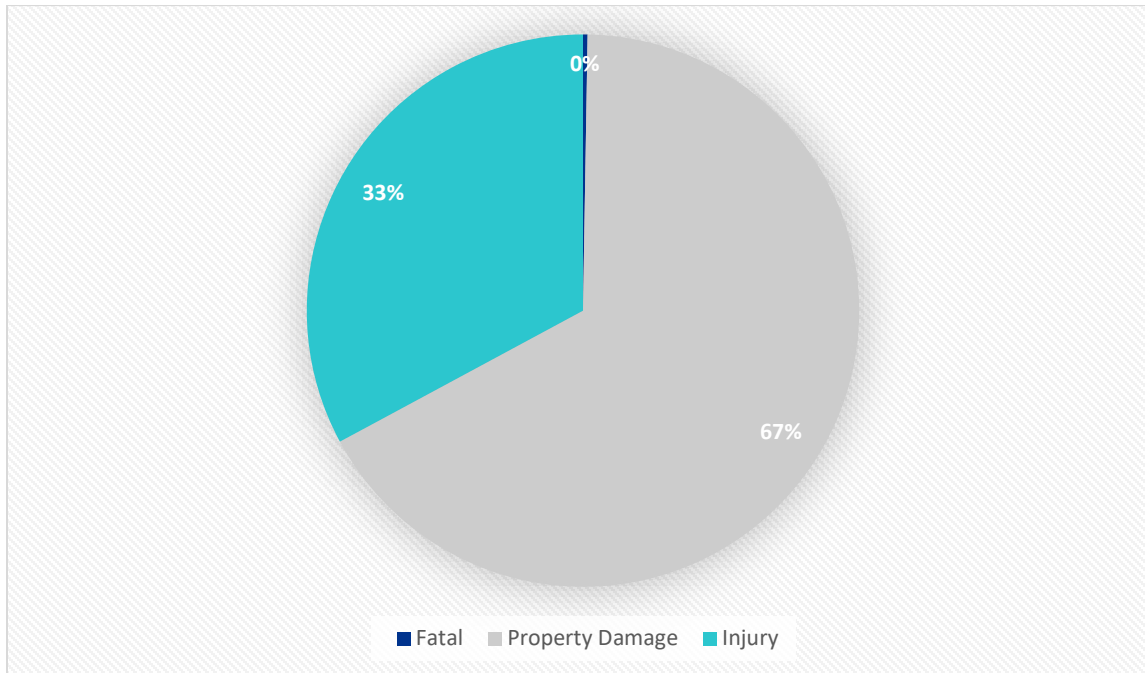


Figure 2-4. Crash Severity in the Study Area

2.3 Existing Freeway Deficiencies

Over the approximately 3 miles of I-215 between St. Rose Parkway/Pecos Street and Stephanie Street, there are four interchanges. This results in short merge and weave sections where traffic must merge across several lanes to access entry and exit points to I-215.

According to American Association of State Highway and Transportation Officials (AASHTO) guidelines (2011), minimum interchange spacing is 1 mile in urban areas. Interchange spacing in the study area does not meet the AASHTO-recommended 1-mile spacing necessary to adequately serve local development. This results in close ramp spacing. When vehicles enter or exit the freeway at closely spaced interchanges, they must cross paths with other vehicles. Crossing lanes traveling in the same direction is referred to as “weaving.” In general, the speeds decrease and congestion increases as the weave segment shortens. Weaving occurs when two or more traffic streams cross when traveling in the same direction. For example, traffic weaves when an interchange entrance ramp is followed by an exit ramp. The most critical aspect of operations within a weaving segment is lane changing. The configuration of the weaving segment (i.e., the relative placement of entry and exit lanes) has a major effect on the number of lane changes required of a weaving vehicle to successfully complete its maneuver.

Closely spaced on- and off-ramps create bottlenecks when merging traffic attempts to enter a freeway and traffic in the right lane is either unable to move left because of traffic volume or is reluctant to move left because it will exit at the next off-ramp. As the freeway and ramp volumes increase, the problem is exacerbated, leading to congestion and an increased risk of crashes.

2.4 System Linkage and Route Importance

I-215 serves as an important connection between the City of Henderson and the surrounding Las Vegas metropolitan area. I-215 is part of the Las Vegas Beltway, a 50-mile beltway that circles three-quarters of the Las Vegas Valley. The Las Vegas Beltway consists of I-215, maintained by NDOT, and Clark County Route 215 (CC 215), maintained by Clark County’s Department of Public Works. The Project is west of the Henderson Interchange, which is the junction of Interstate 11 (I-11) from the south, I-215 from the west, Interstate 515 (I-515) from the north, and Lake Mead Parkway from the east. I-215 and I-515 connect the City of Henderson to Las Vegas and



southern Nevada. NDOT and FHWA are proposing to reconstruct the Henderson Interchange to increase traffic capacity and reduce travel delay within the interchange and surrounding freeway ramps. The limits of the Henderson Interchange Project are I-215 between Valle Verde Drive and Van Wagenen Street, I-515 from its intersection with I-215 north to Galleria Drive, and I-11 from its intersection with I-215 south to Horizon Drive. The widened five-lane I-215 roadway under the current project would tie into the Henderson Interchange Project area upon completion. Additionally, west of the Project area, I-215 has four through lanes in each direction.

The Project will be included in the Regional Transportation Commission of Southern Nevada's Transportation Improvement Program.

3. Project Purpose

The City proposes to widen I-215 from Pecos Road to Stephanie Street, improve interchanges and ramps, and construct a pedestrian bridge over Green Valley Parkway at Village Walk Drive. The purpose of the Project is to reduce travel delay, improve regional connectivity, and improve safety.

4. References

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