

CO 83 and Palmer Divide Avenue Traffic Data Summary

We have two sources of traffic data: CDOT general data and project traffic counts.

CO 83 Traffic Volume Data from CDOT Database

- 2021 Average Annual Daily Traffic (AADT) on CO 83
 - North of Palmer Divide = 5,800 vehicles per day (vpd)
 - South of Palmer Divide = 12,000 vpd
- Percentage of Trucks = 9% (north) and 4.9% (south)
- 2045 Projected AADT = 9,628 vpd (north) and 22,368 (south)

From 2018 to 2019, there was a temporary 18% increase in traffic due to the I-25 GAP construction project. CDOT installed a temporary signal in September 2019 to accommodate this temporary increase in traffic. With the I-25 GAP project complete, the traffic volumes do not warrant a traffic signal at this location.

2021 Traffic Counts

Traffic counts were taken from October 6th to October 9th, 2021 to validate the CDOT data and understand turning movement volumes. Counts on Thursday, October 7th, 2021 from 6:30 to 8:30 AM and 4:00 to 6:00 PM were identified as the typical peak hour traffic volumes to be analyzed. Forecasted future traffic volumes were projected for the design year of 2045 based on 3% growth per year, which is representative of the surrounding area. See below for existing and forecasted 2045 peak hour traffic volumes at the intersection.



CO 83 and Palmer Divide Intersection Crash Data

2015-2018 (prior to temporary signal installation)

- 10 Total Crashes
- 4 Property Damage Only Crashes and 6 Injury Crashes (with 7 injuries)
- 7 Broadside Crashes

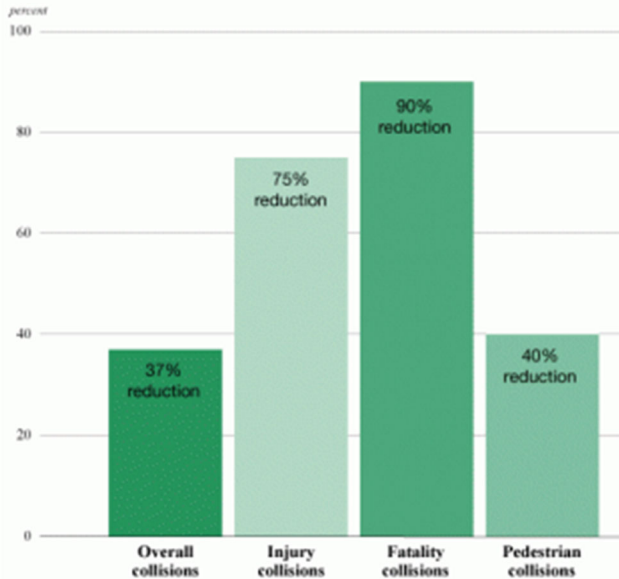
2019-2021 (with temporary signal)

- 6 Total Crashes
- 5 injuries
- 1 Broadside Crash and 4 Rear End Crashes

The Level of Service of Safety (LOSS), a measurement of the degree of safety of an intersection, registers LOSS III for CO 83 and Palmer Divide Avenue. LOSS III indicates a moderate to high potential for crash reduction.

Roundabouts Crash Reduction (IIHS and FHWA)

Reduction in collisions



Source: Federal Highway Administration and Insurance Institute for Highway Safety (IIHS and FHWA)

By eliminating left turns at intersections, roundabouts remove the potential for head-on or broadside crashes, which often result in injuries and fatalities.

A study of 19 higher-speed rural intersections (speed limits of 40 mph or higher) that originally had stop signs on the minor approaches and were converted to roundabouts found a 62% reduction in all crashes and an 85% reduction in injury crashes (*Isebrands & Hallmark 2012*)

Traffic Operations

Below is a summary of traffic operations for conditions at CO 83 and Palmer Divide Ave today and in the future:

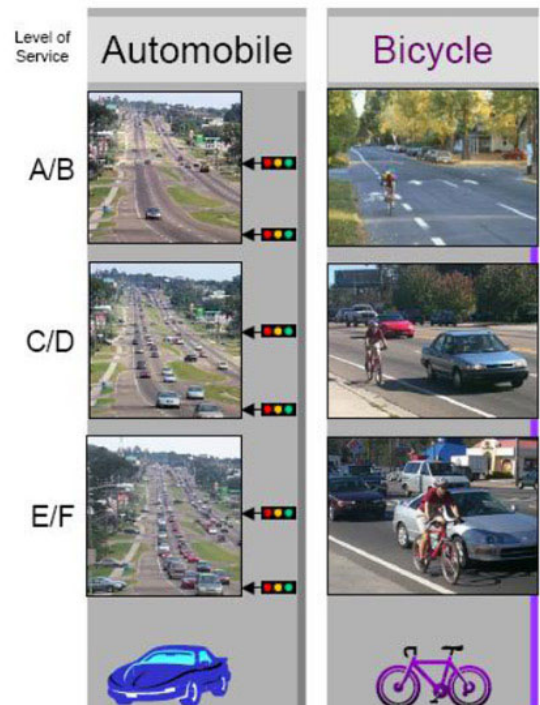
Analysis Period	Year 2021 Existing LOS	Year 2045 No Build (with signal) LOS	Year 2045 Roundabout LOS
Weekday AM	B	D	B
Weekday PM	B	E	C

Year 2021 Existing - existing traffic count data with the existing lane configuration and traffic signal. Currently, the intersection operates at acceptable levels.

Year 2045 No Build - future 2045 forecasted traffic volumes with the existing lane configuration and traffic signal. In year 2045, the intersection does not operate at an acceptable level with LOS E in the PM peak.

Year 2045 Roundabout - future 2045 forecasted traffic volumes with proposed roundabout design. A single-lane roundabout with northbound and southbound right-turn bypass lanes on CO 83 is recommended to accommodate the future 2045 traffic. The roundabout operates at acceptable levels.

What does LOS mean? The quality of traffic operations can be described based upon Level-of-Service (LOS). LOS is expressed as a letter grade (A to F), with LOS D or better considered an acceptable peak hour traffic condition, LOS E representing highly unstable traffic flow, and LOS F where traffic arrives more quickly than it can be processed by the intersection, resulting in long delays and traffic queues. The figure to the above illustrates examples of LOS for automobiles and bicycles.



Source: FDOT Quality Level of Service Handbook