

ADOPTION OF AN EL PASO COUNTY MASTER PLAN (RECOMMEND APPROVAL)

MORAES moved that the following Resolution be adopted:

BEFORE THE PLANNING COMMISSION

OF THE COUNTY OF EL PASO

STATE OF COLORADO

ADOPTION OF THE CO 83 ACCESS CONTROL PLAN INTO THE EL PASO COUNTY MASTER PLAN
RESOLUTION NO. MP233

WHEREAS, The El Paso County Department of Public Works in conjunction with Colorado Department of Transportation (CDOT) and the City of Colorado Springs requests adoption of the CO 83 Access Control Plan into the El Paso County Master Plan. With adoption, this Plan will become the principal plan for further planning and development of the access for CO 83 corridor within unincorporated El Paso County and the City of Colorado Springs on this CDOT owned highway. The Plan area begins at CO 83 at Powers Boulevard (CO 21). The terminus of the Plan area is along and County Line Road (Palmer Divide Road) or 9.85 miles; and

WHEREAS, C.R.S. § 30-28-108 provides that a County Planning Commission may adopt, amend, extend, or add to the County Master Plan; and

WHEREAS, CDOT in conjunction with DPW and the City of Colorado Springs engaged in a lengthy and extensive process to develop this Access Control Plan, local land development entities, and the public via surveys, comments, announcements, advertisements, land owners, public comments, and agency reviews; and

WHEREAS, CDOT and DPW presented this Access Control Plan for CO 83 to the Planning Commission as an information and discussion items on December 7, 2023; and

WHEREAS, pursuant to C.R.S. § 30-28-106(1), a public hearing is being held by this Planning Commission on March 7, 2024; and

WHEREAS, based on the evidence, testimony, exhibits, study of the master plan for the unincorporated area of the County, comments of members of the El Paso County Planning Commission, comments of the CSD, comments of public officials and agencies, and comments from all interested parties, this Commission finds as follows:

1. That proper posting, publication, and public notice were provided as required by law for the hearings of the Planning Commission; specifically, legal notice for the hearings was published in *The Gazette* on November 25, 2023.

2. That the hearings before the Planning Commission were extensive and complete, that all pertinent facts, matters, and issues were submitted and reviewed, and that all interested parties were given an opportunity to be heard at those hearings.
3. That all data, surveys, analyses, studies, plans, designs, maps, and descriptive matter as are required by the State of Colorado and El Paso County have been submitted, reviewed, and found to meet all sound planning requirements of El Paso County.
4. That for the above-stated and other reasons, the proposal is in the best interests of the health, safety, morals, convenience, order, prosperity, and welfare of the citizens of El Paso County.

NOW, THEREFORE, BE IT RESOLVED that the El Paso County Planning Commission hereby approves the adoption of the CO 83 Access Control Plan into the El Paso County Master Plan, which is incorporated herein by this reference as if fully set forth herein.

BE IT FURTHER RESOLVED that, pursuant to C.R.S. § 30-28-109, the El Paso County Planning Commission hereby certifies to the Board of County Commissioners and to the planning commissions of all municipalities located within El Paso County a copy of the CO 83 Access Control Plan, specifically including the maps and descriptive matter that are contained in PCD File No. MP233.

BE IT FURTHER RESOLVED that the El Paso County Planning Commission hereby directs the Clerk of the Planning Commission to record the action taken by the Planning Commission and affix their signature to said descriptive matter pursuant to C.R.S. § 30-28-108.

BE IT FURTHER RESOLVED that the intent of the Planning Commission in adoption of the CO 83 Access Control Plan into the El Paso County Master Plan is that this shall be used as an advisory document. To the extent the CO 83 Access Control Plan may be subsequently referenced in the County's subdivision and/or zoning regulations, those references shall neither construe nor render the CO 83 Access Control Plan to be a binding, regulatory document, nor shall such references overcome the intent that the CO 83 Access Control Plan is advisory and that the Planning Commission and Board of County Commissioners shall maintain their considerable discretion in deciding how to apply the Plans in their land use decisions.

BE IT FURTHER RESOLVED that the following conditions and notations shall be placed upon this approval:

CONDITIONS

1. C.R.S. § 30-28-109 requires the Planning Commission to certify a copy of the Master Plan, or any adopted part or amendment thereof or addition thereto, to the Board of County Commissioners and to the Planning Commission of all municipalities in the County. The

Planning Commission's action to amend the Master Plan shall not be considered final until a minimum of ten (10) complete sets of the final documents are provided and such documents are certified by the Chairman of the County Planning Commission and distributed as required by law.

2. Upon adoption by the El Paso County Planning Commission, the effect of this document is adoption of the CO 83 Access Control Plan into the Master Plan for El Paso County.

NOTATIONS

1. Certification of the documents to the municipalities within the County pursuant to Condition No. 1 above is determined to be satisfied upon transmittal of summary information and maps along with a clear description of the locations where the complete documents are available for inspection, along with an offer to provide a given municipality a complete copy of the documents if requested. The transmittal may be in the form of a digital copy.
2. In approving this document, it is understood that minor editorial and formatting changes will be made in conjunction with the final publication process. These modifications may include pagination, correction of typographical errors, clarifications, insertion of photographs, insertion of references and/or corrections to factual information, or inclusion of comments and modifications associated with the Planning Commission hearings. In no case will substantive changes be made to the text without reconsideration by the Planning Commission.

BRITTAIN-JACK seconded the adoption of the foregoing Resolution. The adoption of this Master Plan Amendment shall be by resolution as carried by the affirmative votes of a majority of the entire membership of the Planning Commission.

The roll having been called, the vote was as follows: *(circle one)*

Thomas Bailey	<u>aye</u> / no / non-voting / recused / absent
Sarah Brittain Jack	<u>aye</u> / no / non-voting / recused / absent
Jim Byers	<u>aye</u> / no / non-voting / recused / absent
Jay Carlson	aye / no / non-voting / recused / <u>absent</u>
Becky Fuller	<u>aye</u> / no / non-voting / recused / absent
Jeffrey Markewich	aye / no / non-voting / recused / <u>absent</u>
Brandy Merriam	<u>aye</u> / no / non-voting / recused / absent
Eric Moraes	<u>aye</u> / no / non-voting / recused / absent
Kara Offner	aye / no / non-voting / recused / <u>absent</u>
Bryce Schuettpelz	<u>aye</u> / no / non-voting / recused / absent
Wayne Smith	<u>aye</u> / no / non-voting / recused / absent
Tim Trowbridge	aye / no / non-voting / recused / <u>absent</u>
Christopher Whitney	<u>aye</u> / no / non-voting / recused / absent

The Resolution was adopted by a vote of 9 to 0 by the El Paso County Planning Commission of the State of Colorado.

DONE THIS 7th day of March 2024 at Colorado Springs, Colorado.

EL PASO COUNTY PLANNING COMMISSION


By: 
Thomas Bailey, Chair

EL PASO  **COUNTY**
COLORADO

Meggan Herington, AICP, Executive Director
El Paso County Planning & Community Development
O: 719-520-6300
MegganHerington@elpasoco.com
2880 International Circle, Suite 110
Colorado Springs, CO 80910

Board of County Commissioners
Holly Williams, District 1
Carrie Geitner, District 2
Stan VanderWerf, District 3
Longinos Gonzalez, Jr., District 4
Cami Bremer, District 5

I hereby certify that the El Paso County Planning Commission, on March 7th, 2024, approved and duly adopted the enclosed and referenced amendment to the El Paso County Master Plan by adoption of the CO 83 Access Control Plan (MP233) within the designated area of the unincorporated area of El Paso County, Colorado.



Miranda Benson, Administrative Technician
Clerk, El Paso County Planning Commission

CO 83 Access Control Plan

FINAL REPORT

October 2021

Prepared for:



COLORADO
Department of Transportation

In cooperation with:
El Paso County
City of Colorado Springs

Prepared by:
ATKINS
Member of the SNC-Lavalin Group



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Acronyms

ACP	Access Control Plan
ADT	Average daily traffic
AM	Morning peak hour
CCR	Code of Colorado Regulations
CDOT	Colorado Department of Transportation
City	City of Colorado Springs
CO	Colorado State Highway
County	El Paso County
E-X	Expressway
FHWA	Federal Highway Administration
GIS	Geographic Information System
HCM	Highway Capacity Manual
IGA	Inter-Governmental Agreement
LOS	level of service
MP	mile post
MUTCD	Manual on Uniform Traffic Control Devices
OTIS	Online Transportation Information System
PM	Evening peak hour
RIRO	right-in, right-out
R-A	Regional Highway
sec/veh	seconds per vehicle
SHAC	State Highway Access Code
TMC	turning movement count
TRB	Transportation Research Board
vpd	vehicles per day
vph	vehicles per hour

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1. Introduction

The Colorado Department of Transportation (CDOT) has developed an Access Control Plan (ACP) to address future access needs within northern El Paso County along Colorado State Highway 83 (CO 83). The limits of the ACP are approximately 9.85 miles, beginning at the CO 21/Powers Boulevard southbound ramp and ending at County Line Road/Palmer Divide Road to the north. CO 83 is a north-south principal arterial roadway under CDOT jurisdiction. The ACP involved three stakeholders who ultimately will sign the Inter-Governmental Agreement (IGA), refer to **Appendix A: CDOT, El Paso County (County), and the City of Colorado Springs (City)**.

Recent growth along the corridor has resulted in an increase in traffic on CO 83. Looking to the future, traffic volumes are expected to increase in the range of 17 percent to 86 percent along the corridor by the year 2045. Without changes to the highway, the projected increase in traffic volumes pose the potential to increase delay, produce higher levels of congestion/pollution, and expose all roadway users to an increase in the number of crashes.

The approved ACP will guide the agencies' decisions regarding the future access conditions while supporting the planning objectives of the City, County, and CDOT. The final recommendations of the ACP provide benefit to four primary areas of the transportation system: operations, safety, multi-modal, and future improvements. Some of the major findings and benefits of the ACP include:

- Changes in access conditions are identified, such as the elimination of an access or restriction on the type of turn movements allowed at a specific location. These recommendations will result in a reduction in the number of conflict points (locations where vehicles and/or pedestrians/bicycles cross paths with each other), which will improve overall safety for all transportation modes.
- The plan identifies the locations that may warrant the need for a traffic signal or conversion to a roundabout in the future to provide safe full movements for drivers along the highway. Clearly identifying the locations where a signal can be installed prevents the corridor from having too many traffic signals. While the locations where signals may be installed are established in the plan, no signal will be installed until warrants are met, which means that some intersections may remain unsignalized or may be candidates for conversion to another type of control such as a roundabout.
- The recommendations and conclusions in the ACP do not specify the future roadway footprint or laneage. The recommendations and conclusions do not prohibit future improvements to the roadway system along the corridor or on adjacent nearby streets. Efforts were made to identify possible future connectivity via roads or shared accesses that can alleviate the need for many direct accesses to the highway.

1.1. Project Overview

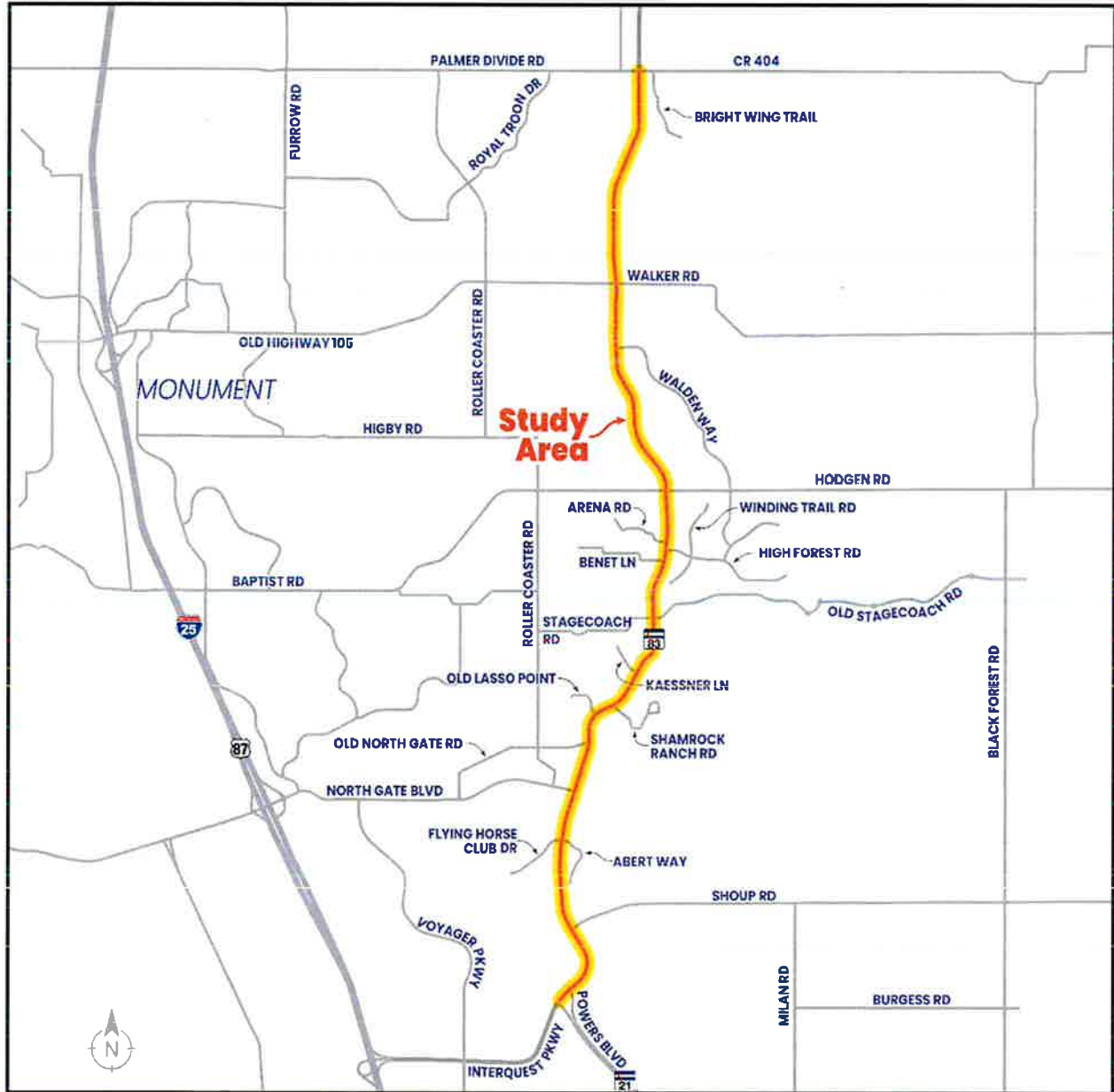
The implemented ACP will provide a binding document guiding the agencies' decisions regarding the future access conditions of CO 83. The State Highway Access Code (2 Code of Colorado Regulations [CCR] §601-1) requirements were followed in preparing this plan. The ACP will provide the City, County, and CDOT with roadway access planning documents in an effort to ensure that the CO 83 corridor remains consistent with its assigned access categories. The ACP is intended to support the planning objectives for the City, County, and CDOT. In addition, the ACP evaluates existing, planned (known developments underway), and proposed (locations where future development may occur) access points along CO 83 and makes recommendations for appropriate modifications.



1.2. Study Limits

The ACP limits begin to the south at the Powers Boulevard southbound ramp and end at County Line Road/Palmer Divide Avenue to the north. The limits of the evaluated portion of CO 83 are approximately between mile post (MP) 20.4 and MP 30.2. The total study area encompasses approximately 9.7 miles of roadway. The study area is shown in **Figure 1**.

Figure 1. Study Area Limits



1.3. Objectives

Proper application of an ACP will allow all modes of transportation to move efficiently and safely along the study roadway by controlling the design, location, and frequency of access points and by better using the secondary or local roadway network to reduce future strain on the highway. The following are typical objectives of any ACP, including the CO 83 ACP:

- Provide effective and efficient through travel for traffic on the highway.
- Provide the appropriate level of access to properties adjacent to the study roadway.
- Maintain compatibility with existing and proposed off-system connections that provide local circulation to support the transportation system.
- Assist future development and redevelopment along CO 83 by identifying the locations and types of accesses.
- Maintain compatibility with previous and ongoing local planning efforts.
- Accommodate multi-modal transportation.

1.4. Purpose

The purpose of this ACP is to identify the location, type, and basic design elements of future access points within the study limits to provide reasonable access to adjacent properties while maintaining safe and efficient movement of all modes of transportation (vehicles, bicyclists, and pedestrians) along, adjacent to, or across CO 83.

According to the *State Highway Access Code March 2002 (SHAC)*, CDOT is required to provide access to individual properties when reasonable alternative access to the general street system does not exist and is not obtainable. CDOT has the ability to modify existing access points for safety and operational reasons and CDOT can recommend restricting the number of allowable vehicle movements. Without an ACP, all access to CO 83 would be governed strictly by the SHAC which in most cases would result in a more restrictive access conditions than what is recommended in the final ACP.

Changes in access are discussed in Section 2.6, “Changes in Land Use and Access Use” in the State Highway Access Code:

The Department or issuing authority may, when necessary for the improved safety and operation of the roadway, rebuild, modify, remove, or relocate any access, or redesign the highway including any auxiliary lane and allowable turning movement. The permittee and or current property owner will be notified of the change. Changes in roadway median design that may affect turning movements normally will not require a license modification hearing as an access permit confers no private rights to the permittee regarding the control of highway design or traffic operation even when that design affects access turning movements (p. 25, paragraph 7).

Furthermore, the ACP establishes when to implement access control from an operational standpoint and what types of access will be allowed, based on the standards set forth in the State Highway Access Code. According to Section 2.12, “Access Control Plans” of the State Highway Access Code:

The access control plan shall indicate existing and future access locations and all access related roadway access design elements, including traffic signals, that are to be modified and reconstructed, relocated, removed, added, or remain (p. 30, paragraph 2).

1.5. Need

To properly develop an ACP that will identify the appropriate access conditions to meet CDOT, City, and County's long-range vision for the CO 83 corridor while achieving the project objectives, the study considered both the existing traffic conditions (2020) and the projected traffic conditions that are expected to occur by the long-range horizon year of 2045. The projected increase in traffic on the corridor was determined by forecasting traffic demand to 2045 based on the average annual growth from 2020. The current CDOT growth projections (from the CDOT Online Transportation Information System [OTIS] database) along CO 83 within the project limits of the ACP show a proposed growth factor varying between 1.17 and 1.86, as shown in **Table 1**.

Table 1. Future Growth Rates on CO 83

Start Location	End Location	Growth Factor
Palmer Divide Road	Walker Road	1.86
Walker Road	Hodgen Road	1.84
Hodgen Road	North Gate Boulevard	1.60
North Gate Boulevard	CO 21/Powers Boulevard	1.17

Source: El Paso County Travel Demand Model Forecasting

Numerous planned development projects were incorporated into the 2045 analysis. These development projects were identified by the County and City. Projected trip traffic for these developments was added to the final 2045 projected background traffic volume to account for additional demand along the CO 83 corridor and at the intersections near each of these planned developments.

Based on the projected traffic growth on the corridor (including the known planned developments), the number of conflicts, amount of delay, and level of congestion will increase without better access control. Proper control of the frequency, number, and location of access points on the study roadway can lead to the following reductions:

- Number and severity of crashes
- Delay experienced by motorists and multi-modal transportation users
- Pollution created by congested traffic conditions
- Congestion on CO 83 and the strain on the surrounding roads
- Number of consumers conducting business elsewhere

There are several ways to reduce the number and severity of crashes that occur on any roadway. First, crashes generally occur at locations where two vehicles conflict with each other. A potential conflict occurs each time vehicles turning at an access point cross paths with other roadway users (vehicle or pedestrian). If the number of conflict points increases, which is what occurs if additional access points are allowed, then the number of crashes on the roadways also increases. Conversely, if the number of conflict points is reduced, the number of crashes should decrease, creating safer roadways.

Second, some of the most severe crashes typically involve left-turn movements by vehicles attempting to enter or exit the roadway without the protection of traffic control devices, such as a traffic signal. With an ACP, some of the vehicle left-turn movements can be redirected to locations with a traffic signal where, under the protection of a green phase, the vehicles can either turn left onto or off of the highway. For other left turn movements, the ACP provides a road map for future highway improvement projects to plan for the need to provide U-turn options at intersections that are near to driveways or roads that are restricted to less than full movement. Additionally, pedestrians/bicyclists can more safely cross the highway at high-volume intersections under the protection of the "Walk" and "Do Not Walk" phases of a

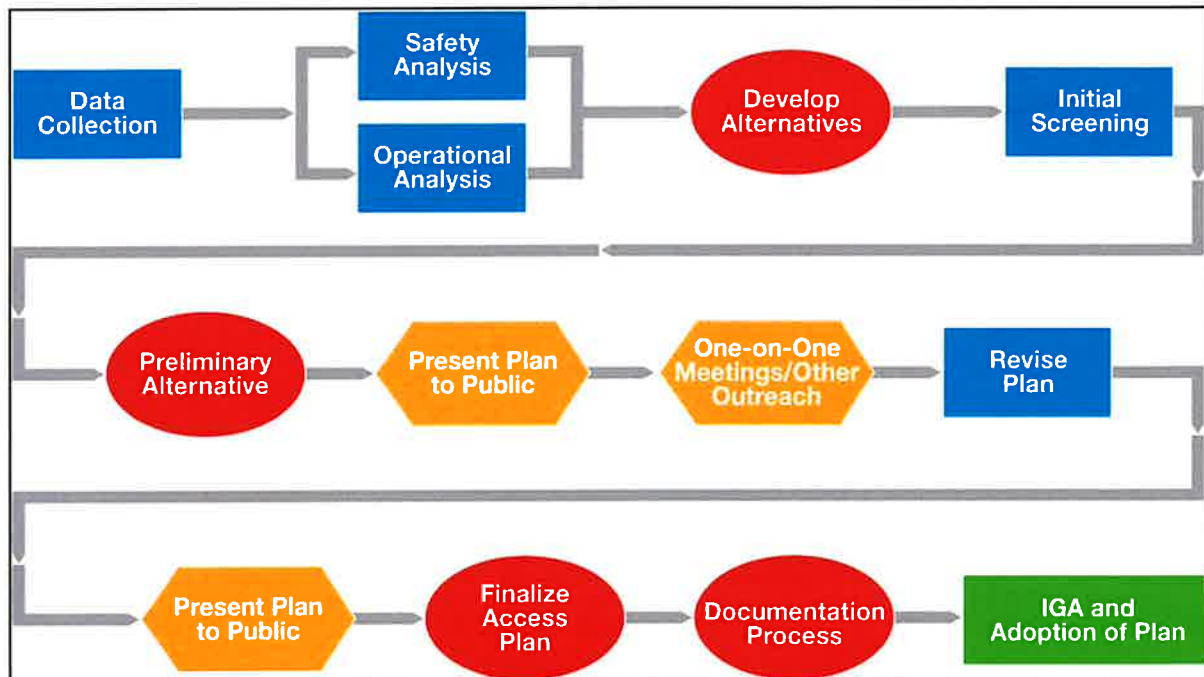
traffic signal. Other options for reducing the potential for left-turn crashes are the use of roundabouts, 3/4-movement, or right-in, right-out (RIRO) only intersections.

To reduce vehicle congestion and delay, it is important to control the number of access points along the roadways as traffic increases. By allowing fewer accesses, vehicles do not have to slow as much or stop as often to turn into an access or allow vehicles to enter the roadway from access points. Additionally, future roadway improvement projects can use the recommendations from the ACP to assist in the decision-making process of where to consider the addition of deceleration and acceleration lanes, which help remove slower traffic from the highway mainline. By reducing the friction along the roadway, the roadway will not become strained by congestion and delay. Motorists will experience acceptable travel times and an overall safer and better driving experience, which may translate into maintaining return service for local businesses. Another benefit to reducing congestion on the study roadway is a reduction in the level of vehicle emissions, which reduces the level of air pollution along the corridor.

1.6. Process

The process followed in developing the CO 83 ACP is summarized in **Figure 2**.

Figure 2. CO 83 ACP Process



The process began with the data collection phase, during which all access locations were identified; traffic volumes (**Appendix B**) and crash data (**Appendix C**) were collected; and copies of relevant traffic/planning studies for the roadway were gathered. Traffic data was used to evaluate existing, future conditions without the ACP, and future with ACP conditions (**Appendix B**). Additionally, crash data was evaluated to identify locations where the crash patterns indicated a change in access may provide a benefit. The draft ACP was created based on the requirements of the SHAC, along with existing and planned access locations. The project team evaluated the alternatives to create a preliminary alternative, which then was presented to the public at a virtual open house. The initial public presentation served to introduce the project and the concept of access control to the public, as well as to present the preliminary recommendations. Comments were received from the public for further consideration. After the public presentation, additional outreach was conducted in the form of one-on-one property owner workshops to

identify solutions that best met the goals of the project and addressed the specific needs of those who signed up for the one-on-one meetings. The one-on-one meetings ensured that crucial public input was received and taken under consideration in the process. Based on all of the comments received, the ACP was revised to reflect a Preferred Alternative. The Preferred Alternative was presented at a final virtual public meeting where comments from the public were collected.

Additional public outreach included monthly project working meetings with the project team members. A final presentation was provided to the County's Transportation Advisory Committee, Planning Commission, and Board of County Commissioners to summarize the study process and complete the adoption process. Documentation of the overall ACP development and approval process occurred throughout. The recommended CO 83 ACP is contained within this final report. The plan adoption process started during the documentation process is expected to be completed by the end of 2021. Materials from the public outreach process, including exhibits, comment forms, and summary letters from one-on-one meetings, are included in the appendices of this document. **Appendix E** contains the intergovernmental agreement that was created and signed as part of the adoption process. Implementation of the ACP will occur in phases or incrementally over time based on the development and redevelopment process, available funding, and traffic or safety needs. The remaining sections of this report include the following discussion topics:

- Corridor conditions
- Public involvement process
- Access control techniques
- ACP recommendations
- Next steps

2. Corridor Conditions

This section provides a summary of the existing and future without the ACP conditions on CO 83 in terms of access, operations, and safety.

2.1. Existing Corridor Access

All access points can be separated into two categories: public ways or private driveways. Definitions relating to types of access are covered in 1.5, Definitions and Abbreviations, of the SHAC (pages 2-8):

“Public Way” means a highway, street, or road, open for use by the general public and under the control or jurisdiction of the appropriate local authority of Department and includes private roads open to the public.

“Driveway” means an access that is not a public street, road, or highway.

State highways are classified in accordance with the State Highway Access Category Assignment Schedule (2 CCR §601-1a), which was revised on August 13, 2013. The study area includes 9.85 miles of CO 83 from CO 21 (Powers Boulevard) to Palmer Divide Road (County Line Road) in north El Paso County. A review of the SHAC indicates that all portions of the study area are classified as either Expressway (E-X) or Regional Highway (R-A), as summarized in **Table 2**.

Table 2. Existing Access Conditions with Study Area

Section	Highway Category	Number of Accesses			Existing Traffic Signals	Segment Length (miles)
		Private Driveways	Public Road	Total		
CO 21 Southbound to Old North Gate Rd	E-X	3	9	12 ¹	5	2.75
Old North Gate Road to Walker Road	R-A	36	11	47 ²	2	5.00
Walker Road to Palmer Divide Road	R-A	11	2	13 ¹	1	2.10
Totals		50	22	72	8	9.85

1. All access locations are full movement.

2. Forty-six locations are full movement, and one access location is a right-in only driveway.

Per the SHAC, E-X are governed by the following characteristics:

- Intended to accommodate high traffic volumes at high travel speeds over long distances in a safe and efficient manner.
- Prioritize movement of traffic over access to private property.
- If the property has access to a local road, direct access to the highway will be prohibited.

R-A are governed by the following characteristics:

- The capacity to handle medium to high travel speeds and relatively medium to high traffic volumes in a safe and efficient manner.

- Provides interregional, intra-regional, and intercity travel needs.
- Provides service to through traffic movements with a lower priority on providing direct access to adjacent properties.

If an access meets established signal warrant criteria, it has the potential to become signalized in the future. According to the SHAC, the preferred spacing between signalized intersections is one mile for EX category and 0.5 mile for R-A category highways. Not all public roadways that access CO 83 are appropriate locations for traffic signals if the roadway is to remain in compliance with the SHAC. Hence, an ACP identifies locations where signals can be installed if warrants are met. Without the proper planning, such as the development of an ACP, signals may end up being placed at inappropriate locations, which may preclude the ability to provide appropriate traffic control at needed intersections in the future to benefit the entire system.

2.2. Existing Corridor Traffic

The project team collected intersection turning movement counts (TMCs) at most major intersections and average data traffic (ADT) data at several locations on CO 83 in September 2020 and the detailed data is available in **Appendix B**. Prior to using the volume to analyze the conditions on CO 83, adjustment factors were applied to better represent true CO 83 volumes. First, an analysis was completed to determine the impact of COVID-19 on traffic volumes. When traffic counts were collected in September 2020, the volume of traffic on most highways had decreased due to COVID compared to pre-COVID conditions and had not yet returned to historically normal conditions. Thus, based on historic data from CDOT and other sources, the ADT and TMC were adjusted to account for the reduction due to COVID. Second, I-25 is currently under construction in the vicinity of this corridor, which has resulted in a portion of traffic diverting onto CO 83 to avoid delays caused by the construction activities. Again, an analysis was done to determine a reasonable correct factor that was applied to the TMC and ADTs to reduce traffic volume to align with historic data and growth trends.

The adjusted ADTs for CO 83 are shown in **Table 3**. These values represent a typical weekday traffic level along CO 83. The volumes are highest at the south end of the study area between Shoup Road and CO 21 and lowest at the north end between Hodgen Road and Palmer Divide Road. The volumes build from a low point in the rural part of the study area and increase the further south one travels, which is also where more of the adjacent land is developed. A deeper look into the volumes shows that traffic is heavier in the southbound direction in the morning and northbound in the evening. This is consistent with drivers commuting into Colorado Springs in the morning and returning home in the evening.

Table 3. Existing (2019) Average Daily Traffic

Location	Northbound (vpd)*	Southbound (vpd)	Total (vpd)
South of Palmer Divide Road	3,610 (5% Trucks)	3,905 (3% Trucks)	7,515 (4% Trucks)
North of Hodgen Road	4,350 (5% Trucks)	4,965 (4% Trucks)	9,315 (4% Trucks)
South of Hodgen Road	4,810 (3% Trucks)	5,440 (2% Trucks)	10,250 (2% Trucks)
North of Shoup Road	10,445 (4% Trucks)	10,140 (4% Trucks)	20,595 (4% Trucks)
South of Shoup Road	11,250 (5% Trucks)	11,825 (5% Trucks)	23,075 (5% Trucks)

* Vehicles per day (vpd)

2.3. Existing Intersection Analysis

Traffic operations for each of the signalized and key unsignalized access points were analyzed using the methods described in the *Highway Capacity Manual 6th Edition* (HCM) (Transportation Research Board [TRB], 2016). According to the HCM, the overall performance of an intersection is determined based on

the length of delay, expressed as seconds per vehicle (sec/veh), experienced by motorists at the intersection. Depending on the length of delay that is experienced, each intersection can be scored on a level of service (LOS) scale and given a letter grade from LOS A to LOS F, with LOS A being the best possible grade for the intersection and grades of LOS D or better being considered acceptable operations. For signalized intersections, the delay for each individual turning movement is evaluated, then entire approaches are graded, and finally the intersection as a whole can be given a single LOS. For two-way stop-controlled intersections, each minor approach is given a separate LOS and the worst LOS is reported as a single rating for the intersection. For analysis purposes, all uncontrolled intersections/driveways were treated as stop-controlled access points. **Table 4** shows the criteria for establishing the LOS for the signalized and two-way stop-controlled intersections within the study area.

Table 4. Intersection LOS Criteria

Level of Service	Control Delay (sec/veh)	
	Unsignalized Intersection (Two-Way Stop-Controlled)	Signalized Intersection
A	0-10	≤10
B	>10-15	>10-20
C	>15-25	>20-35
D	>25-35	>35-55
E	>35-50	>55-80
F	>50	>80

Source: 2016 HCM

The adjusted TMC data provides distribution information for vehicles entering and exiting the study roadway at key intersections. These traffic data were input into the Synchro traffic model prepared for this study to determine LOS during the morning (AM) and evening (PM) peak hours. The results of the LOS analysis for the existing conditions are presented in **Table 5**, with detailed analysis sheets provided in **Appendix D**. Based on the results of the analysis, the majority of the intersections and driveways operate at LOS C or better (shown with blue, dark green, or light green backgrounds in the table) during the peak hours of the day. The only exception is the intersections of Stagecoach Road during the PM peak, which operate at LOS D. Even LOS D is considered acceptable operations.



Table 5. 2019 Existing Conditions Intersection LOS Results

Intersection	LOS/Delay (sec/veh)	
	AM	PM
Powers Blvd SB*	A/2	A/6
Powers Blvd ND*	C/24	B/15
CDOT Yard	B/13	C/19
Shoup Rd*	B/11	A/9
Flying Horse Club Dr/Abert Way*	B/12	B/13
North Gate Blvd*	C/21	C/21
Private Access (east of CO 83)	B/12	C/19
Old North Gate Road	C/15	B/14
Old Lasso Point	B/12	A/0
Shamrock Ranch Rd	A/0	A/0
Kaessner Lane	B/12	C/15
Stagecoach Rd	C/17	D/27
Private Access (west of CO 83)	B/15	C/21
Benet Lane	B/12	C/16
High Forest Rd	C/16	C/20
Arena Rd	B/12	C/17
Hogden Rd*	C/30	C/30
Walden Way	B/13	B/14
Walker Road/CR 105*	C/21	B/19
E Palmer Divide Ave*	B/11	B/10

Note: Blue = LOS A, Dark Green = LOS B, Light Green = LOS C, Orange = LOS D, Red = LOS E, Dark Red = LOS F

*Signalized intersection

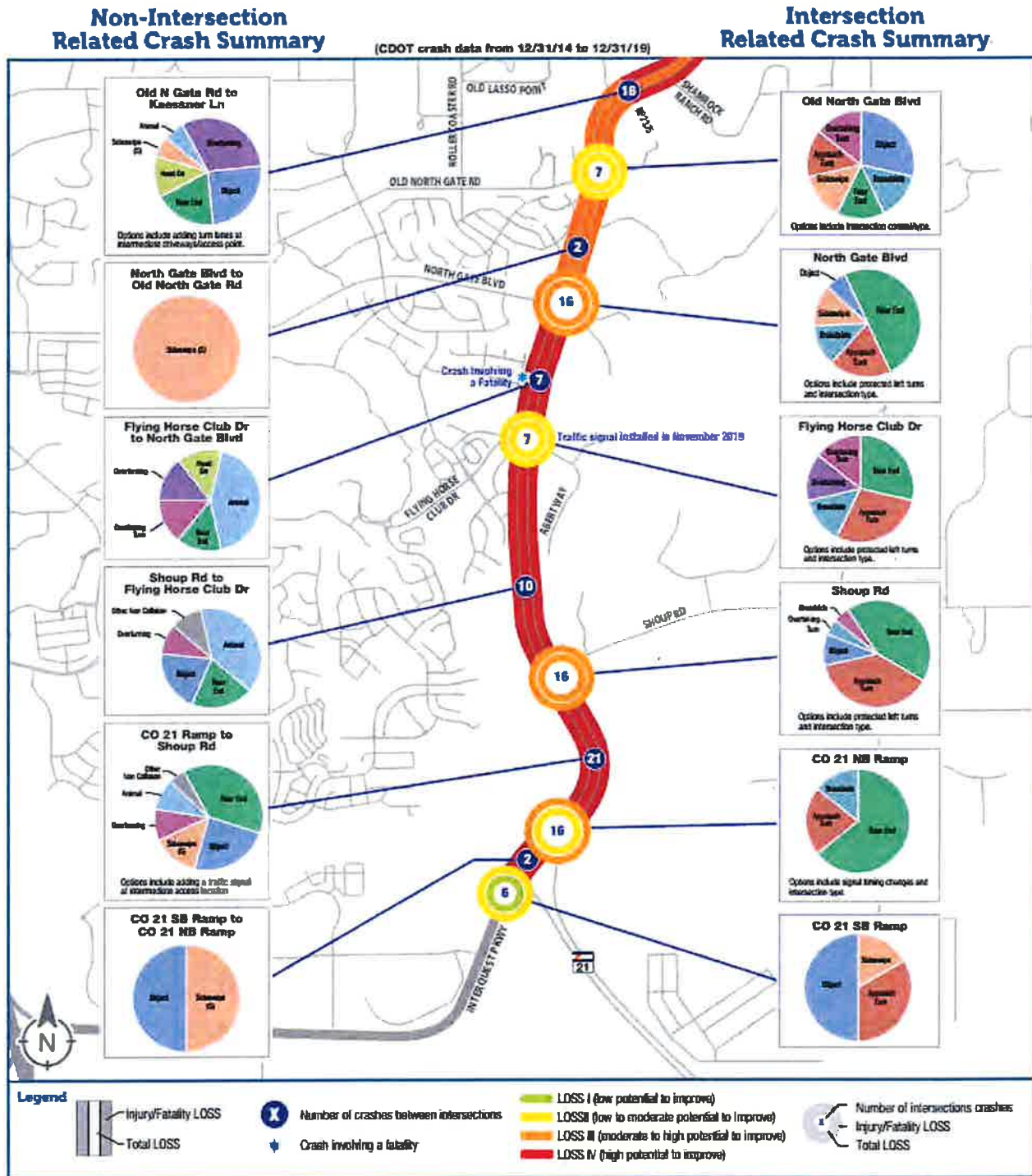
2.4. Crash History

A summary of crash data that covered five years (December 31, 2014 to December 31, 2019) was provided by the CDOT Region 2 Traffic Unit. Detailed data related to the crash history on CO 83 can be found in **Appendix C**. The number of crashes by location are summarized in **Figure 3**, **Figure 4**, and **Figure 5**.

Overall, the study area has a higher-than-expected crash rate (depicted by the number of highway segments that are orange or red) based on a comparison to other highways with similar characteristics such as number of lanes, type of urban area, volumes, and intersection spacing. There are also five intersections that have a higher-than-expected crash history (shown with an orange inner circle around the number of crashes). This means that there is a moderate to high potential for crash reduction along the study area and particularly at the five intersections.



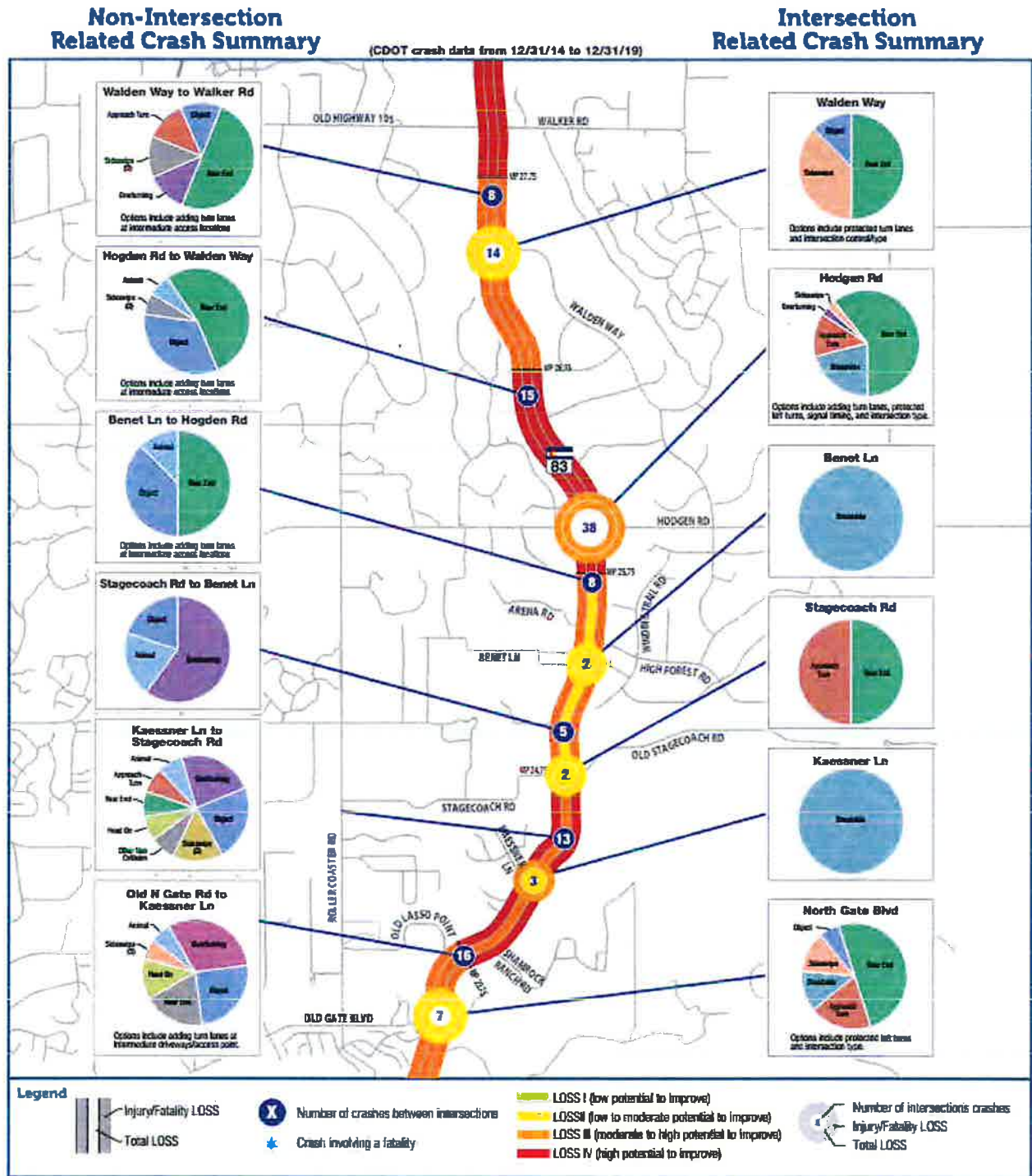
Figure 3. Summary of Crash History between CO 21 and Old North Gate Road



Source: CDOT crash data from 12/31/2014 to 12/31/2019



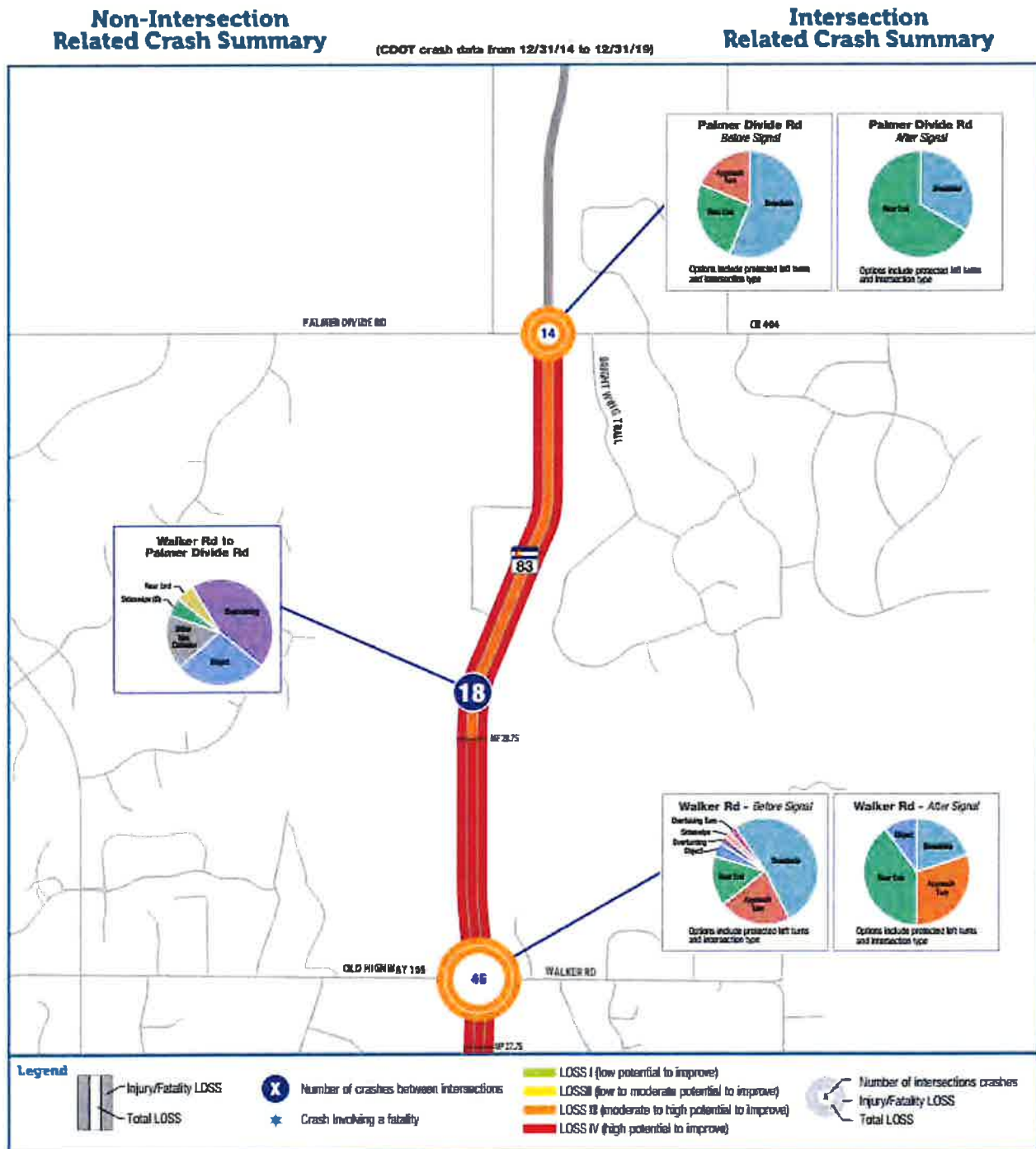
Figure 4. Summary of Crash History between Old North Gate Road and Walker Road



Source: CDOT crash data from 12/31/2014 to 12/31/2019



Figure 5. Summary of Crash History between Walker Road and Palmer Divide Road



Source: CDOT crash data from 12/31/2014 to 12/31/2019

Some of the key observations of safety on CO 83 based on the crash data indicates the following:

- During the five years of collected crash data, there were a total of 333 crashes and a review of the data indicated that a majority of crashes fit into one of the following types:
 - **Rear End (116 events).** This crash typically occurs when one vehicle strikes the rear of the vehicle in front of it because that vehicle is stopped or slowing down.
 - **Broadside (50 events).** This type of crash typically occurs when a vehicle traveling through an intersection strikes a left-turning vehicle at a 90-degree angle; both vehicles are on the same road.
 - **Approach Turn (41 events).** This type of crash typically occurs when a vehicle traveling through an intersection strikes a left-turning vehicle at a 90-degree angle; the vehicles are on different roads.
 - **Overtaking Turn (6 events).** This type of crash typically occurs when two adjacent approach vehicles, whose paths are unintended to come in conflict, collide as a result of one or both vehicles over-turning and under-turning. This type of crash may include a vehicle initially going straight but leaving its proper travel lane and colliding with a stopped or moving vehicle on an adjacent approach road or driveway.
 - **Sideswipe (23 events).** This type of crash typically involves the side of one vehicle contacting the side of another vehicle that is traveling in the same or opposite direction.
 - **Other (97 events).** This category is a catch-all that includes crashes that typically involve a vehicle that overturns, a vehicle that strikes a fixed object, a vehicle striking a wild animal, or two vehicles striking each other in a head-on event.
- The majority of crashes occurred at intersections (209), with the highest frequency at the signalized intersections and the most common types of crashes were rear-end or broadside at these locations.
- There was a total of 124 crashes at non-intersection locations, many of these were animal strikes, vehicles overturning, or vehicles running off the road and striking objects.
- There were no reported crashes involving pedestrians or bicyclists.

Based on the crash data, the following changes could be considered to help reduce the occurrence of future crashes within the study area:

- Reducing the number of access locations will reduce the number of conflict points, resulting in a reduction in the number of rear-end crashes.
- The use of protected-only left-turn movements at signalized intersections may reduce the frequency and severity of left-turn crashes.
- The conversion of stop-controlled full-movement intersections to three-quarter movements or RIRO movements would help improve safety and reduce crashes.
- Installing traffic signals or other intersection designs such as roundabouts at intersections that warrant this change in traffic control should be considered.
- Addition of traffic signals or dedicated crosswalks to provide safer mobility options for pedestrians/bicyclists across CO 83 in the future should be considered.
- The use of other access optimization methods should be considered to help reduce the number of turning vehicles, increase spacing between driveways, and eliminate access locations that are too close to intersections.

2.5. 2045 No-Action Corridor Conditions

In addition to analyzing the existing traffic conditions, it is important to understand future planning horizons in developing recommendations for the ACP. The year 2045 was selected as the long-range planning horizon for this project. Before the future intersection and roadway operational analyses could be performed, future traffic volumes for the year 2045 were developed.

For the no-action condition, all access locations, types, and traffic controls are assumed to remain unchanged from existing conditions (refer to previous sections for description of access locations under existing conditions).

Future background volumes were projected by first applying the determined growth factors by segment to the existing volumes. The growth rates were between 1.17 at the south end of the study area and 1.9 at the north end, which are based on El Paso County's projections for the corridor. **Table 6** shows a comparison between Existing (2019) and the projected 2045 bi-directional (southbound plus northbound) traffic along CO 83 at similar locations as was discussed for existing conditions. Projected trip traffic for the known developments as provided by City, County, and CDOT staff was added to the final 2045 projected traffic volume to account for additional demand along the CO 83 corridor and at the intersections near each of these planned developments.

Table 6. Projected (2045) Average Daily Traffic (vpd)

Location	Existing	2045	Growth Factor
South of Palmer Divide Road	7,515 (4% Trucks)	14,000 (4% Trucks)	1.86
North of Hodgen Road	9,315 (4% Trucks)	17,150 (4% Trucks)	1.84
South of Hodgen Road	10,250 (2% Trucks)	16,460 (2% Trucks)	1.60
North of Shoup Road	20,595 (4% Trucks)	24,710 (4% Trucks)	1.20
South of Shoup Road	23,075 (5% Trucks)	27,020 (5% Trucks)	1.17

2.6. Intersection Level of Service

The future peak hour traffic volumes were input into the traffic analysis model to determine intersection LOS. For comparative purposes, no changes to the traffic control at any intersection/access point were assumed for the no-action condition analysis. The model was updated to reflect future additional lanes on CO 83 based on long range plans from the County to add one additional lane in each direction of CO 83 between Old North Gate Road and Palmer Divide Road. **Table 7** summarizes the results of the intersection LOS for the no-action analysis compared to the existing conditions analysis. Several of the intersections will operate at a failing LOS (LOS E, LOS F) during the AM and PM peak hours for the 2045 no-action scenario. Detailed analysis of the LOS for year 2045 with no changes to the existing access configuration can be found in **Appendix C**.

In the year 2045, most of the driveways and intersections within the study limits will operate at LOS that is worse than Existing Conditions during both AM and PM peak hours if no changes are made to access on the corridor. Some of the stop-controlled access locations will experience long delays (LOS E or F). Overall, access to and from CO 83 will become more difficult and less safe without changes to the access conditions. These results indicate congestion levels on CO 83 will continue to increase in the future and will result in poor operations, long delays, and fewer acceptable gaps in traffic for vehicles to complete turns or enter the highway. As traffic volumes increase, these conditions will be worse if the number, design, and location of access locations along the study roadway are not controlled through the development of an ACP. The results also indicate that several of the driveways and intersections may be subject to having turn restrictions imposed or full closure to maintain safe and efficient operations if no improvements are done.



Table 7. 2045 No-Action LOS Compared to 2019 Existing Conditions LOS

Intersection	LOS/Delay (sec/veh)			
	Existing (2019)		No-Action (2045)	
	AM	PM	AM	PM
Powers Blvd SB*	A/2	A/6	D/37	C/27
Powers Blvd NB*	C/24	B/15	C/30	C/25
CDOT Yard	B/13	C/19	B/15	D/32
Shoup Rd*	B/11	A/9	B/20	C/31
Flying Horse Club Dr/Abert Way*	B/12	B/13	C/24	C/21
North Gate Blvd*	C/21	C/21	D/40	C/30
Private Access (east of CO 83)	B/12	C/19	B/13	F/65
Old North Gate Road	C/15	B/14	C/19	C/17
Old Lasso Point	B/12	A/0	F/77	F/103
Shamrock Ranch Rd	A/0	A/0	C/18	D/30
Kaessner Lane	B/12	C/15	B/12	C/20
Stagecoach Rd	C/17	D/27	A/8	B/11
Private Access (west of CO 83)	B/15	C/21	C/18	D/30
Benet Lane	B/12	C/16	C/17	C/24
High Forest Rd	C/16	C/20	C/21	E/41
Arena Rd	B/12	C/17	C/17	C/19
Hogden Rd*	C/30	C/30	D/38	E/62
Walden Way	B/13	B/14	E/36	D/33
Walker Road/CR 105*	C/21	B/19	E/65	D/54
E Palmer Divide Ave*	B/11	B/10	C/23	C/25

Note: Blue = LOS A, Dark Green = LOS B, Light Green = LOS C, Orange = LOS D, Red = LOS E, Dark Red = LOS F

* Signalized intersection

3. Public Involvement

The SHAC requires at least one advertised public meeting be held during the development of an ACP. For this particular ACP, an extensive public involvement process was followed:

- Identification of potentially affected property owner information
- Initial virtual Open House meeting
- One-on-one property owner/representative workshops
- Second virtual Open House meeting
- Second set of one-on-one property owner/representative workshops
- Website postings/project email
- Project meetings and presentation to elected officials

3.1. Property Owner Information

Property ownership data were obtained from Geographic Information System (GIS) property data files. A mailing list for the public involvement process was developed by Atkins and approved by the stakeholders. All properties within approximately 500 feet of CO 83 received information via mail about the study. This was done in an effort to ensure accurate and up-to-date information was used for the study, to ensure all parties received equal information, and to allow the property owners to determine whether they had an interest in the ACP.

3.2. Initial Virtual Open House Meeting

Due to COVID-19 pandemic restrictions, the stakeholders decided to conduct virtual public meetings instead of in-person open houses. The initial ACP virtual meeting was held in February of 2021. The virtual meeting was advertised via mailed postcards to property owners, business owners, and residents, as well as on the stakeholder websites. The meeting was also advertised in numerous newspapers and efforts were completed to send information direction to many of the homeowner associations in the area. The purpose of the open house was to identify the study's purpose, process, and schedule; provide information about the methods and benefits of access management; present the draft ACP; and receive comments from the public. The public was able to provide comments via a comment form that was submitted directly to the project team. A copy of the meeting materials and comments received can be found in **Appendix E**. The comments received were taken into consideration during the development of the recommendations in the ACP. Overall, the virtual meeting had more than 100 visits from the public and numerous comments were received. The comments were broken into two categories: ones that provided feedback that was not related to the access control plan (speed limits, truck restriction, noise, etc.) and property owners with significant impacts or concerns (driveways being closed, location of new roads, sharing access with other properties, etc.). The project team provided email responses to all of the individuals in the first category. The property owners in the second category were provided the opportunity to meet one-on-one with the project team to discuss their access issues in more detail and to determine the final preferred access alternatives.

3.3. One-on-One Property Owner Workshops

Several property owners/representatives were identified as needing additional time to discuss their specific access issues with the project team. To accommodate these individuals, one-on-one video conferences were scheduled between the property owners and the project team. Copies of letters sent to the participants of the one-on-one workshops, which summarize the discussion topics and agreements made during the meetings, can be found in **Appendix E**. Members of the project team were on hand at the meetings to present the draft ACP, listen to comments from the property owners, and, when necessary, identify additional access alternatives to address the concerns of the property owners and ensure the goals of the project were met. The comments from the meetings were used to refine the draft ACP and develop a final proposed ACP. The following property owners/representatives took part in the workshops:

- Justin Ensor for the property at 14650 Highway 83 (private residence)
- Delroy Johnson for the property at 14502 Highway 83 (private residence)
- Kim and Chuck Kruger for the property at 14405 Highway 83 (private residence)
- Ann and Gary Harris for the property at 14425 Highway 83 (private residence)
- Anthony Peterson for the property at 2725 Rustic Oak Grove (private residence)
- Andy Stauffer for the property at 3220 Outlook Drive (private residence)
- Ken Wolf for the property at 15040 Highway 83 (private residence)

3.4. Second Virtual Open House Meeting

A second virtual meeting was held in June 2021. The virtual meeting was advertised via mailed postcards to property owners, business owners, and residents, as well as on the stakeholder websites. The meeting was also advertised in numerous newspapers and efforts were completed to send information direction to many of the homeowner associations in the area. The purpose of the open house was to present basic information about what access control is, present the recommended final access configuration for the study roadway, provide a project schedule, discuss how the plan would be implemented, and gather comments and feedback from the public. The public was able to provide comments via a comment form that was submitted directly to the project team. A copy of the meeting materials and comments received can be found in **Appendix E**. The comments received were taken into consideration during the development of the recommendations in the ACP.

In addition, the comments received were used to identify individual property owners with the potential to identify the property owners with significant impacts or concerns. These property owners were provided the opportunity to meet one-on-one with the project team to discuss their access issues in more detail and to determine the final preferred access alternatives.

3.5. Second Virtual Meeting Follow-up

After the second virtual meeting, the project team provided feedback to some of the public comments in the form of email responses. Copies of emails sent to the participants of the second round of one-on-one workshops, which summarize the discussion topics and agreements made during the meetings, can be found in **Appendix E**. The following property owners/representatives took part in the workshops:

- Brett Gardner for the property at 2685 Crooked Vine Court (private residence)
- Brian Pickle for the property at 15655 Highway 83 (private residence)
- Kim and Chuck Kruger for the property at 14405 Highway 83 (private residence)
- Curtis Dicke for the property at 3095 Outlook Drive (private residence)
- Gary and Carol Cox for the property at 15740 Highway 83 (private residence)
- Gary Helfeldt – no address provided
- John Budnella for the property at 3035 Stagecoach Road (private residence)
- John Godsey for the property at 3235 Pinehurst Circle (private residence)
- Linda Famula for the property at 17368 Cabin Hill Lane (private residence)
- Robert and Linda Hutchinson for the property at 15960 Highway 83 (private residence)
- Shannon Baker for the property at 12950 Penfold Drive (private residence)
- Susan Gindhart for the property at 3045 Outlook Drive (private residence)

3.6. Project Meetings and Presentation to Elected Officials

Throughout the duration of the study, the project team conducted monthly working meetings to discuss the current status of the project, review decisions, make recommendations, identify issues, and provide an opportunity to receive input and comments from the public. As part of the public involvement for this study, presentations to the County Highway Advisory Commission, County Planning Commission, and the Board of County Commissioners were conducted. The purpose of the presentations was to summarize the process, review the recommendations, request that the officials accept the ACP, and begin the implementation phase of the ACP through the official adoption and signing of the IGA with CDOT. This presentation can be found in **Appendix E**.

4. Access Control Techniques

There are several options that allow changes to the existing roadway configuration or geometry to assist in the management of the number, frequency, and location of intersections/driveways along a roadway. Each option provides a different means to manage access along a roadway. In addition, each option has unique benefits and can be used in conjunction with other options to help improve traffic flow, operations, and safety while maintaining adequate access to the adjacent land uses. The following access control options, shown in **Figure 6**, are the most common.

Figure 6. Methods of Access Control

<p>Before</p>	<p>After</p>	<p>Use Local Streets</p> <ul style="list-style-type: none"> • Access to local properties through secondary roads • Consolidate number of access locations where vehicles may enter or exit the highway • Reduces the number of conflict points
<p>Before</p>	<p>After</p>	<p>Addition of Median Treatment</p> <ul style="list-style-type: none"> • Limit turning movements to locations with a dedicated left turn lane • Reduces the number of conflicts between left turning vehicles and through vehicles on the highway
<p>Before</p>	<p>After</p>	<p>Realignment</p> <ul style="list-style-type: none"> • Align opposite approaches • Creates a more familiar intersection design
<p>Before</p>	<p>After</p>	<p>Consolidation</p> <ul style="list-style-type: none"> • Consolidate adjacent access points into fewer locations • The number of conflict points are reduced
<p>Before</p>	<p>After</p>	<p>Alternate Access Route</p> <ul style="list-style-type: none"> • Provide access to properties via an improved/new alternate access road • Reduces the number of access points along the highway

There are several areas along CO 83 where each of the access control methods can be applied. Local streets typically are used at locations where a property has one access point to CO 83 and an alternative access to a local street. To meet the objectives of an ACP to reduce the number of access points for safety and operational reasons, all properties adjacent to CO 83 should have their access to CO 83 closed where reasonable access to secondary roads is possible.

The purpose of access conversion through the use of median treatments is to eliminate some or all turning movements to reduce the number of conflicts between left-turning vehicles and through vehicles on the highway. By creating three-quarter movement accesses (left turns are allowed into the driveways, but not out of it) or RIRO movement accesses (no left turns in or out of the access), the number of conflicts will be reduced. The drivers wanting to turn left to/from these locations can use secondary roads to travel to adjacent improved intersections where left turns can be made, which are much safer than at unimproved locations. At other locations, the drivers can make right turns out of the approach roadways/driveways, travel to nearby improved intersections, and make a safe movement (U-turn or left turn).

Access realignment would either align opposite approaches to create a more familiar intersection design or move an existing access point to a new location. For example, some properties are situated close to existing or planned future roads and many of these properties currently have driveways with direct access to CO 83. As development occurs or as new roads are constructed, many of these direct connection driveways can be closed and moved to align with the new roads. This will create better spacing of intersections and reduce the number of conflict points.

Access consolidation is used to reduce the number of access points along the roadway. This approach typically is used at locations where adjacent property owners have individual driveways fairly close together. In these situations, the multiple driveways could be consolidated into a single point that is shared by adjacent properties to reduce conflicts, improve operations, and maintain adequate access to all properties. This approach is especially favorable for pedestrians/bicyclists traveling along the corridor on sidewalks because it reduces the number of conflict points with motor vehicles. While consolidation of access does provide benefits to the corridor, this approach may take years to accomplish because it typically requires redevelopment or site changes to the adjacent properties. If there are multiple property owners, then the process cannot be completed until all properties agree to the changes and/or redevelop their sites.

Lastly, alternate access routes provide access to properties via a new access road (such as a frontage road, backage road, or alleyways). In some cases, these alternative routes must be newly constructed or there may be a need to improve existing alternate routes to provide safe travel for the public. These improvements may include adding pavement, widening travel ways, and adding pedestrian facilities. This approach reduces the number of access points along the highway but provides alternate access to those properties from elsewhere.

5. Access Recommendations

Table 8, shows the total number of proposed accesses and segment lengths within each segment compared to the number of existing accesses. If the ACP were to be fully implemented, it would have the following changes to CO 83 access:

- The total number of access points would be reduced from 72 (7 accesses per mile) to 35 (4 access per mile), which is little more than a 50-percent reduction.
- New access locations that will allow for combining adjacent driveways and also better accommodate future development.
- The number of full-movement access points would be reduced from 71 to 30, which is about a 60-percent reduction and a spacing of signals (or roundabouts) to approximately ½-mile spacing.
- Average spacing between access points would increase from 0.13 miles per access to 0.28 miles per access.
- The number of conflict points within the study area would be significantly reduced resulting in a lower crash expectancy and a safer highway.
- Fewer vehicles turning onto/off of CO 83 would reduce congestion resulting in a better driving experience for residents, visitors, and those conducting business along CO 83.

Table 8. Proposed Accesses by Study Area Section

Section	Length (miles)	Existing Accesses				ACP Accesses					
		FM ¹	PM ²	Sig ³	Total	FM ¹	PM ²	Sig ³	New ⁴	Closed ⁵	Total ⁶
CO 21 to Old North Gate Rd	2.75	12	0	5	12	11	2	6	2	2	13
Old North Gate Rd to Hodgen Rd	5.00	46	1	2	47	8	2	4	3	23	10
Hodgen Rd to Palmer Divide Rd	2.10	13	0	1	13	11	1	6	5	22	12
Totals	9.85	71	1	8	72	30	5	16	10	47	35

1. FM means an access point that allows full movement (no turning restrictions).
2. PM means an access point that has some form of turn restrictions (three-quarter movement or RIRO).
3. SIG means an access that is controlled by a traffic signal or may be controlled by a signal in the future (note that one signalized access may include two access points directly across from one another).
4. New means the proposed locations that may allow access in the future.
5. Closed means the number of existing access points that are recommended for closure.
6. Total is the number of recommended FM plus PM access locations in a segment.

5.1. Roadway Sections and Access Descriptions

The recommended access points are shown in **Appendix A** contains a table with the actual ACP legal description for each access point, including the location by mile post, the proposed ultimate access configuration, and the conditions for change that must be satisfied before a change in access occurs. The development of the ACP does not represent a project and does not require implementation of any of the recommended changes. The ACP is a planning document that helps guide the City, County, and CDOT about changes to access on the corridor that may occur in the future. Typically, the recommended access changes will occur only when one of the following conditions occurs:

- A safety or operational issue is identified at the access location and a traffic study is completed to identify the best solution, which may include implementation of the recommendations in the ACP.
- A roadway improvement project (with identified funding) is completed, such as addition of medians, at which point the project also could implement recommendations in the ACP.
- If one or more properties redevelop, then the City, County, and CDOT would work with the property owners to implement the recommendations of the ACP.

The intent of this ACP study was not to identify design elements of each access location, such as number, length, and types of auxiliary lanes, but rather to focus on where each access should be located and what type of turns should be allowed at each location. The exact design elements for each access would be completed through a study conducted at the time of the final design for any access or roadway improvement project. Development is ongoing along the study roadway and may result in changes contained within this document occurring at any time in the future. The implementation of the plan is discussed in more detail below in Section 6.2, Plan Implementation.

The recommendations in this ACP are based on a final configuration of the study roadway, which may include the need to install median treatments. The following subsections provide a brief discussion on the proposed recommended changes to access along the study roadway. For more details regarding the conditions for changes in access along with a description of the existing, interim, and recommended access conditions, refer to the ACP table in **Appendix A**.

The same traffic volumes that were projected for the 2045 no-action conditions were used to evaluate the 2045 conditions with the recommended ACP. To ensure all traffic is accounted for, engineering judgement was used at the locations where access restrictions/closures were recommended to redistribute turning traffic back to CO 83 via side streets or adjacent access locations.

5.2. Level of Service Analysis

When the final proposed configuration for each access point was determined, another LOS analysis was conducted for the 2045 build scenario that used the recommendations for access location and turning movement restrictions in the proposed ACP. **Table 9** contains the intersection LOS and detailed analysis of the future LOS with the recommended access changes and the Synchro reports are provided in **Appendix C**. Intersections that are not currently signalized must meet the Federal Highway Administration (FHWA) *Manual on Uniform Traffic Control Devices* (MUTCD) traffic signal warrants prior to being signalized. All proposed intersection signalization should be determined by a future traffic study designed to obtain a minimum LOS D for the 20-year horizon.

The results of the analysis of the future LOS with the recommended ACP show the majority of intersections along CO 83 are projected to operate at a better LOS than if no ACP is implemented (no-action condition). With the ACP implemented, many of the intersections are proposed to be converted to a RIRO movement or three-quarter movement or to have a signal constructed to minimize the left-turn movements out from side streets onto the highway. Side street delay from vehicles trying to enter CO 83 is greatly reduced when turn restrictions are implemented.

Table 9. 2045 No-Action LOS Compared to 2045 LOS with ACP Implementation

Intersection	LOS/Delay (sec/veh)			
	No-Action (2045)		With ACP (2045)	
	AM	PM	AM	PM
Powers Blvd SB*	D/37	C/27	D/37	C/27
Powers Blvd NB*	C/30	C/25	C/30	C/25
CDOT Yard	B/15	D/32	B/15	B/14
Shoup Rd*	B/20	C/31	B/20	C/31
Flying Horse Club Dr/Abert Way*	C/24	C/21	C/24	C/21
North Gate Blvd*	D/40	C/30	D/40	C/30
Private Access (east of CO 83)	B/13	F/65	(CLOSED)	
Old North Gate Road	C/19	C/17	B/14*	A/10*
Old Lasso Point	F/77	F/103	B/12	B/12
Shamrock Ranch Rd	C/18	D/30	(CLOSED)	
Kaessner Lane	B/12	C/20	A/4*	A/4*
Stagecoach Rd	A/8	B/11	B/12*	B/13*
Private Access (west of CO 83)	C/18	D/30	(CLOSED)	
New ¾ movement Access	N/A		B/12	B/11
Benet Lane	C/17	C/24	(CLOSED)	
High Forest Rd	C/21	E/41	A/9*	A/9*
Arena Rd	C/17	C/19	(CLOSED)	
Hogden Rd*	D/38	E/62	D/38	E/62
New Signalized Access*	N/A		A/6*	A/7*
Walden Way	E/36	D/33	B/13*	A/10*
Walker Road/CR 105*	E/65	D/54	E/65	D/54
New Signalized Access*	N/A		B/11*	A/8*
New Signalized Access*	N/A		A/4*	A/5*
E Palmer Divide Ave*	C/23	C/25	C/23	C/25

Note: Blue = LOS A, Dark Green = LOS B, Light Green = LOS C, Orange = LOS D, Red = LOS E, Dark Red = LOS F.

* Signalized intersection.

5.3. Crash Analysis

Although future crashes cannot be accurately predicted, the recommendations of the ACP will have an impact on the overall safety of the study roadway by reducing the number of conflict points and providing better traffic control at intersections. Implementation of the ACP will significantly reduce the number of conflict points along the study roadway. The ACP makes recommendations that reduce the number of locations where paths of the different users cross each other. The following are examples of conflict point reductions:

- Conversion of access from full movement to RIRO movement
- Restriction of access from full movement to three-quarter movement
- Combining multiple access driveways into a single shared driveway

All of these examples eliminate conflict points along the roadways. By reducing the number of possible conflict points along a roadway, fewer crashes are expected to occur, resulting in a safer roadway. Pedestrians and bicyclists will have fewer intersections to cross and locations where they will not have to worry about left-turning vehicles.

The ACP also identifies several intersections that may require a change in traffic control, such as the installation of a traffic signal in the future. The changes in traffic control can have a positive impact on the overall safety of a roadway. While traffic signals may result in a higher number of rear-end crashes, they also provide an opportunity to reduce the number of left turn-related crashes by providing protection for left-turn movements. Traffic signals also provide a safer crossing opportunity for pedestrians/bicyclists as they will be able to cross the roadway with the protection of the signal.

The recommendations for changes to access along CO 83 should have an overall benefit to the safety of the study roadway in the future. Even as traffic volumes continue to increase, the reduction in conflict points and the introduction of better traffic control along the study roadway will have a positive impact on the overall safety for the different modes of transportation.

6. Next Steps

This document describes the process of developing the CO 83 ACP. There are several important steps that need to occur in the short term and long term to ensure that the City, County, and CO 83 users realize the maximum benefit of the recommendations from the ACP. These next steps start with the approval process.

6.1. Approval Process

Before the study roadways can begin to benefit from the recommendations of the ACP, a few important events must occur:

- IGA—All parties must agree to an IGA. (See **Appendix A** for a copy of the IGA.)
- Plan Approval—The ACP must be agreed to by City and County officials.
- Plan Adoption—The City and County must sign the IGA.
- Plan briefing to the State Transportation Commission.
- Approval by the State Access Manager at CDOT and signing of the IGA, which puts the plan into law.

After the ACP is officially adopted by the City, County, and CDOT, the adopted ACP becomes the basis for future decisions on site access. The CO 83 ACP, as identified in this document, does not have any implementation timing or schedule.

6.2. Plan Implementation

It is important to remember that the ACP is intended to represent a long-range plan for the study roadway. Implementation of the full plan will occur over the long term as a phased approach based on when:

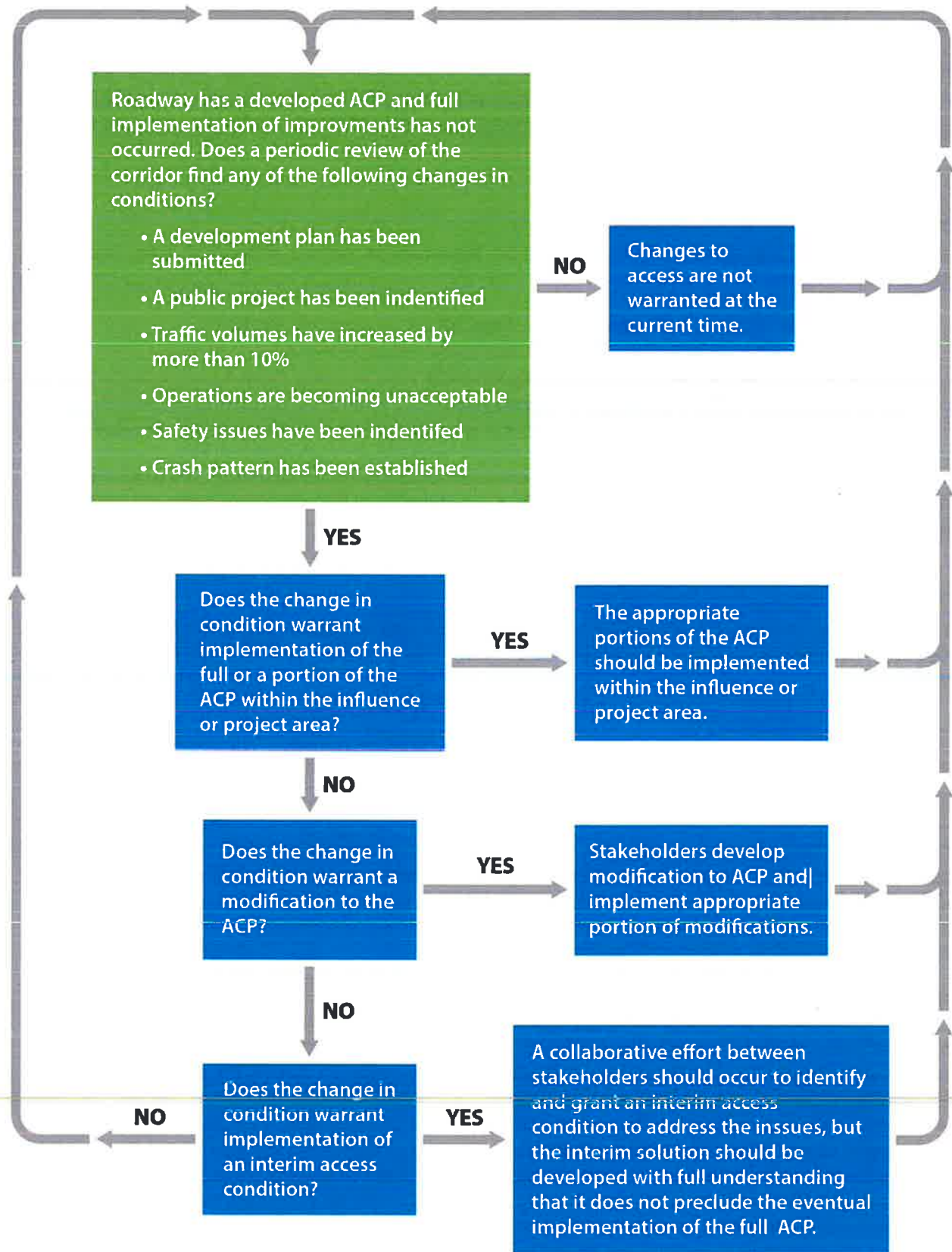
- A safety need is identified
- New development or redevelopment occurs
- Funding for improvements is available
- Traffic needs arise

When intersections or access points have operational or safety concerns, the City, County, and CDOT will look for ways to address these issues. These projects most likely would incorporate portions of the ACP, such as implementing turn restrictions or improving adjacent intersections/access locations, to improve operations or increase safety along the corridor. **Figure 7** provides details about how the ACP may be implemented over time as a phased approach.

Implementation of the full plan at a single time is unlikely. This would be a publicly funded project by any combination of City, County, and CDOT. A future public project would include the access changes described in the ACP that could be implemented at the time of the project. With the implementation of a roadway improvement project the government would be responsible for making the access changes to the highway. Even with the planned project, the entire plan will not be implemented at one time because access must still be provided to each property on the corridor. For example, if a property has not been redeveloped, it might not be feasible to relocate the driveway or alternative access may not be available. In cases like this, an interim access to the property would be maintained until the proposed ultimate access configuration could be achieved. In many instances, the CO 83 ACP does identify the interim condition (such as converting a full movement access to RIRO in the interim until it can ultimately be closed as identified with a red 'X' in the ACP figures for recommended accesses within the study limits.



Figure 7. ACP Implementation Process



As traffic grows along CO 83, the City, County, and CDOT will be faced with deciding how to implement the ACP. One approach may be to implement interim roadway improvements that would delay the need to implement the proposed ultimate recommendations of the ACP. When intersections or access points have operational or safety concerns, the City, County, and CDOT will look for ways to address these issues. These projects most likely would incorporate portions of the ACP, such as implementing turn restrictions or improving adjacent intersections/access locations, to improve operations or increase safety along the corridor.

The most common trigger for the phased approach relates to when a property along CO 83 develops or redevelops, or if a driveway experiences a traffic volume increase of 20 percent or more (per the SHAC). Under this scenario, a new CDOT access permit is required, and the City, County, and CDOT would work with the property owner or the developer to make the access changes and highway improvements in the area directly impacted by the development/redevelopment. Coordination through the development process is critical to the final success of the plan. If the proposed ultimate recommendations of the ACP cannot be implemented when a property redevelops, the property should redevelop in such a way as to not prohibit the plan implementation. For example, new buildings should be constructed in such a manner as to use a future access location shown on the plan.

Even if project-related traffic volumes do not warrant the full implementation of the plan, the City and County should develop a method to collect funds from the owner/developer with the understanding that the changes will be necessary in the future. This may encourage some development to occur now, but the City and County will have collected funds to help offset the cost of the future improvements. This is especially important in the case where a property simply redevelops but does not increase the traffic generated by 20 percent or more. If the City and County do not implement the plan at the same time or collect funds for future implementation, it is unlikely the same property would redevelop again before the changes are necessary, creating a missed opportunity to implement the plan or collect contributions toward the improvements.

Another important aspect of the implementation process is how access is granted to new developments. Each property along the study roadway must be provided with reasonable access. The City, County, and CDOT should work with the owner/developer to ensure projects are designed with consideration to where access will be permitted in the proposed ACP. Access will be provided to the property as shown in the ACP unless it is not feasible to implement at the time of the development. Then, an interim access will be permitted, which will change when the proposed ultimate access conditions can be achieved. Coordinating with the owner/developer throughout the project development process will ensure the final design of the property does not preclude the implementation of the ACP's proposed ultimate access configuration along the study roadway.

6.3. Plan Modification

The outcome of this study is the ACP, which identifies the number, location, and type of access points that will be allowed on CO 83 within the study limits. Future changes to the plan are allowed based on the guidelines of the SHAC, according to Section 2.12, Access Control Plans:

The plan must receive the approval of both the Department and the appropriate local authority to become effective. This approval shall be in the form of a formal written agreement signed by the local authority and the Chief Engineer of the Department. After an access control plan is in effect, modifications to the plan must receive the approval of the local authority and the Department. Where an access control plan is in effect, all action taken in regard to access shall be in conformance with the plan and current Code design standards unless both the Department and the local authority approve a geometric design waiver under the waiver subsection of the Code (p. 30, paragraph 3).

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7. References

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