COLORADO
Department of Transportation

SH 66 Access Control Plan

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Table of Contents

1. Introduction 1
1.1. Overview of Project 1
1.2. Study Limits 2
1.3. Purpose 4
1.4. Objectives 4
1.5. ACP Process 5

2. Corridor Conditions 7
2.1. Existing Corridor Access 7
2.2. Existing Corridor Traffic 9
2.3. Crash History 12
2.4. 2040 No Action Corridor Traffic 12

3. Public Involvement 16

4. Access Control Methods 17

5. Access Recommendations 19
5.1. Level of Service Analysis 19

6. Next Steps 22
6.1. Approval Process 22
6.2. Plan Implementation 22
6.3. Plan Modification 23

Appendices

Appendix A. US 36 / SH 66 Inter-Governmental Agreement
Appendix B. Existing Access Maps
Appendix C. Public Involvement Material
Appendix D. Future Access Maps
Appendix E. SH 66 Access Table
Appendix F. 2040 Synchro Analysis

List of Tables

Table 1. Summary of Highway Analysis Sections 2
Table 2. Existing Access Conditions with Study Area 9
Table 3. Proposed Number of Accesses 19
Table 4. 2040 Operational Analysis 20

List of Figures

Figure 1. Study Area Limits 3
Figure 2. Existing Operational Classification and Laneage 8
Figure 3. Existing Traffic Volumes 10
Figure 4. Existing Corridor Operations 11
Figure 5. Crash History Along SH 66 13
Figure 6. 2040 Projected Traffic Volumes 14
Figure 7. 2040 No Action Traffic Operations on SH 66 15
Figure 8. Methods of Access Control 17
Figure 9. Access Road with Advisory Shoulder Concept 18

List of Acronyms

ACP	Access Control Plan
CDOT	Colorado Department of Transportation
DRCOG	Denver Regional Council of Governments
GIS	Geographic Information System
IGA	Inter-Governmental Agreement
LOS	Level of Service
mph	miles per hour
NR-A	Non-Rural Regional Highway
PEL	Planning and Environmental Linkages
R-A	Regional Highway
SH 66	State Highway 66
TTI	travel time index
US 287	U.S. Highway 287
US 36	U.S. Highway 36
WCR	Weld County Road

1. Introduction

1.1. Overview of Project

The Colorado Department of Transportation (CDOT) is conducting a Planning and Environmental Linkages (PEL) study for approximately 20 miles of State Highway 66 (SH 66) between McConnell Drive in Lyons, Colorado, and Weld County Road (WCR) 19 near Platteville, Colorado. SH 66 is an east-west principal arterial roadway under CDOT jurisdiction. The SH 66 PEL is being conducted to identify existing conditions, identify challenge areas, analyze safety and operational needs along this section of SH 66, and determine its short-term and long-term transportation priorities. As part of the PEL, CDOT concurrently completed an Access Control Plan (ACP) along the corridor to address the future access needs. The ACP involved seven stakeholders (including CDOT), who ultimately will sign the Inter-Governmental Agreement (IGA) with CDOT: Boulder County, Weld County, Town of Lyons, City of Longmont, Town of Mead, and Town of Firestone.

Recent growth along the corridor has resulted in an increase in traffic on SH 66. Looking to the future, traffic volumes are expected to increase in the range of 25 percent to 50 percent along the corridor by the year 2040. Without changes to the highway, the projected increase in traffic volumes will result in increased delay, higher levels of congestion and pollution, an increase in the number of crashes, and consumers potentially choosing to conduct their business in other communities.

The approved ACP will guide the agencies' decisions regarding the future access conditions while supporting the planning objectives of the Towns, City, Counties, and CDOT. The ACP was developed by building on the efforts of the PEL process through an extensive collaborative effort between the stakeholders, a significant public outreach effort to ensure all concerns were heard and appropriately addressed, and informational presentations to the corridor's coalition of staff and elected officials.

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 cross paths with each other), which will improve overall safety for all transportation modes.
- Intersections are identified that may warrant the need for a traffic signal, roundabout, or conversion to an interchange in the future. Clearly identifying the locations where a signal can be installed if warranted prevents the corridor from becoming too congested with signals that are spaced too closely. 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. Alternative intersections, such as a full and partial displaced left-turn intersection and grade-separated interchanges, have been proposed at multiple intersections as future recommended improvements in the PEL. The intersections that may require grade separation are noted in the ACP.
- A shared road concept, called an Access Road with Advisory Shoulders, was developed for the PEL recommendations. It would parallel SH 66 along either the north or south side of the highway between Highland Drive East and 87th Street. The Access Road would provide a shared vehicle, bicycle, and pedestrian path approximately 16 feet wide where vehicles are allowed for short distances between intersecting roads and nearby parcels to reach SH 66. The Access Road would run for short segments where vehicular access is needed, but the entire route would be connected by a bicycle and pedestrian path that would travel the entire section length. The portions of the Access Road that allow vehicles are anticipated to be low volume and low speed,

as the roads typically only provide access to a small number of parcels. Implementing this concept would reduce the number of direct accesses to SH 66 through rural Boulder County by a significant number and would allow the resulting accesses to provide deceleration and acceleration lanes and formalized intersections.

- The recommendations and conclusions contained in the ACP collaborated with the PEL process and do not prohibit future improvements to the transit, bicycle, and pedestrian facilities along the corridor.
- The recommendations and conclusions contained in the ACP follow the recommendations from the PEL for the future laneage and footprint of SH 66. 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 that can alleviate the need for many direct accesses to the highway.

1.2. Study Limits

The ACP study limits, shown in Figure 1, are approximately 20 miles in total length along SH 66 and include a small portion of U.S. Highway 36 (US 36) from the intersection with SH 66 to McConnell Drive in Lyons. The western boundary of the study is the US 36/McConnell Drive intersection and the eastern boundary of the project is the SH 66/WCR 19 intersection near Platteville. The study area passes through the Town of Lyons, City of Longmont, Town of Mead, Town of Firestone, Boulder County, and Weld County. A review of the highway characteristics—such as daily traffic volumes, development density, speed limits, and jurisdictional boundaries—revealed five distinct sections as part of the PEL efforts. Within those five sections, Section 1 and Section 5 were further sub-divided based on future projected land use and highway characteristics. These sections are summarized in Table 1 below.

Table 1. Summary of Highway Analysis Sections

Section #	Limits	Characteristics
1A, 1B, 1C	McConnell Drive to 87th Street	Primarily rural, higher speed, lower volume, lower density of access points, lower truck volumes
2	87th Street to County Line Road	Primarily urban, high-density development, high density of access points, higher volumes, lower speeds, moderate truck volumes
3	County Line Road to WCR 7/3rd Street	Primarily rural, higher volumes, higher speeds, lower density of access points, moderate truck volumes
4	WCR 7/3rd Street to WCR 11	Primarily centered on the I-25 interchange, higher density of access points, moderate truck volumes
5A, 5B	WCR 11 to WCR 19	Primarily rural, higher speed, lower volume, lower density of access points, higher truck volumes

Figure 1. Study Area Limits

1.3. Purpose

The purpose of the ACP is to identify the location, type, and basic design elements of future access points within the study limits that 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 on alternative routes for SH 66. The improvements should be resilient, accommodate developing technologies, and strive to complement adjacent community context.

According to the *State Highway Access Code (March 2002)*, 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 can modify existing access points for safety and operational reasons and recommend restricting the number of allowable vehicle movements.

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).*

1.4. Objectives

Proper application of an ACP will allow all forms 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 goals are specific to the SH 66 ACP:

- Identify improvements to the local transportation network that promote safety and provide appropriate level of access to properties adjacent to the highway.
- Blend the corridor vision from the PEL with the requirements of the CDOT *State Highway Access Code*.
- Assist future development and redevelopment along SH 66 by identifying the locations and types of accesses.
- Provide efficient movement for all modes of transportation along SH 66.
- Provide the appropriate level of access to properties adjacent to the study roadway.
- Provide safer circulation routes for all forms of transportation.

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

- Reducing the number of conflict points where a crash may occur on the highway; this is applicable not only for vehicles, but also for pedestrians and bicyclists having to cross multiple driveways on the corridor
- Creating fewer locations for vehicles to brake or turn onto or off of the highway, resulting in more efficient travel for through traffic
- Making the corridor more visually appealing to drivers and visitors by reducing the number of driveways
- Reducing pollution created by congested traffic conditions

Along the SH 66 corridor, both the existing operational classifications as well as the future desired classifications developed as part of the PEL process were considered when developing the ACP. The existing and future context of the highway, such as whether it would be a rural or urban corridor, also were considered. Frontage roads and shared vehicular and multimodal roads were considered and/or recommended to reduce the frequency of direct accesses to the highway. Consolidating the driveways with direct access to the highway by using local streets allows the opportunity to provide deceleration and acceleration lanes at the intersections, which removes slowing traffic from the mainline of the highway, which improves safety and operations.

A safety analysis was conducted as part of the *SH 66 PEL Corridor Conditions Report.* There were more than 900 reported crashes on the 20-mile-long corridor over the five-year period for which data were analyzed, which result in a higher than expected number of crashes on this corridor.

There are several ways to reduce the number and severity of crashes that occur on a roadway. First, crashes occur at locations where two vehicles or a vehicle and a pedestrian conflict with each other. A potential conflict occurs each time vehicles turning at an access point cross paths with other roadway users (vehicle, cyclist, or pedestrian). If the number of conflict points (access locations) is reduced, the number of crashes typically decreases.

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, most 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. Additionally, pedestrians can 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, ¾-movement, or right-in, right-out 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, deceleration and acceleration lanes can be provided to 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 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.

1.5. ACP Process

Much of the existing conditions data collection and analysis efforts were performed as part of the PEL process. All access locations were identified; crash data were analyzed, corridor traffic volumes were collected; 2040 volumes were developed based on the regional Denver Regional Council of Governments (DRCOG) model; and copies of relevant traffic/planning studies for the roadway and/or the Towns, City, or Counties were gathered. When the data were collected, a safety report and operational analyses were

completed for the existing and No Action conditions, which are documented in the *SH 66 PEL Corridor Conditions Report.* Prior to the ACP beginning, the PEL developed future cross-sections for each Section along the corridor, which included the laneage, presence of medians, and recommended location of sidewalks or shared-use paths. During the PEL analysis, possible intersection options to carry forward were determined for key areas along the corridor.

During the later portion of the PEL, the ACP portion of the project began. The recommendations of the PEL and ACP became an iterative process, where the recommendations of one would inform the results of the other.

The draft ACP alternatives were developed based on the requirements of the *State Highway Access Code*. The project team presented the existing and proposed conditions to the public at several open houses, which is documented in Chapter 3. Presentations to each agency's public works staff and/or elected officials were held during the process to ensure that each agency was included in the process. Based on the comments received, the ACP was revised to develop a preferred alternative. Throughout the PEL and ACP process, the project team gave multiple presentations to the SH 66 Coalition, which consists of local planning and engineering staff as well as elected officials.

The SH 66 ACP is referenced in the final SH 66 PEL Report. The plan adoption process is anticipated to be completed in early 2020. Appendix A contains the IGA necessary to complete the adoption process. Implementation of the SH 66 ACP will occur in phases or incrementally over time based on the development and redevelopment process, available funding, and traffic or safety needs.

2. Corridor Conditions

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 *State Highway Access Code (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.*

The study area includes a small portion of US 36, about 0.7 mile from McConnell Drive to SH 66, and 19.3 miles of SH 66 from US 36 to WCR 19 in Platteville. A review of the *State Highway Access Code* indicates that all portions of the study area are classified as either Regional Highway (R-A) or Non-Rural Regional Highway (NR-A), as summarized in Figure 2.

Per the *State Highway Access Code*, Regional Highways (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.

Non-Rural Regional Highways (NR-A) are governed by the following characteristics:

- The capacity to handle medium to high travel speeds and medium to high traffic volumes over long distances in a safe and efficient manner.
- Provides for interregional, intra-regional, intercity, and intra-city travel needs in suburban and urban areas.
- Provides service to through traffic movements rather than direct access service to abutting land.

If an access meets established signal warrant criteria, it has the potential to become signalized in the future. According to the *State Highway Access Code*, the preferred spacing between signalized intersections is 0.5 mile for highway categories NR-A and R-A. Not all public roadways that currently access SH 66 are appropriate locations for traffic signals if the roadway is to remain in compliance with the *State Highway Access Code*. 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.

Figure 2. Existing Operational Classification and Laneage

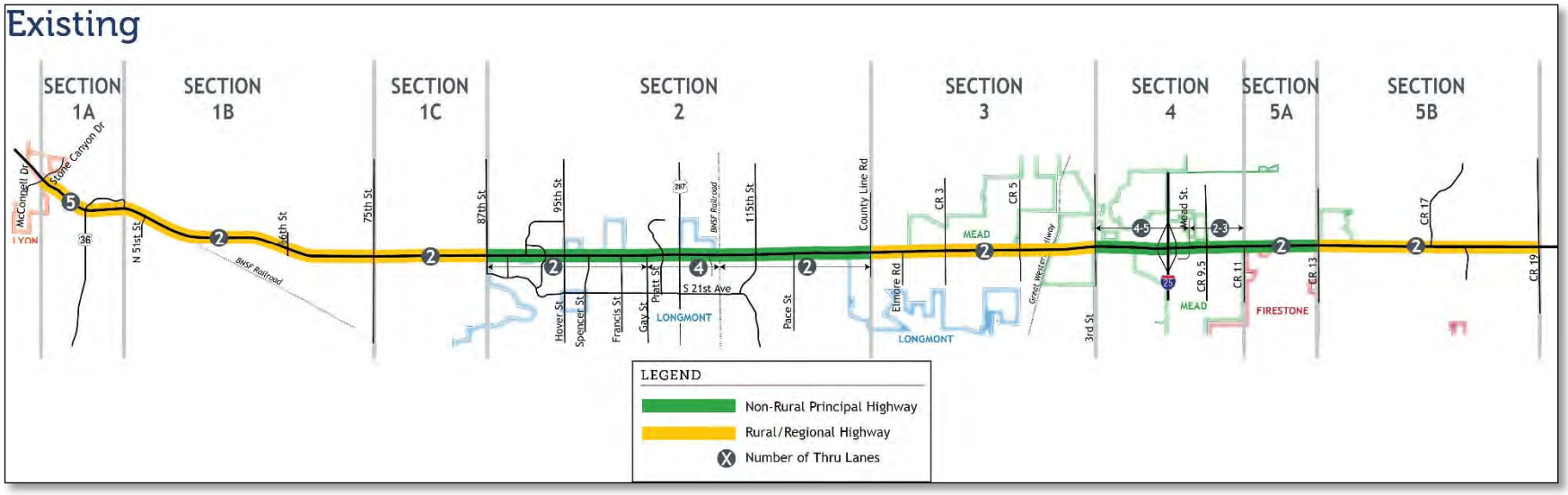


Table 2 summarizes the existing accesses in each of the PEL sections, and includes the access type, average spacing between accesses, and the access density. Today there are more than 370 access locations within the study area, including 346 full-movement intersections and 27 partial-movement (some turning movements are restricted) or other intersection types (such as a railroad crossing). Most unsignalized accesses are driveways providing movement to residential homes and the many businesses that have frontage along the highway. Some access locations are not defined with curb and gutter and may have undefined dirt or paved openings that span the full length of the property. The existing access conditions maps can be found in Appendix B.

Table 2. Existing Access Conditions with Study Area

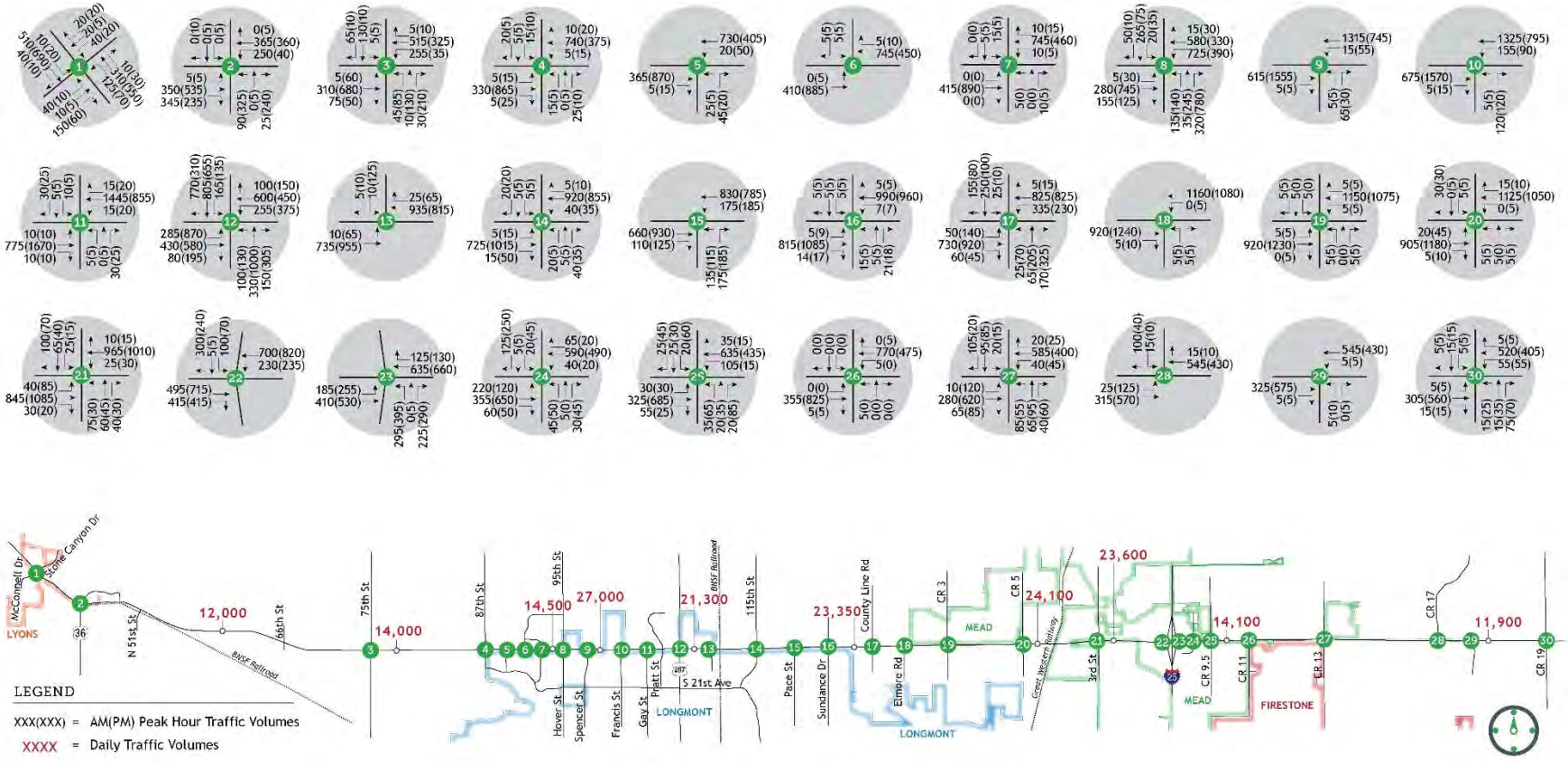
Section	Number of Accesses				Segment Length (miles)
	Full Movement	Partial Movement	Other	Total	
McConnell Dr to 87th St	145	15	0	160	5.8
87th St to County Line Road	74	7	2	83	5.0
County Line Road to WCR 7	45	0	2	47	3.0
WCR 7 to WCR 11	22	1	0	23	2.0
WCR 11 to WCR 19	61	0	0	61	3.9
Totals	347	23	4	**374**	19.9

2.2. Existing Corridor Traffic

The *SH 66 PEL Corridor Conditions Report* documents the existing traffic volumes and operational analysis in detail, which is not repeated in this ACP report. It should be noted that the existing traffic volumes, which were collected in fall of 2016, along the corridor already exceed capacity at some intersections, resulting in congestion and delays. Traffic volumes range from about 12,000 vehicles per day at either end of the study area to a high of 27,000 vehicles per day within Section 2 (the most urbanized section of the study area). The existing operational analysis shows that the three signalized intersections, 95th Street/Hover Street, U.S. Highway 287 (US 287), and WCR 7/3rd Street, currently operate at a failing Level of Service (LOS). The existing turning movement counts and average daily traffic are summarized in Figure 3.

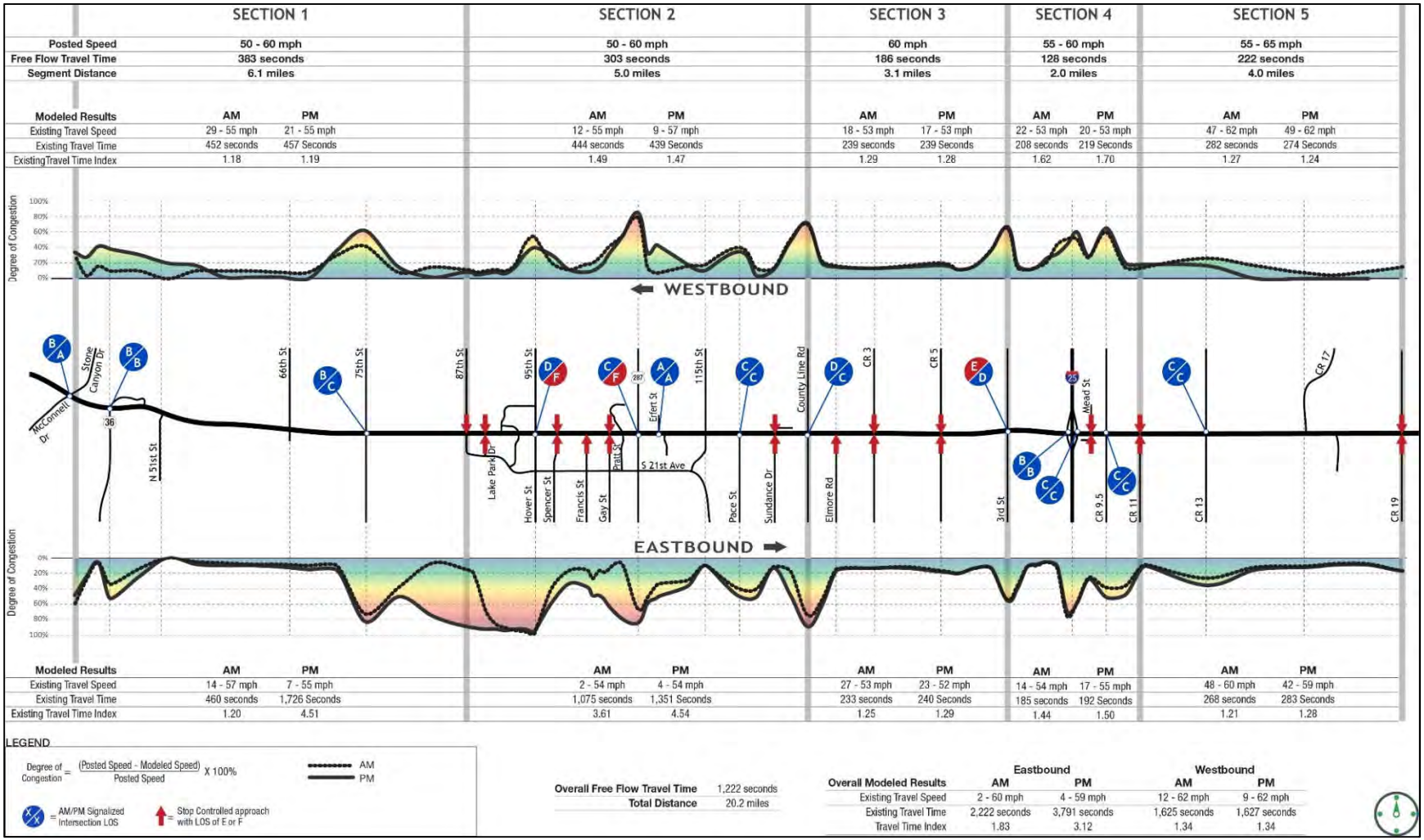
Under existing conditions, the highway users across most of the SH 66 study area (68 percent eastbound to 91 percent westbound) experience low levels of congestion, while the highway users experience heavy to significant congestion on a small amount of the study area (4 percent westbound to 16 percent eastbound). The travel time index (TTI) was calculated for the corridor, which is a measure of the ratio of travel time during peak conditions to the travel time under free flow conditions. The existing TTI for the entire SH 66 study area ranges from 1.3 to 3.1 depending on the time of day (AM or PM) and direction of travel (eastbound or westbound), with the higher values experienced for eastbound traffic in both time periods. These values are consistent with moderate to high levels of delay caused by congestion along the corridor. Individual sections experience a TTI as high as 4.5 (Section 2, eastbound during the PM) consistent with high delays and congestion through the more urbanized portion of the corridor where there are higher volumes, more access locations, and a greater number of traffic signals. See Figure 4 for more information.

Figure 3. Existing Traffic Volumes



Turning movement and daily traffic counts collected in November 2016

Figure 4. Existing Corridor Operations



Analysis based on volumes collected in November 2016

2.3. Crash History

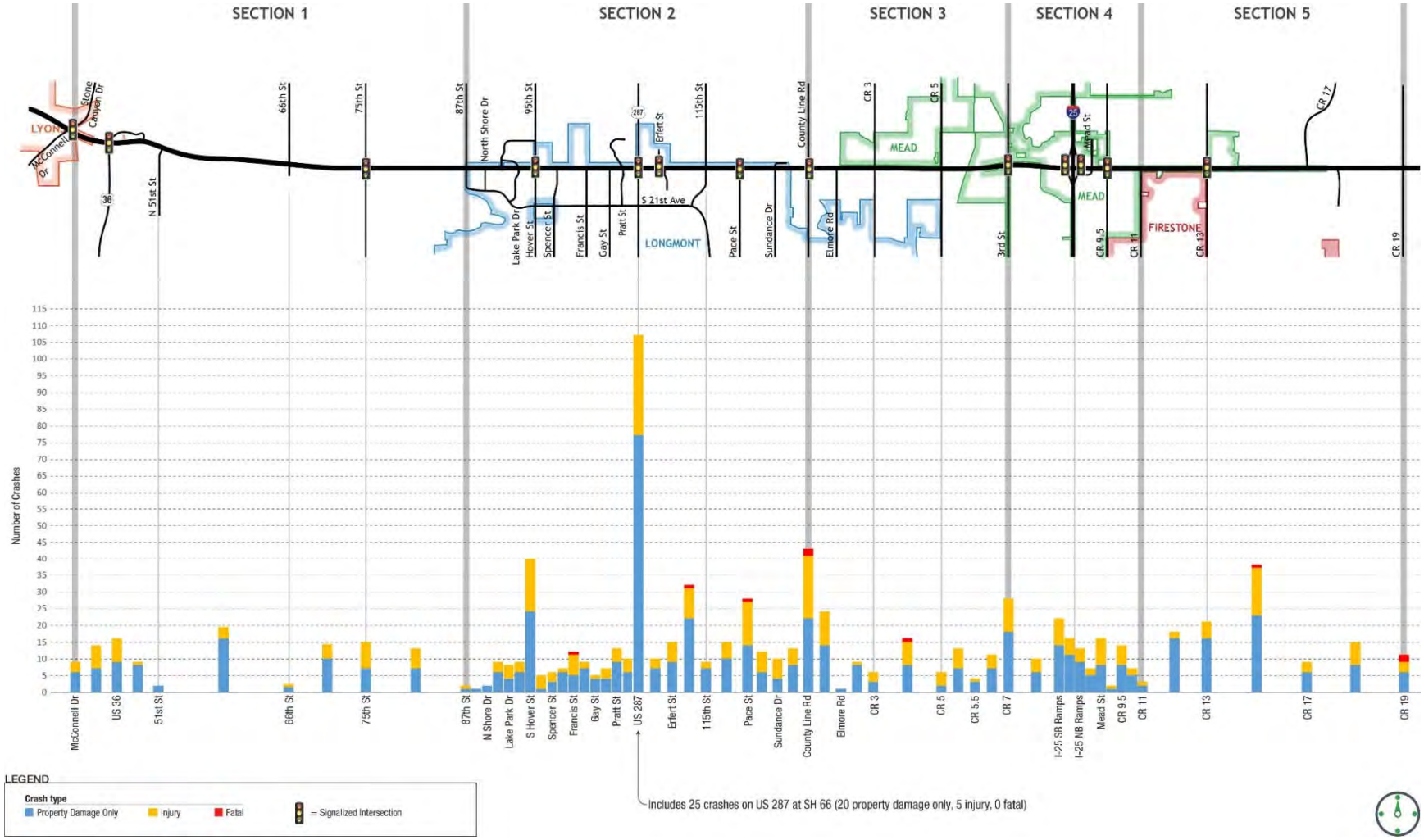
The five-year crash data (reported from January 2011 through December 2015) also are discussed in detail in the *SH 66 PEL Corridor Conditions Report,* as well as the stand-alone *SH 66 Safety Analysis Report* that was developed. Highlights of those reports indicate that a total of 903 crashes occurred in the five-year period analyzed, with approximately 65 percent of all crashes occurring at intersections or driveways, and about 37 percent of the total crashes resulting in injuries or fatalities. Approximately 50 percent of all crashes occurred in Section 2 of the study area, which is primarily urbanized—with a higher density of development, intersections, and access points—and it has higher volumes compared to other sections of the study area. The data also indicate that rear-end crashes accounted for nearly 45 percent (403 crashes) and crashes involving a turning vehicle accounted for another 21 percent (191 turning-related crashes) of all crash events within the study area. One factor that contributes to crashes on this corridor is the high number of access locations that do not have turn lanes (left and/or right), which results in vehicles slowing in the main travel lanes of SH 66 to enter these access locations. In many locations on SH 66, there are only two travel lanes (one in each direction), which, coupled with high travel speeds (higher than 50 miles per hour [mph]), exacerbates the speed differential between turning vehicles and through traffic. See Figure 5 for additional crash data information.

2.4. 2040 No Action Corridor Traffic

The projected future No Action scenario for traffic and operations is discussed in greater detail in the *SH 66 PEL Corridor Conditions Report.* The report states that daily traffic volumes on SH 66 are expected to increase between 25 percent and 50 percent by the year 2040. The future increase in traffic volumes will result in more congestion and delay. The 2040 No Action volumes and projected daily traffic are shown in Figure 6.

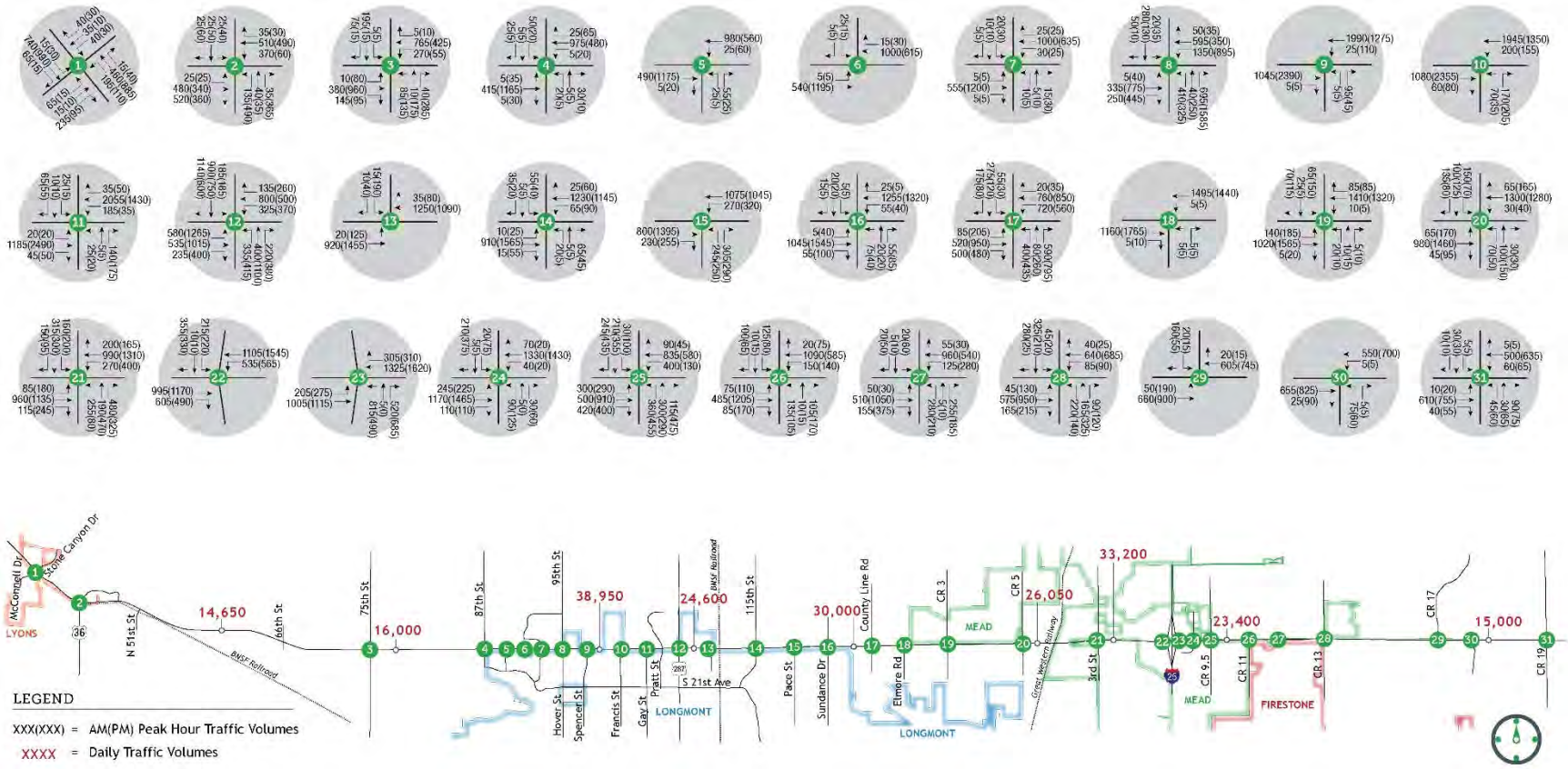
The projected future 2040 No Action operational analysis (see Figure 7) shows that multiple signalized and unsignalized intersections will fail with the existing geometry. As volumes increase along the corridor, the number of acceptable gaps in SH 66 traffic for vehicles to safely turn into or across is anticipated to further decrease. As is the case currently, vehicles that do turn onto SH 66 will, at many locations, enter the only available lane of travel and will do so at slow speeds. This situation may result in vehicles on SH 66 having to slow, producing additional delay and congestion and potential safety issues. In the 2040 No Action scenario, the highway users are expected to experience low to minor levels of congestion on a smaller portion of the study area (54 percent eastbound and 71 percent westbound) and heavy or significant congestion on a higher portion of the study area (25 percent westbound and 32 percent eastbound). The expected increase in congestion in 2040 is consistent with the projected growth in traffic volumes and degradation in operations at most intersections, which may result in increased delays, longer queues, and motorists taking longer than expected or anticipated while using SH 66 to commute to work, conduct business, or travel to recreation activities and destinations. By 2040, the end-to-end travel time indices are expected to increase by as much as 158 percent and by more than 400 percent on some individual sections. The projected increase in traffic volumes will result in longer delays and trips for all motorists using all or part of SH 66, indicating the need for improvements to help reduce delay and provide more efficient and reliable mobility.

Figure 5. Crash History Along SH 66



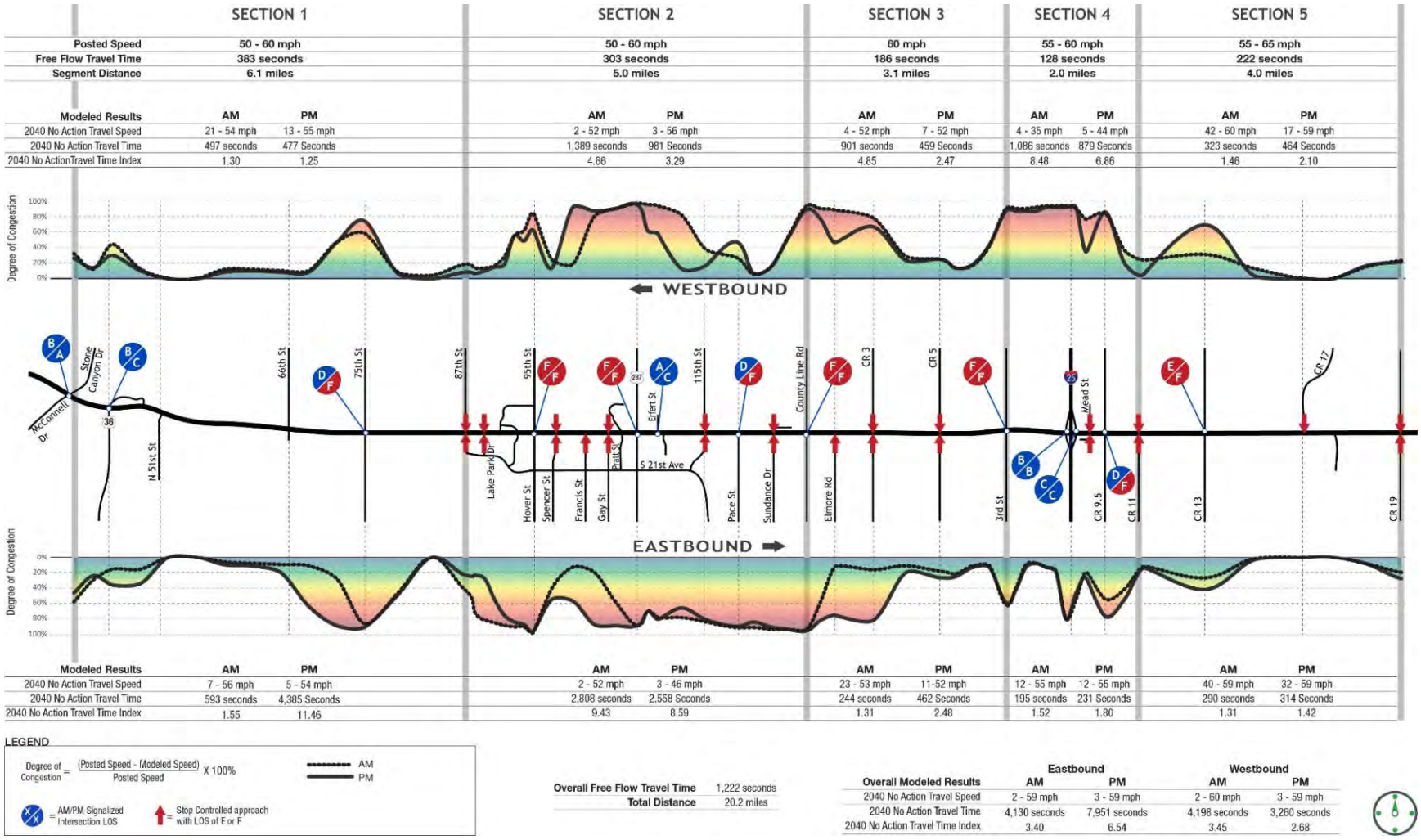
Source: CDOT, reported crashes from January 2011 through December 2015

Figure 6. 2040 Projected Traffic Volumes



Projected traffic volumes based on DRCOG 2040 Regional Travel Demand Model

Figure 7. 2040 No Action Traffic Operations on SH 66



3. Public Involvement

The *State Highway Access Code* requires at least one advertised public meeting be held during the development of an ACP. For the SH 66 ACP, an extensive public involvement process was used, including:

- Coordination with outreach efforts as part of the PEL project
- Website postings on the PEL website
- Initial public open house to present existing conditions and introduce the public to the ACP process in April 2019
- Meetings with interested property owners and developers adjacent to the corridor
- Presentations to the SH 66 Coalition, which is comprised of local agency planning/engineering staff and elected officials in March 2019 and June 2019
- Meetings with local agency public works staff and/or presentations to elected officials
- Stand-alone ACP Open House presenting the draft plan recommendations in July 2019
- Final public open house held jointly with the PEL to present the final plan in September 2019

Property ownership data were obtained from the Boulder and Weld County assessors' online databases and Geographic Information System (GIS) data files as part of the PEL public outreach efforts. Postcards were mailed to residents and businesses within one-half mile of the SH 66 corridor prior to each open house. Additionally, advertisements for the open houses were posted on CDOT's website and social media, as well as on several of the stakeholder agencies' websites and social media accounts. The mailing list used for the public involvement portion of this study can be found in the PEL report appendices.

The first open house to present the existing conditions and to introduce the concept of access control to the public was held on April 16 and April 18, 2019, at a joint PEL open house. The second public meeting to present the draft SH 66 ACP to the public occurred as a stand-alone meeting on July 25, 2019, at the Longmont Senior Center. Participants could provide feedback through comment cards at the open house or through a questionnaire posted on the project website. The final set of public meetings to present the PEL and ACP recommendations occurred September 25 and September 26, 2019, in Longmont at the Weld County Southwest Service Complex and Longs Peak Middle School. The purpose of the open house was to introduce the project team; identify the study's purpose, process, and schedule; provide information about the methods and benefits of access control; present the ACP; and receive comments from stakeholders and the public. Representatives from the Towns, City, Counties, CDOT, and the PEL and ACP consulting teams were on hand to answer questions from those in attendance. A copy of the meeting materials is in Appendix C of this report. The comments received at all of the Open Houses are documented in the final SH 66 PEL Report. The comments were taken into consideration during the development of the recommended ACP.

As part of the public involvement for this study, two access control plan presentations to the SH 66 Coalition were made, which is comprised of local agency planning and engineering staff as well as elected officials. The purpose of the presentations was to provide information to the elected officials and to keep them informed about the progress of the project.

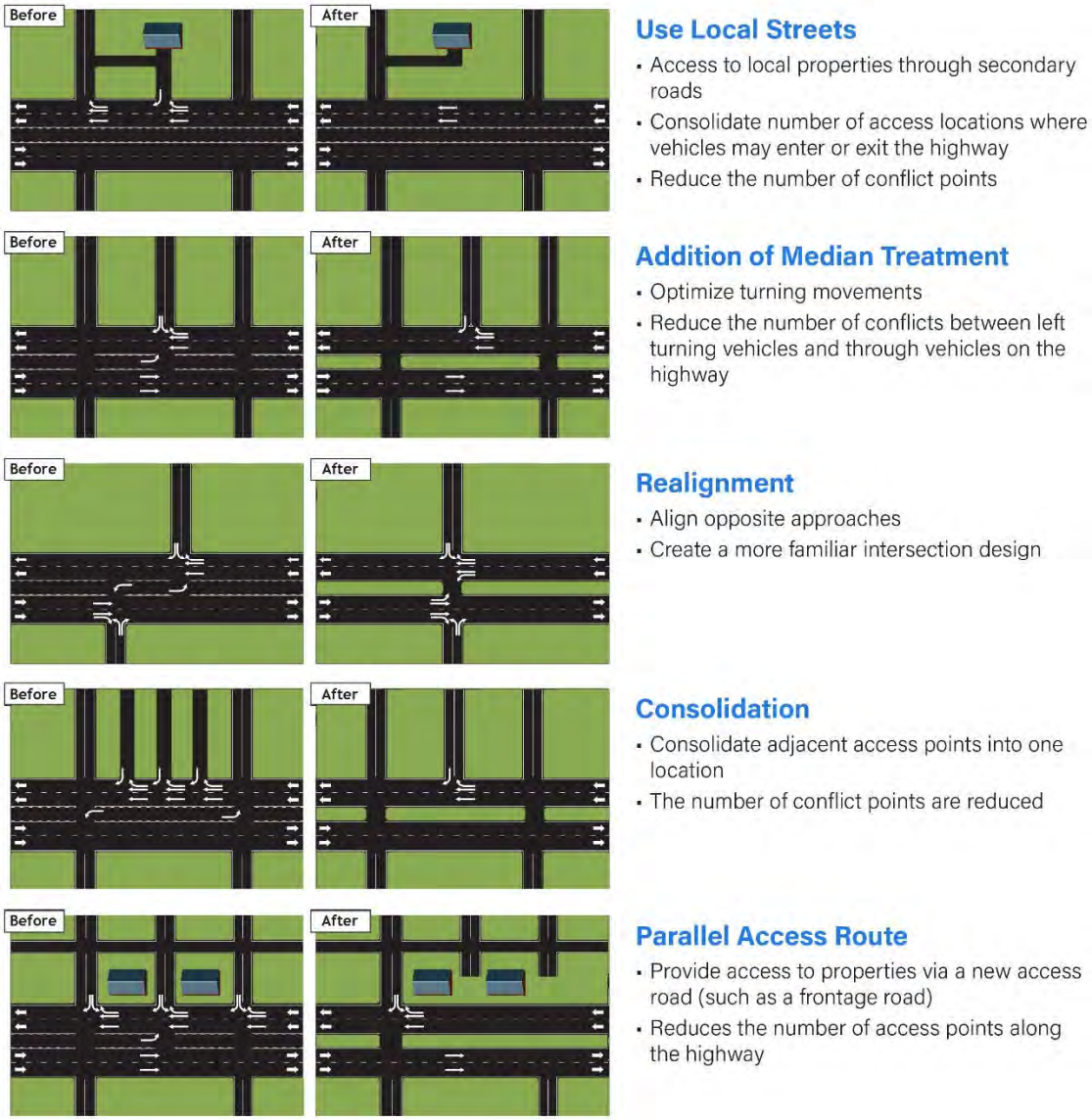
A project website for the PEL project was developed for posting information regarding the status of the project, open house materials, and advertisements for upcoming open house meetings. The ACP also posted its information to this website at https://www.codot.gov/library/studies/co-66-pel.

4. Access Control Methods

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 methods, shown in Figure 8, are the most common:

- Access Elimination
- Access Conversion/restriction with median treatment
- Access Relocation
- Access Consolidation
- Parallel Access Route

Figure 8. Methods of Access Control



Access elimination typically is used at locations where a property has more than one access point. To meet the objectives of an ACP to reduce the number of access points for safety and operational reasons, all properties adjacent to SH 66 should be limited to a single access where reasonable access to secondary roads is not 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), the number of conflicts will be reduced.

Access relocation is an access control method that would either align opposite approaches to create a more familiar intersection design or move an existing access point to a new location. Properties that are situated close to existing or planned future roads that currently have driveways with direct access to SH 66 will be closed 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.

Access consolidation is used to reduce the number of access points along the roadway. 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.

A parallel access route provides access to properties via a new access road, such as a frontage road. This method reduces the number of access points directly along the highway. The proposed Access Road with Advisory Shoulder concept developed in the PEL is one example of a unique parallel access route. The shared paths would provide access for short stretches to vehicles, while providing a continuous path separate from SH 66 between East Highland Drive East and 87th Street for pedestrians and bicyclists. The concept of the shared path is shown in Figure 9.

Figure 9. Access Road with Advisory Shoulder Concept

5. Access Recommendations

The proposed ACP, when fully implemented, recommends 122 access locations within the study area, including 59 full-movement intersections proposed compared to the 346 full-movement intersections that exist today. Table 3, below, shows the total number of existing and proposed accesses within each segment. The future access control plan maps can be found in Appendix D and the SH 66 Access Table can be found in Appendix E.

Table 3. Proposed Number of Accesses

Section	Segment Length (miles)	Number of Existing Accesses			Total	Number of Accesses with ACP Implemented			Total
		Full Movement	Partial Movement	Other		Full Movement	Partial Movement	Other	
McConnell Dr to 87th St	5.8	145	15	0	160	10	28	0	38
87th St to County Line Road	5.0	74	7	2	83	15	13	2	30
County Line Road to Weld County Rd 7	3.0	45	0	2	47	6	10	2	18
Weld County Rd 7 to Weld County Rd 11	2.0	22	1	0	23	10	3	0	13
Weld County Rd 11 to Weld County Rd 19	3.9	61	0	0	61	16	5	2	23
Total	**19.9**	**347**	**23**	**4**	**374**	**57**	**59**	**6**	**122**

5.1. Level of Service Analysis

When the final configuration for each access point was determined, another LOS analysis was conducted for the 2040 Build Scenario that used the laneage and cross-sections developed as part of the PEL recommendations for the entire study area. This LOS analysis reflects the proposed access changes to the study roadway. Table 4 contains the intersection LOS and detailed analysis of the future LOS with the recommended access changes as provided in Appendix F.

Table 4. 2040 Operational Analysis

Section	Intersection	2040 No Action Conditions				2040 Proposed Future Conditions			
		AM		PM		AM		PM	
		LOS	Delay (s)	LOS	Delay (s)	LOS	Delay (s)	LOS	Delay (s)
1A	McConnell Dr	C	21.8	D	46.2	C	20.6	B	13.7
	US 36	B	16.0	C	23.5	C	29.3	C	28.3
1C	75th St	B	14.0	D	40.8	C	23.5	D	43.1
2	Airport Rd/ 87th St	F	102.1*	F	148.5*	B	10.6	A	8.6
	Shore Dr	C	16.1*	D	26.0*	B	10.6*	B	14.3*
	Anhawa Ave	E	47.0*	F	74.0*	B	13.1*	B	10.8*
	Lake Park/Jotipa Dr	F	116.7*	F	>500*	B	13.3*	B	14.8*
	Hover St/95th St (East Int)	F	147.8	F	403.2	B	17.1	D	43.4
	Hover St/95th St (West Int)					B	11.0	D	39.2
	Spencer St	F	>500*	F	>500*	C	23.0*	E	41.3*
	Francis St	F	>500*	F	>500*	B	13.8	C	34.9
	Gay St	F	351.0*	F	>500*	E	41.8*	F	348.3*
	US 287 SBR	F	109.2	F	178.2	A	8.7	B	11.9
	US 287 NBL					A	3.8	A	8.5
	US 287 SBL					A	4.8	A	1.0
	US 287 NBR					A	6.1	A	4.9
	Erfert St	A	3.2	B	11.0	B	14.6	B	17.8
	Alpine Dr	F	>500*	F	>500*	B	13.7	B	15.9
	Pace St	E	57.2	F	167.9	B	14.3	C	29.0
3	County Line Rd	F	165.3	F	153.4	D	40.6	D	48.0
	Elmore Rd	F	199.4*	F	>500*	B	13.8*	C	19.4*
	Weld County Rd 3	F	>500*	C	19.8*	B	13.2	B	16.1
	Weld County Rd 5	B	14.7*	C	20.9*	B	18.7	B	18.4

Section	Intersection	2040 No Action Conditions				2040 Proposed Future Conditions			
		AM		PM		AM		PM	
		LOS	Delay (s)	LOS	Delay (s)	LOS	Delay (s)	LOS	Delay (s)
4	Weld County Rd 7/3rd Street	F	458.8	F	>500	C	29.5	D	52.4
	I-25 SB ramps	B	16.8	B	17.1	A	9.8	B	15.4
	I-25 NB ramps	B	14.7	C	20.9	C	25.7	C	20.8
	Mead St	F	>500*	F	>500*	F	76.9*	F	455.5*
	Weld County Rd 9.5	F	197.5	F	>500	B	16.9	C	23.5
5A	Weld County Rd 11	F	>500*	C	16.8*	D	42.1	C	30.1
	Weld County Rd 11.5	-	-	-	-	C	22.7	C	24.2
5B	Weld County Rd 13	F	156.1	F	185.7	B	19.3	C	21.3
	Weld County Rd 17 North	D	26.8*	F	76.5*	A	7.5	A	6.9
	Weld County Rd 17 South	E	43.9*	F	91.4*	B	12.9	B	12.6
	Weld County Rd 19	F	154.1*	F	>500*	B	11.9	B	12.4

* *Denotes unsignalized intersection; worst-movement LOS and delay are reported*

The results of the analysis of the future LOS with the recommended ACP show that most of the intersections and the SH 66 arterial are projected to operate with less delay than if the ACP is not implemented. With the ACP implemented, many of the intersections are proposed to be converted to a right-in, right-out or three-quarter movement to minimize the left-turn movements out from side streets onto the highway. Side street delay from vehicles trying to enter SH 66 is greatly reduced when turn restrictions are implemented. Additional intersections are identified as locations where a signal may be constructed, which minimizes the overall intersection delay by servicing all turning movements within each cycle length. Due to high volumes at several intersections, the LOS fails even with conventional signalized intersections, so full and partial displaced left intersections and grade separated intersections were identified as feasible to build at Hover Street/95th Street, US 287, WCR 9.5, and WCR 13.

6. Next Steps

There are several important steps that need to occur in the short term and long term to ensure the study roadway realizes the maximum benefit of the recommended 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 approved by each stakeholder entity and adopted by resolution. This includes each agency's Council or Board of Commissioners.
- Plan Adoption—The Towns, City, and Counties must sign the IGA.
- Plan briefing to the State Transportation Commission.
- Approval by the State Access Manager of CDOT, which puts the plan into law.

After the ACP is officially adopted by the Towns, City, Counties, and CDOT, the adopted ACP becomes the basis for future decisions on site access. The current SH 66 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 Towns, City, Counties, 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 SH 66 develops/ redevelops or if a driveway experiences a traffic volume increase of 20 percent or more (per the *State Highway Access Code*). Under this scenario, a new CDOT access permit is required, and the Town or 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 ultimate success of the plan. If the ultimate ACP cannot be implemented when a property redevelops, the property should develop in such a way as to not prohibit the plan implementation. For example, buildings should be constructed in such a manner as to use a future access location shown on the plan.

Another method to implement access control is through a publicly funded project by any combination of Towns, City, Counties, and/or 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 a roadway improvement project, the government would be responsible for making the access changes to the highway. Even with the planned project, all recommendations of the plan may 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 redeveloped, it might not be feasible to relocate the driveway, or if a planned future adjacent street has not yet been constructed, alternative access may not be available. In cases like this, an interim access to the property would be maintained until the ultimate access configuration could be achieved. Continuing coordination must occur between the Town of Lyons, City of Longmont, Town of Mead, Town of Firestone, Boulder County, Weld County, and CDOT to ensure proper implementation of the plan in the future.

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 Town, City, or County and CDOT should work with the owner/developer to ensure projects are designed with consideration to where access will be permitted in the ultimate ACP. Access will be provided to the property as shown on 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 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 final ACP configuration on the study roadway.

6.3. Plan Modification

The outcome of the access control plan study is the signed US 36/SH 66 IGA and the IGA's appendices, which identifies the number, location, and type of access points that will be allowed on SH 66 within the study limits. Future changes to the plan are allowed based upon the guidelines of the *State Highway Access Code*, 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).*

The ACP Amendment Process is detailed in Exhibit B of the IGA, which is included in Appendix A.