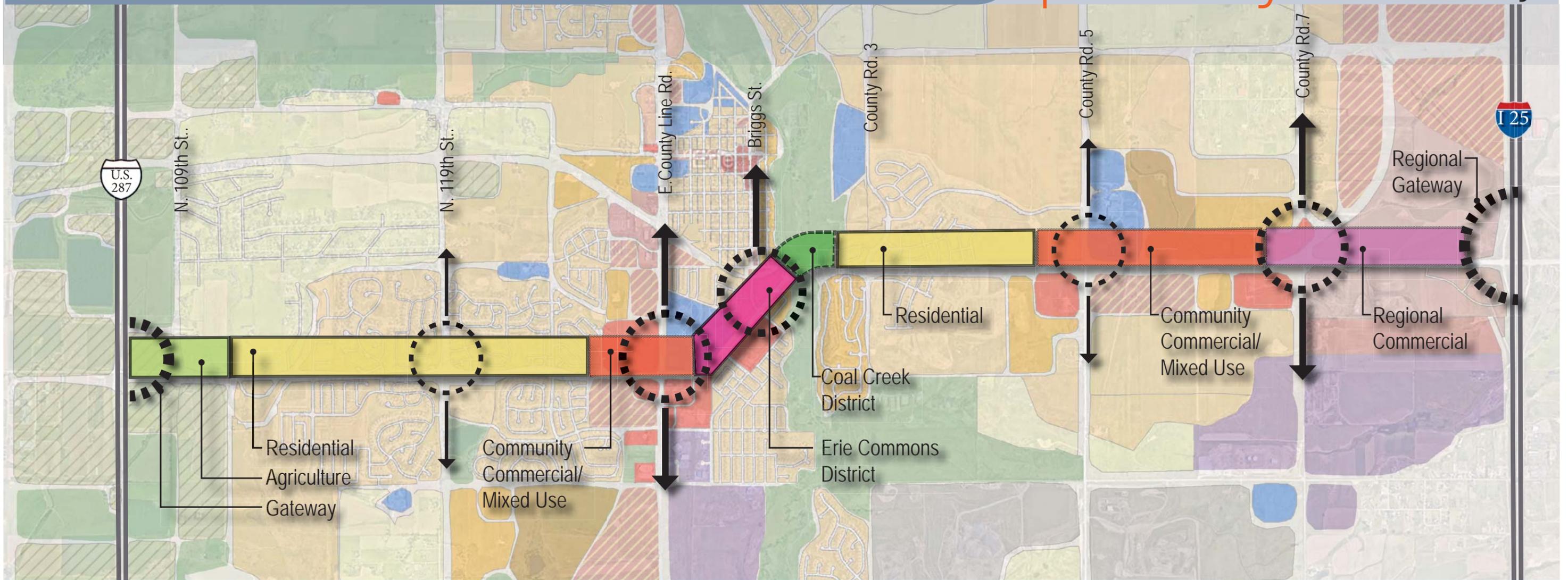


erie parkway corridor study



September 2017

Prepared for:

Town of Erie



Town Project #P15-433

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FHU Reference No. 115237-01

September 2017

Table of Contents

- Executive Summary 1**
 - Project Purpose and Corridor Needs 1
 - Public Outreach Process 1
 - Alternatives Development and Evaluation 1
 - Preferred Alternative 2
 - Implementation Plan 3
- 1. Introduction 5**
 - Corridor Context 5
 - Purpose of Corridor Study 5
 - Recent Projects 5
 - Public Outreach Process 5
- 2. Current Conditions 6**
 - Travel Patterns 6
 - Physical Characteristics and Access 6
 - Speed and Travel Time 6
 - Traffic Operations 6
 - Crash History 10
 - Bicycle and Pedestrian 10
 - Transit Service 10
 - Water Resources 15
 - Environmental Overview 15
- 3. Land Use and Economic Market Assessment 17**
 - Current and Future Land Uses 17
 - Economic Market Assessment 17
- 4. Future Baseline Conditions 19**
 - Baseline Network 19
 - Travel Demand Forecasts 19
 - Future Traffic Operations 19

- 5. Purpose and Need 21**
 - Public Input 21
 - Project Purpose 22
 - Corridor Needs 22
 - Character Districts 23
- 6. Alternatives Development and Evaluation 24**
 - Evaluation Criteria 24
 - No Action Alternative 24
 - Tier 1 Alternatives 24
 - Tier 1 Evaluation and Screening Results 24
 - Tier 2 Packaged Alternatives 26
 - Tier 2 Evaluation 28
- 7. Preferred Alternative 30**
 - Decision Process 30
 - Description of Preferred Alternative 32
 - Conceptual Design 35
 - Implementation Plan 38
 - Funding Strategy 40

Appendices

- Appendix A – Public Involvement
- Appendix B – Environmental Considerations Report
- Appendix C – Economic Development Assessment
- Appendix D – Conceptual Design
- Appendix E – Cost Estimates

List of Figures

Figure 1. Study Area	5
Figure 2. Existing and Planned Access	7
Figure 3. Posted Speeds and Travel Times	8
Figure 4. Current Traffic Volumes and Operations.....	9
Figure 5. Crash History (2012 – 2014)	11
Figure 6. Existing and Proposed Bicycle and Pedestrian Facilities	12
Figure 7. Existing Bicycle and Pedestrian Intersection Counts and Levels of Service.....	13
Figure 8. Current Transit Service	14
Figure 9. Existing and Future (2040 Baseline) Daily Traffic Forecasts.....	19
Figure 10. 2040 Baseline Traffic Forecasts and Intersection Operations	20
Figure 11. Character Districts	23
Figure 12. Packaged Alternative A	27
Figure 13. Packaged Alternative B	27
Figure 14. Preferred Alternative Cross Section	32
Figure 15. Preferred Alternative Access Spacing and Intersection Control.....	33
Figure 16. Intersection and Monument Plan.....	34
Figure 17. Erie Commons/Commercial District Kit of Parts	34
Figure 18. Commercial Intersection Treatment	35
Figure 19. Residential Intersection Treatment	35
Figure 20. Preferred Alternative – Level of Service	37
Figure 21. Preferred Alternative Projects	39
Figure 22. Erie Parkway Bridge Concept.....	39
Figure 23. I-25/Erie Parkway Landscape Concept	40

List of Tables

Table 1. Land Use Forecasts – Erie Planning Area Boundary	17
Table 2. Tier 1 Alternatives Evaluation	25
Table 3. Tier 2 Intersection Operational Comparison (2040).....	28
Table 4. Tier 2 Alternatives Evaluation	29
Table 5. Auxiliary Lane Criteria for Erie Parkway	36
Table 6. Preferred Alternative 2040 Travel Times and Average Travel Speeds.....	36
Table 7. Preferred Alternative Projects	38

Executive Summary

Erie Parkway is one of three continuous east-west arterial connections within the Town of Erie. Situated approximately midway between State Highway 7 (SH 7) on the south and SH 52 on the north, Erie Parkway bisects the Town and provides regional connectivity to Boulder and Interstate 25 (I-25). Central to the Town, Erie Parkway serves as the community’s spine and as the gateway to the Town from US Highway 287 (US 287) on the west and I-25 on the east.

In recent years, Erie Parkway has experienced continuing pressure for growth, and its role in the region has transitioned from a rural road to the major arterial corridor that it is today. Not only is Erie Parkway the primary route for accessing the Town of Erie from I-25 on the east and from Boulder on the west, but it also serves east-west travel needs regionally. Today, there is much variability along the corridor—the adjacent land uses include suburban and rural residential, commercial, retail, and a high school. Similarly, the cross section varies from a two-lane rural road on the west end to sections of four lanes with landscaped medians, sidewalks, and bike lanes.



The Town of Erie initiated this Corridor Study to create a vision that will serve as a blueprint for future multimodal transportation and urban design improvements along the corridor. The study area extends between US 287 and I-25 (approximately 6.67 miles).

Project Purpose and Corridor Needs

The purpose of the project is to identify, and eventually implement, multimodal transportation improvements to enhance mobility and safety along Erie Parkway, as well as define streetscape design elements that will support local economic vitality, retain the small-town character, and enhance the identity of Erie.

Transportation improvements are needed to address:

Mobility – Local and regional travel demand and traffic congestion along the corridor are expected to increase due to residential and employment growth along Erie Parkway and the surrounding areas.

Safety – There is a higher than expected number and severity of crashes at the intersection of US 287 and Isabelle Road (west end of the Erie Parkway Corridor).

Bicycle and Pedestrian Activity – Today’s bicycle and pedestrian infrastructure along and across Erie Parkway does not provide sufficient connectivity, comfort, and safety to support walking and biking in the community.

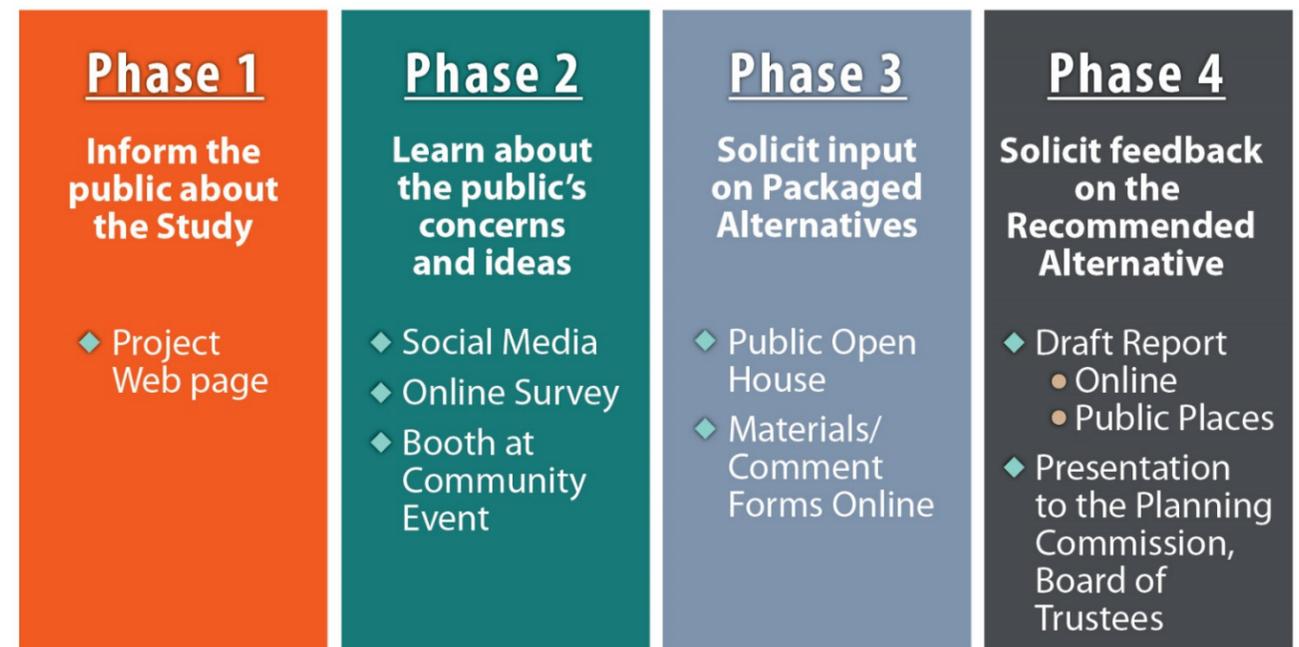
Transit Accessibility – Transit service along Erie Parkway is limited and lacks transit-supportive infrastructure, amenities, and connections to destinations along the corridor to support future service.

Economic Vitality – Transportation infrastructure is needed to support economic development along Erie Parkway and to provide connectivity to downtown commercial and civic activities.

Character and Identity – Erie Parkway is a major spine through the Town of Erie. The current corridor design is inconsistent and lacks elements to support the desired small-town character and unique identity of Erie.

Public Outreach Process

The public involvement opportunities occurred during each of the four phases, with each phase requiring a slightly different approach to fulfill the communication and input needs. An overview of the outreach process by phase is provided below.



Alternatives Development and Evaluation

Corridor improvement alternatives for Erie Parkway were developed and evaluated in a two-tiered process. Tier 1 involved a high-level assessment of various street cross-sectional elements and design treatments. The retained elements were packaged into complete alternatives, which were further evaluated in Tier 2. Criteria for evaluating alternatives were established to respond directly to the project purpose and the corridor needs. The criteria and corresponding evaluation used in Tier 1 were primarily qualitative in nature. The Tier 2 evaluation criteria focused on those measures that could best be used to differentiate the corridor alternatives and facilitate the selection of a preferred alternative.

The process for selecting a Preferred Alternative for Erie Parkway included in the following steps:

- Performing a two-tiered alternatives development and evaluation process.
- Soliciting input from the public.
- Developing a preliminary Preferred Alternative using elements from two packaged alternatives.
- Presenting and discussing the preliminary Preferred Alternative with the multidisciplinary Town staff Project Team.
- Presenting and discussing the preliminary Preferred Alternative with the Town Board at the Town Board meeting on January 10, 2017.
- Refining the Preferred Alternative based on feedback from the public, Town staff, and Town Board, and completing conceptual design.

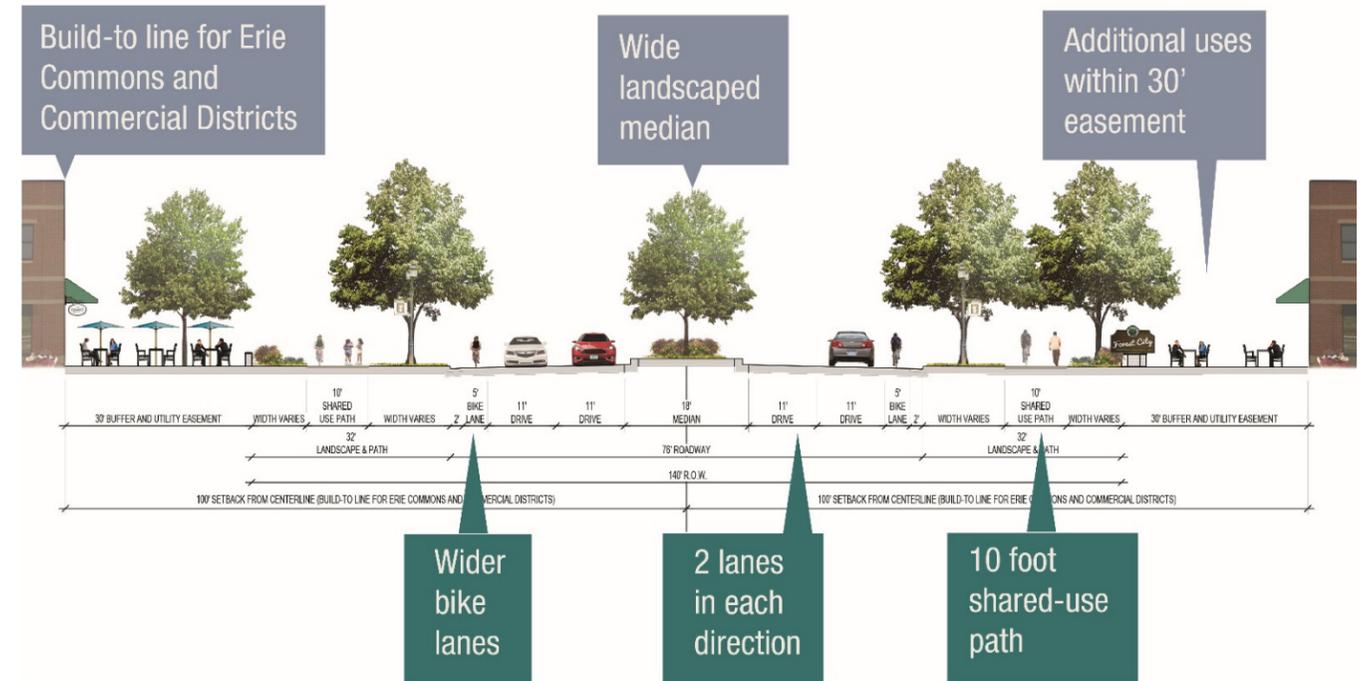
Preferred Alternative



The Preferred Alternative for Erie Parkway includes a series of multimodal transportation and urban design improvements to address the project purpose and the corridor needs. The Preferred Alternative includes widening Erie Parkway to four lanes along most of the corridor. On the west end of the corridor, Erie Parkway (referred to as Isabelle Road west of the Town boundary) will transition to two lanes through the US 287 intersection. On the eastern

half-mile of the corridor, a wider cross section (six lanes) is needed to accommodate the future traffic associated with the anticipated commercial/business development proximate to I-25. Over Coal Creek, Erie Parkway will be realigned with a 40 mile per hour (MPH) design speed, including a new bridge that will accommodate the four-lane section.

The Erie Parkway cross section includes the same flow-line to flow-line width (76 feet) as the Town's current Principal Arterial street standard. However, the Erie Parkway Preferred Alternative includes a slight reconfiguration of the pavement with narrower travel lanes (11 feet) to accommodate wider bike lanes (5 feet plus the 2-foot gutter pan). The wider bike lanes will provide more separation between bicyclists and vehicles and will allow bicyclists to be centered in the lane away from the seam between the asphalt street and concrete gutter. The cross section maintains an 18-foot landscaped median along the length of the corridor and includes a wide (10-foot) detached shared use path on both sides of the street to accommodate pedestrians and those bicyclists who may not feel comfortable riding in the bike lanes adjacent to traffic. The Preferred Alternative cross section includes a build-to line for the Erie Commons and Commercial Districts and the possibility of additional uses within the 30-foot easement.



The Preferred Alternative for Erie Parkway incorporates traditional signalized intersections typically at half-mile spacing, with unsignalized full movement intersections typically at quarter-mile spacing. The existing roundabout at 119th Street would be replaced with a signalized intersection to accommodate the four through lanes and the level of traffic volumes anticipated by 2040.



Three future trail underpasses are identified in the Preferred Alternative. The first underpass is for the Coal Creek Trail – the new bridge over Coal Creek will allow the trail to pass underneath, as it does today. The next future trail underpass location is roughly one-third mile west of CR 7 – this underpass would connect the planned trail system north and south of Erie Parkway. Finally, a potential future underpass is identified for a location approximately mid-way between CR 7 and I-25 – the intent of this crossing is to provide a direct connection for pedestrians between the future commercial land uses north and south of Erie Parkway.

Implementation Plan

Implementation of the Preferred Alternative can take several forms relative to the sequence of construction of the physical infrastructure. Because it is not likely that the Town can construct the entire Preferred Alternative at one time, a phase implementation approach is recommended. The corridor improvements have been separated into distinct projects – each of which could be completed as a stand-alone project or combined with adjacent projects.

Table ES - 1 includes a list of projects that make up the Preferred Alternative, along with a planning-level cost estimate, identification of primary funding responsibility, and an indication of the priority. The project extents are shown on **Figure ES- 1**. Projects identified as being short-term priority projects are anticipated to be completed within the next five years. Mid-term projects are likely to be needed in the five- to ten-year time horizon, and the long-term projects are likely 10+ years from implementation.

Figure ES- 1. Preferred Alternative Projects



Table ES - 1. Preferred Alternative Projects

Project ID	Location	Description	Planning-Level Cost (2017\$)	Primary Responsibility	Priority
1	West of US 287 to 109 th Street	Reconstruction of Erie Parkway per Boulder County plans	\$4,900,000	Boulder County, Erie	Short-Term
2A	109 th Street to Baxter Farm Lane	Reconstruction of Erie Parkway (with only one EB thru lane)	\$11,100,000	Erie	Mid-Term
2B	US 287 to 111 th Street	Addition of 2 nd EB thru lane, sidewalk and landscape area	\$4,400,000	Erie	Long-Term
3	Baxter Farm Lane to Meadowview Parkway	Restriping of Erie Parkway to narrow travel lanes and widen bike lanes	\$11,000	Erie	Short-Term
4	Meadowview Parkway to Brennan Street	Reconstruction of Erie Parkway	\$5,500,000	Erie	Mid-Term
5	Brennan Street to Meller Street	Restriping of Erie Parkway to narrow travel lanes and widen bike lanes; widen sidewalk	\$840,000	Erie	Mid-Term
6	Meller Street to east of Briggs Street	Restriping of Erie Parkway to narrow travel lanes and widen bike lanes; widen sidewalk	\$1,100,000	Erie	Short-Term
7	Erie Parkway & County Line Road	Intersection enhancements	\$760,000	Developers	Short-Term
8	Erie Parkway & Powers Street	Intersection enhancements	\$68,000	Erie	Short-Term
9	Erie Parkway & Briggs Street	Intersection enhancements	\$56,000	Erie	Short-Term
10	Coal Creek Bridge	Reconstruction of Erie Parkway, bridge replacement, and trail improvements	\$15,100,000	Erie	Short-Term
11	Montgomery Drive to CR 5	Restriping of Erie Parkway to narrow travel lanes and widen bike lanes; widen sidewalks	\$630,000	Erie	Mid-Term
12	CR 5 to New CR 5 ½	Reconstruction of Erie Parkway	\$9,200,000	Developers, Erie	Long-Term
13	New CR 5 ½ to CR 7	Reconstruction of Erie Parkway	\$12,600,000	Developers	Long-Term
14	CR 7 to New CR 7 ½	Reconstruction of Erie Parkway	\$14,100,000	Developers	Long-Term
15	New CR 7 ½ to I-25 SB Ramps	Reconstruction of Erie Parkway	\$11,500,000	Developers	Long-Term
16	I-25 Ramp Terminal Intersections	Signalization	\$650,000	CDOT, Erie, Dacono, Developers	Short-Term
17	I-25 Interchange Area	Landscaping	\$1,300,000	Erie, Dacono, Developers	Mid-Term

1. Introduction

Corridor Context

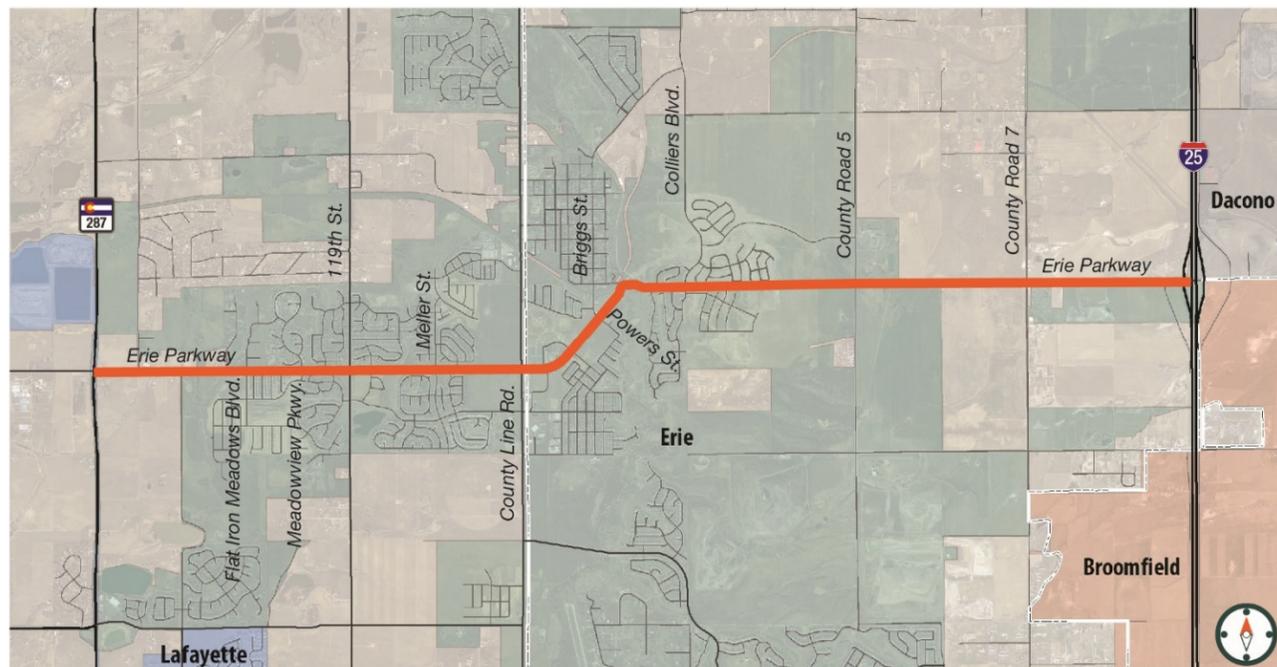
Erie Parkway is one of three continuous east-west arterial connections within the Town of Erie. Situated approximately midway between State Highway 7 (SH 7) on the south and SH 52 on the north, Erie Parkway bisects the Town and provides regional connectivity to Boulder and Interstate 25 (I-25). Central to the Town, Erie Parkway serves as the community’s spine and as the gateway to the Town from US Highway 287 (US 287) on the west and I-25 on the east.

In recent years, Erie Parkway has experienced continuing pressure for growth, and its role in the region has transitioned from a rural road to the major arterial corridor that it is today. Not only is Erie Parkway the primary route for accessing the Town of Erie from I-25 on the east and from Boulder on the west, but it also serves east-west travel needs regionally. Today, there is much variability along the corridor—the adjacent land uses include suburban and rural residential, commercial, retail, and a high school. Similarly, the cross section varies from a two-lane rural road on the west end to sections of four lanes with landscaped medians, sidewalks, and bike lanes.

Purpose of Corridor Study

The Town of Erie initiated this Corridor Study to create a vision that will serve as a blueprint for future multimodal transportation and urban design improvements along the corridor. The study area extends between US 287 and I-25 (approximately 6.67 miles), as shown on **Figure 1**.

Figure 1. Study Area



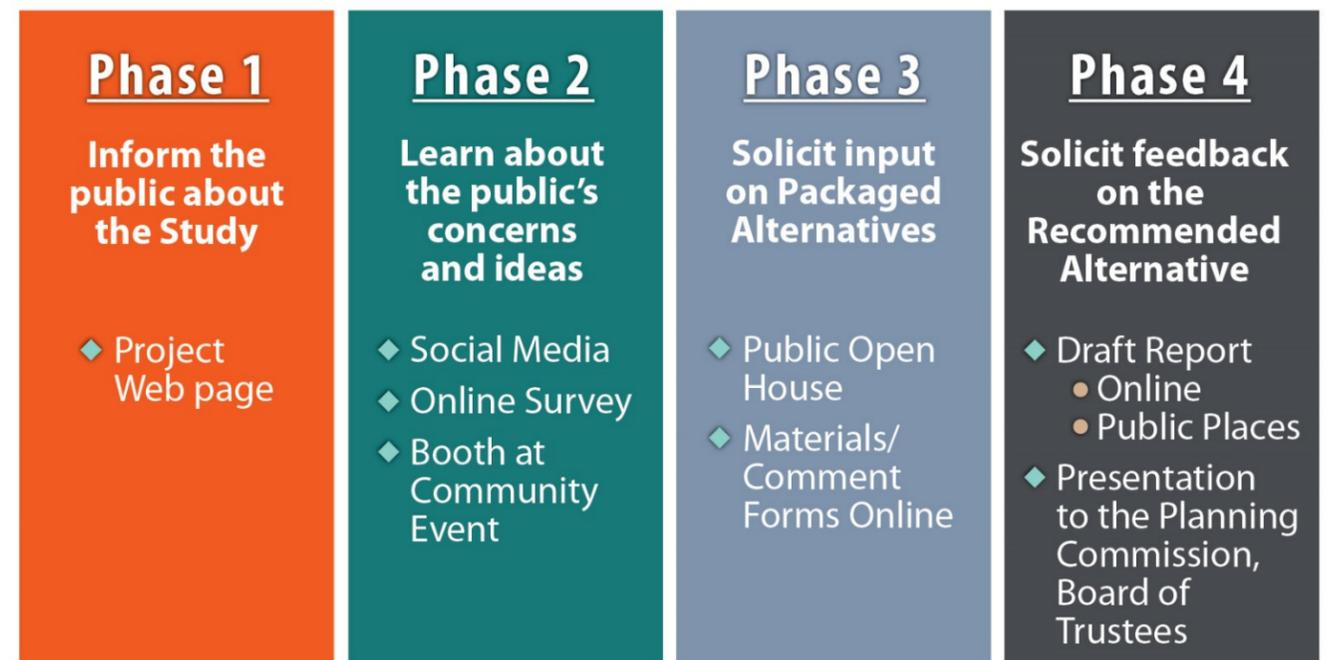
Recent Projects

Ongoing development along Erie Parkway has triggered the need for roadway improvements. Current active developments include Colliers Hill, with recent construction to improve the roadway to a four-lane divided cross section between Weld County Road 3 (WCR 3) and WCR 5, and Flatiron Meadows, which plans phased construction to an ultimate four-lane cross section (with a striped center median) between 111th Street and 119th Street.

Public Outreach Process

Public involvement is the cornerstone of a successful corridor study. It is essential that members of the community are involved in the planning process with a sense of ownership in the final plan, which facilitates progress toward implementation of the recommended alternative.

The public involvement opportunities occurred during each of the four phases, with each phase requiring a slightly different approach to fulfill the communication and input needs. An overview of the outreach process by phase is provided below. **Appendix A** includes a full summary of the outreach activities and input received.



2. Current Conditions

Travel Patterns

Roughly 1,500 people commute to Erie for work daily, while nearly 7,500 Erie residents leave the Town to work elsewhere. Only 360 residents remain in Erie for work. These numbers from the US Census show a net outflow of workers. The directionality of residents commuting to work is strongly oriented to the south (the Denver metropolitan area) and to the west (Boulder). With many residents headed to the Denver area via I-25, these two primary commuting patterns show a strong need for bi-direction travel on Erie Parkway.



Physical Characteristics and Access

The existing cross section is variable along the 6.67-mile Erie Parkway corridor. There are approximately 12 to 13 combinations of through travel lanes, turn lanes, shoulders, and sidewalks, not including transitional segments. The current configurations range from the basic two travel-lanes plus narrow shoulders through rural areas to four travel-lanes with raised center medians, auxiliary turn-lanes, bike lanes, and detached sidewalks through developed areas.



Figure 2 shows the existing and planned accesses along Erie Parkway. As indicated, there are approximately 48 accesses, either existing or planned, between US 287 and I-25, for an average access density of 7.2 accesses per mile. Most accesses along Erie Parkway are full-movement, but five accesses, between County Line Road and Colliers Boulevard, have been restricted to right-in/right-out only (RIRO) accesses. A RIRO access is planned to serve the 4-Corners retail development just west of County Line Road. A planned ¾ movement access (right-in/left-in/right-out) has been constructed to serve the Erie Highlands development just east of Colliers Boulevard/Bonanza Drive.

There are eight existing signalized intersections along the corridor at US 287, Flatiron Meadows Boulevard, Meller Street, County Line Road, Powers Street, Briggs Street, Colliers Boulevard/Bonanza Drive, and County Road 5 (CR 5). Two additional signalized intersections are planned to serve Erie Highlands between Colliers Boulevard/Bonanza Drive and CR 5. A roundabout has been constructed at the intersection of Erie Parkway and 119th Street.

Speed and Travel Time

With the wide range of cross-sectional configurations, the posted speed limits along the study corridor vary widely depending on the adjacent land uses. **Figure 3** depicts the posted speeds on Erie Parkway. As indicated, speed limits through the more developed residential areas are 35 to 40 miles per hour (MPH). The speed limit increases to 50 MPH between CR 5 and I-25, where development is sparse. At the Coal Creek crossing, where the roadway narrows approaching the sharp curve at the bridge, the speed limit is reduced to 25 MPH.

Figure 3 summarizes the results of the travel time surveys conducted along the study corridor. These surveys were conducted during both morning and afternoon peak commute times. As shown, it typically takes between 11 and 13 minutes to travel the 6.67-mile corridor, which equates to average speeds of between 30 and 35 MPH. Travel in the eastbound direction is slightly slower during both peak periods.

Traffic Operations

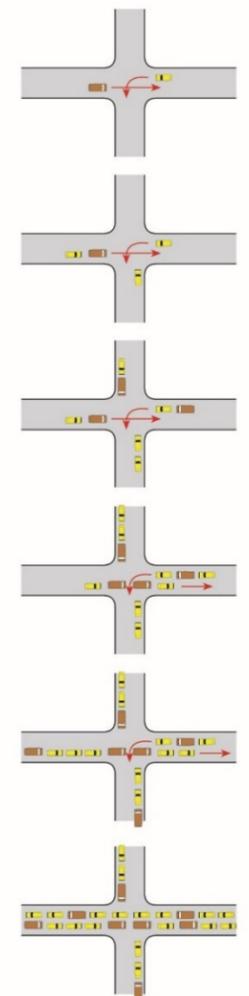
Traffic volume data were collected along the study corridor in March 2016. The data included peak hour intersection turning movement counts at key intersections and 24-hour automated traffic counts at three locations. These counts were supplemented with traffic data compiled from recent traffic impact studies conducted for private development within the Town of Erie.

Figure 4 illustrates the existing corridor traffic volumes. Erie Parkway currently carries approximately 9,000 vehicles per day (vpd) west of County Line Road and east of CR 5, and approximately 11,600 vpd over Coal Creek bridge. The peak hour volumes indicate a predominant commuter pattern with a westbound majority in the AM peak hour and an eastbound majority in the PM peak hour.

The peak hour intersection turning movement volumes, existing lane geometrics, and traffic control were used as the basis for intersection level of service (LOS) analyses, the results of which are also displayed on **Figure 4**. LOS is a qualitative measure of traffic operational conditions, based on roadway capacity and motorist delay. The 2010 *Highway Capacity Manual* defines six levels of service, ranging from A to F, with LOS A representing the best possible operating conditions and LOS F representing over-capacity, or congested conditions. In urbanized areas, LOS D is typically considered to be acceptable for peak hour traffic operations.

Level of Service - Intersections

- A** No vehicle waits longer than one signal indication.
- B** On rare occasions vehicles wait through more than one signal indication.
- C** Intermittently vehicles wait through more than one signal indication, occasionally backups may develop, traffic flow still stable and acceptable.
- D** Delays at intersections may become extensive, but enough cycles with lower demand occur to permit periodic clearance, preventing excessive backups. LOS D has historically been regarded as a desirable design objective in urban areas.
- E** Very long queues may create lengthy delays
- F** Backups from locations downstream restrict or prevent movement of vehicles out of approach creating "gridlock" condition



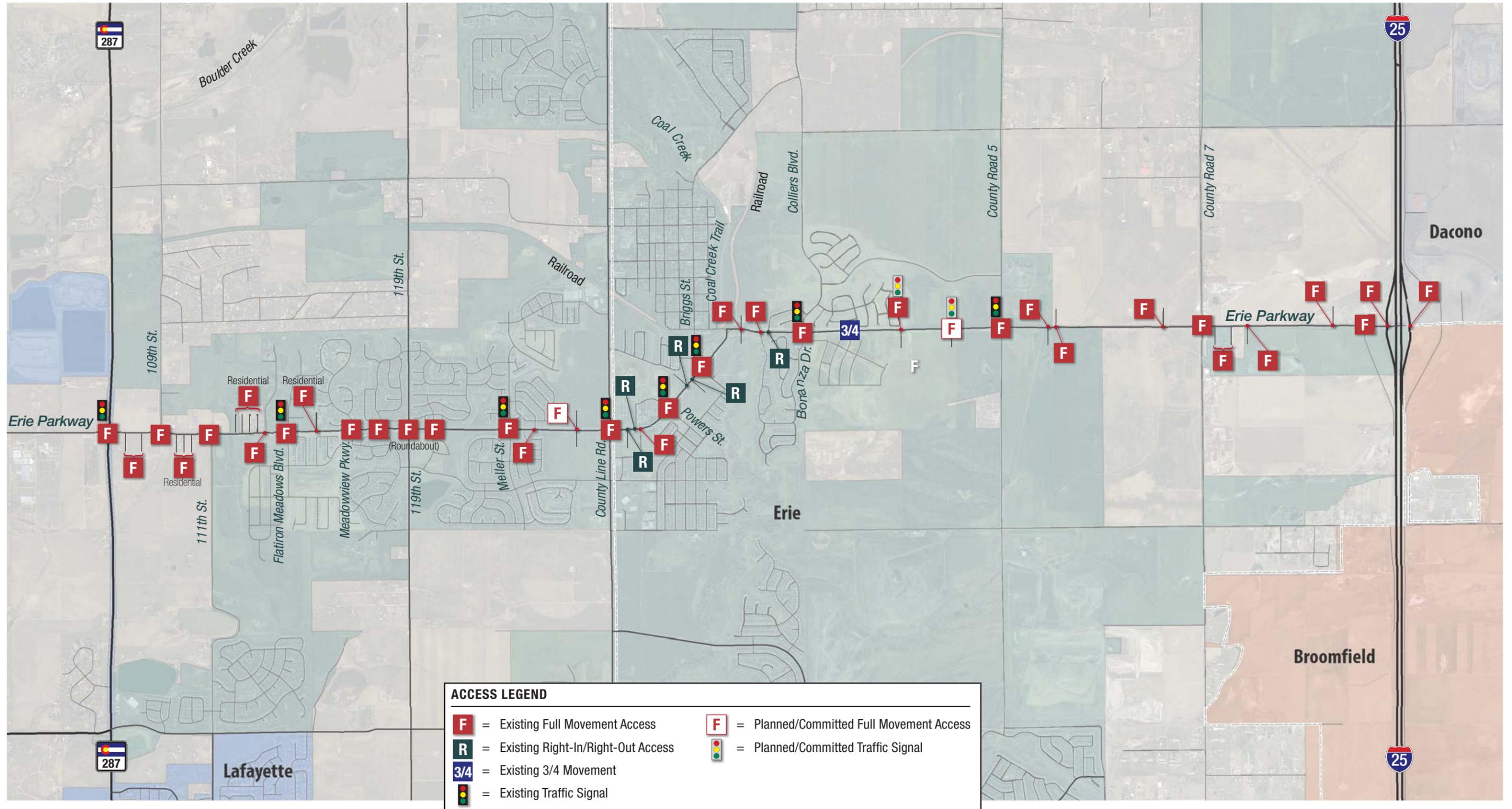
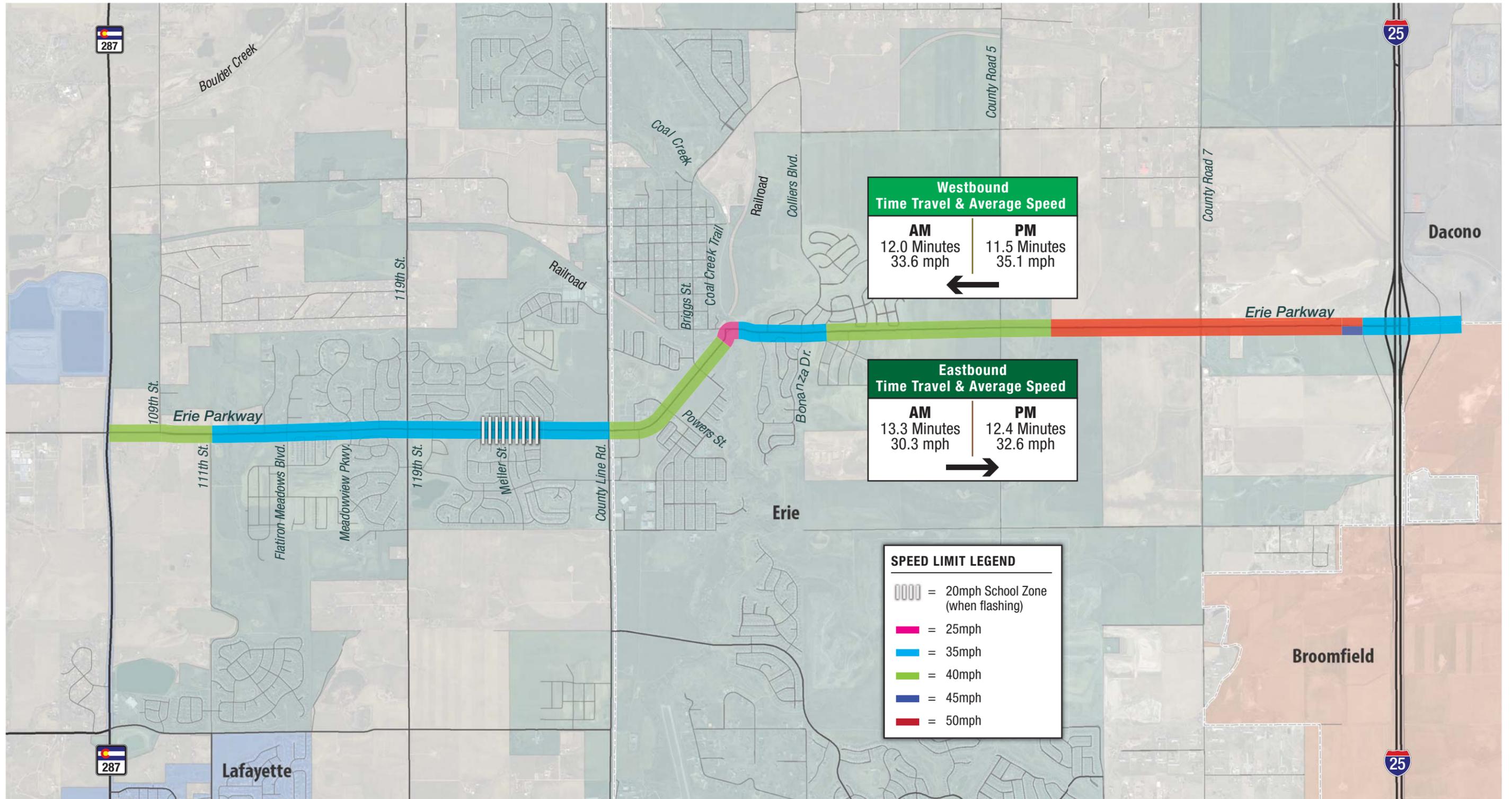


Figure 2
Existing and Committed Access





Legend

- Highways
- Major Roads
- Local Roads
- Municipal Boundaries
- Erie
- Lafayette
- Broomfield
- Dacono
- County Boundaries

Figure 3
Posted Speeds and Travel Times



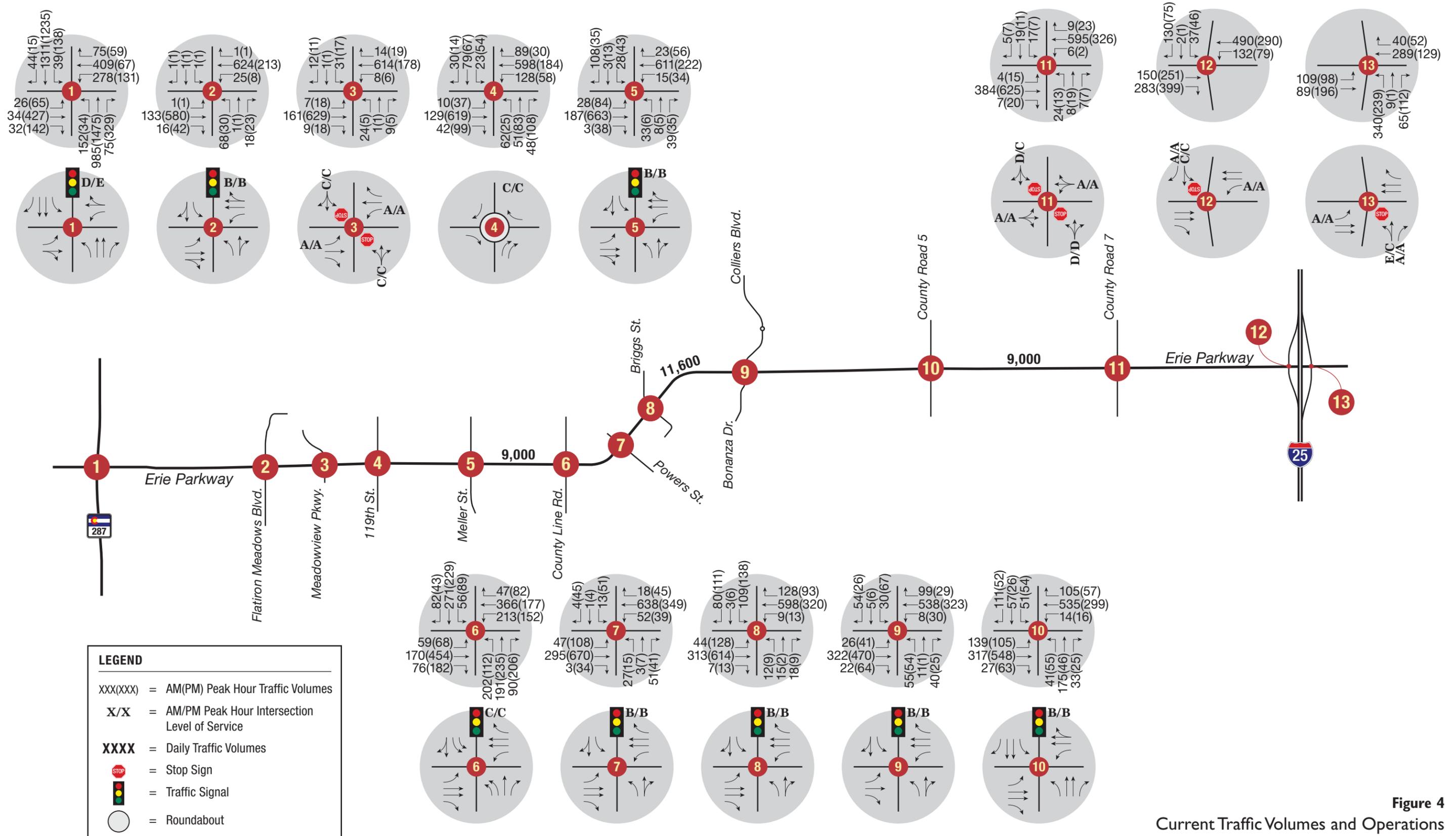


Figure 4
Current Traffic Volumes and Operations

As shown on **Figure 4**, existing traffic operations at the study area intersections are generally acceptable during the peak times analyzed. The exceptions are the intersection at US 287, which currently operates at near capacity conditions (LOS E) in the PM peak hour, and the northbound I-25 ramp intersection, which experiences LOS E for STOP controlled left-turns in the PM peak hour. The I-25 ramp intersections are anticipated to meet the *Manual of Uniform Traffic Control* (MUTCD) signal warrants within the next 10 years.

Crash History

Town of Erie staff provided motor vehicle crash records for incidents that occurred along the study corridor between January 1, 2012, and December 31, 2014.

Figure 5 summarizes the crash data for Erie Parkway. During the three-year period evaluated, there were 109 motor vehicle crashes along the study corridor. Thirty crashes resulted in personal injuries, and 79 crashes involved property damage only. The crash data indicate that there were no fatal crashes within the evaluated time period.

As indicated on **Figure 5**, four intersections stand out as having a relatively high crash experience. The signalized intersection at US 287 experienced the most crashes with 35, coinciding with the relatively high traffic volumes through this intersection. The predominance of rear-end collisions is a potential sign of congestion, which is supported by the operational analyses. The intersection of US 287 and Isabelle Road is the only intersection along the corridor that has experienced a higher than expected number of total crashes and injury/fatal crashes based on the methodology documented in the *Highway Safety Manual*. Direct diagnostics for the US 287/Isabelle Road intersection indicate that approach turn and injury type crashes occur at a higher than expected frequency. All the approach turn crashes occurred with either northbound or southbound vehicles on US 287 making left turns.

The roundabout at 119th Street experienced 15 crashes within the three-year period. The predominant type of crash here is sideswipe, which is typical for roundabouts. Crash severity tends to be lower at roundabouts due to reduced speeds and one-way movements within the roundabout, although three crashes resulted in injuries, one of which involved a bicyclist.

The intersection at County Line Road had nine crashes. This signalized intersection had three rear-end, two approach turn, two sideswipe, and two broadside collisions. The approach turn may indicate the potential need for protected-only left-turn phasing on the dual left-turn approaches (northbound and southbound).

The unsignalized intersection at County Road 7 (CR 7) had eight crashes: three broadside, two rear-end, two overturning, and one domestic animal collision. The rear-end collisions may indicate the need for deceleration lanes on Erie Parkway approaching the intersection.

Bicycle and Pedestrian

Figure 6 shows the existing bicycle and pedestrian facilities along the study corridor. In general, continuous pedestrian connection is provided via detached sidewalks along Erie Parkway between Flatiron Meadows Boulevard on the west and CR 5 on the east. Existing sidewalks vary between 5 and 10 feet in width. Pedestrian signals are provided at all signalized intersections within this segment. The Coal Creek Trail has a grade separated crossing beneath Erie Parkway, providing a fully protected and unimpeded crossing of the corridor for pedestrians and bicyclists.

Figure 6 also shows the existing bicycle facilities. Continuous on-street, 5-foot-wide bike lanes (including the 2-foot gutter) have been constructed along both sides of Erie Parkway from Meadowview Parkway on the west to just east of the Colliers Boulevard intersection. Where right-turn lanes are developed at intersection approaches, the bike lanes transition to be located between the outside through travel lane and the right-turn lane. While this configuration is the safest to minimize the “right-hook” problem, in most instances along the corridor, only a 3-foot bike lane is provided between the travel lanes. Four-foot shoulders are available to serve bike traffic on the east side of the corridor, as well as on a short segment between 109th and 111th Streets. Where bike lanes or shoulders are not present, on-street bicyclists must ride in the vehicular travel lanes.

Pedestrian and bicyclist counts were included in the peak hour intersection data collection and are shown on **Figure 7** for those intersections that experienced some bicycle or pedestrian activity. In general, the intersections along the Erie corridor experienced very few pedestrian and bicyclist crossings. The existing bicycle and pedestrian LOS was evaluated using *Highway Capacity Manual* methods. The bicycle LOS represents the perceived hazard of the shared roadway environment through the intersection based on the crossing distance, bike lane width, number of travel lanes, and vehicular traffic volumes. The pedestrian LOS is calculated based on both the delay incurred by pedestrians crossing the intersection and the geometric design considerations and levels of traffic volumes that affect the pedestrian’s exposure to and interaction with turning vehicles. Current pedestrian and bicycle operations at these signalized intersections are acceptable (LOS A or LOS B) during peak times.

Transit Service

The Regional Transportation District (RTD) provides transit service in Erie. Currently, only one route—the JUMP—provides bus service on Erie Parkway, as shown on **Figure 8**. The JUMP travels between the Erie Community Center and Boulder every 30 minutes during peak periods (6 AM to 9 AM and 3 PM to 6 PM) and every 60 minutes from 7 PM to 10 PM on weekdays. On Saturdays, the bus runs every 60 minutes. There is no midday service on weekdays and no Sunday service. There are four bus stops directly on Erie Parkway, and the Erie Community Center serves as the primary stop, with the highest number of boardings and alightings.

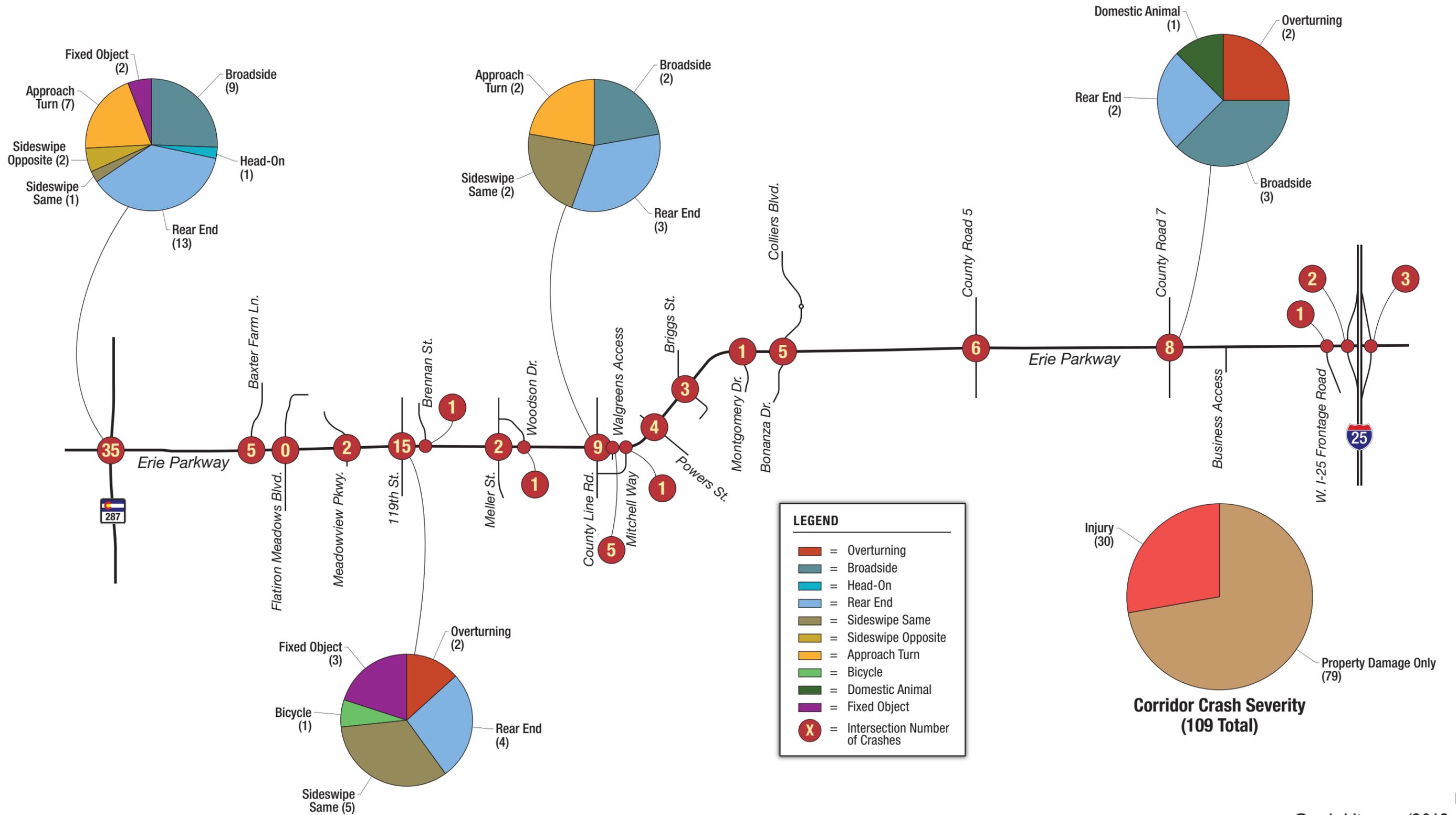


Figure 5
Crash History (2012 - 2014)



Figure 6
Existing and Proposed
Bicycle and Pedestrian Facilities



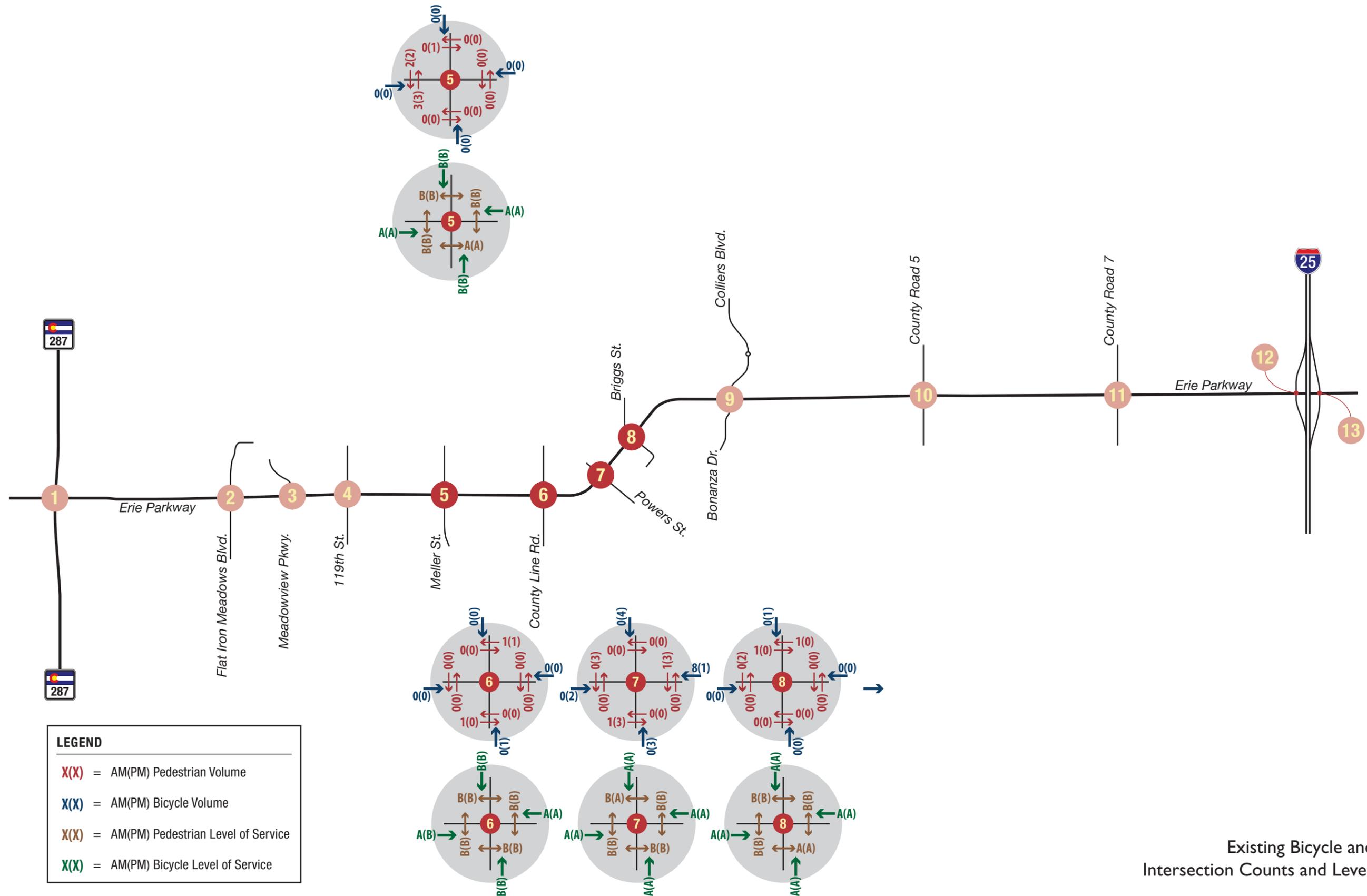
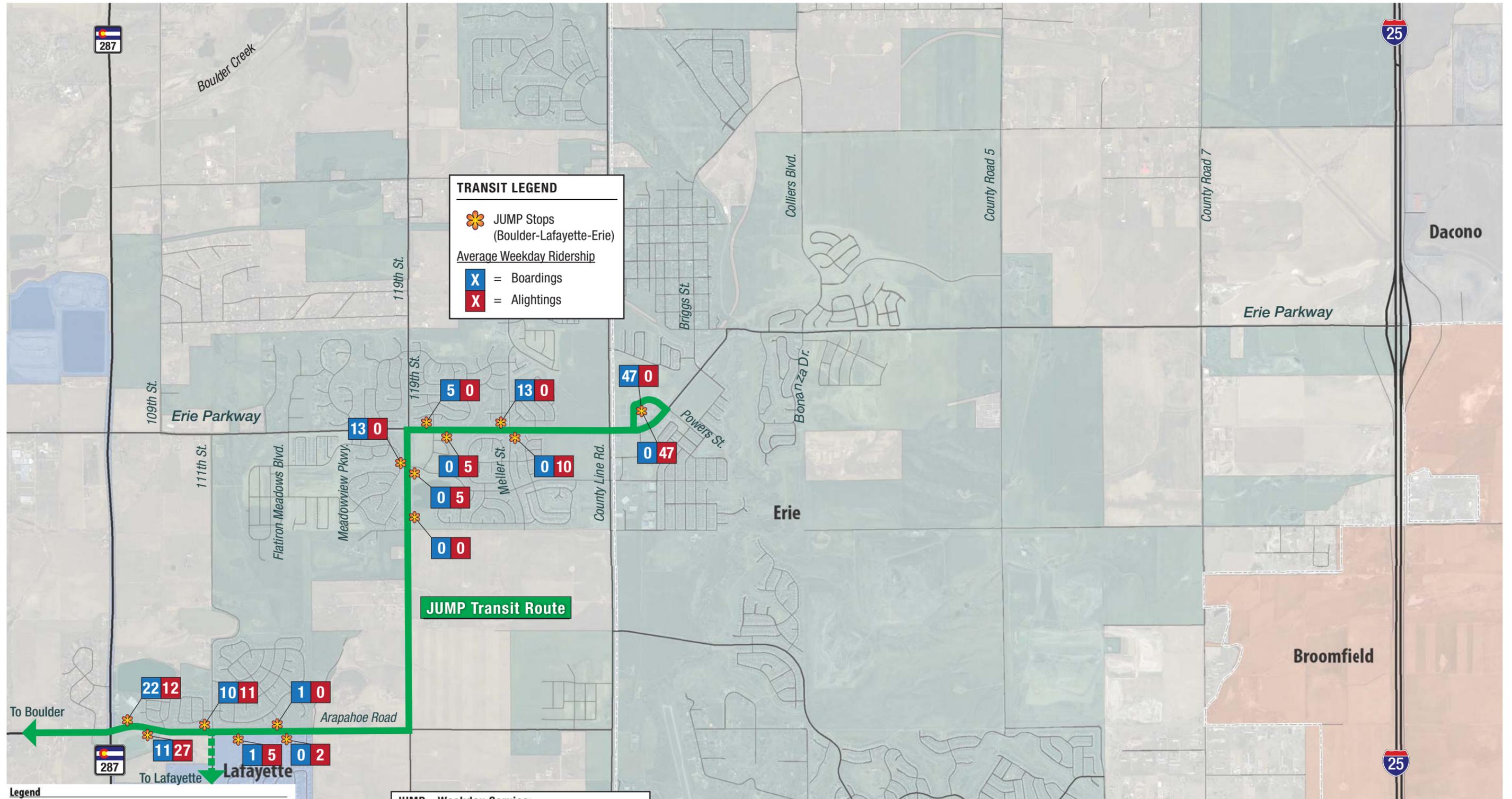


Figure 7
Existing Bicycle and Pedestrian
Intersection Counts and Levels of Service



Legend

- Highways
- Major Roads
- Local Roads
- Municipal Boundaries
 - Erie
 - Lafayette
- County Boundaries
 - Broomfield
 - Dacono

JUMP - Weekday Service:
 Every 30 minutes in peak periods (6-9AM and 3-6PM) and every 60 minutes from 7-10PM
 No Midday Service

JUMP - Saturday Service:
 Every 60 minutes from 8:30AM to 10PM

Figure 8
 Current Transit Service



Water Resources

Data for the floodplains, drainage considerations, stormwater quality, and irrigation ditches were collected by researching existing studies and master plans in the area, holding discussions with the Town of Erie staff, and performing a desktop survey of the project area.

Floodplains

The Town of Erie participates in the National Flood Insurance Program administered by the Federal Emergency Management Agency (FEMA). In conjunction with this program, the Town regulates development and construction activities within floodplains. Any work proposed in a FEMA designated floodplain requires a hydraulic analysis to determine the impacts to the floodplain. At a minimum, a floodplain permit will be needed from the Town of Erie. Based on the potential impacts to the floodplain, FEMA could require further permitting in the form of a Request for a Conditional Letter of Map Revision (CLOMR). Receiving a CLOMR from FEMA is often a schedule critical component to a design project.

The project corridor contains two FEMA designated floodplains. The first is the Coal Creek Floodplain, identified on the Flood Insurance Rate Map (FIRM) panel 08013C0441J as a Zone AE floodplain with a floodway. The second is the Prince Tributary Floodplain, identified on FIRM panel 08013C0437J as a Zone AE floodplain with no floodway delineated.

The current bridge at Erie Parkway over Coal Creek is undersized and future improvements to the structure will most likely be significant and require a CLOMR from FEMA. The structure at the Prince Tributary is shown as undersized on the FIRM panel; however, improvements to this part of Erie Parkway are already in progress and the structure will be improved. Future changes to this area may not cause significant impacts to the floodplain because of the improvements already in place.



Offsite Drainage

The project area is a tributary to the Godding Hollow watershed, Boulder Creek watershed, Coal Creek watershed, and Prince Tributary watershed. The two major resources for the offsite drainage in the project area are the Erie Outfall Systems Planning Study from December 2007 for the Town of Erie and Weld County and the Erie Outfall Systems Planning Study for Erie and Adjacent Boulder and Weld County Areas from May 2001. Per the 2007 study, there are eight crossings between I-25 and the Coal Creek crossing, including Coal Creek. Per the 2001 study, there are five crossings west of the Coal Creek crossing to US 287. The offsite basins contributing to these crossings range from approximately 40 acres to approximately 465 acres.

Irrigation Ditches

The project area contains at least two irrigation ditches: the Leynar Cottonwood No. 1 Ditch and the Community Ditch. The Leynar Cottonwood No. 1 Ditch crosses Erie Parkway at three locations, and the Community Ditch crosses at one location. This could cause significant impacts to proposed improvements because of the requirements of coordinating with irrigation companies. Impacting an irrigation structure can require significant coordination for design requirements and review procedures, which can be a critical path to the schedule.

Stormwater Quality

The Town of Erie has a Phase II Municipal Separate Stormwater Sewer System (MS4) permit. The Colorado Department of Public Health and Environment (CDPHE) Water Quality Control Division (WQCD) issued this permit as required by the Clean Water Act. This means that proposed improvements will comply with this MS4 permit and their regulatory-based conditions. Possible improvements are proposed for more than 6 miles of roadway, and it is not known how much of that area is currently treated. The number of offsite drainages crossing Erie Parkway could also dictate the required number of water quality treatment facilities, as it should be anticipated that water quality should be provided before roadway runoff can be discharged to these offsite crossings. Water quality treatment facilities can significantly affect the amount of right-of-way (ROW) required for a project.

Environmental Overview

Environmental data collection for the Erie Parkway Corridor Study occurred by performing a desk-top survey, conducting a field survey, and referencing available agency electronic files and GIS base mapping. The study area for the environmental overview included a 250-foot buffer outside the Erie Parkway ROW.

This Corridor Study also considered the potential for environmental impacts. The purpose of this preliminary environmental analysis was to identify environmental issues that may affect the planning decision and that may require additional evaluation in any future National Environmental Policy Act (NEPA) documentation. The goal of the evaluation was to identify resources that could affect potential future funding scenarios (such as federal funding requiring NEPA clearances), project schedules, and project costs. The analysis included reviewing available existing documents, conducting archival research and site visits, and performing scientific analysis. Portions of the study area were included in the *North I-25 Final Environmental Impact Statement, Final Section 4(f) Evaluation* (Federal Highway Administration [FHWA] and Colorado Department of Transportation [CDOT], 2011). The *State Highway 7 Planning and Environmental Linkages (PEL) Study* (CDOT, 2014) was also used to help identify existing resources.

Identifying existing environmental conditions within the study area provides a clear understanding of the existing physical opportunities and constraints of the study area. This understanding will serve to determine the project's physical limitations and impacts to cost and/or public acceptance. The identified existing environmental conditions within the study area are important because they will affect potential project alternatives and the level of future evaluation required as part of any NEPA documentation completed for the project. The project team identified a list of resources potentially present within the study area that will require additional evaluation for any future NEPA documentation. Due to their importance to future project development, the following resources were chosen to be evaluated for this environmental overview:

- Noise receptors
- Historic resources
- Park and recreational resources
- Sites with potential hazardous materials
- Biological (wildlife and Threatened & Endangered species)
- Wetlands and other Waters of the U.S.

This list is not to be considered all-inclusive and may be modified or adjusted as the project is developed. The level of analysis performed for the existing conditions is commensurate with FHWA and CDOT requirements for feasibility studies. **Appendix B** includes mapping and documentation of the existing environmental conditions.

The environmental considerations report provides a general framework for implementing roadway improvements as funding becomes available based on the existing conditions along Erie Parkway. If future projects receive federal funding, this report should be used as a resource for the NEPA process. The NEPA processes that would be anticipated for future projects could be either an Environmental Assessment (EA) or a Categorical Exclusion (CatEx).

CatExs are the most common NEPA documents and are for actions that do not individually or cumulatively have a significant environmental impact, are excluded from the requirement to prepare an EA or an Environmental Impact Statement (EIS), and do not have substantial public controversy. CatExs are defined in 23 Code of Federal Regulations (CFR) 771.117, meet the definition from the Council on Environmental Quality in 40 CFR 1508.4, and are based on experience with similar actions of FHWA.

Based on this environmental overview, the following are the primary resources that will be most important to address for any future Erie Parkway improvement projects:

Noise Analysis

- A detailed analysis of traffic noise levels and noise impacts will be needed.

Historic Resources

- A historic survey will need to be conducted before construction to determine if any of the area of potential effect's properties are individually eligible for the National Register of Historic Places. Also, concurrence from the State Historic Preservation Officer on the eligibility determinations will be needed.

Section 4(f)

- If future projects will result in the use of any Section 4(f) resources (historic and/or recreational), a formal Section 4(f) evaluation is required as part of the NEPA process and may result in Section 4(f) mitigation requirements.

Hazardous Materials

- A more detailed hazardous materials assessment will be needed before construction, and properties to be acquired with hazardous materials concerns will require a site-specific Phase I Environmental Site Assessment as part of the ROW acquisition process.

Wildlife and Threatened & Endangered Species

- A detailed habitat evaluation will be required to determine if future project activities would impact any federally threatened or endangered species.
- A migratory bird habitat evaluation will be required before beginning future projects to identify migratory birds and nests that may be impacted by project activities.

Wetlands and Other Waters of the U.S.

- A detailed wetland survey will need to take place before beginning construction of any future projects.
- Any impacts to wetlands and other waters of the U.S. will require a Section 404 permit and appropriate mitigation.

3. Land Use and Economic Market Assessment

Current and Future Land Uses

Existing land uses along the Erie Parkway study corridor include a range of agricultural lands, rural residences, suburban residential homes, commercial and retail development, and some industrial activity. Between US 287 and 111th Street, the existing land uses are primarily agricultural and rural residential. Between 111th Street and County Line Road, the adjacent land uses transition to suburban residential with ongoing development of Flatiron Meadows, Candlelight Estates, and Canyon Creek. Completed residential subdivisions along this segment include Candlelight Ridge, Meadow Sweet Farm, Orchard Glen, and Sunwest. Future retail uses are planned for the western quadrants of the intersection at County Line Road.

Proceeding east from County Line Road, the alignment of Erie Parkway transitions to a short diagonal segment, trending north to the Coal Creek crossing and then returning to an east-west alignment. Ongoing commercial/retail development is occurring along the south side of the diagonal, with the Erie Community Center, library, and municipal sports fields and commercial uses located along the north side. The intersection of Erie Parkway and Briggs Street provides a gateway into historic downtown Erie.

Approaching the Coal Creek bridge, floodplain, and open space, the alignment of Erie Parkway sharply transitions to the east-west alignment. Land uses return to suburban residential development, including the subdivisions of Erie Commons and Grandview. Ongoing residential development is occurring within Colliers Hill on the north and Erie Highlands on the south, extending east to CR 5. Improvements to Erie Parkway associated with these developments were recently constructed. The south side of the intersection of Erie Parkway and CR 5 is a designated retail corner for future development. Erie High School occupies the northeast quadrant of this intersection, and the northwest quadrant is planned for multi-family and open space.

Between CR 5 and I-25, the existing land uses transition back to primarily rural residential and agricultural uses, with some oil and gas sites. The Colorado State Land Board owns much of the adjacent property on the north side between the high school and



CR 7. The NOAA radio tower is situated on the state lands. Some industrial activity occurs in the southeast quadrant of Erie Parkway and CR 7. Vacant lands proximate to the I-25 interchange are slated for commercial/retail development in the future.

Land use forecasts were developed within the Erie Planning Area Boundary, which extends beyond the current Town boundaries. The Denver Regional Council of Governments (DRCOG) regional land use forecasts for 2040 were used as a starting point but were refined to reflect the land uses identified in Erie’s Comprehensive Plan and the market demand potential for 2040 based on the economic market assessment summarized in the next section. As shown in **Table 1**, Erie is expected to grow by approximately 500 households per year and gain nearly 800 new employees annually. **Chapter 4** describes the 2040 land use forecasts used as the basis for the travel demand forecasts.

Table 1. Land Use Forecasts – Erie Planning Area Boundary

	Total Households	Production/Distribution Employees	Retail Employees	Service Employees	Total Employees
2015	10,897	1,671	980	2,927	5,578
2040	23,373	5,680	4,711	14,846	25,237
Total Growth	12,476	4,009	3,731	11,919	19,659
Annual Growth	499	160	149	477	786

Economic Market Assessment

A high-level market assessment of residential and commercial trends and conditions surrounding Erie Parkway was conducted, with the full assessment included in **Appendix C**. The analysis is intended to help identify opportunities for growth and development on the Erie Parkway Corridor and to provide input to corridor alternatives concerning commercial and employment growth. Following are the key findings of the economic market assessment:

1. The Town of Erie is an expanding suburb on the northern edge of the Denver metropolitan area that is expected to continue to grow over the next 25 years. Between 2000 and 2016, the Town’s population increased from 6,472 to 21,180, which is an annual average of 920 persons and a growth rate of 7.7 percent per year. Similarly, the number of households increased from 2,225 to 7,300, representing an annual average of 320 per year.
2. Household incomes have grown considerably as new housing construction has moved from more affordable starter housing to more affluent move-up housing. In 2016, the median household income was estimated at \$111,011, which is up more than \$10,000 from the 2010 Census figure of \$100,288. The 2016 average household income is estimated at \$128,000, up from \$111,011 in 2010. The distribution of households has shifted as well with 50 percent of all households with incomes over \$100,000 compared to 29 percent in 2000.
3. Erie is like other emerging bedroom communities in the northern metro area with many families with young children. Nearly 20 percent of the population of the town is under 10 years of age. The adult population has increased gradually, but the largest group of adults is 35 to 44 years of age compared to 2000 when the largest cohort was 30 to 39 years of age.

4. Although still predominantly residential, the Town of Erie is adding employment at a high growth rate and has an opportunity to evolve into a more balanced community over the next 25 years. Between 2010 and 2014, the number of jobs in Erie increased from 1,535 to 2,258, which is an average increase of 181 jobs or 10.1 percent per year. The ratio of jobs to households has improved from 0.27 to 0.31 but is still reflective of a largely residential community.
5. Only 20 percent of Erie employees both live and work in Erie; however, most of those commuting out of Erie work in nearby Boulder County communities. Erie residents hold 430 of 2,260 Erie-based jobs. Although the remaining 8,470 employed persons are commuting, 2,230 or 27 percent work in Boulder and 1,360, or another 16 percent, work in Louisville, Lafayette, or Longmont. This compares to 1,270 workers commuting to Denver, indicating that Erie is largely a part of the Boulder area economy.
6. The projected steady growth of housing development will increase opportunities for community oriented retail development over the next 25 years. The Town of Erie is projected to more than double in size adding 12,500 households over the next 25 years to reach 23,373 in 2040. This household growth is estimated to support 877,500 square feet of community-based retail space, a significant portion of which is expected to be located in downtown and in neighborhood and community shopping centers along Erie Parkway on the eastern and western sides of the town.
7. Regionally oriented retail development located in larger format stores and regional centers is expected to occur at the I-25 and Erie Parkway interchange but will, therefore, not occur until the regional trade area population reaches 150,000 or more and until developments closer to Denver are developed. The current 7-mile regional trade area population is 30,176 households equating to approximately 80,000 population. It will, therefore, be 10 years or more before regional power centers or lifestyle centers are expected to develop in the Erie area. Also, there is a large amount of planned but unbuilt retail space at the I-25 and SH 7 interchange 3 miles to the south that is expected to develop sooner.
8. Over the next 25 years, Erie has an opportunity to increase its employment base through office and R&D jobs, most of which are expected to be located on the east side of the town near the I-25 and Erie Parkway interchange. Erie Corporate Center, Erie Ventures, and Swink are three large landholdings planned for regionally oriented mixed use development north and south of the interchange. Much of this land, although in the Town's planning area, is still unincorporated without adequate infrastructure. Also, a large amount of regionally oriented retail and business park capacity remains at the SH 7 interchange 3 miles to the south, which is expected to develop before development moves further north.

4. Future Baseline Conditions

Baseline Network

The 2040 Baseline transportation network includes those improvement projects expected to be funded by 2040. These transportation projects would be built regardless of any other improvements identified as part of the Erie Parkway Corridor Study. Along Erie Parkway, the Baseline roadway network includes the recent construction projects (111th Street to 119th Street and Colliers Boulevard to CR 5).

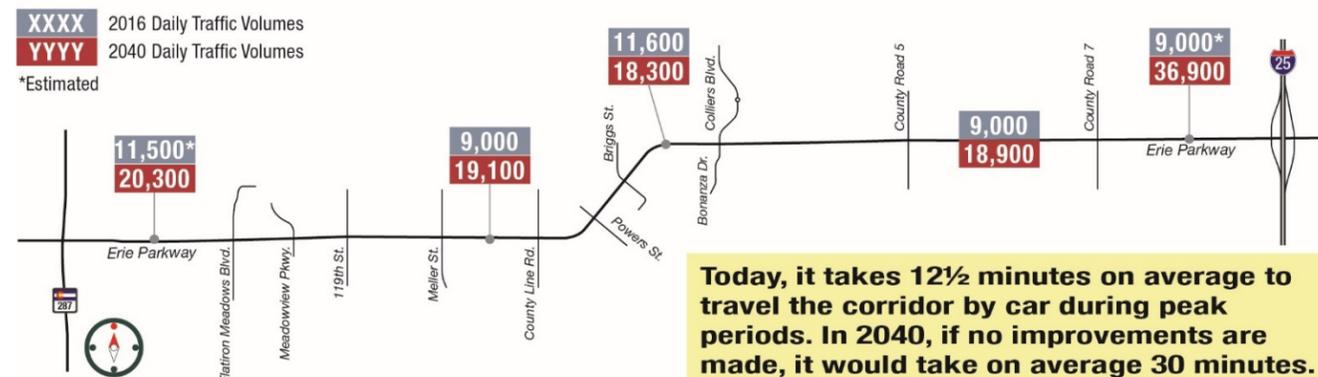
Travel Demand Forecasts

The analysis of future travel demands along Erie Parkway is based on the DRCOG 2040 travel demand model. The household and employment forecasts described in **Chapter 3** were used as input in the travel demand model.

The 2015 DRCOG base year model was used as a basis for post-processing the 2040 Baseline model results. Due to the complexity of real-world driver-behavior and individual roadway characteristics, travel demand forecasting models cannot be expected to result in precise representations of traffic volumes on each roadway. A common technique used to improve the reliability of travel demand forecasts is referred to as post-processing adjustment. This technique uses comparisons of the base year (2015) model's predicted traffic volumes versus actual traffic counts. These comparisons provide estimations of the error associated with the model's representation of travel conditions. The model-produced forecasts can then be adjusted to account for the errors found in the model to provide more reliable forecasts. This post-processing adjustment process (as documented in NCHRP Report 765) was applied to the study area forecasts.

Figure 9 presents a comparison of the existing (2016) and future (2040) daily traffic forecasts. Traffic volumes along Erie Parkway are expected to roughly double over the next 24 years. 2040 forecasts are expected to be in the range of 18,000 to 20,000 vehicles per day (vpd) along much of the corridor, with volumes approaching 37,000 vpd near I-25 because of the planned commercial/business development along the east end of the corridor.

Figure 9. Existing and Future (2040 Baseline) Daily Traffic Forecasts



Future Traffic Operations

The daily traffic forecasts for 2040 were used to develop AM and PM peak hour turning movement forecasts at the major study area intersections using a methodology outlined in NCHRP Report 765. **Figure 10** presents the intersection operational analysis results for the 2040 Baseline scenario during the AM and PM peak hours. The analyses include the widening of Erie Parkway from 111th Street to 119th Street and from Colliers Boulevard to CR 5. As shown, several signalized intersections would operate with long delays associated with LOS E or F during the AM and/or PM peak hours. The roundabout at 119th Street would operate at LOS F, and the side street approaches of the unsignalized intersections would also operate with long delays.

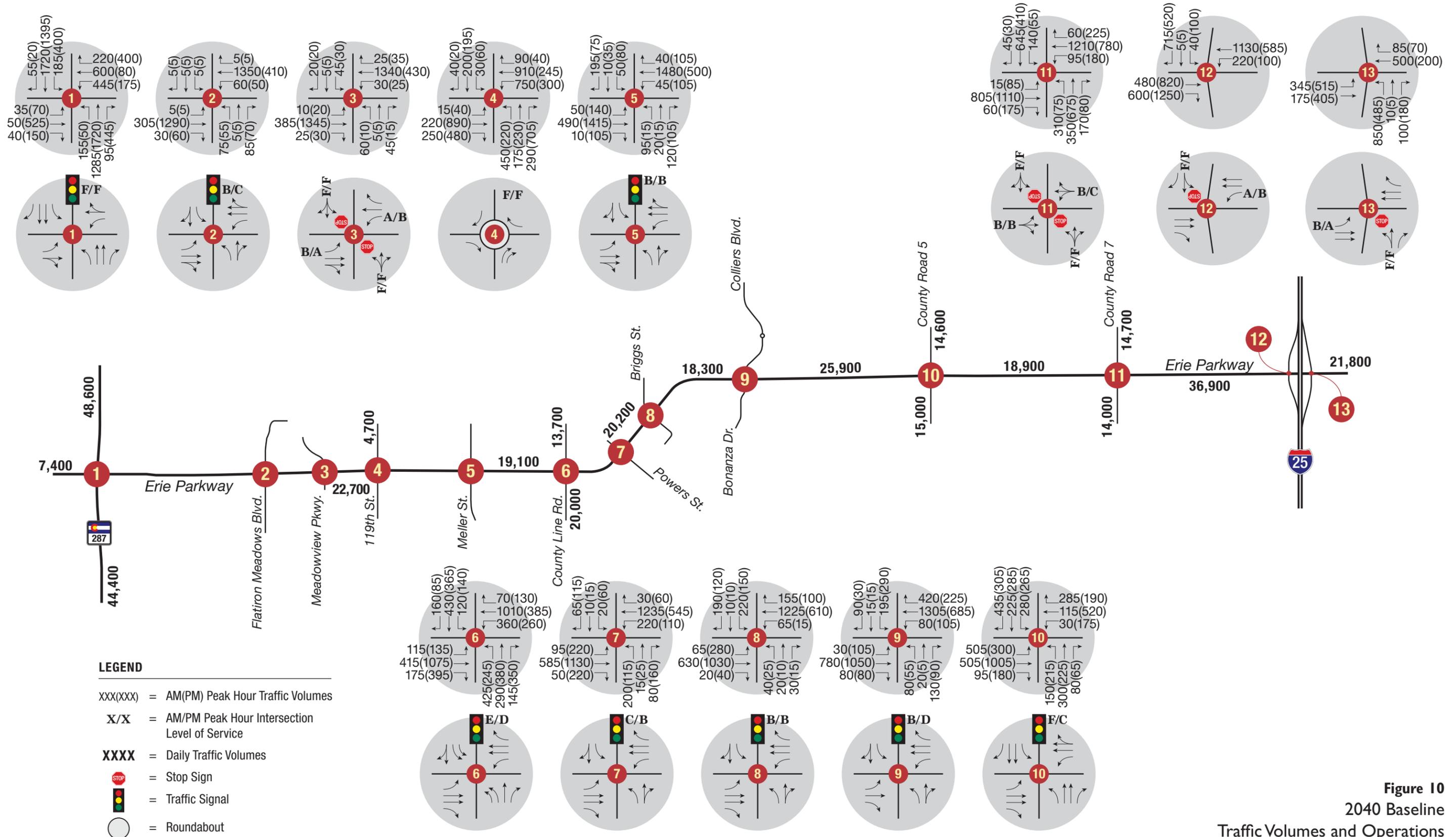


Figure 10
2040 Baseline
Traffic Volumes and Operations

Project Purpose

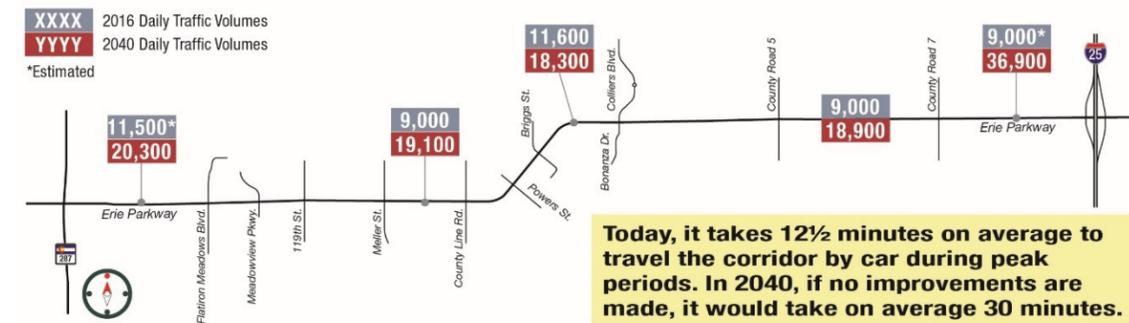
The purpose of the project is to identify, and eventually implement, multimodal transportation improvements to enhance mobility and safety along Erie Parkway, as well as define streetscape design elements that will support local economic vitality, retain the small-town character, and enhance the identity of Erie.

Corridor Needs

Transportation improvements are needed to address:

mobility:

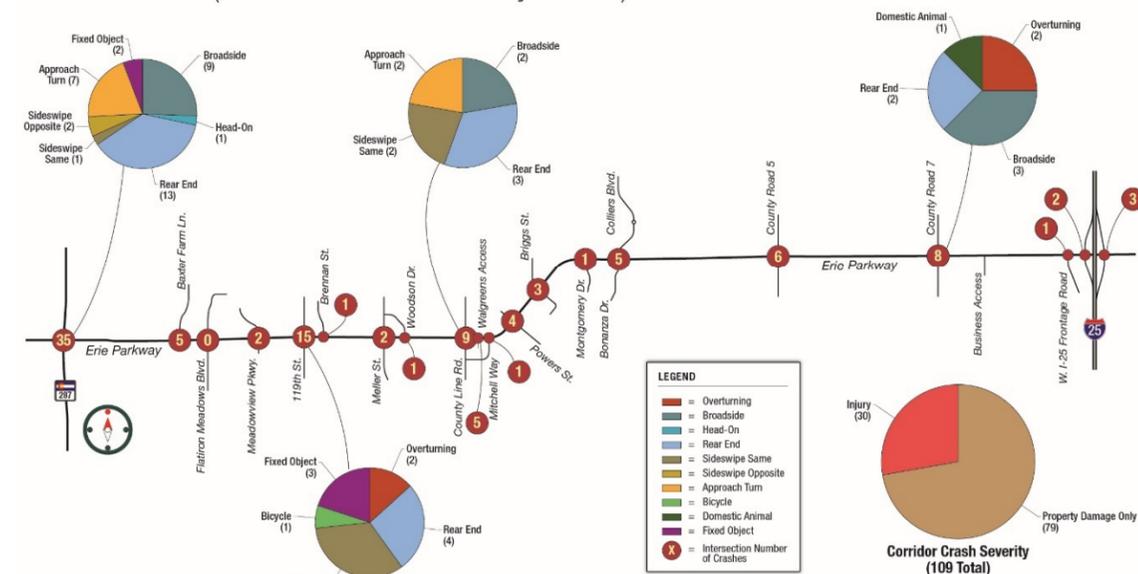
- Local and regional travel demand and traffic congestion along the corridor are expected to increase
- due to residential and employment growth along Erie Parkway and the surrounding areas.



current and future traffic

safety:

- There is a higher than expected number and severity of crashes at the intersection of US 287 and Isabelle Road (west end of the Erie Parkway Corridor).



crash history (2012-2014)

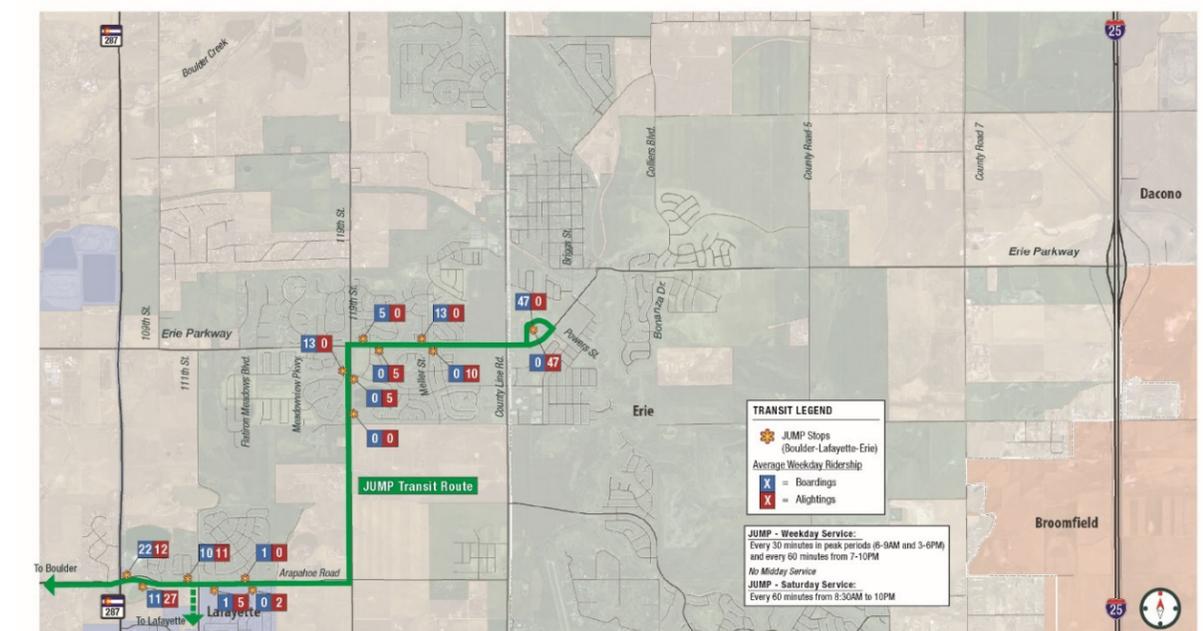
bicycle and pedestrian activity:

- Today's bicycle and pedestrian infrastructure along and across Erie Parkway does not provide sufficient connectivity, comfort and safety to support walking and biking in the community.



transit accessibility:

- Transit service along Erie Parkway is limited and lacks transit-supportive infrastructure, amenities, and connections to destinations along the corridor to support future services.



economic vitality:

Transportation infrastructure is needed to support economic development along Erie Parkway, and to provide connectivity to downtown commercial and civic activities.

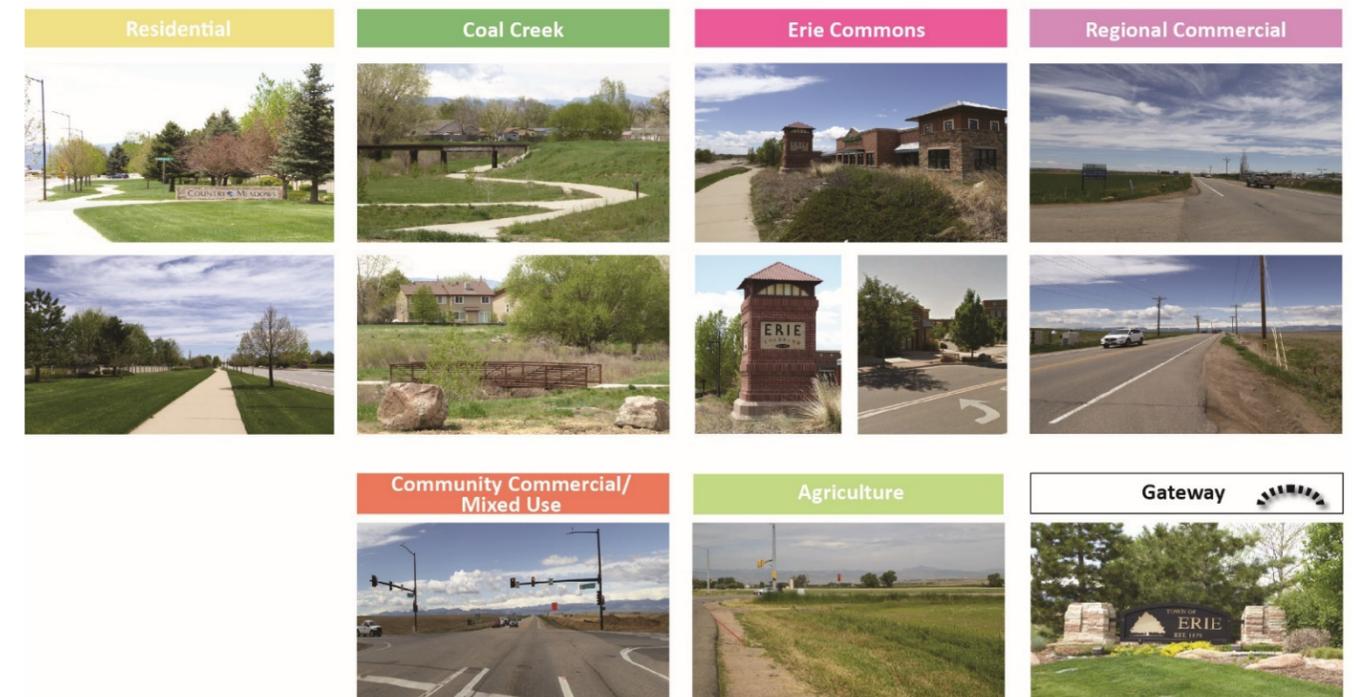
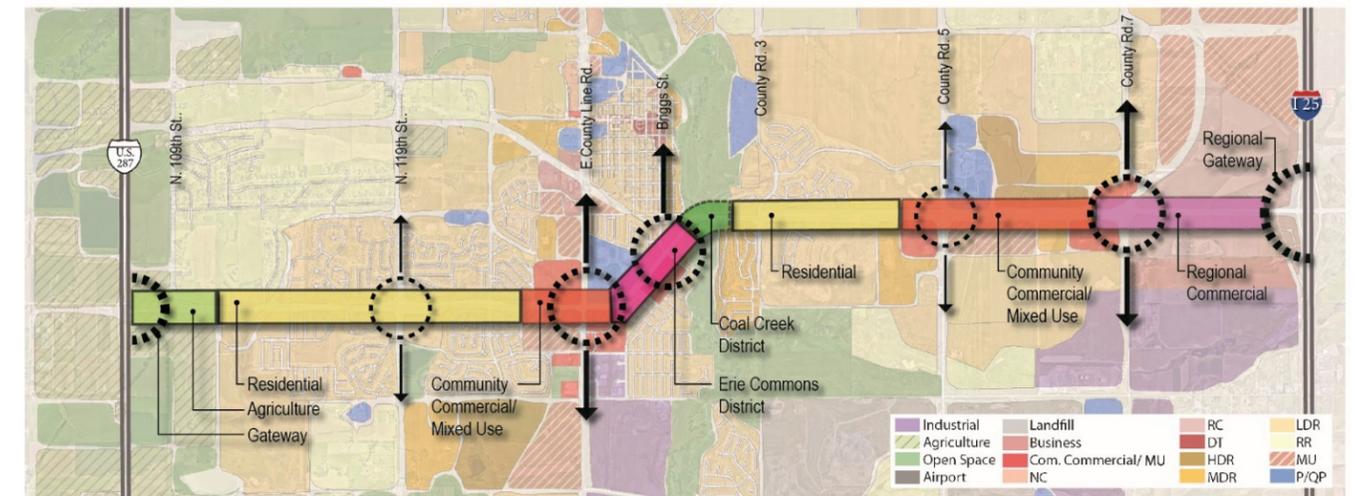


character and identity:

Erie Parkway is a major spine through the Town of Erie. The current corridor design is inconsistent and lacks elements to support the desired small town character and unique identity of Erie.



Figure 11. Character Districts



Character Districts

The character along Erie Parkway varies. Character districts are defined on **Figure 11** to help inform decisions about design solutions that complement the surrounding land uses today and in the future. The west end of the corridor is in an agricultural landscape, and the east end is envisioned as a highly commercial area greatly influenced by I-25. Between these ends are districts that consist of low-density residential, and urban mixed use commercial with higher density residential. The journey from one end of the corridor to the other is interrupted by the crossing of Coal Creek, a wonderful riparian corridor. The intersection at Briggs Street marks the south end of historic downtown. The primary gateways to the Town of Erie are at the ends of the corridor. At these locations, substantial architectural or sign features may be considered on the corners and possibly in the median to acknowledge the edge of Town limits. Sub-gateways at the edges of the character districts occur along the corridor and at the intersections that lead to historic downtown.

6. Alternatives Development and Evaluation

Corridor improvement alternatives for Erie Parkway were developed and evaluated in a two-tiered process. Tier 1 involved a high-level assessment of various street cross-sectional elements and design treatments. The retained elements were packaged into complete alternatives, which were further evaluated in Tier 2.

Evaluation Criteria

Criteria for evaluating alternatives were established to respond directly to the project purpose and the corridor needs. The criteria and corresponding evaluation used in Tier 1 were primarily qualitative in nature. The Tier 2 evaluation criteria focused on those measures that could best be used to differentiate the corridor alternatives and facilitate the selection of a preferred alternative. The responsiveness of each alternative to the criteria determined whether the alternative was reasonable and if it should be advanced for further evaluation. The evaluation criteria, which align with the six corridor needs, are as follows:

Mobility: Would the alternative appropriately address the current and future (2040) travel demands along the corridor?

Safety: Does the alternative improve existing and future conditions that contribute to higher than expected crash rates?

Bicycle and Pedestrian Activity: Would the alternative enhance the level of comfort and safety for bicyclists and pedestrians along and across the corridor?

Transit Accessibility: Would the alternative support future transit service?

Economic Vitality: Would the alternative contribute toward economic development along the corridor and/or improve connectivity to downtown commercial and civic activities?

Character and Identity: Would the alternative add consistency and support the desired small-town character and unique identity of Erie?

No Action Alternative

The No Action Alternative includes the construction projects recently completed along Erie Parkway, as described in the Baseline roadway network in **Chapter 4**. However, the remainder of Erie Parkway would stay as it exists today. The No Action Alternative does not address the project purpose and corridor needs but has been carried through the analysis for comparison.

Tier 1 Alternatives

A range of transportation improvements were identified to potentially address the Erie Parkway corridor needs. Twenty corridor-wide elements, including a range of improvements in five categories (general purpose lanes, access and access control, intersection treatments, bicycle and pedestrian facilities, and transit), were identified as having the potential to address the corridor needs. No single Tier 1 element would necessarily address all the project needs as a stand-alone improvement; the intent of identifying these elements was to carry forward those elements that

could contribute toward one or more of the corridor needs and combine elements as part of packaged alternatives in Tier 2. The following Tier 1 alternatives were considered:

General Purpose Lanes

- 2 Lanes
- 4 Lanes
- 6 Lanes

Access and Access Control

- Medians
- High Access Control
- Moderate Access Control
- Low Access Control

Intersection Treatments

- Traffic Signals
- Capacity Improvements (Additional Turn Lanes)
- Roundabouts

Bicycle and Pedestrian Facilities

- Shared Use Paths
- Detached Sidewalks
- Bike Lanes
- Buffered Bike Lanes
- Crossing Enhancements at Signalized Intersections (ADA Compliance, Safety)
- Mid-block Crossings
- Underpass/overpass

Transit

- Future Bus Stops
- Bus Pull-outs
- Mobility Hubs

Tier 1 Evaluation and Screening Results

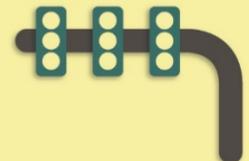
Each Tier 1 alternative was evaluated independently to assess its ability to meet the corridor needs. **Table 2** presents the Tier 1 evaluation matrix.

Table 2. Tier 1 Alternatives Evaluation

Alternative	Mobility: Would the alternative appropriately address the current and future (2040) travel demands along the corridor?	Safety: Does the alternative improve existing and future conditions that contribute to higher than expected crash rates?	Bicycle and Pedestrian Activity: Would the alternative enhance the level of comfort and safety for bicyclists and pedestrians along and across the corridor?	Transit Accessibility: Would the alternative support future transit service?	Economic Vitality: Would the alternative contribute toward economic development along the corridor and/or improve connectivity to downtown commercial and civic activities?	Character and Identity: Would the alternative add consistency and support the desired small town character and unique identify of Erie?	Recommendation	Notes/Summary of Evaluation
No Action	NO	NO	NO	NO	NO	NO	Retained	For baseline comparison
General Purpose Lanes								
2 Lanes	NO	NO	NO	NO	NO	NO	Eliminated	Traffic forecasts exceed 2-lane capacity
4 Lanes	YES	NO	NO	YES	YES	YES	Retained	
6 Lanes	YES	NO	NO	NO	YES	NO	Retained	Only for the section between I-25 and future commercial access
Access and Access Control								
Medians	YES	YES	YES	NO	YES	YES	Retained	
High Access Control	YES	NO	NO	NO	NO	NO	Eliminated	Although it would improve vehicular mobility, it would be detrimental to the economic vitality, character, and bicycle and pedestrian modes
Moderate Access Control	YES	NO	NO	NO	YES	NO	Retained	
Low Access Control	NO	NO	NO	NO	YES	YES	Retained	
Intersection Treatments								
Traffic Signals	YES	NO	YES	NO	YES	NO	Retained	
Capacity Improvements (Additional Turn Lanes)	YES	YES	NO	NO	YES	NO	Retained	
Roundabouts	YES	NO	NO	NO	YES	NO	Retained	
Bicycle and Pedestrian Facilities								
Shared Use Paths	NO	NO	YES	YES	YES	YES	Retained	
Detached Sidewalks	NO	NO	YES	YES	YES	YES	Retained	
Bike Lanes	NO	NO	YES	YES	YES	YES	Retained	
Buffered Bike Lanes	NO	NO	YES	YES	YES	YES	Retained	
Crossing Enhancements at Signalized Intersections	NO	NO	YES	YES	YES	YES	Retained	
Mid-block Crossings	NO	NO	YES	YES	YES	YES	Retained	
Underpass/Overpass	NO	NO	YES	NO	YES	YES	Retained	
Transit								
Future Bus Stops	YES	NO	NO	YES	YES	YES	Retained	
Bus Pull-outs	NO	NO	NO	NO	NO	NO	Eliminated	RTD prefers bus stops on outermost travel lane; can be difficult to enter back into travel lane
Mobility Hubs	YES	NO	NO	YES	NO	NO	Retained	

Tier 2 Packaged Alternatives

The results of the Tier 1 evaluation are summarized below. Three elements were eliminated because they did not meet the corridor needs. The remaining elements were combined into two packaged alternatives.

<p>general purpose lanes</p> <ul style="list-style-type: none"> ✗ 2 Lanes – traffic forecasts in the future exceed 2-lane capacity ✓ 4 Lanes ✓ 6 Lanes – only for the short section between I-25 and future commercial access 	<p>intersection treatments</p> <ul style="list-style-type: none"> ✓ Traffic signals ✓ Capacity improvements (additional turn lanes) ✓ Roundabouts 
<p>access & access control</p> <ul style="list-style-type: none"> ✓ Medians ✗ High Access Control – although it would improve vehicular mobility, it would be detrimental to the economic vitality, character, and bicycle and pedestrian modes ✓ Moderate Access Control ✓ Low Access Control 	<p>bicycle & pedestrian facilities</p> <ul style="list-style-type: none"> ✓ Shared use paths ✓ Detached Sidewalks ✓ Bike lanes ✓ Buffered bike lanes ✓ Crossing enhancements at signalized intersections ✓ Mid-block crossings ✓ Underpass/overpass 
<p>✓ = Retained ✗ = Eliminated</p>	
	<p>transit</p> <ul style="list-style-type: none"> ✓ Future bus stops ✗ Bus pull-outs – RTD prefers bus stops on outermost travel lane; can be difficult to enter back into travel lane from pull-outs ✓ Mobility Hubs 

Packaged Alternative A

Packaged Alternative A (shown on **Figure 12**) includes four through lanes along the full length of the Erie Parkway Corridor, with six lanes on the short section between I-25 and the future commercial access. Wide landscaped medians would be extended along the corridor with sufficient width to accommodate left-turn lanes at major access points while retaining a 4-foot raised median and pedestrian refuge. This alternative emphasizes the use of roundabouts on the east and west ends of the corridor – with three roundabouts at half-mile spacing (moderate access control) on both the east and west ends. The roundabouts could serve as entry features to the Town of Erie with landscaping and monuments in the center island. A grade-separated pedestrian crossing is included west of CR 7 to connect the trails north and south of Erie Parkway. This alternative includes slightly narrowed travel lanes (11 feet) to allow slightly wider bike lanes (4 feet plus the 2-foot gutter) to position bicyclists away from the seam between the asphalt and concrete gutter. Ten-foot shared use paths along both sides of the street would provide space for pedestrians and bicyclists who are not comfortable using bike lanes.

Packaged Alternative B

Packaged Alternative B (shown on **Figure 13**) also includes four through lanes along the full length of Erie Parkway, with six lanes on the short section between I-25 and the future commercial access. This alternative includes a narrow (10 foot) landscaped median that would reduce the overall width of the street but would not provide a pedestrian refuge at crossings due to the need for left-turn lanes (the median would be eliminated at intersection approaches). Alternative B uses traditional signalized intersection control with a lower level of access control than Alternative A (with quarter-mile major intersection spacing on east end of the corridor). This configuration would provide more frequent protected at-grade pedestrian crossings. This alternative also includes slightly narrowed travel lanes (11 feet) to allow a buffered bike lane, which provides greater separation between cars and bicyclists and may appeal to a greater number of bicyclists. Eight-foot sidewalks along both sides of the street would provide a comfortable space for pedestrians.

Both Packaged Alternatives include pedestrian crossing enhancements at intersections, future bus stops with amenities, and mobility hubs to allow intermodal transfers. A new bridge over Coal Creek is needed in both alternatives to accommodate two lanes in each direction, and both alternatives would include entry treatments and signage, along with urban design features to bring continuity to the corridor.

Figure 12. Packaged Alternative A

packaged alternative A

- KEY FEATURES:**
- 4 Lanes on Erie Parkway
 - Wide Medians
 - Moderate Access Control
 - Roundabouts
 - Shared Use Paths
 - Bike Lanes

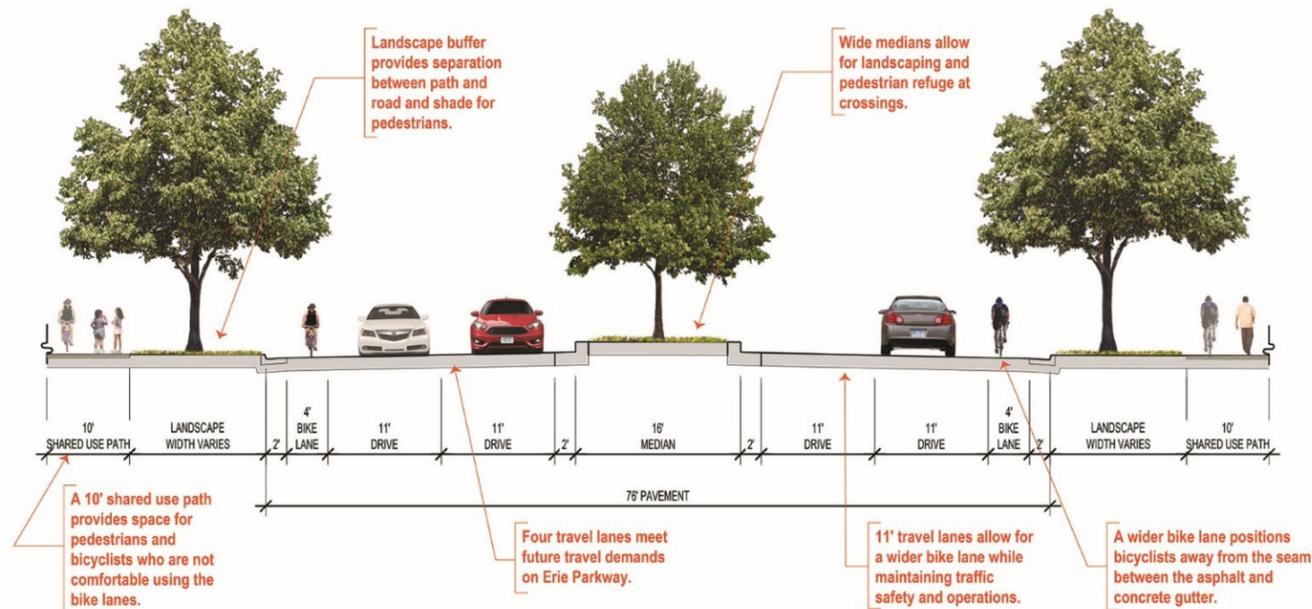
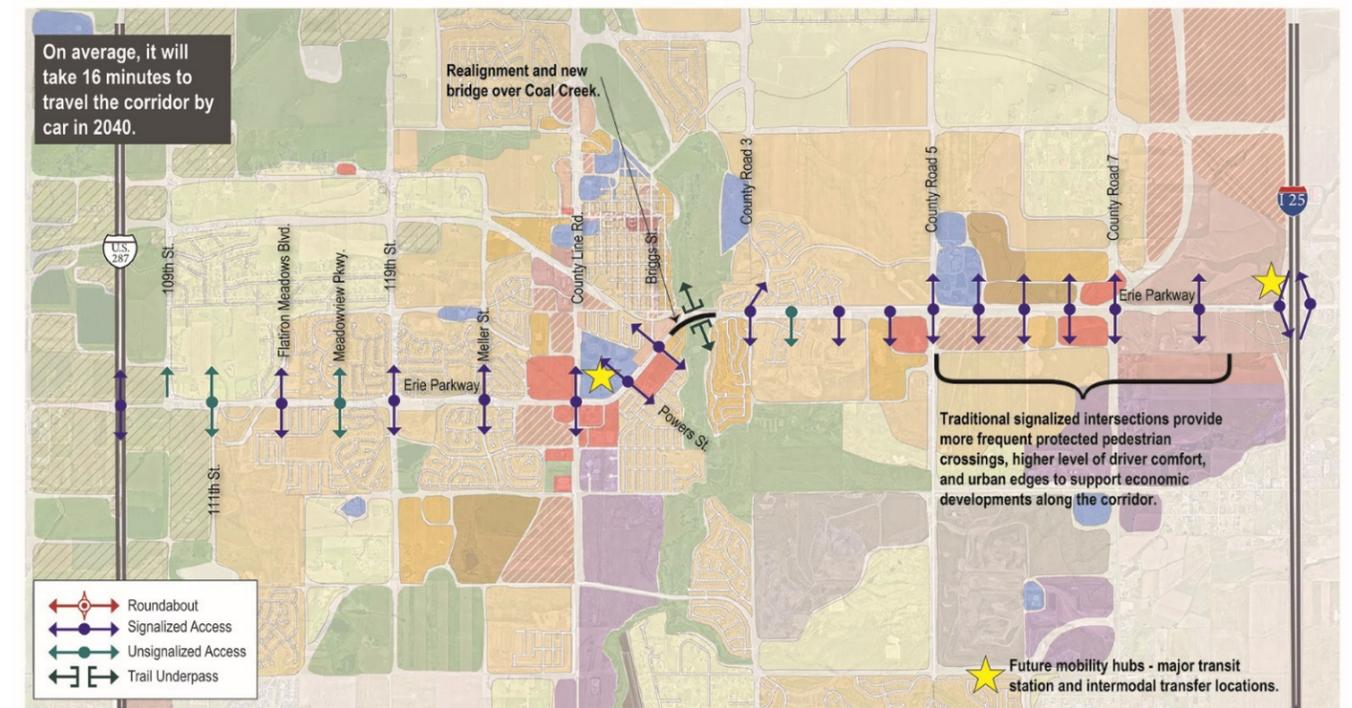
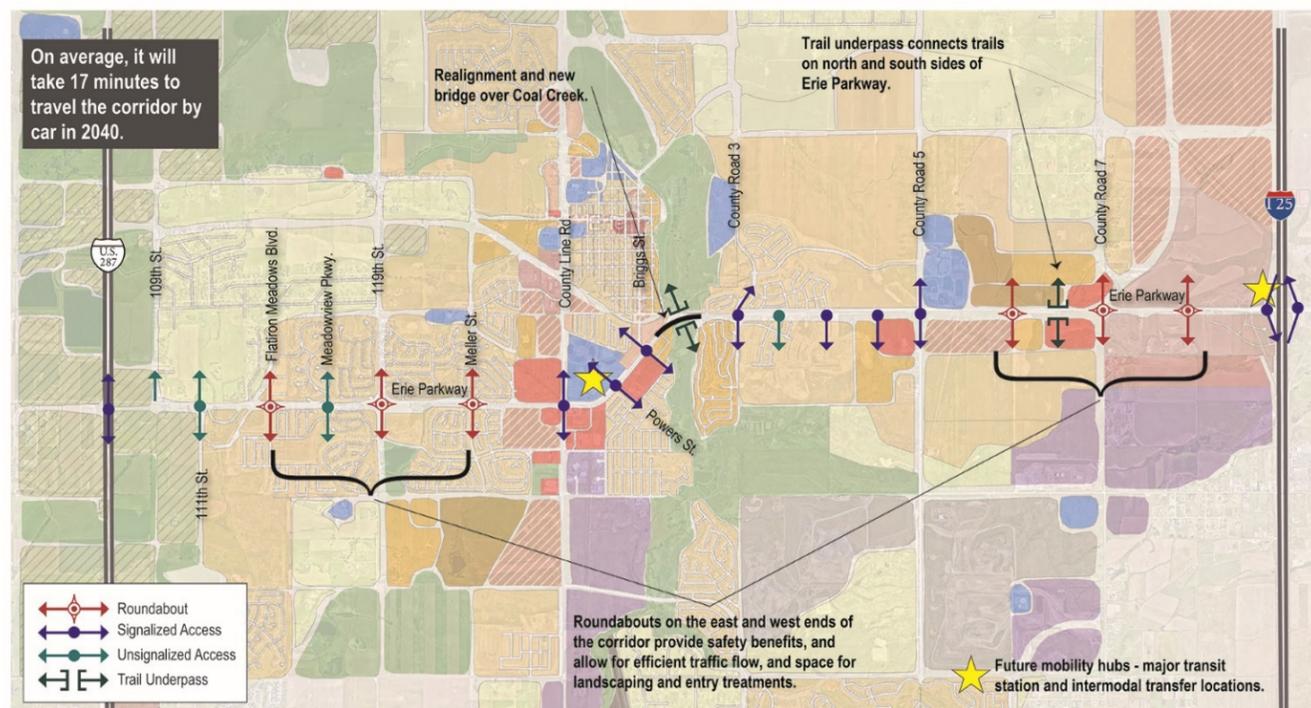
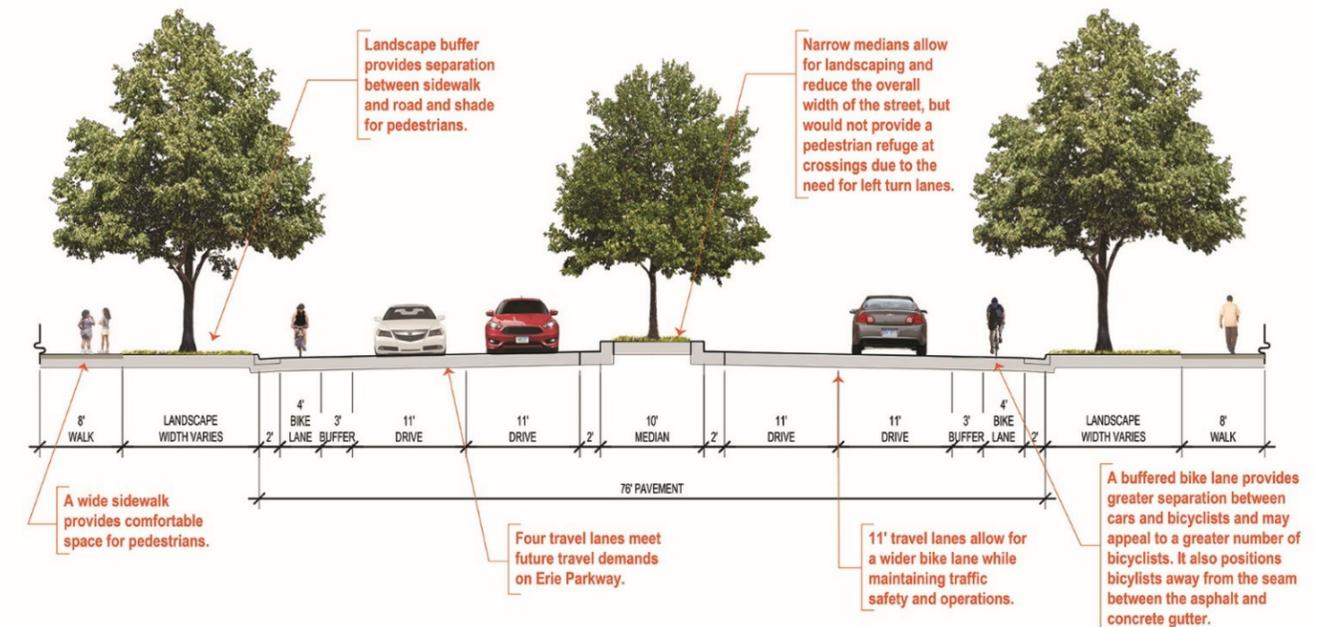


Figure 13. Packaged Alternative B

packaged alternative B

- KEY FEATURES:**
- 4 Lanes on Erie Parkway
 - Narrow Medians
 - Low Access Control
 - Traditional Intersections
 - Sidewalks
 - Buffered Bike Lanes



Tier 2 Evaluation

The two packaged alternatives, along with the No Action alternative, were evaluated in Tier 2 using the established evaluation criteria that align with the corridor needs.

Future Traffic Operations

The traffic operations at the primary intersections along the corridor were evaluated for Packaged Alternatives A and B and were compared to the No Action Alternative. **Table 3** shows the AM and PM peak hour intersection levels of service in 2040. Both Packaged Alternatives would provide considerable operational benefits compared to the No Action Alternative. Packaged Alternative B (with traditional signalized intersections) would operate with less overall intersection delay compared to Packaged Alternative A (which includes six roundabouts). The operational analysis shows that, because of the heavy directionality and heavy left turn volumes at several intersections, the roundabouts would not operate as efficiently as traffic signals. The overall travel time along Erie Parkway would be comparable for the two Packaged Alternatives; however, the north-south street approaches would incur considerably more delay at several roundabouts, resulting in an overall poor level of service (LOS E or F).

Table 3. Tier 2 Intersection Operational Comparison (2040)

	No Action		Packaged Alternative A		Packaged Alternative B	
	AM	PM	AM	PM	AM	PM
US 287	LOS F	LOS F	LOS D	LOS E	LOS D	LOS E
Flatiron Meadows Blvd	LOS C	LOS C	LOS B*	LOS B*	LOS B	LOS A
119th St	LOS F*	LOS F*	LOS F*	LOS F*	LOS C	LOS E
Meller St	LOS C	LOS C	LOS C*	LOS D*	LOS C	LOS D
County Line Road	LOS E	LOS F	LOS E	LOS E	LOS E	LOS D
Powers St	LOS B	LOS C	LOS B	LOS C	LOS B	LOS C
Briggs St	LOS C	LOS B	LOS C	LOS B	LOS C	LOS B
Bonanza Dr/Colliers Blvd	LOS B	LOS D	LOS B	LOS C	LOS C	LOS C
Access A (1/2-mile e/o Colliers)	LOS A	LOS A	LOS A	LOS B	LOS A	LOS A
Access B (1/4-mile w/o CR 5)	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A
County Road 5	LOS F	LOS D	LOS E	LOS D	LOS D	LOS C
Access C (1/4-mile e/o CR 5)					LOS A	LOS A
Access D (1/2-mile e/o CR 5)	LOS F	LOS D	LOS C*	LOS B*	LOS A	LOS A
Access E (1/4-mile w/o CR 7)					LOS A	LOS A
County Road 7	LOS F	LOS F	LOS F*	LOS E*	LOS D	LOS C
Access F (1/2-mile e/o CR 7)	LOS E	LOS F	LOS C*	LOS E*	LOS C	LOS C
I-25 SB Ramps	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A
I-25 NB Ramps	LOS E	LOS C	LOS D	LOS C	LOS D	LOS C

Evaluation Summary

The Tier 2 evaluation included a combination of qualitative and quantitative evaluation, using measures of “Good,” “Fair,” and “Poor” to compare the alternatives. **Table 4** provides a summary of the Tier 2 evaluation. Both the Packaged Alternatives were deemed to meet the corridor needs; however, Packaged Alternative B received a more favorable rating in the Mobility and Transit categories due to the traffic operational efficiencies compared to Packaged Alternative A.

Table 4. Tier 2 Alternatives Evaluation

	No Action	Packaged Alternative A	Packaged Alternative B
Mobility: Would the alternative appropriately address the current and future (2040) travel demands along the corridor?	POOR Average corridor travel time projected to be 30 minutes in 2040 during the peak periods. Eight intersections projected to operate at LOS E or F during the AM and/or PM peak hours in 2040.	FAIR Corridor travel time would be reduced significantly – average of 17 minutes in 2040. Six intersections projected to operate at LOS E or F during the AM and/or PM peak hours in 2040.	GOOD Corridor travel time would be reduced significantly – average of 16 minutes in 2040. Three intersections projected to operate at LOS E during the AM and/or PM peak hours in 2040.
Safety: Does the alternative improve existing and future conditions that contribute to higher than expected crash rates?	POOR The intersection of US 287/Isabelle Road has experienced a higher than expected number and severity of crashes. This trend is expected to continue (and potentially worsen as traffic volumes increase) in the No Action condition.	GOOD The US 287/Isabelle Road intersection would include improvements to address safety problems, including additional auxiliary lanes and through lanes to relieve congestion (which will likely reduce rear-end crashes), sight distance improvements, and dynamic signal warning flashers on US 287 to address broadside crashes.	GOOD The US 287/Isabelle Road intersection would include improvements to address safety problems, including additional auxiliary lanes and through lanes to relieve congestion (which will likely reduce rear-end crashes), sight distance improvements, and dynamic signal warning flashers on US 287 to address broadside crashes.
Bicycle and Pedestrian Activity: Would the alternative enhance the level of comfort and safety for bicyclists and pedestrians along and across the corridor?	POOR Existing bike lanes are narrow and discontinuous; sidewalks vary in width and do not extend the full length of the corridor; bicycle and pedestrian crossings are infrequent on east and west ends of the corridor.	GOOD Enhanced bicycle and pedestrian facilities along the corridor and crossing enhancements at the intersections; roundabouts have lower yield to pedestrian rates but also result in lower crash severity. Shared use paths on both sides accommodate pedestrians and recreational bicyclists, while the bike lanes provide a facility for higher speed bicyclists.	GOOD Enhanced bicycle and pedestrian facilities along the corridor and crossing enhancements at the intersections; additional signalized crossing locations. Sidewalks on both sides accommodate pedestrians and, to some extent, recreational bicyclists, while the buffered bike lanes provide a safer facility for higher speed bicyclists.
Transit Accessibility: Would the alternative support future transit service?	POOR The long travel times (average of 30 minutes during peak periods in 2040) are not supportive of future transit service along the corridor.	FAIR Reduced travel times would be beneficial for buses; bus stop locations will need to be coordinated with RTD – roundabouts may require near side stops, with separation from the intersections; higher access control means fewer opportunities for pedestrians to cross to access bus stops; continuous bicycle and pedestrian facilities beneficial for access to bus stops.	GOOD Reduced travel times would be beneficial for buses; more signalized intersections result in more opportunities for pedestrians to cross to access bus stops; continuous bicycle and pedestrian facilities beneficial for access to bus stops.
Economic Vitality: Would the alternative contribute toward economic development along the corridor and/or improve connectivity to downtown commercial and civic activities?	POOR Does not contribute to future economic development because it is not attractive for much of its length and does not include adequate pedestrian and bicyclist facilities. Ease of vehicular access would diminish over time as traffic volumes increase, potentially discouraging employers locating in Erie and shoppers from patronizing businesses.	GOOD Alternatives A and B not significantly different. Improved multimodal access provides better connections between homes and businesses, as well as to the civic core. Improved landscaping and signage enhance the corridor, enhance property values, and create a more pleasant travel experience.	GOOD Alternatives A and B not significantly different. Improved multimodal access provides better connections between homes and businesses, as well as to the civic core. Improved landscaping and signage enhance the corridor, enhance property values, and create a more pleasant travel experience.
Character and Identity: Would the alternative add consistency and support the desired small town character and unique identity of Erie?	POOR No unique identity currently, except in the Erie Commons character district.	GOOD Uniqueness and consistency in the identity can be achieved through gateway and other signage, bridge design, lighting, and landscape solutions that reflect the quasi-historic character that has been established in the Erie Commons character district. Additional roundabouts would be memorable, contributing significantly to a unique identity.	GOOD Uniqueness and consistency in the identity can be achieved through gateway and other signage, bridge design, lighting, and landscape solutions that reflect the quasi-historic character that has been established in the Erie Commons character district. Special corner treatments at key intersections would contribute significantly to a unique identity.

7. Preferred Alternative

Decision Process

The process for selecting a Preferred Alternative for Erie Parkway included the following steps:

- Performing a two-tiered alternatives development and evaluation process.
- Soliciting input from the public.
- Developing a preliminary Preferred Alternative using elements from both Packaged Alternative A and Packaged Alternative B.
- Presenting and discussing the preliminary Preferred Alternative with the multidisciplinary Town staff Project Team.
- Presenting and discussing the preliminary Preferred Alternative with the Town Board at the Town Board meeting on January 10, 2017.
- Refining the Preferred Alternative based on feedback from the public, Town staff, and Town Board, and completing conceptual design.

Public Input

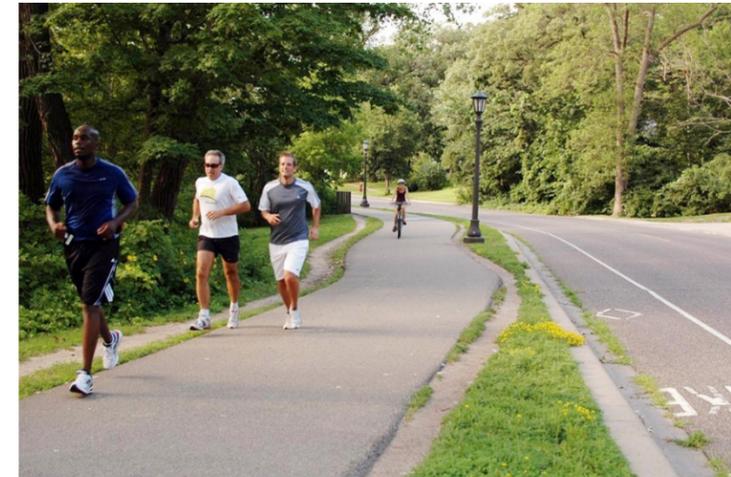
The Tier 2 Alternatives (Packaged Alternatives A and B) were presented and discussed with the community at a joint public meeting (with the Transportation Master Plan) at the Erie Community Center on October 18, 2016. Community members were asked their preference on elements of the Tier 2 Alternatives as well as some potential design elements. A community preference survey was posted on the project website that asked the same questions that were posed during the public meeting. Although the results from the survey and public meeting (approximately 140 responses) are not statistically valid, they helped considerably in developing the Preferred Alternative. The key community preference inputs are summarized below (the full summary is included in **Appendix A**).

Do you prefer wide medians or narrow medians?



67%
Prefer Wide Medians

Do you prefer bike lanes and shared use paths or buffered bike lanes and sidewalks?



64%
Prefer Bike Lanes
and Shared-Use
Paths

What is your preference for building location relative to the street in the commercial and Erie Commons areas?



58%
Prefer Moderate Building
Setback

Which intersection character do you prefer?



68%
Prefer Enhanced
Intersections

Which signage character do you prefer?



74%
Prefer Existing
and/or Historic

Roundabouts vs. Signalized Intersections

The Erie Parkway Preferred Alternative incorporates the community preferences on all design elements, except for roundabouts. Several technical considerations resulted in the selection of traditional signalized intersections instead of roundabouts for the Preferred Alternative:

- Erie Parkway will require two through lanes in each direction, which means that roundabouts would require two circulating lanes. The complexity of two-lane roundabouts adds conflict points (compared to a single lane roundabout) and can exacerbate driver confusion.
- There are two school crossings along Erie Parkway (at CR 5 and Flatiron Meadows). Roundabouts have been documented to reduce serious injury and fatal crashes involving pedestrians due to low operating speeds; but there remains a considerable perceived safety concern for pedestrians and issues with drivers failing to yield to pedestrians at roundabouts.
- Due to the directionality of the traffic on Erie Parkway and the heavy left turn movements at certain intersections, the future traffic operations are expected to be better with signalized intersection control compared to roundabouts.
- Six lanes are needed on the east end of Erie Parkway approaching the I-25 interchange. A roundabout in this section would dictate where the transition from four to six lanes would occur; thus reducing flexibility for access and street configuration to accommodate future development between CR 7 and I-25.

Town Board Input

The Erie Parkway Corridor Study was presented and discussed with the Town Board on January 10, 2017. The Project Team presented the overall process and project purpose, the community input, and the preliminary Preferred Alternative. Following a question and answer session, the Town Board expressed support for moving forward with the preliminary Preferred Alternative.

Do you prefer moderate access control with roundabouts or low access control with signalized intersections?



73%
Prefer Roundabouts and
Moderate Access Control

Description of Preferred Alternative



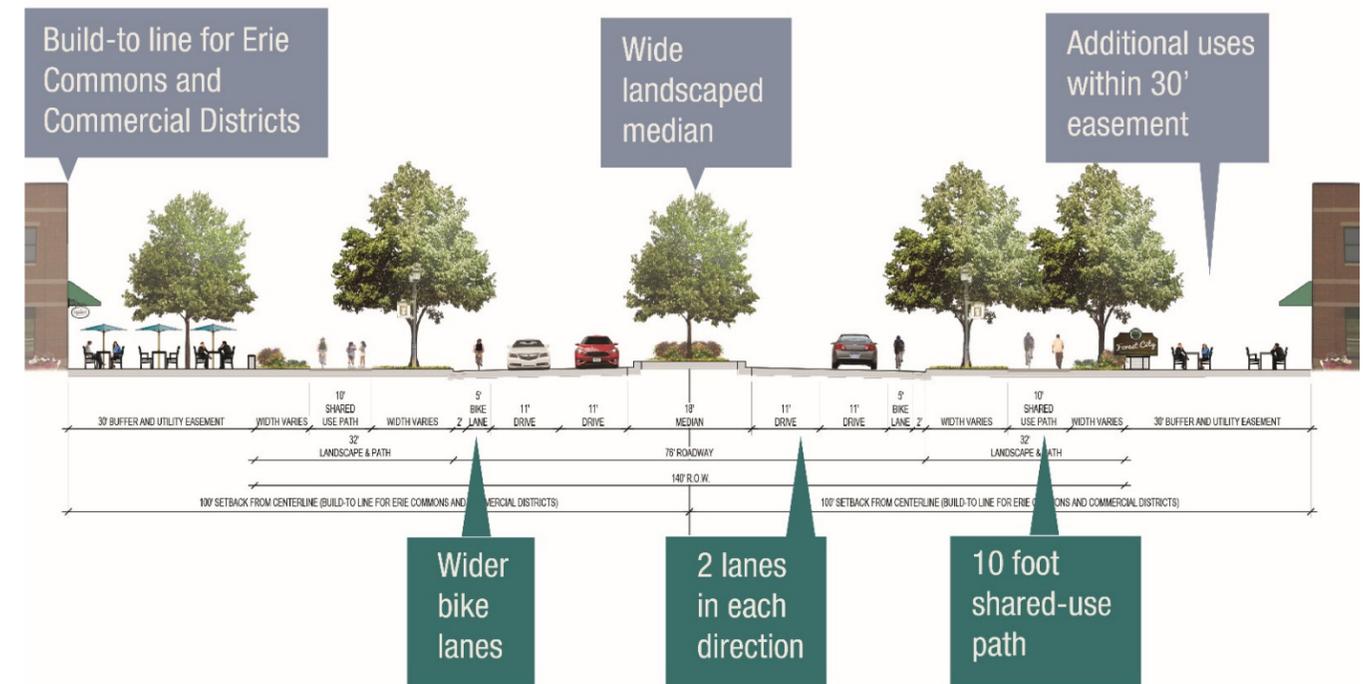
The Preferred Alternative for Erie Parkway includes a series of multimodal transportation and urban design improvements to address the project purpose and the corridor needs. The Preferred Alternative includes widening Erie Parkway to four lanes along most of the corridor. On the west end of the corridor, Erie Parkway (referred to as Isabelle Road west of the Town boundary) will transition to two lanes through the US 287 intersection. On the eastern

half-mile of the corridor, a wider cross section (six lanes) is needed to accommodate the future traffic associated with the anticipated commercial/business development proximate to I-25. Over Coal Creek, Erie Parkway will be realigned with a 40 MPH design speed, including a new bridge that will accommodate the four-lane section.

Cross Section

The Erie Parkway cross section (**Figure 14**) includes the same flow-line to flow-line width (76 feet) as the Town's current Principal Arterial street standard. However, the Erie Parkway Preferred Alternative includes a slight reconfiguration of the pavement with narrower travel lanes (11 feet) to accommodate wider bike lanes (5 feet plus the 2-foot gutter pan). The wider bike lanes will provide more separation between bicyclists and vehicles and will allow bicyclists to be centered in the lane away from the seam between the asphalt street and concrete gutter. The cross section maintains an 18-foot landscaped median along the length of the corridor and includes a wide (10-foot) detached shared use path on both sides of the street to accommodate pedestrians and those bicyclists who may not feel comfortable riding in the bike lanes adjacent to traffic. **Figure 14** highlights a build-to line for the Erie Commons and Commercial Districts and the possibility of additional uses within the 30-foot easement. These recommendations are discussed in more detail in the Urban Design section.

Figure 14. Preferred Alternative Cross Section



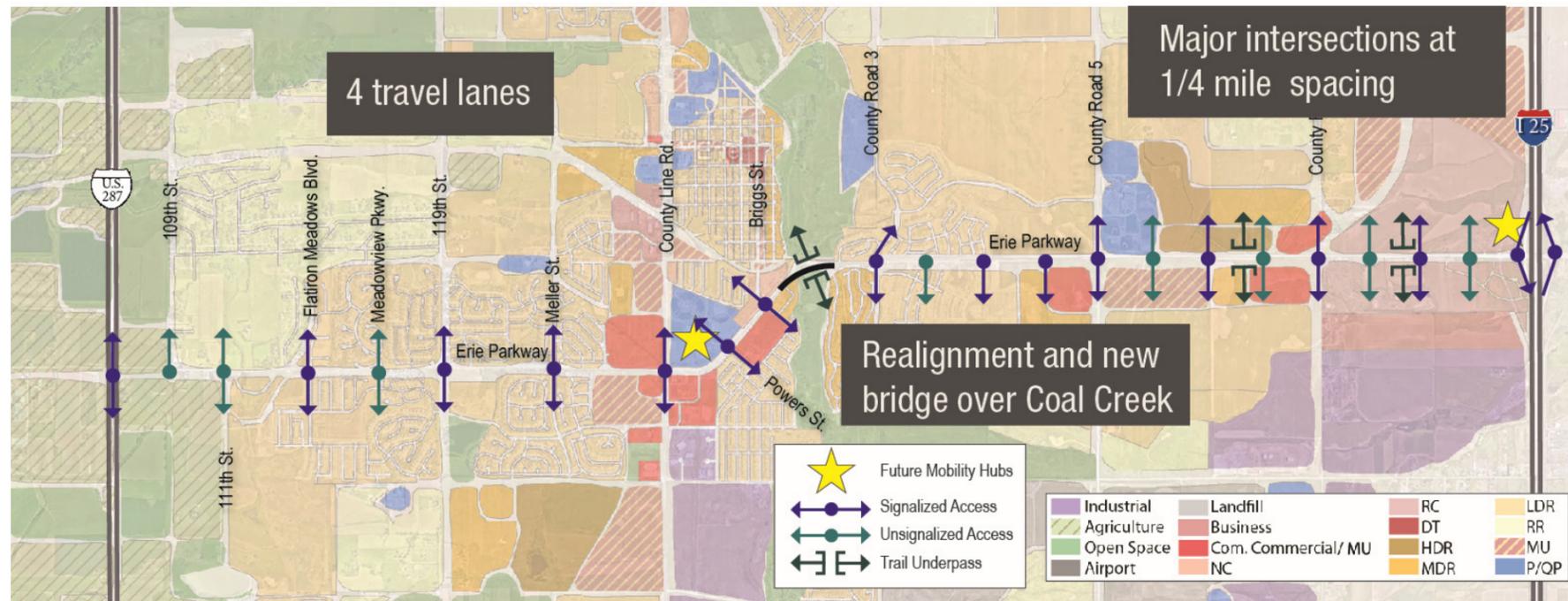
Access Spacing, Intersections, and Crossings

The Preferred Alternative for Erie Parkway incorporates traditional signalized intersections typically at half-mile spacing, with unsignalized full movement intersections typically at quarter-mile spacing (as shown on **Figure 15**). The existing roundabout at 119th Street would be replaced with a signalized intersection to accommodate the four through lanes and the level of traffic volumes anticipated by 2040.



Three future trail underpasses are identified in the Preferred Alternative. The first underpass is for the Coal Creek Trail – the new bridge over Coal Creek will allow the trail to pass underneath, as it does today. The next future trail underpass location is roughly one-third mile west of CR 7 – this underpass would connect the planned trail system north and south of Erie Parkway. Finally, a potential future underpass is identified for a location approximately mid-way between CR 7 and I-25 – the intent of this crossing is to provide pedestrians a direct connection between the future commercial land uses north and south of Erie Parkway.

Figure 15. Preferred Alternative Access Spacing and Intersection Control

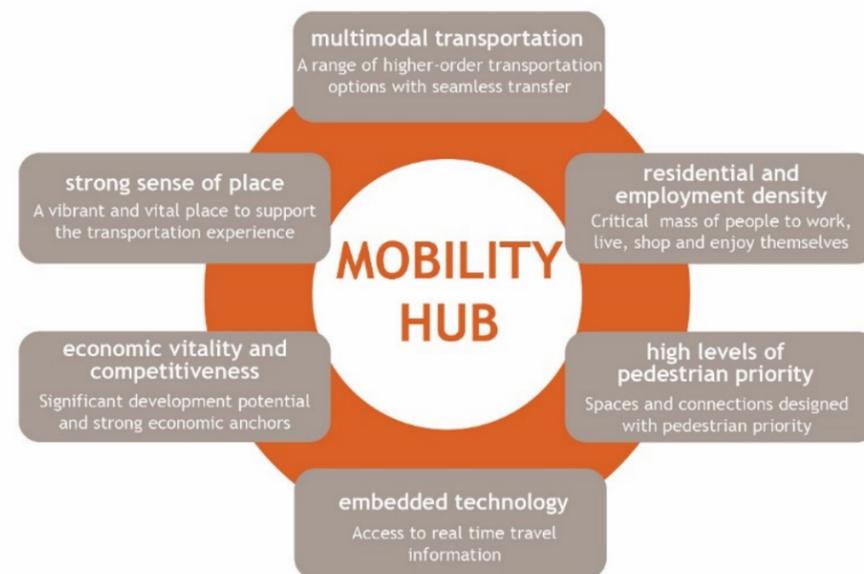


Two mobility hubs have been identified for the Erie Parkway corridor – one at the Community Center and one at the I-25 interchange. The mobility hubs should provide a high-quality user experience, create a sense of place, focus development activities around transit, and seamlessly integrate all modes to support residents, employees, and visitor travel. These locations will serve as key connection points for a variety of modal options that provide comprehensive integration of all activities in and around a transit facility. By providing opportunities for intermodal connectivity along Erie Parkway, future transit along the corridor (and regional transit along I-25) will be supported for the Town of Erie.

Mobility Hubs

For alternative travel modes to be viable, it is critical to have strong connectivity among modes. Intermodal connectivity allows a seamless transportation system facilitating easy and efficient movements among modes. Intermodal connections are most prevalent at locations where a variety of travel modes intersect. Intermodal connectivity points can also include a variety of public and/or private sector driven mobility options to support community needs such as electric vehicle charging stations, carsharing, and bikesharing.

To encourage the use of new mobility options and forthcoming technology changes, there is a need to proactively plan for a strong interface among travel modes, allowing a mix of mobility options that are well connected. Travel time and cost of travel must be competitive with ownership of private vehicles for alternative modes to be competitive.



Source: Metrolinx (Toronto), Mobility Hub Guidelines, 2011

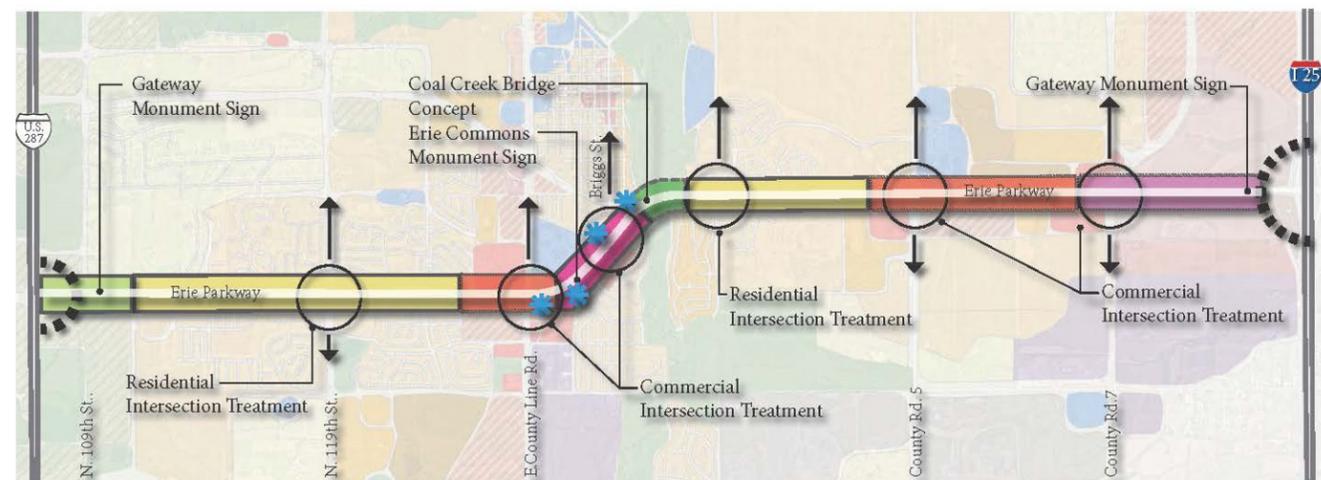
Urban Design Elements

The intersection and monument plan (Figure 16) shows the locations of the monument signs that will identify the gateways into the community and the intersection improvements in the context of the corridor and character districts. Intersection improvements are recommended at intersections with arterial roadways and are more extensive in the commercial areas. Monument signs are located at either end of the corridor and are envisioned to be placed in the median at an angle for ease of reading by approaching motorists.

The Town of Erie will embark on a town-wide monument and signing plan that will develop a style of entry monuments and signs to be used at various locations throughout the town. The town-wide plan will inform the development of gateway monument signs for Erie Parkway. The small-town character of the Town of Erie's is deeply influenced by its coal mining history. Maintaining this small-town character is a high priority as Erie grows into a much larger community with a large geographic footprint. During the Erie Parkway Corridor planning process, the public preferred image elements that are a blend between historic-type signs and the brick monuments that exist at Erie Commons, rather than elements that are rustic or highly modern.

The large monument signs that mark the edge of Erie should be designed so that they are compatible with the development at the edges of the town, as well as embody the roots of the community – its past, present and future. Directional signs or smaller monument signs should be of the same character as the major monument signs and must be compatible with the character of the newer developments that are occurring. The Erie identification signs and image elements along the Erie Parkway Corridor can promote a small town's pedestrian friendly environment and reflect historic roots by incorporating elements that have a hand-crafted character and using materials that are authentic and that would have been used by early town residents and industry.

Figure 16. Intersection and Monument Plan



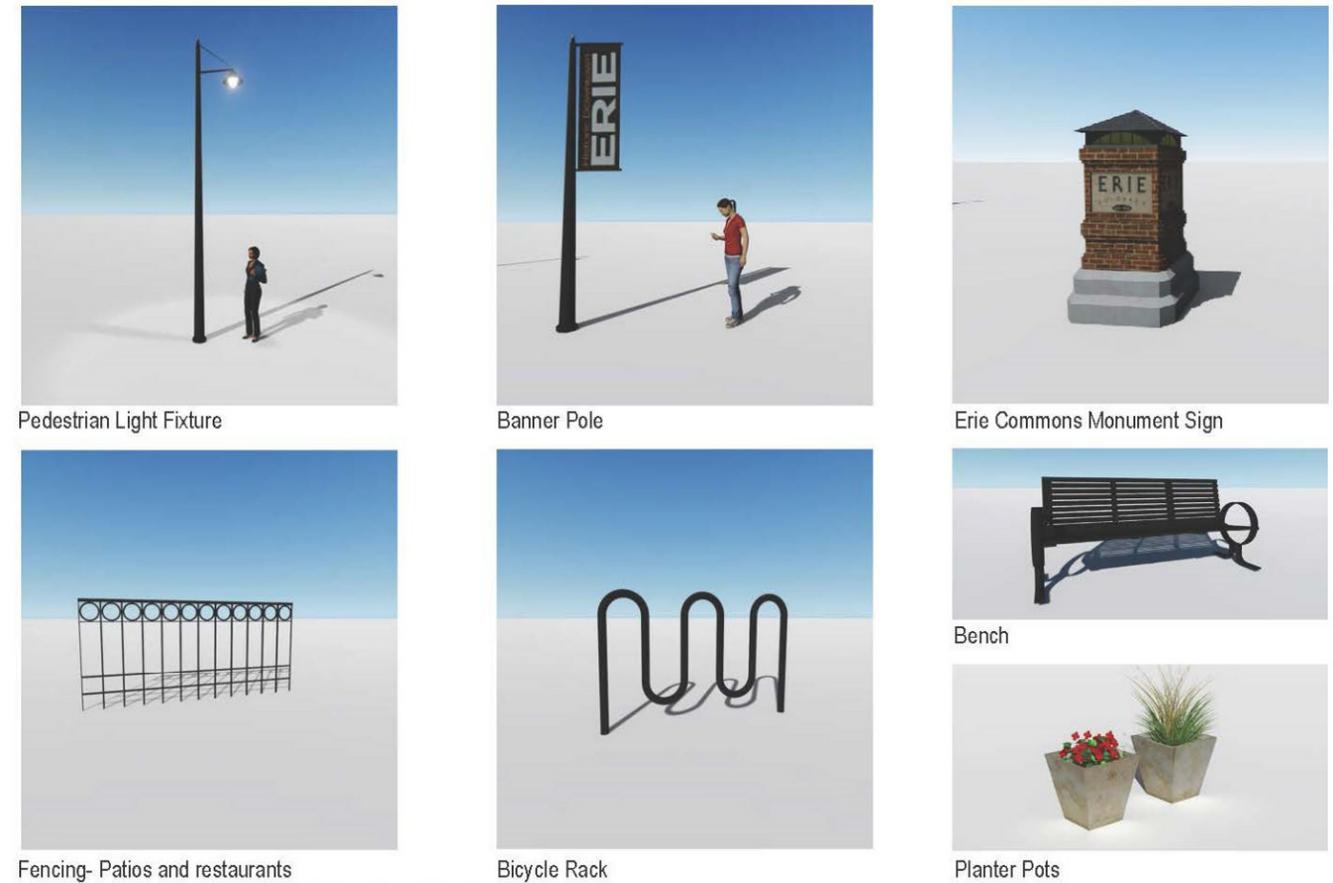
Intersection and Monument Plan

Legend - Character Districts

- Agriculture
- Residential
- Community Commercial/Mixed Use
- Erie Commons
- Coal Creek
- Regional Commercial
- Gateway
- Erie Commons Monument Sign

Figure 17 provides a kit of parts showing sample urban design features for the Erie Commons and Commercial District.

Figure 17. Erie Commons/Commercial District Kit of Parts



The Commercial District intersection plan (Figure 18) lists examples of possible uses that could be allowed within the current 30-foot Landscape Buffer area. In addition to landscape materials, uses such as dining and sitting patios, patio fencing, signage, open trellises, awnings, cantilevered building elements, and umbrellas could be considered specific to each commercial character district as each area is master planned. Bus stop amenities such as benches and bus shelters should be considered within the buffer as well. Design guidelines should be developed to address these elements. In specific commercial character districts, the Town should consider locating buildings closer to the roadway, rather than parking lots, to provide a pedestrian scaled and defined edge. Structures should be designed with distinctive architectural features at the entrances. Walks should connect directly from Erie Parkway to the front door of businesses. Guidelines should also be developed for sign height and materials, fencing materials, outdoor lighting, and patio paving.

Figure 18. Commercial Intersection Treatment

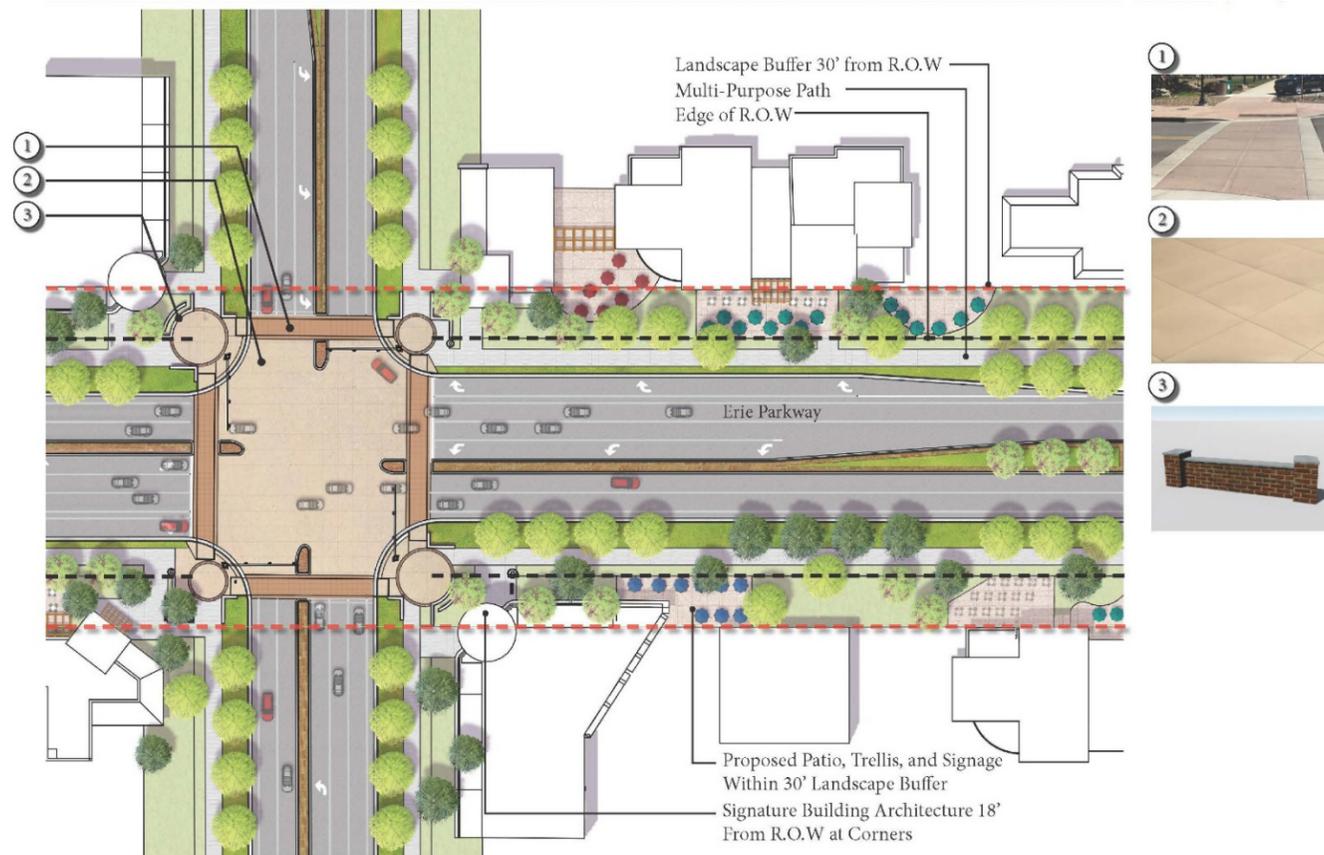
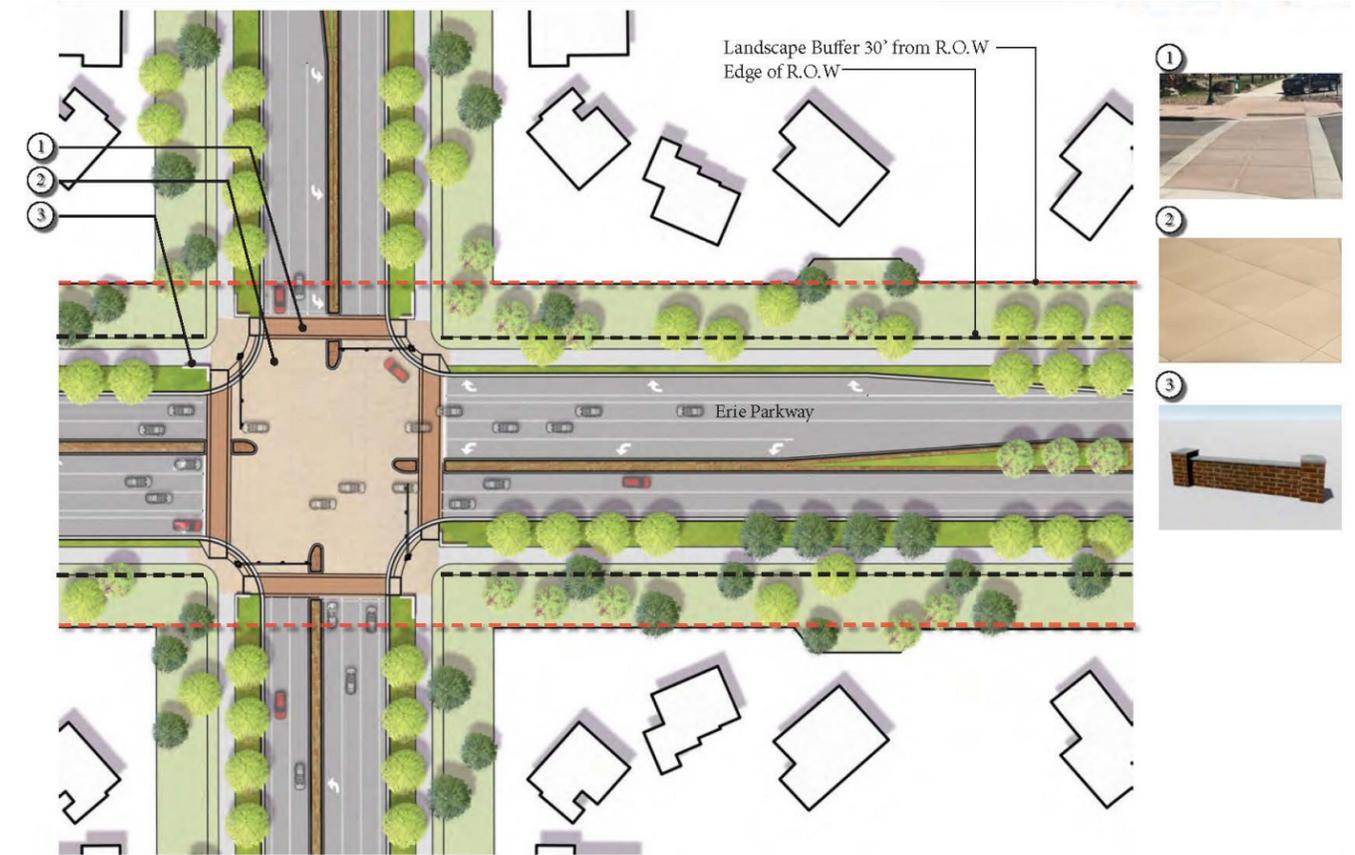


Figure 19. Residential Intersection Treatment



Where appropriate at major commercial/mixed use intersections the Town should consider allowing and/or encouraging portions of structures to be placed closer than 30 feet from the ROW to create a sense of arrival and enclosure. This cues the travelers that they are entering a zone with high pedestrian activity levels. The example intersection plan shows 18 feet to the buildings in this area, as well as a more intense and urban streetscape design. The architecture of the buildings should reflect the importance of these corners by incorporating special elements. The percentage of a structure that could be allowed to be closer than 30 feet would be determined during master planning of each development area.

The existing intersection at Erie Commons is recommended to be reconstructed to repair failing materials, meet ADA requirements, and be in keeping with the design theme for the rest of the corridor. Major intersections in residential areas (as shown on **Figure 19**) would receive the same crosswalk and center paving treatment, but without the seat walls and special pedestrian paving.

Conceptual Design

A conceptual design of the Erie Parkway corridor was completed to serve as a blueprint for the buildout of the corridor (**Appendix D**). The conceptual design:

- Includes the approved design for the reconstruction of the US 287/Isabelle Road Intersection
- Incorporates the approved roadway plans for Erie Parkway between Bonanza Drive/Colliers Hill and WCR 5
- Incorporates the roadway improvement plans for Erie Parkway between Baxter Farm Lane and Meadowview Parkway
- Reflects the Preferred Alternative cross section at all other locations

Auxiliary Lanes

The purpose of access control is to limit the number of driveways and conflict points, separate conflict points, and separate turning traffic from through traffic. Auxiliary lanes provide for the safe acceleration or deceleration of turning traffic on and off roadways. Left- and right-turn auxiliary lane standards have been developed as a part of the Erie Transportation Master Plan update (occurring in parallel with this study). **Table 5** summarizes the recommended auxiliary lane criteria for Erie Parkway, a Principal Arterial.

Table 5. Auxiliary Lane Criteria for Erie Parkway

	Left Turn Deceleration Lane	Right Turn Deceleration Lane	Right Turn Acceleration Lane
Auxiliary Lanes	25 vph/Storage (min 150 ft) + Taper	25 vph/ Storage (min. 150 ft) + Taper	50 vph/550 ft accel (including taper)
Taper Ratio	12:1	12:1	13.5:1

The auxiliary lane criteria were applied for all intersections on Erie Parkway that are not addressed in the above mentioned approved plans or that require reconstruction to accommodate the Preferred Alternative cross section.

Traffic Operational Analyses

Operational analyses were conducted to ensure that the conceptual design provides adequate storage for auxiliary lanes and to verify acceptable levels of service.

Queue Analysis

The 95th-percentile queue is the queue length for which there is a 5 percent probability of being exceeded during the peak hour analysis period. It is a useful value for determining the appropriate storage length for turn lanes. The 95th percentile maximum queue length was calculated for all turning movements meeting the auxiliary lane criteria to determine the appropriate turn lane storage length. However, it is important to note, that in most cases, the 95th percentile queue did not exceed 150 feet, and the minimum 150-foot storage length was, therefore, included in the conceptual design.

Travel Time, Travel Speed, and Arterial Level of Service

Several intersection and arterial performance measures can be used to assess how well the corridor functions. These metrics can include stops, travel times, travel speeds, and level of service.

Travel time and travel speed are some of the more common measures used to evaluate how well arterial traffic progresses. Travel speed accounts for both the delay at intersections and the time required to travel between intersections. Travel time analyses for the Preferred Alternative were conducted for comparison to the existing corridor-long morning and afternoon travel times. The results are shown in **Table 6**.

The recommendations of this corridor study are intended to create a street designed for mobility (e.g., through coordinated signal operations) that balances the needs of all travel modes, with street design elements (e.g., narrower travel lanes, wider bike lanes, urban design elements at the major intersections, and potentially bringing the buildings closer to the street) that encourage slower speeds through the commercial areas. Posted speeds on Erie Parkway should be set based on the 85th percentile speed identified through a speed study.

Table 6. Preferred Alternative 2040 Travel Times and Average Travel Speeds

	Travel Time		Average Travel Speed	
	AM Peak Hour Travel Time (min)	PM Peak Hour Travel Time (min)	AM Peak Hour Average Speed (mph)	PM Peak Hour Average Speed (mph)
Eastbound	14.5	14.8	30.0	29.2
Westbound	21.0	15.3	24.3	28.8

Arterial LOS is a measure of the operational efficiency of the arterial as a ratio of the travel speed to the base free-flow speed. Base free-flow speed is a function of the posted speed limit and other roadway characteristics such as number of access points, the presence of a median, and the lane width. This differs from the intersection LOS, in that the analysis incorporates efficiency of vehicular mobility between intersections in addition to at the intersection.

Figure 20 reflects the AM and PM peak hour arterial LOS. The corridor generally operates with acceptable levels of service (LOS D or better) during both the AM and PM peak hours. There are a few segments where LOS is projected to degrade below LOS D.

- **Between US 287 and Flatiron Meadows Blvd (Westbound):** By 2040, this segment is projected to operate at LOS E during the AM peak hour. The US 287 and Isabelle Road intersection was evaluated using the intersection configuration provided by Boulder County. The anticipated ultimate buildout, four-lane cross section of this segment would likely improve operations along this portion of the corridor during the AM peak hour.
- **Between the I-25 Ramps:** The arterial LOS is projected at LOS E during the AM peak hour for westbound traffic. This short distance between the signalized ramps results in slower average travel speeds, negatively affecting the arterial LOS. However, the northbound ramp terminal is projected to operate at LOS D and southbound ramp terminal is projected to operate at LOS C during the AM peak hour, acceptable conditions. Queuing is typically another concern at ramp terminal intersections. Queuing analyses indicate that the projected queues on the bridge are not projected to exceed the available storage; however, travel speeds are projected to be slow, as reflected in the poor arterial LOS.

Through movement speed is the primary factor of efficiency for the arterial LOS calculation. While arterial LOS is an appropriate operational measurement of the efficiency of the recommended one-half-mile signalized intersection spacing along Erie Parkway, intersection LOS provides a better understanding of the operations under the compact spacing of the ramp terminal intersections at I-25. Intersection LOS measures the delay experienced by vehicles being processed through the intersections, indicates acceptable operations, and indicates vehicles will be able to progress through the interchange complex with acceptable levels of delay.

AM Arterial LOS



PM Arterial LOS

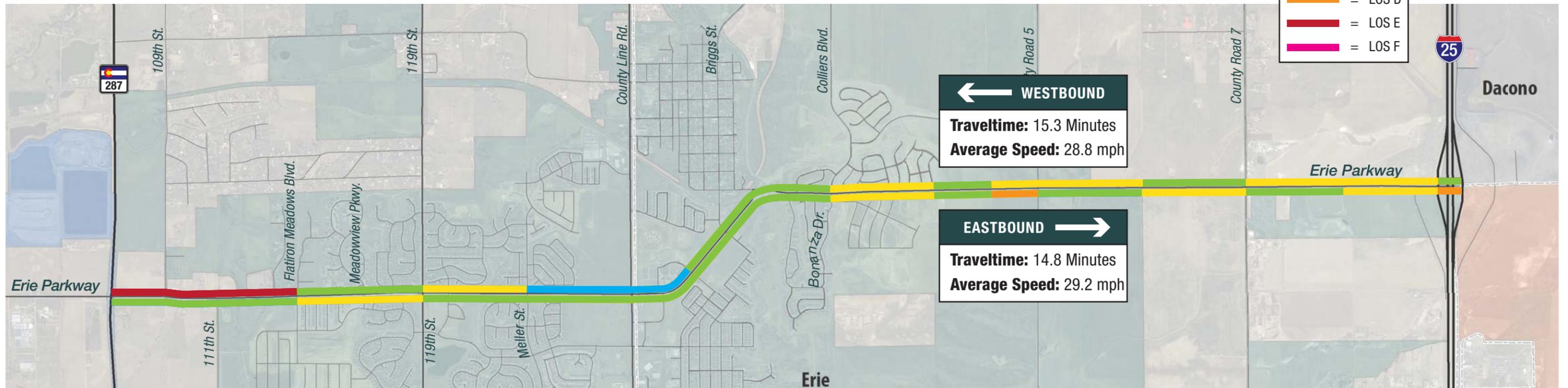


Figure 20
 Preferred Alternative - Level of Service



Implementation Plan

Implementation of the Preferred Alternative can take several forms relative to the sequence of construction of the physical infrastructure. Because it is not likely that the Town can construct the entire Preferred Alternative at one time, a phased implementation approach is recommended. The corridor improvements have been separated into distinct projects – each of which could be completed as a stand-alone project or combined with adjacent projects.

Table 7 lists the projects that make up the Preferred Alternative, along with a planning-level cost estimate, identification of primary funding responsibility, and an indication of the priority. The project extents are shown on **Figure 21**. Projects identified as being short-term priority projects are anticipated to be completed within the next five years. Mid-term projects are likely to be needed in the five- to ten-year time horizon, and the long-term projects are likely 10+ years from implementation. **Table 7** also includes a description of each project. The conceptual design is included in **Appendix D**, and the detailed project cost estimates are included in **Appendix E**.

Project #1 – This project involves reconstruction of Isabelle Road from west of US 287 to 109th Street with reconfiguration of the US 287/Isabelle Road intersection per the plans prepared by Boulder County. The project includes bike lanes along Isabelle Road but does not include sidewalk. The Town of Erie has committed to a contribution of up to \$300,000 for the inclusion of a second westbound to southbound left turn lane. This project has funding committed for design and construction in 2018/2019.

Project #2A – The section of Isabelle Road/Erie Parkway from 109th Street to Baxter Farm Lane will be reconstructed to the Preferred Alternative cross section. However, only one eastbound through lane will be initially constructed on the section outside the Town boundaries (109th Street to 111th Street). This project includes lengthening two box culverts where the Leynar Cottonwood Ditch No. 1 crosses Erie Parkway and assumes piping of the ditch along the north side of Erie Parkway. It includes removal of the retaining wall on the north side of the street. The sidewalk is assumed to be attached at the two ditch crossings. Coordination and approval from the ditch company will be required for modifications to their facility. This project will require investigation into jurisdictional status for the irrigation ditch and permitting requirements such as the Clean Water Act.

Project #2B – This project is the long-term completion of Projects 1 & 2A. It includes the addition of the second eastbound through lane and sidewalk and landscape area between US 287 and 109th Street.

Project #3 – This project involves restriping the recently construction section of Erie Parkway from Baxter Farm Lane to Meadowview Parkway to narrow the travel lanes and widen the bike lanes to match the Preferred Alternative cross section. This restriping project could be completed at the time of the next overlay or in conjunction with Project #4.

Project #4 – The section of Erie Parkway from Meadowview Parkway to Brennan Street will require full reconstruction. Because this section has a constrained ROW (110 feet), the cross section has been modified to minimize impacts and eliminate the need for ROW acquisition. The modified section retains the existing attached sidewalk between Meadowview Parkway and 119th Street. The street alignment is shifted north to avoid properties along the south edge, and the median is reduced to 12 feet. This project includes removal of the roundabout at 119th Street and replacement with a traditional signalized intersection.

Table 7. Preferred Alternative Projects

Project ID	Location	Description	Planning-Level Cost (2017\$)	Primary Responsibility	Priority
1	West of US 287 to 109 th Street	Reconstruction of Erie Parkway per Boulder County plans	\$4,900,000	Boulder County, Erie	Short-Term
2A	109 th Street to Baxter Farm Lane	Reconstruction of Erie Parkway (with only one EB thru lane)	\$11,100,000	Erie	Mid-Term
2B	US 287 to 111 th Street	Addition of 2 nd EB thru lane, sidewalk and landscape area	\$4,400,000	Erie	Long-Term
3	Baxter Farm Lane to Meadowview Parkway	Restriping of Erie Parkway to narrow travel lanes and widen bike lanes	\$11,000	Erie	Short-Term
4	Meadowview Parkway to Brennan Street	Reconstruction of Erie Parkway	\$5,500,000	Erie	Mid-Term
5	Brennan Street to Meller Street	Restriping of Erie Parkway to narrow travel lanes and widen bike lanes; widen sidewalk	\$840,000	Erie	Mid-Term
6	Meller Street to east of Briggs Street	Restriping of Erie Parkway to narrow travel lanes and widen bike lanes; widen sidewalk	\$1,100,000	Erie	Short-Term
7	Erie Parkway & County Line Road	Intersection enhancements	\$760,000	Developers	Short-Term
8	Erie Parkway & Powers Street	Intersection enhancements	\$68,000	Erie	Short-Term
9	Erie Parkway & Briggs Street	Intersection enhancements	\$56,000	Erie	Short-Term
10	Coal Creek Bridge	Reconstruction of Erie Parkway, bridge replacement, and trail improvements	\$15,100,000	Erie	Short-Term
11	Montgomery Drive to CR 5	Restriping of Erie Parkway to narrow travel lanes and widen bike lanes; widen sidewalks	\$630,000	Erie	Mid-Term
12	CR 5 to New CR 5 ½	Reconstruction of Erie Parkway	\$9,200,000	Developers, Erie	Long-Term
13	New CR 5 ½ to CR 7	Reconstruction of Erie Parkway	\$12,600,000	Developers	Long-Term
14	CR 7 to New CR 7 ½	Reconstruction of Erie Parkway	\$14,100,000	Developers	Long-Term
15	New CR 7 ½ to I-25 SB Ramps	Reconstruction of Erie Parkway	\$11,500,000	Developers	Long-Term
16	I-25 Ramp Terminal Intersections	Signalization	\$650,000	CDOT, Erie, Dacono, Developers	Short-Term
17	I-25 Interchange Area	Landscaping	\$1,300,000	Erie, Dacono, Developers	Mid-Term

Project #5 – The section of Erie Parkway between Brennan Street and Meller Street generally conforms to the Preferred Alternative configuration. This project involves restriping to narrow the travel lanes and widen the bike lanes to match the Preferred Alternative cross section. It also includes widening the sidewalk on the south side to serve as shared use paths and constructing a missing sidewalk segment on the south side north of Brennan Street. This restriping and sidewalk widening project could be completed at the time of the next overlay or in conjunction with Project #4.

Project #6 – Similar to Project #5, this section (Meller Street to east of Briggs Street) requires restriping to narrow the travel lanes and widen the bike lanes, along with sidewalk widening (south side between Meller Street and County Line Road). This restriping and sidewalk widening project could be completed at the time of the next overlay.

Project #7 – The intersection of Erie Parkway and County Line Road requires some enhancements to improve the pedestrian environment, including medians with refuges for pedestrians, ADA directional ramps, and urban design elements. Improvements to this intersection should be completed in conjunction with adjacent development.

Projects #8 & #9 – The Erie Parkway intersections with Powers Street and Briggs Street require minor intersection enhancements, most notably to bring the curb ramps to current ADA standards.

Project #10 – The Erie Parkway bridge over Coal Creek is a two-lane bridge with a sharp curve (posted at 25 MPH) immediately west of the bridge. This project involves replacing the bridge over Coal Creek and realigning Erie Parkway on the approaches to the bridge to conform to a 40 MPH design speed. The new Coal Creek bridge (shown conceptually on **Figure 22**) will provide space for four travel lanes and bike lanes and the design should reinforce the sense of gateway and entry into the Erie Commons area and connection to the downtown. The project includes reconfiguration of the Coal Creek Trail, which will remain grade-separated from Erie Parkway.

The trail is proposed to be relocated to the west side of Coal Creek to provide a more continuous north-south route for bicyclists and pedestrians. Pedestrians will be accommodated on trails that meander away from the main structure, providing a pleasant walking experience through the Coal Creek District and across Coal Creek on separate pedestrian bridges. These trails will connect to the Coal Creek Trail, providing enhanced connectivity for bicyclists and pedestrians. The project will retain access to the trailhead north of Erie Parkway and to the oil and gas pad located south of Erie Parkway. This project will require environmental permitting related to the Clear Water Act and Endangered Species Act, and it is likely that a Request for a Conditional Letter of Map Revision (CLOMR) through FEMA will be required because of the work proposed in the regulatory floodway.

Figure 22. Erie Parkway Bridge Concept



Figure 21. Preferred Alternative Projects



Project #11 – The section of Erie Parkway from Montgomery Drive to CR 5 was recently reconstructed and generally conforms to the Preferred Alternative configuration. This project involves restriping to narrow the travel lanes and to widen the bike lanes to match the Preferred Alternative cross section. It also includes widening a short section of sidewalk on the south side west of Colliers Boulevard. This restriping and sidewalk widening project could be completed at the time of the next overlay.

Project #12 – This project includes full reconstruction of Erie Parkway CR 5 to approximately one-half-mile east of CR 5 (including the CR 5 intersection). This section will include widening to match the Preferred Alternative cross section and intersection improvements at CR 5. The Town will be responsible for funding the north half of Erie Parkway adjacent to Erie High School, and the remainder of the project should be funded by developer contributions.

Project #13 – This project includes full reconstruction of Erie Parkway from approximately one-half-mile west of CR 7 to just west of CR 7. This section will include widening to match the Preferred Alternative cross section and intersection improvements at CR 7.

Project #14 – This project includes full reconstruction of Erie Parkway from CR 7 to approximately one-half-mile east of CR 7 (including the CR 7 intersection). This section will include widening to match the Preferred Alternative cross section. The project includes construction of a trail underpass to connect the planned trail system north and south of Erie Parkway.

Project #15 – This project includes full reconstruction of Erie Parkway from approximately one-half-mile east of CR 7 to the southbound I-25 ramps. This section is expected to require three travel lanes in each direction to accommodate the future travel demands. The project includes construction of a bicycle and pedestrian underpass to connect the future land uses north and south of Erie Parkway.

Project #16 – The Town of Erie has recently requested that CDOT conduct a signal warrant analysis for the I-25/Erie Parkway ramp terminal intersections. When MUTCD signal warrants are met, these intersections should be signalized to improve traffic flow in the interchange area.

Project #17 – The Town of Erie extended landscape irrigation sleeves to the I-25/Erie Parkway interchange area. This project includes landscaping and adding a Town of Erie monument sign to create an aesthetically pleasing and welcoming entrance to the Town, as shown conceptually on **Figure 23**. The landscaping would enhance the overall appearance and significance of the existing interchange condition. Currently the existing interchange landscape consists of native grasses with two levels of concrete block retaining walls on the east and west sides of Interstate 25. Dark colored angular rocks fill the spaces between the retaining walls.

The landscape concept places emphasis on the north and south ramps from I-25 leading to Erie Parkway. The existing retaining walls would remain, integrated with curvilinear cobble and shrub beds. The landscape in this area could include a mix of deciduous and evergreen trees and shrubs, with ornamental trees and shrubs providing spring and fall color. Non-irrigated native grasses cover other areas. Unique architectural features could be located at the top of the off ramps, adjacent to the ornamental plantings. The architectural features should be substantial in size and constructed of materials consistent with Erie’s branding theme.

The Erie Parkway recommendations include an upgraded median west of the interchange. The median treatment should include a monument entry sign, architectural concrete splash plate, and a mix of ornamental trees, grasses and shrubs planted in cobble mulch.

As the area along Erie Parkway develops to the west of I-25, future regional commercial development is anticipated. With this use in mind, the concept plan shows the transition to detached sidewalks with street trees planted in irrigated turf grass adjacent to Erie Parkway. Additional evergreen and shade trees are recommended within the right-of-way to provide landscape enhancements adjacent to proposed commercial use.

Figure 23. I-25/Erie Parkway Landscape Concept



Funding Strategy

Most of the projects that make up the Preferred Alternative are anticipated to be constructed with local funds from the Town’s general fund, through partnerships with adjacent local agencies (e.g., Boulder County and Dacono), and through developer contributions. If the Town chooses to pursue federal funding through DRCOG, environmental clearances will be required. Any of the projects, as described in the Implementation Plan, would likely require a Categorical Exclusion (CatEx) if federal funds are used. **Chapter 2** highlights the primary environmental resources that will be most important to address for future Erie Parkway improvement projects, and details are provided in **Appendix B**.

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