East Yale Avenue Corridor Study

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East Yale Avenue Corridor Study
EXECUTIVE SUMMARY

Introduction

The East Yale Avenue corridor will serve neighborhoods and connect people, places, and services through a safe and efficient transportation network.

The East Yale Avenue Corridor Study (Study) is a planning process led by the Denver Department of Transportation and Infrastructure (DOTI) to engage residents and businesses throughout the corridor and develop a plan for East Yale Avenue between Downing Street on the west and the High Line Canal crossing at Yale west of Holly Street on the east, as shown in Figure 2.

The Study traverses six of Denver’s 78 city neighborhoods, including University Park, Welshire, University, University Hills, Hampden, and Goldsmith. Only one of these neighborhoods, University Park, has an official neighborhood plan (completed in 2008, available here). Several plans have been completed that support these neighborhoods, including:

- **Colorado Boulevard Plan** (1991)
- **Yale Station Area Study** (2003)
- **Colorado Station Area Framework Plan** (2003)
- **Yale Corridor Traffic Study** (2014)

None of these previous planning efforts have focused on developing a multimodal, safe, and community-driven solution for East Yale Avenue.

Process and Goals

The project team, in coordination with City staff and the project Stakeholder Working Group (SWG), examined the existing conditions, past and adjacent studies, opportunities and constraints, and coordinated with the various jurisdictions and municipalities present along the corridor. Through several months of meeting with stakeholders and two public open houses (held virtually due to COVID-19 safety considerations), three overarching Study goals were developed that helped shape the Study’s vision and guided the eventual development of recommendations. These goals are:

1. **Safety**: Create an environment where everyone feels they can move safely, no matter their mode of travel, and prevent serious injuries and fatalities through corridor-wide infrastructure improvements (including adjacent trails and streets).
2. **Building Connections**: Create safe and convenient connections and improve access along the East Yale Avenue corridor where people can easily get to where they want to go.
3. **Multimodal**: Create an equitable and connected multimodal network to move more people by walking, biking, and taking transit as part of their everyday lives.
Focus Areas

This Study analyzes 2.9-miles of the East Yale Avenue corridor which was divided into seven focus areas based on adjacent land uses, existing conditions, and infrastructure demands. The proposed cross-sections for each character area, as shown throughout this Study, will help guide future funded construction efforts.

These focus areas were developed to better collect, understand, and analyze the various issues and opportunities present at different locations throughout the Study area. They are not meant to be inhibiting or limiting in any way. Rather, they are intended to both efficiently arrange the Study’s recommendations and present the findings while reflecting that many of them are located close to one another.

The Study’s focus areas include:

1. Corridor-Wide Infrastructure
2. North-South Connections
3. McWilliams Park
4. Yale Way
5. Yale Avenue and Colorado Boulevard Intersection
6. Yale Station
7. Yale Station to the High Line Canal

The locations of these focus areas at various locations along the corridor are reflected in Figure 2. The Study’s recommendations are all organized through these focus areas.
Key Recommendations

The Study included a comprehensive alternatives analysis effort to identify, evaluate, and prioritize 35 recommendations that were developed through input from previous planning efforts, the Study stakeholder working group (SWG), public open houses, and input from residents along corridor. Further information regarding these recommendations, including key implementation strategies and potential funding sources are detailed in this Study.

The recommendations that scored the highest in the Alternatives Analysis process are located throughout the corridor and present opportunities for improved safety, accessibility, and mobility. The key recommendations are included in Table 1.

<table>
<thead>
<tr>
<th>RANK</th>
<th>RECOMMENDATION/PROJECT</th>
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<tbody>
<tr>
<td>1</td>
<td>Shared use path on Yale from Colorado Boulevard to the High Line Canal</td>
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<tr>
<td>2</td>
<td>Repair/widen sidewalks along East Yale Avenue (Figure X)</td>
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<td>3</td>
<td>Bike/ped crossing safety improvements at the Yale &amp; I-25 interchange</td>
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<td>4</td>
<td>Upgrade the existing bike lane on Yale to a protected bike lane and extend the facility west to Downing Street</td>
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<td>5</td>
<td>Install leading pedestrian indicator (LPI)/bike detection technology at Amherst Avenue and Colorado Boulevard</td>
</tr>
<tr>
<td>6</td>
<td>Enhance bike/ped crossing at Yale &amp; Franklin Street</td>
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The recommendations are meant to supplement and further enhance projects from previous planning efforts that have already been identified along the East Yale Avenue corridor. These include projects such as:

- High Line Canal crossing improvements at Yale and Holly ([2014 Feasibility Study for High Line Canal Crossing](#))
- Transit improvements on University and Colorado Boulevards ([Denver Moves: Transit](#))
- At-grade crossing of the East Harvard Gulch Trail and University Boulevard ([Denver Moves: Pedestrians & Trails](#))

Further information on these projects and their respective source planning studies can be found in Table 2.
INTRODUCTION TO THE EAST YALE AVENUE CORRIDOR

Context and Project History

East Yale Avenue is a very diverse corridor, serving as a vital link between historic neighborhoods, north-south travel thoroughfares, RTD bus and light rail corridors, and bicycle and pedestrian networks. That link, however, boasts significantly different characteristics throughout its 2.5-mile span. West of Colorado Boulevard to Downing Street, Yale is a two-lane road (one each direction) through a stable residential area. The western project limit at Downing Street hosts connections to both the RTD Route 12 and more than 3,300 jobs at Porter Adventist Hospital, Swedish Medical Center, and Craig Hospital. East of Colorado to the High Line Canal (west of Holly Street), Yale varies from a five- to seven-lane cross-section supporting a wide variety of land uses including commercial centers, residential, transit-oriented develop, and access to I-25 and the High Line Canal.

Even though the halves of the corridor are different, the East Yale Avenue Multimodal Corridor Study became the perfect opportunity to create a package of context-sensitive projects to support a cohesive vision that puts people first.

Previous Studies

While no recent Study has specifically focused on multimodal considerations for the East Yale Avenue corridor, several corridor-focused and City-wide studies have identified and/or evaluated various aspects of the corridor in recent years. These previous efforts’ findings and recommendations were used to further inform the project team about the corridor while subsequently refining this Study’s alternatives and eventual recommendations.

Yale Corridor Traffic Study (2014)

The only recent study that evaluated any segment of the Yale Avenue corridor, The Yale Corridor Traffic Study (January 2014) was a cooperative multimodal technical study between the City and County of Denver and Arapahoe County. It evaluated East Yale Avenue from Fairfax Street (Denver) on the west to Syracuse Way (Arapahoe County) on the east. The study looked to, among other goals, identify necessary improvements on East Yale Avenue to accommodate all modes of transportation efficiently and safely.

The study’s final recommendations were presented in six primary categories, including:

1. SIDEWALK IMPROVEMENTS

Identified improvements included sub-standard sidewalk widths (often less than three feet), missing Americans with Disabilities Act-compliant (ADA) ramps, sidewalk obstructions (i.e. power poles, streetlights), missing sidewalk segments, and missing connections to RTD stops.

2. TRAFFIC OPERATIONS

These recommendations included queueing capacity improvements to various segments of the Yale Avenue interchange at I-25, turn lane improvements at Yale Avenue and Holly Street, and a westbound dedicated turn arrow at Monaco Parkway.

3. STREET RECONSTRUCTION

Capital-intensive improvements to the roadway cross-sections enabling multimodal travel improvements promoting safety and efficiency were identified throughout the study area.

4. TRAIL AND PEDESTRIAN CROSSINGS

Movement across East Yale Avenue, particularly throughout the eastern segments of the corridor, can be dangerous due to both traffic volumes and speeds. These factors are particularly troublesome near high-volume crossing locations such as at Yale Station and the High Line Canal. The study
identified other study opportunities (now complete) to improve crossings at these locations in addition at the High Line Canal east of Monaco Parkway.

5. **BUS STOPS**

These recommendations included minor improvements at select locations along the corridor to introduce or enhance transit access.

6. **OPERATIONS AND MAINTENANCE**

Recommendations included signal timing modifications to improve pedestrian safety in addition to traffic enforcement and the prevalence of cut-through traffic.

**Denver Moves: Pedestrians & Trails (2019)**

*Denver Moves: Pedestrians & Trails* proposed several recommendations for pedestrian infrastructure improvements in the Study area, including:

- An at-grade crossing of the East Harvard Gulch Trail at University Boulevard (about 500 feet north of East Yale Avenue) to provide a high-quality user experience rather than traveling 850 feet out-of-direction to comfortably and safely cross University Boulevard.
- A 300-foot trail to connect the East Harvard Gulch Trail to Colorado Boulevard from its current terminus at Jackson Street. This pathway would formalize an existing pathway through Schlessman Family YMCA’s parking lot.
- An improved crossing of the High Line Canal across East Yale Avenue just west of Holly Street. While this improvement is not evaluated or otherwise defined as part of this Study, it’s importance to the community and the desire to see it improved is well documented. Improvements to this crossing are funded through the Elevate Denver bond program. This crossing is also identified as a Phase 2 High-Priority Bikeway improvement in *Denver Moves: Pedestrians & Trails*.

These projects continue to be priorities for DOTI. The City will continue to advance efforts to implement these projects in the years to come.

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**Denver Moves: Transit (2019)**

*Denver Moves: Transit* identified Colorado Boulevard as a High-Capacity Transit (HCT) Corridor and University Boulevard as a Medium-Capacity Transit (MCT) Corridor.

- HCT corridors are identified as those with high levels of passenger capacity, very frequent services, and high-quality design that would benefit from improvements such as enhanced stops and easier access to stations. Other features of HCT corridors include improved service frequency, dedicated transit-only lanes, and streetscaping.
- MCT corridors have elements that help to move buses through traffic in key locations as well as improved stops and pedestrian and bicycle connections. Other features of MCT corridors include improved service frequency, queue jumps or bypass lanes, transit vehicles with special branding, and upgraded connections to stops and stations.

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**FIGURE 4 - EXISTING BUFFERED BIKE LANE LOOKING WEST ON YALE AT CLAYTON STREET**
Mayor’s Mobility Action Plan (2017)

The Mayor’s Mobility Action Plan identified actions to reduce single-occupant vehicle mode share, eliminate traffic fatalities and serious injuries, reduce greenhouse gas emissions, and increase access to technologies and mobility for everyone, regardless of location of socioeconomic status.

Denver Moves: Bicycles (2011, 2015 Update)

*Denver Moves: Bicycles (2011, 2015 update)* proposes on-street bikeways crossing East Yale Avenue on Franklin Street, St. Paul Street, and Dahlia Street. The plan also calls for the extension of the East Harvard Gulch Trail east of Colorado Boulevard from its current terminus at Jackson Street and the study of a reinforced multimodal connection from Dahlia Street east to the High Line Canal.

Strategic Transportation Plan (2008)

The Denver Strategic Transportation Plan recognizes the importance of moving people, not just vehicles, with the goal of creating a multimodal transportation system to support a viable, connected, and sustainable city.

Recommendations related to improvements along East Yale Avenue were included in the 2008 report, including pedestrian improvements to connect Yale Station from the High Line Canal to the west and East Yale Way at Colorado Boulevard intersection turn-lane improvements.
Vision and Goals

The ultimate vision for East Yale Avenue will incorporate a multitude of multimodal transportation infrastructure elements to enable safe and efficient travel along – and across – Yale between Downing and the High Line Canal. There has not been a concerted effort in the past to address multimodal needs along the corridor.

Prioritizing safe travel presents the opportunity to introduce best practices to transportation infrastructure elements of the corridor that the public and project team have identified as needing attention. The Yale corridor has different characteristics dependent upon the location throughout the corridor. The corridor is nearly exclusively residential with lower traffic volumes and speeds to the west while it has mixed land uses, higher speeds, traffic volumes, and crash rates to the east of Colorado Boulevard. No one single solution will improve safety throughout a corridor with multiple characteristics such as Yale. The Study has identified a variety of safety improvements at locations throughout the corridor which, if implemented, will enable safer movements along and across Yale.

Enabling efficient travel – for all road users – throughout the Study corridor is important to ensure that Yale is for everyone, not just vehicles. Multimodal travel presents opportunities for improved health, air quality, and general quality of life. The recommendations developed through the Study address infrastructure gaps, signal timing, and other elements that provide for a truly multimodal transportation corridor without prioritizing one mode over any other.

Three overarching goals were created to guide identification and analysis of the Study’s eventual recommendations. They focused on safety throughout the Study area, building connections, and reinforcing the area’s multimodal network.

Safety

Transportation safety has become a pressing issue throughout the Denver metro area as roads have become busier and speeds have increased. Years of automobile-dominated growth has resulted in a corridor with wide travel lanes, high traffic volumes, substandard on-street bike facilities, and narrow sidewalks. There are opportunities throughout the Study area to improve safety for the traveling public and help move towards the City’s ambitious goal established through the Vision Zero Program of eliminating traffic-related deaths and serious injuries by 2030.

Building Connections

Create safe and convenient connections and improve access along the East Yale Avenue corridor where people can easily get to where they want to go.

From McWilliams Park and Yale Station to St. Anne’s School and the Schlessman YMCA, there are numerous community destinations throughout the Study area. Building safe, accessible connections to those assets will help ensure that residents and visitors alike can easily find and access these places.
Multimodal

Create an equitable and connected multimodal network to move more people by walking, biking, and taking transit as part of their everyday lives.

The Study area has numerous multimodal transportation options (current and planned), but few links between them. By working to effectively link these options (e.g. East Harvard Gulch Trail, High Line Canal, RTD transit service, future bike lanes on Franklin, St. Paul, and Dahlia Streets), residents and visitors will have a safe, efficient, and viable alternative to driving. This is intended to provide more comfortable and connected options to get around so that Denver can meet the goals outlined in the Mayor’s Mobility Action Plan and other citywide goals.

1
Public Process and Involvement

COVID-19 posed a unique challenge for the project team to gather public input from stakeholders. However, the project team was able to virtually engage with hundreds of residents and stakeholders to gather input, opinions, and concurrence. The project team held five virtual SWG meetings, two virtual public open houses, used multiple surveys, and provided a fully interactive recommendations maps to gather input and refine recommendations.

Stakeholder Working Group

Stakeholder Working Group (SWG) meetings engaged a smaller, more targeted group who served as ambassadors for their community. A smaller group allowed for more open discussions and engagement, which led to the development of a comprehensive vision for future improvements throughout the Study area. The project team collaborated with the SWG to define the Study’s vision, goals, and focus areas and to help identify recommendations. Key issues and concerns were also used to help guide the Study’s planning and outreach efforts. The full list of SWG members is included on the Acknowledgements page of this Study. Appendix B provides SWG meeting summaries.

Virtual Open Houses

The Study’s first open house was held in April 2020 to introduce the project, gather feedback about the Study area, solicit their opinions and concerns, and share findings from the Study’s existing conditions analysis. The Study’s second open house was held in September 2020 and served to review the vision and goal statements and demonstrate how to use a virtual interactive map to solicit input on the Study’s draft recommendations.

During these open houses, input from the public was solicited through interactive polling questions, a live chat feature, question and answer sessions integrated into the presentations, and e-mails sent to the project team. The project email received more than 60 comments and questions. Summaries of the Stakeholder Working Group and Virtual Open Houses are included in the appendix. Figures 8 and 9 provide additional details about the virtual open houses. Appendix C provides virtual public open house meeting summaries.
Elected Officials

Representatives from Denver City Council Districts 4 and 6 were integral to the success of the Study. Councilwoman Kendra Black (District 4) and Councilman Paul Kashmann (District 6), as well as council staff, helped coordinate focused updates to constituents through their respective newsletters. These included general project updates, presentations, and other general information about the Study.

Interactive Map

COVID-19 forced the project team to pivot from traditional public feedback collection efforts to ensure safety for the project team and the community throughout the Study area. In lieu of these in-person touchpoints, an interactive map detailing the projects draft recommendations was developed. The map empowered stakeholders and residents to review the specifics regarding the recommendations, provide a rating (like/dislike), and leave general comments. Additional information about the map and how it was publicized are included in Figures 10 and 11. A screenshot of the interactive map is included in Figure 12. Figure 13 shows the yard sign placed to solicit input for the draft (the same style was used for the interactive map).

The interactive map received 152 public comments, 100 likes, and 17 dislikes. Overall, those who utilized the interactive map were supportive of the Study’s recommendations.
FIGURE 12 - YALE AVENUE INTERACTIVE MAP
FIGURE 13 – STUDY YARD SIGN

EAST YALE AVENUE CORRIDOR STUDY

MOBILITY.
CONNECTIVITY.
SAFETY.

Give feedback on the East Yale Avenue draft plan!

Visit bit.ly/eastyaleavenue to provide your comments.
RECOMMENDATIONS FOR EAST YALE AVENUE

Recommendations Development and Screening

The recommendations developed as part of the Study were created through a variety of efforts, including:

- Review of previously completed City and County of Denver plans, including those detailed on Page 4;
- Five Study Stakeholder Working Group and two virtual public open house meetings;
- Input through the Study’s web-based interactive map;
- Public input through the Study’s e-mail address; and
- Existing conditions analysis.

The alternatives development and evaluation process integrated public and stakeholder input at each step of the process, including:

- Establishing the goals and guiding principles for the Study;
- Incorporating previous Study recommendations and stakeholder suggestions to compile and examine a broad range of alternatives;
- Establishing evaluation criteria to screen the alternatives; and
- Alternatives refinement and prioritization

Three base assumptions were developed early in the project to further guide the development of multimodal recommendations and alternatives, essentially serving as an initial screening. These assumptions were:

1. Right-of-way (ROW) acquisitions will be minimized along or adjacent to the corridor;
2. In accordance with the Complete Street Design Guidelines, which the City has adopted, vehicle capacity will not be prioritized over other multimodal improvements; and
3. Alternatives that move forward into conceptual engineering will evaluate drainage to ensure the design will not further degrade existing deficiencies along the corridor. However, corridor-wide drainage improvements will be addressed by other capital improvement projects. Drainage improvements throughout this area have been identified as part of the 2019 Storm Drainage Master Plan.

As a result of these efforts and thanks to the participation of residents and stakeholders along the corridor, 35 alternatives were identified for analyzation and further study. These were screened based upon a variety of quantitative and qualitative measures.

Detailed information related to the screening of the recommendations presented in this Study can be found in the Alternatives Analysis Technical Memorandum, included in Appendix D.

FIGURE 14 - CROSSWALK AND PEDESTRIAN REFUGE AT YALE AND COLORADO BOULEVARD
Use of Previous Planned/Identified and/or Funded Projects

The Study thoroughly reviewed recommended multimodal improvements that impact movements on the East Yale Corridor from previous studies as well as those multimodal improvement projects that are in the process of obtaining, or have obtained, funding to move forward into construction and implementation. While these much-needed transportation infrastructure projects were not included in the Alternatives Analysis screening process as part of this Study, they played an integral part in the development of a comprehensive vision, project goals, and public engagement effort. They were also included for reference as part of the Study’s interactive map.

These previous recommendations and planned projects are listed in Table 2, included in the Corridor Map in Figure 16, and are further identified in the focus area maps of this Study in orange circles with the associated letter noted.

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<thead>
<tr>
<th>ID</th>
<th>Recommendation/Project</th>
<th>Original Source</th>
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<tbody>
<tr>
<td>A</td>
<td>Sidewalk from Clayton to Steele Street on south side of McWilliams Park, including an ADA curb ramp</td>
<td>Denver Capital Improvements Program (CIP)</td>
</tr>
<tr>
<td>B</td>
<td>Signal replacement at Yale &amp; Colorado Boulevard (northern intersection)</td>
<td>Denver CIP</td>
</tr>
<tr>
<td>C</td>
<td>At-grade crossing of the East Harvard Gulch at University Boulevard</td>
<td>Denver Moves: Pedestrians &amp; Trails</td>
</tr>
<tr>
<td>D</td>
<td>New signal at Yale &amp; East Yale Circle</td>
<td>Elevate Denver Bond Program</td>
</tr>
<tr>
<td>E</td>
<td>Multimodal infrastructure improvements on Yale from I-25 east to Quebec Street</td>
<td>Elevate Denver Bond Program</td>
</tr>
<tr>
<td>F</td>
<td>High Line Canal crossing improvements near the intersection of Yale &amp; Holly Street</td>
<td>Elevate Denver Bond Program</td>
</tr>
<tr>
<td>G</td>
<td>Wrong way driving signal and signage improvements at Yale &amp; I-25</td>
<td>CDOT</td>
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<tr>
<td>H</td>
<td>Establish University Boulevard as a medium-capacity transit corridor</td>
<td>Denver Moves: Transit</td>
</tr>
<tr>
<td>I</td>
<td>Establish Colorado Boulevard as a high-capacity transit corridor</td>
<td>Denver Moves: Transit</td>
</tr>
<tr>
<td>J</td>
<td>Sidewalk construction from Marion Circle to Lafayette Street</td>
<td>Elevate Denver Bond Program</td>
</tr>
<tr>
<td>K</td>
<td>On-street bike facilities on Franklin, St. Paul, and Dahlia Street</td>
<td>Denver Moves: Bicycles</td>
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Prioritization

The Study began with the goal of identifying and prioritizing community supported multimodal transportation infrastructure improvements that aligned with the Study’s goals and priorities. The project lists that have been generated for each Focus Area (full list provided on Page 14), as well as for the overall corridor, contain a variety of improvements. Each provides an incremental step towards achieving the corridor’s vision of connecting people, places, and services through a safe and efficient transportation network.

Given the unpredictability of future resources and funding, this Study details these recommended improvements in short-, mid-, and long-term categories. Further information on how these recommendations were analyzed and scored can be found in Appendix D (Alternatives Analysis Technical Memo).

Short-Term

These short-term improvements represent “quick wins” at various locations throughout the Study area and present a range safety, connections, and multimodal benefits. They are, by and large, relatively inexpensive or have clear funding opportunities, boast broad community support, require minimal coordination, and further the project goals of increasing safety, building connections, and developing the multimodal network.

Mid-Term

These mid-term recommendations represent safety, connectivity, and multimodal improvements that require a more substantial capital investment, more focused coordination with partners and other jurisdictions, and/or additional planning efforts to validate their design and eventual construction. Several are also dependent upon other recommendations or anticipated developments to warrant their installation.

Long-Term

The long-term recommendations include those which require a major capital investment, intensive coordination with partners and/or other jurisdictions, or have significant external project issues/risks such as potential right-of-way acquisitions, utility coordination, or substantial planning or engineering. These projects are more complex and require further evaluation to determine their need.
Focus Areas

The corridor was divided into seven focus areas based on adjacent land uses, existing conditions, and infrastructure demands. The proposed cross-sections for each character area, as shown throughout this report, will guide future funded construction efforts that address lane width modifications, sidewalk improvements, and multimodal infrastructure design and construction. As a result, these elements can be built efficiently and in their optimal location, minimizing throwaway cost and redesign.

Further information about these areas and other corridor-specific information can be found in the Existing Conditions Report, included in Appendix A.

The recommendations developed through the Study process are generally categorized across seven focus areas and depicted in Figure 16 below. The focus areas include:

1. **Corridor-Wide Infrastructure**
   These recommendations did not fit into the other six focus areas or those that dealt with issues present throughout the corridor.

2. **North-South Connections**
   There are few protected crossings throughout the Study area, especially west of Colorado Boulevard.

3. **McWilliams Park**
   A highly utilized community destination, the Park sees a lot of multimodal traffic traveling both across and along East Yale Avenue.

4. **Yale Way**
   High travel speeds, narrow bike lanes, and a recent fatal accident involving a bicyclist have raised serious safety concerns.

5. **Yale Avenue and Colorado Boulevard Intersection**
   This is a heavily congested intersection during peak hours and a cumbersome intersection to travel through for all modes.

6. **Yale Station**
   This is the densest segment of the Study area with a mix of multifamily and office space and a heavily utilized RTD Park-n-Ride.

7. **Yale Station to the High Line Canal**
   This segment of the Study area that the highest vehicle volumes, travel speeds, and has the most auto-oriented land uses.

How to Use this Study

The recommendations developed through this Study are generally focused in and around seven focus areas, as shown in Figure 16. Each focus area is described and analyzed in detail with a listing of the associated recommendations, their key implementation strategies, potential funding sources, and timeframes.

Maps, photographs, renderings, and cross-sections are included in each focus area section to give a more comprehensive picture as to how these recommendations will improve multimodal transportation safety, connectivity, and access across the corridor.
FIGURE 16 - CORRIDOR AND FOCUS AREA MAP
Focus Area 1 – Corridor-Wide Infrastructure

There are numerous transportation infrastructure considerations that were evaluated as part of the Study that did not fit into other focus areas. These included intersection improvements, wayfinding, and multimodal planning and design opportunities. These recommendations are predominantly focused on enhancing safety for all modes throughout the corridor.

Additionally, the tree canopy on Yale east of Colorado Boulevard is lacking in comparison to that west of Colorado Boulevard. While trees have been planted along the corridor, additional efforts should be undertaken, when possible, on a corridor-wide level.

The recommendations are mapped in **Figure 17** with further details provided in **Table 3**. Additional renderings, photographs, and cross-sections showing existing and proposed conditions are included in **Figures 18 – 25**.
<table>
<thead>
<tr>
<th>PROJECT ID</th>
<th>RECOMMENDATION DESCRIPTION</th>
<th>PROJECT TYPE</th>
<th>KEY IMPLEMENTATION STRATEGIES</th>
<th>POTENTIAL FUNDING SOURCES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SHORT-TERM</strong></td>
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<tr>
<td>5</td>
<td>Improved signage/wayfinding to reinforce community connections to the multimodal network</td>
<td>Wayfinding</td>
<td>Improved wayfinding/signage alternatives throughout the corridor could be packaged together for efficient design and installation. This recommendation has a high return with minimal investment, community support, and meets the Study’s multimodal improvement goals. Wayfinding/signage examples are included in Figure 17. If signage is outside of standard City signage, a Business Improvement District (BID) must maintain them.</td>
<td>City general funds</td>
</tr>
<tr>
<td><strong>MID-TERM</strong></td>
<td></td>
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<tr>
<td>2</td>
<td>Design and install a new neighborhood bikeway on East Vassar Avenue from approximately Josephine to Madison Streets (exact facilities and project limits TBD)</td>
<td>Bike</td>
<td>Internal coordination within DOTI is needed to evaluate the merits of a new bike facility on Vassar Avenue in favor over the existing bike lanes on Yale. Further analysis is needed to determine the best corridor, facility type, project limits, and connections to the surrounding bicycle network. Would meet Study’s safety, connectivity, and multimodal goals.</td>
<td>City general funds</td>
</tr>
<tr>
<td>3</td>
<td>Upgrade the existing buffered bike lane on East Yale Avenue from Josephine to Jackson Streets to a protected bike lane (PBL) and extend the bike facility west to Downing Street</td>
<td>Bike</td>
<td>Additional technical and feasibility analysis efforts are needed to evaluate how to add vertical protection to the existing buffered bike lane on East Yale Avenue. An example of a protected bike lane is included in Figure 18. Would meet Study’s safety, connectivity, and multimodal goals.</td>
<td>City general funds</td>
</tr>
<tr>
<td>6</td>
<td>Design and install a new bicycle route on Amherst Avenue as an alternative to crossing Colorado Boulevard at East Yale Avenue. The routing accesses Amherst Avenue via Nielsen Lane or Jackson Street, travels east across Colorado Boulevard and allows for travel north to East Yale Avenue via Brook Drive or south to the High Line Canal via Birch Street.</td>
<td>Bike</td>
<td>Internal coordination and planning efforts within DOTI are needed to determine the correct bicycle facility type for an on-street connection to bypass the Yale Avenue and Colorado Boulevard intersection. Coordination with CDOT focused on modifications to the signal at Amherst &amp; Colorado is recommended to ensure smooth installation. Further detail, including a rendering of the crossing at Amherst Avenue and Colorado Boulevard is included in Figure 19. This recommendation includes a new enhanced crossing at Yale &amp; Jackson to enable safer crossings for bicyclists and pedestrians. Would meet Study’s safety, connectivity, and multimodal goals.</td>
<td>City general funds</td>
</tr>
<tr>
<td><strong>LONG-TERM</strong></td>
<td></td>
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</tr>
<tr>
<td>4</td>
<td>Design and install a shared use path on East Yale Avenue from Colorado Boulevard east to the High Line Canal (widths vary depending on ROW constraints)</td>
<td>Bike/Ped</td>
<td>Coordination between DOTI, CDOT, RTD, and Arapahoe County to build a continuous path along this entire segment. The Study recognizes the high capital investment needed to accomplish this as well as significant right-of-way constraints and limitations. A separated shared use path would be ideal throughout this segment and provide the most safety and operational benefits to the community. Any future shared use path would conform to the City’s Complete Street Guidelines. Design efforts should also account for any potential drainage issues along these segments of Yale. Snow and ice buildup concerns should be addressed if path is on south side of Yale.</td>
<td>City general funds</td>
</tr>
</tbody>
</table>
Wayfinding/signage improvements to direct residents and visitors alike to the corridor’s multimodal connections and various destinations would provide a much-needed source of information while also encouraging multimodal travel along preferred routes. These signs would be placed at decision points and key locations along the various routes. Partnerships with corridor businesses/stakeholders could be developed to pursue enhanced signage (maintenance of the signs would have to be taken on by someone other than the City).
A protected bike lane (PBL) is physically separated from motor traffic and distinct from the sidewalk. PBLs have different forms but share common elements – the provide space that is intended to be exclusively or primarily used by bicycles, and are separated from motor vehicle travel lanes, parking lanes, and sidewalks.

A PBL is recommended on East Yale Avenue between Josephine and Jackson Streets (see recommendation #3).

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2 https://www.burlingtonvt.gov/DPW/ProtectedBicycleLanes
3 http://www.bikearlington.com/why-protected-bike-lanes-matter-to-us-all/
4 https://sfbike.org/news/were-changing-how-protected-bike-lanes-get-built/
A majority of the sidewalks along East Yale Avenue, especially west of Colorado Boulevard, are directly adjacent to the street with no tree lawn and minimal (often three feet wide or less). These present safety and mobility issues in that narrow sidewalks put bicyclists and pedestrians immediately next to moving traffic and open car doors, plowed snow, ice, and trash cans often block at least part of the sidewalk. There are missing sidewalk segments from Marion to Humboldt Streets and Steele to Fillmore Streets. These gaps pose obvious safety issues as bicyclists and pedestrians are forced to bike or walk on the road itself.

New sidewalk segments between Dahlia Street and I-25 offer a wide (8-10’) sidewalk which alleviates the issues presented by narrow sidewalks. These were constructed as part of a major drainage improvement project and offer a safer path for bicyclists and pedestrians. New sidewalks constructed along East Yale Avenue should be wider, ADA-accessible, and separated from the road with a tree lawn (where possible).
The Yale and Colorado Boulevard intersection poses safety risks for all travelers. Diverting bicycle traffic off Yale to Amherst Avenue will provide a more comfortable and low-stress east-west connection to link neighborhoods across Colorado Boulevard. Green conflict markings across Colorado would keep bicyclists top of mind for drivers and improved signal timing would offer a safer crossing for pedestrians. Bicyclists crossing Colorado traveling east could rejoin Yale by way of Brook Drive or the High Line Canal via Birch Street and Highline Place at Mamie D Eisenhower Park.
The cross-sections shown throughout this Study show the existing and proposed conditions at six locations along the East Yale Avenue corridor. The proposed condition shown represents the final condition whereas the renderings shown throughout the focus area discussions show the interim condition. Cross-sections have been for the following segments along East Yale Avenue:

- West of University Boulevard
- University Boulevard to St. Paul Street
- St. Paul to Jackson Street
- Clermont Drive to I-25
- Glencoe Street to I-25
- I-25 to Hudson Street
A Yale Avenue West of University Blvd

Proposed

Protected bike lane along Yale Avenue from Downing Street to Colorado Boulevard

Dimensions are estimates measured from Google Maps
Yale Avenue
Clermont to I-25

Existing

FIGURE 24 - EAST YALE AVENUE CLERMONT DRIVE TO I-25 - EXISTING CROSS-SECTION

Dimensions are estimates measured from Google Maps.

Widths may vary based on ROW constraints. Section to be confirmed in future design phases.

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60’ Curb to Curb Width
Continuous side path bike lane along Yale Avenue from Colorado Boulevard to High Line Canal

Dimensions are estimates measured from Google Maps

Widths may vary based on ROW constraints. Section to be confirmed in future design phases.
Focus Area 2 – North-South Connections

Crossing East Yale Avenue can be challenging due to speeds and volumes of vehicular traffic and because of minimal signalized crossings. The vehicular volumes along this corridor increase significantly as vehicles travel east approaching I-25, increasing from less than 5,000 vehicles per day near Downing Street to nearly 30,000 at East Yale Avenue and I-25. Some of these crossings are upwards of 0.7 miles apart.

These recommendations look to improve crossing options for both bicyclists and pedestrians with minimal interruptions to vehicular traffic. Increasing traffic volumes and signalized crossings which are often more than a half-mile apart makes East Yale Avenue particularly difficult to cross, especially for vulnerable road users such as pedestrians and bicyclists.

The recommendations are mapped in Figure 26 with details provided in Table 4. Renderings and photographs are included in Figures 27 and 28.

Of the previous study recommendations identified in Table 2, three previously identified projects look to improve north-south connections along the East Yale Avenue corridor. They include:

- New signal at Yale and East Yale Circle (Project D)
- High Line Canal crossing improvements near the intersection of Yale and Holly Street (Project F)
- On-street bike facilities on Franklin, St. Paul, and Dahlia Streets (Project K)
Signalized crossings on East Yale Avenue in the Study area include:

- Downing Street
- University Boulevard
- Fillmore Street
- Colorado Boulevard
- Entrance to University Hills Plaza/University Hills Shopping Center
- Clermont Street
- Dahlia Street
- East Yale Circle
- I-25
<table>
<thead>
<tr>
<th>PROJECT ID</th>
<th>RECOMMENDATION DESCRIPTION</th>
<th>PROJECT TYPE</th>
<th>KEY IMPLEMENTATION STRATEGIES</th>
<th>POTENTIAL FUNDING SOURCES</th>
</tr>
</thead>
<tbody>
<tr>
<td>SHORT-TERM</td>
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<tr>
<td>7</td>
<td>Improved signal timing at Yale &amp; University Boulevard to enable safer crossings</td>
<td>Signal</td>
<td>Has a high return with a minimal investment, broad community support, and meets the Study’s safety and multimodal improvement goals by enhancing access to St. Anne’s School.</td>
<td>City general funds</td>
</tr>
<tr>
<td>8</td>
<td>Enhanced crossing at East Yale Avenue and Cherry Street to facilitate north-south bicycle and pedestrian connections</td>
<td>Bike/Ped</td>
<td>Has broad community support and meets the Study’s safety improvement goals. There is a crossing approximately 400 feet to the west at Clermont Drive, but the transit stops for the 46 are located at Cherry. Determination of the crossing location and type will require additional analysis. Snow and ice buildup concerns should be considered on south side of crossing. A signalized crossing (e.g. HAWK or half-signal) would likely be required due to volumes on East Yale Avenue (estimated 20,000 vehicles per day at this location) and number of travel lanes east of Colorado Boulevard.</td>
<td>City general funds</td>
</tr>
<tr>
<td>9</td>
<td>Enhanced crossing at East Yale Avenue and Gaylord Street for safer access to St. Anne’s School</td>
<td>Bike/Ped</td>
<td>Has broad community support and meets the Study’s safety improvement goals. Recommendations 9 and 10 are located very close together (within 700 feet of each other). Only one recommendation would realistically be designed and installed. The exact location of the crossing needs further analysis based upon guidelines established through the Uncontrolled Pedestrian Crossing Guidelines (UPCG). Snow and ice buildup considerations should be considered on south side of crossing. Crossing examples included in Figure 21.</td>
<td>City general funds</td>
</tr>
<tr>
<td>10</td>
<td>Enhanced crossing at East Yale Avenue and Race Street for safer access to St. Anne’s School</td>
<td>Bike/Ped</td>
<td>Has broad community support and meets the Study’s safety improvement goals. Recommendations 9 and 10 are located very close together (within 700 feet of each other). Only one recommendation would realistically be designed and installed. The exact location of the crossing needs further analysis based upon guidelines established through the UPCG. Snow and ice buildup considerations should be considered on south side of crossing. Crossing examples included in Figure 21.</td>
<td>City general funds</td>
</tr>
<tr>
<td>MID-TERM</td>
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<tr>
<td>11</td>
<td>Improved signal timing at Yale &amp; Downing Street to accommodate new traffic conditions following an anticipated development west of Porter Hospital</td>
<td>Signal</td>
<td>Installing this recommendation should be contingent upon completion of the new development. Coordination with the City of Englewood is recommended. Meets the Study’s safety and connectivity goals.</td>
<td>City general funds, potential impact fees from new development</td>
</tr>
<tr>
<td>12</td>
<td>Enhance bicycle and pedestrian crossings at East Yale Avenue and Franklin Street to better facilitate movements across Yale</td>
<td>Bike/Ped</td>
<td>Franklin Street is a planned and funded neighborhood bikeway through the South Central Community Transportation Network program. This neighborhood bikeway will include an enhanced crossing at Yale Avenue. Further analysis is needed to determine the best elements to enhance the crossings. Meets the Study’s safety, connectivity, and multimodal goals.</td>
<td>Community Transportation Network (CTN) Program, City general funds</td>
</tr>
</tbody>
</table>
FIGURE 28 - ENHANCED CROSSING EXAMPLES

More protected crossing opportunities are needed throughout the East Yale Avenue corridor. It is important to keep in mind, however, that multiple variables from the volume of the street at a specific location, anticipated demand at that crossing, the number of travel lanes, and distance from other controlled crossing such as stop signs or signals influence what is possible. Denver’s Unprotected Pedestrian Crossing Guidelines (UPCG) lays out the process/requirements for identifying, evaluating, and installing a new crossing.

The ultimate goal is to enhance both comfort and safety for bicyclists and pedestrians while balancing the operational needs of the roadway.

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5 https://www.fairfaxcounty.gov/transportation/bike-walk/rrfb
6 https://safety.fhwa.dot.gov/ped_bike/tools_solve/medians_brochure/
Focus Area 3 – McWilliams Park

Robert H. McWilliams Park, located immediately north of East Yale Avenue between Clayton and St. Paul Streets, is a significant community asset. The East Harvard Gulch Trail also travels through the park from west to east, providing connections to Harvard Gulch Park to the west and Colorado Boulevard to the east.

The park is one of several across the City identified for improvements through the Elevate Denver Bond Program. In addition to needed repairs to the park equipment, an additional $550,000 in improvements focused on the picnic area and basketball courts are planned.

The recommendations are mapped in Figure 29 with further details provided in Table 5. Additional renderings and photographs are included in Figure 30. Cross-sections showing the existing orientation with the proposal final condition are included in Figures 31 – 34.
<table>
<thead>
<tr>
<th>PROJECT ID</th>
<th>RECOMMENDATION DESCRIPTION</th>
<th>PROJECT TYPE</th>
<th>KEY IMPLEMENTATION STRATEGIES</th>
<th>POTENTIAL FUNDING SOURCES</th>
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</thead>
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<tr>
<td><strong>SHORT-TERM</strong></td>
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<tr>
<td>13</td>
<td>Improved wayfinding signage at the East Harvard Gulch Trail at York, Josephine, Columbine, Madison, Monroe, and Jackson Streets to help people access the trail and identify destinations in the surrounding neighborhoods</td>
<td>Wayfinding</td>
<td>Improved wayfinding/signage alternatives throughout the corridor could be packaged together for more efficient design and installation. This recommendation has a high return with minimal investment, broad community support, and meets the Study's multimodal improvement goals. See Figure 17 for wayfinding examples and Figure 23 for potential locations.</td>
<td>City general funds</td>
</tr>
<tr>
<td>14</td>
<td>Improve access points to McWilliams Park through geometric changes, additional signage, ADA-compliant ramps, and other appropriate treatments at Clayton, Milwaukee, and St. Paul Streets as well as alleyways between University Boulevard, Josephine, Columbine, and Clayton Streets</td>
<td>Bike/Ped</td>
<td>Improved wayfinding/signage alternatives throughout the corridor could be packaged together for more efficient design and installation. This recommendation has a high return with minimal investment, broad community support, and meets the Study's multimodal improvement goals. Coordination with the Department of Parks and Recreation (DPR) is recommended. See Figure 17 for signage examples and Figure 23 for potential locations.</td>
<td>City general funds</td>
</tr>
<tr>
<td><strong>LONG-TERM</strong></td>
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<tr>
<td>15</td>
<td>Study the formalization of the footpath off Vassar Avenue and the possibility of low-flow crossing to connect the north and south sides on the northeast edge of the Park</td>
<td>Bike/Ped</td>
<td>DPR is evaluating the feasibility of a low flow crossing consisting of a concrete bridge without a railing. This would provide a north and south connection across Harvard Gulch while the nearest crossings exist at Fillmore Street to the west and South Adams Street to the east. Will require floodplain evaluation as well as a hydraulic and hydrologic analysis. Meets the Study’s connectivity goals. See Figure 23 for more information.</td>
<td>City general funds</td>
</tr>
<tr>
<td>16</td>
<td>Upgrade the traffic signal at Yale &amp; Fillmore Street and explore the addition of curb extensions along the southern crossing of Fillmore to shorten the crossing distance and improve visibility</td>
<td>Signals/Bike/Ped</td>
<td>This option would require significant capital investment to upgrade the signal if the signal is still within its life cycle. Potential drainage concerns arise with bulb out construction and would require inlets and/or cross-drains to not further impede known drainage issues in the area. There are other options that could minimize the crossing distance including flex posts. Pedestrian visibility improvements can be accomplished with increased summertime maintenance activities. Meets the Study’s safety and connectivity goals. See Figure 23 for more information.</td>
<td>City general funds</td>
</tr>
</tbody>
</table>
McWilliams Park is a community asset that provides off-street trail connections by way of the East Harvard Gulch Trail. The recommendations proposed in and around the park including introducing wayfinding to additional points throughout the park and along the Yale corridor (#13), formalizing access points into the park for safe and predictable path entrances (#14), and evaluating the potential for a second access point from the University Park neighborhood north of the park (#15). These recommendations all strive to both improve the East Harvard Gulch Trail and further encouraging park utilization.

Legend
- Park Entry Signage
- Painted Bulb-Out with Riser Posts
- Wayfinding Signage
- Pedestrian Crossing
- Trail Connection to Crossing
- Park Trail
- Low Flow Crossing
- Neighborhood Bikeway
- Protect Bike Lane
Yale Avenue
University to St Paul

*Existing*

![Diagram of East Yale Avenue University Boulevard to St. Paul Street - Existing Cross-Section](image)

**Dimensions are estimates measured from Google Maps**
B Yale Avenue
University to St Paul

Proposed

Parking to be removed on one side of Yale. Side to be determined by future study
Yale Avenue
St Paul to Jackson

Existing

Improvements to the bike lane through the curve - installation of protected bike lane from Fillmore Street east through the curve

Dimensions are estimates measured from Google Maps
C Yale Avenue
St Paul to Jackson
Proposed

Dimensions are estimates measured from Google Maps
Focus Area 4 – Yale Way

East Yale Avenue becomes East Yale Way between St. Paul and Madison Streets where the road takes a slight curve to the south. This segment of the roadway poses pervasive safety issues for all modes, as a buffered bike lane is present in addition to two general purpose vehicular lanes (one in each direction). To add further complexity, there are also elevation changes through this segment of the curve.

This focus area’s recommendation is intended to address pervasive multimodal safety issues in this section of the East Yale Avenue corridor through the planning, design, and implementation of a protected bike lane. There is no line of sight through the Yale Way curve and vehicles frequently travel higher than the posted speed limit. This segment of East Yale Avenue sees between 10-15,000 vehicles each day with average speeds exceeding the 25 mph limit (85% percentile speed of 31 mph).

Installing a protected bike lane, as previously described in Figure 17, will improve safety by further reinforcing the shared nature of the street while improving the environment for bicyclists and pedestrians. Adding flex posts and increasing the width of the buffer between the vehicle travel lane and the bicycle lane will help elevate the profile of bicyclists, making them more visible to drivers. The protection delivered through the protected bike lane will also help protect pedestrians on the narrow sidewalks through this segment of the corridor.

Recommendations are mapped in Figure 35 with details provided in Table 6. Additional renderings and photographs are included in Figures 36 and 37.

Other Study recommendations accounted for (and described in other focus areas) impact multimodal transportation at Yale Way, including upgrading the existing buffered bike lane from Josephine to Jackson Street to a PBL (#3), installing a neighborhood bikeway on Amherst Avenue (#6), and upgrading the traffic signal at East Yale Avenue and Fillmore Street (#16). Project K in Figure 28 is the planned on-street bike facility at St. Paul Street.
Cole Sukle, 14, was in the bike lane at East Yale and Madison Street when he was tragically killed after being hit by a car on July 13, 2016. Another teen, Jack Mahoney, was seriously injured in the crash.
## TABLE 6 - YALE WAY RECOMMENDATIONS

<table>
<thead>
<tr>
<th>PROJECT ID</th>
<th>RECOMMENDATION DESCRIPTION</th>
<th>PROJECT TYPE</th>
<th>KEY IMPLEMENTATION STRATEGIES</th>
<th>POTENTIAL FUNDING SOURCES</th>
</tr>
</thead>
<tbody>
<tr>
<td>SHORT-TERM</td>
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<tr>
<td>18</td>
<td>Additional signage or speed alert to promote speed-calming measures throughout the curve</td>
<td>Signage/Bike/Ped</td>
<td>Has a high return with a minimal investment, has broad community support and meets the Study’s safety improvement goals. See Figure 25 for speed alert signage examples.</td>
<td>City general funds</td>
</tr>
<tr>
<td>DID NOT PROCEED PAST ALTERNATIVES ANALYSIS</td>
<td></td>
<td></td>
<td>Recommendation did not score high enough (1.45) to move out of the Alternatives Analysis process. The recommendation focused primarily on vehicular improvements and therefore did not score well across the 11 evaluation criteria as further detailed through the Alternatives Analysis Technical Memo in Appendix D.</td>
<td>N/A</td>
</tr>
<tr>
<td>17</td>
<td>Improved signage to address reduced line of sight in the roadway curve</td>
<td>Signage/Bike/Ped</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Focus Area 5 – East Yale Avenue and Colorado Boulevard Intersection

The intersection of East Yale Avenue and Colorado Boulevard consists of two separate signalized crossings – the southern intersection about 275 feet south of the northern intersection. This disconnected intersection, requiring travel through two signalized crossings, poses safety and traffic efficiency issues with through travel on East Yale Avenue.

The southern intersection has numerous civic facilities located immediately adjacent, including the University Hills YMCA, Mercy Street Reformed Church, and Denver Fire Department Station 24. The signals at this intersection were recently modified to include a leading pedestrian indicator (LPI) which gives pedestrians and cyclists the opportunity to enter the intersection 3-7 seconds before vehicles are given a green light. With this head start, pedestrians can better establish their presence in the crosswalk before vehicles have priority to turn. The northern intersection has BikeSource, Schlessman YMCA, University Hills Shopping Center, and University Hills Plaza immediately adjacent to the intersection.

Both the northern and southern portions of the intersection need reconstruction for maintenance purposes.

These recommendations are focused on improving safety and efficiency in and around the intersection of Yale & Colorado Boulevard. As shown in the existing conditions report (and known throughout the community), this intersection has a hazardous history of vehicle, pedestrian, and bicycle crashes. Further details are available in the Existing Conditions Report in Appendix A. Additionally, the dual signal jog poses operational complexities that were further analyzed through the Study’s VISSIM analysis, the results of which are available in Appendix E.

The recommendations are mapped in Figure 38 with further details provided in Table 7. Additional renderings and photographs are included in Figures 39 – 42.

Previously planned projects present in this focus area include the signal replacement at Yale and Colorado (project B) and the establishment of Colorado Boulevard as a high-capacity transit corridor (project I).
### TABLE 7 - EAST YALE AVENUE AND COLORADO BOULEVARD INTERSECTION RECOMMENDATIONS

<table>
<thead>
<tr>
<th>PROJECT ID</th>
<th>RECOMMENDATION DESCRIPTION</th>
<th>PROJECT TYPE</th>
<th>KEY IMPLEMENTATION STRATEGIES</th>
<th>POTENTIAL FUNDING SOURCES</th>
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</thead>
<tbody>
<tr>
<td><strong>SHORT-TERM</strong></td>
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<tr>
<td>19</td>
<td>Install a dedicated left turn signal from northbound Colorado Boulevard to westbound Yale Avenue.</td>
<td>Signal</td>
<td>Continued coordination between DOTI and CDOT to ensure smooth installation efforts as this project is already in the works within DOTI. This recommendation provides only vehicular efficiency benefits. Meets the study’s safety goals. See Figure 29 for more information.</td>
<td>City general funds, CDOT funds</td>
</tr>
<tr>
<td>20</td>
<td>Provide structural and educational wayfinding improvements to connections along Yale, to key activities centers (e.g., YMCA, DFD Station), and through retail centers and commercial developments</td>
<td>Wayfinding</td>
<td>Improved wayfinding/signage alternatives throughout the corridor could be packaged together for more efficient design and installation. This recommendation has a high return with minimal investment, broad community support, and meets the Study’s multimodal improvement goals. See Figure 17 for wayfinding examples and Figures 28 and 29 for potential locations.</td>
<td>City general funds</td>
</tr>
<tr>
<td>21</td>
<td>Install a leading pedestrian indicator (LPI) and bike detection at Amherst Avenue and Colorado Boulevard (to be installed in conjunction with a future bikeway on Amherst). LPIs are intended to be installed at all approaches to the Colorado &amp; Yale intersection.</td>
<td>Bike/Ped</td>
<td>Coordination between DOTI and CDOT recommended to ensure smooth installation. This recommendation has independent utility and can be installed outside of Recommendation #6 (Amherst Bike Facility) due to pedestrians and cyclists using this intersection as a bypass to the Yale &amp; Colorado intersection. Meets the Study’s safety, connectivity, and multimodal goals. See Figure 19 for more information.</td>
<td>City general funds</td>
</tr>
<tr>
<td>24</td>
<td>Improve wayfinding to route people from the Harvard Gulch Trail across Colorado Boulevard.</td>
<td>Wayfinding</td>
<td>Explore a partnership to provide a trail connection through the YMCA's property to help facilitate this connection. Improved wayfinding/signage alternatives throughout the corridor could be packaged together for more efficient design and installation. Coordination with DPR is recommended to implement this recommendation which has a high return with minimal investment, broad community support, and meets the Study’s multimodal improvement goals. See Figure 17 for wayfinding examples and Figure 28 for more information.</td>
<td>City general funds</td>
</tr>
<tr>
<td><strong>MID-TERM</strong></td>
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</tr>
<tr>
<td>22</td>
<td>Rebuild the traffic signal and both existing triangular raised islands at the northern intersection to improve signal timing for pedestrians and provide a safer and more comfortable crossing. This rebuild is also intended to relocate the signal pole on the west side of Colorado Blvd to provide a clear walkway and space for pedestrians to queue. (Figure 16)</td>
<td>Vehicular/Bike/Ped</td>
<td>The signal poles are in poor condition with visible rust. Reconstruction of these poles can also include both LPI deployment across both crosswalks at this intersection and a potential reconstruction of the “porkchops” (pedestrian and bicyclist refuges). Elevate location/needs to the future design team for further analysis and scoping. This recommendation has broad community support and meets the Study’s safety improvement goals. Coordination between DOTI and CDOT recommended to ensure smooth design and installation efforts. See Figure 31 for more information.</td>
<td>City general funds, CDOT funds, Safer Main Street grant program (DRCOG)</td>
</tr>
<tr>
<td>PROJECT ID</td>
<td>RECOMMENDATION DESCRIPTION</td>
<td>PROJECT TYPE</td>
<td>KEY IMPLEMENTATION STRATEGIES</td>
<td>POTENTIAL FUNDING SOURCES</td>
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<tr>
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<tr>
<td>23</td>
<td>Address free right turns that impede safe crossings with signal improvements and/or a no right turn cycle in the northern intersection. There is a potential for a raised crossing to further slow turning movements and tighten the turning radius.</td>
<td>Vehicular/Bike/Ped</td>
<td>Coordination between DOTI, CDOT, and the Denver Fire Department is recommended to determine feasibility and ensure smooth planning, design, and installation of any signal or intersection modifications, including the potential for raised crosswalks. Design efforts should also account for any potential drainage issues at the intersection and the impact constructing raised crosswalks would have. Meets the Study’s safety goals. See Figures 29 and 30 for more information.</td>
<td>City general funds, CDOT funds</td>
</tr>
</tbody>
</table>
FIGURE 39 - ENLARGEMENTS SHOWING RECOMMENDED IMPROVEMENTS AT THE EAST YALE AVENUE AND COLORADO BOULEVARD INTERSECTION

Enlargement A: Harvard Gulch Trail Connection
- YMCA

Enlargement B: Colorado Blvd
- Denver Fire Department

Enlargement C: Amherst Ave
- University Hills Shopping Mall

Legend:
- Protected bike lane
- Bike Lane
- Shared Use Path
- Neighborhood Bikeway

Shared use path may be on north or south side of the street. Additional analysis is required.
The East Harvard Gulch Trail abruptly ends just east of Jackson Street at the YMCA, placing bicyclists and pedestrians into a parking lot which poses inherent safety risks in addition to impacts to parking lot vehicle circulation. Additionally, there is no wayfinding present to guide bicyclists and pedestrians to or from the trail or to other corridor destinations. By placing intuitive, clear wayfinding in strategic locations, the East Harvard Gulch Trail could become an even more relied upon multimodal transportation asset in the community. Given the proximity of the trail’s eastern terminus to Colorado Boulevard, exploring a partnership to formalize and harden a connection would also help further connect bicyclists and pedestrians to the broader transportation network while simultaneously providing a safer route to make that connection.
Numerous recommendations – focused on both vehicular as well as multimodal priorities – were focused at and around the Yale & Colorado Boulevard intersection. Improvements such as introducing LPI and raised crossings to slow traffic and improve pedestrian safety look to balance transportation needs.
The traffic signal poles on the north intersection at East Yale Avenue and Colorado Boulevard have significant rust and corrosion present. The weakened poles do not pose an immediate threat to safety but could be further damaged in the event of an accident at the intersection. The “porkchop islands” they are placed on are also in need of reconstruction. A reconstructed signal pole would look similar to the new signal at Yale Avenue and East Yale Circle.

Shared use paths support multimodal transportation with minimal cross traffic from vehicles. They are typically wider than a normal sidewalk (often 10' or wider) and offer space for comfortable, safe biking or walking. Currently, the sidewalks along this segment of East Yale Avenue range from 3-8'. The proposed shared use path along East Yale Avenue could be located on either side of the roadway (further analysis is needed to determine exact location).

Raised crosswalks often reduce vehicle speeds and enhance the pedestrian crossing environment. They make the pedestrians more prominent in the driver’s field of vision and allow at-grade crossing with the sidewalk. Coordination with the Denver Fire Department is recommended to ensure no impact to their operations.

https://charlottenc.gov/Projects/Pages/WestMallardSharedUsePath.aspx
Focus Area 6 – Yale Station

The Yale Station was constructed in 2006 and provides access to the E, F, and H light rail lines with service to Downtown Denver, the Denver Tech Center, and City of Aurora. The station also services bus route 46 with service connecting the Southmoor, Yale, and Colorado Stations with the Cherry Creek Shopping Center by way of Hampden Boulevard, Tamarac Street, East Yale Avenue and Colorado Boulevard.

Numerous developments have been constructed within the station area in the last 15 years. These includes apartments, senior housing, and office space. A new traffic signal (with associated ADA-compliant ramps, crosswalks, and center median) was installed at East Yale Avenue and East Yale Circle to facilitate safe and efficient movement for residents of the University Hills neighborhood to access the transit station.

Additionally, the tree canopy on Yale east of Colorado Boulevard is lacking in comparison to that west of Colorado Boulevard. While trees have been planted in and around the station, additional efforts should be undertaken, when possible, on a corridor-wide level.

These recommendations address safety and circulation concerns raised during the Study process. The Southeast Mobility Hubs Study (currently underway) will address other more complex improvements outside of the East Yale Avenue corridor such as bicycle and pedestrian access to the station from East Vassar Avenue.

The recommendations are mapped in Figure 43 with further details provided in Table 7. Additional information, photographs, and cross-sections showing existing proposed conditions are included in Figures 44 - 48.

Previously planned projects present in this focus area include the new signal at Yale Avenue and East Yale Circle (project D) which was completed in early 2021, wrong way driving signal and signage improvements at Yale and I-25 (project G), and an on-street bike facilities on Dahlia Street (project K).
<table>
<thead>
<tr>
<th>PROJECT ID</th>
<th>RECOMMENDATION DESCRIPTION</th>
<th>PROJECT TYPE</th>
<th>KEY IMPLEMENTATION STRATEGIES</th>
<th>POTENTIAL FUNDING SOURCES</th>
</tr>
</thead>
<tbody>
<tr>
<td>MID-TERM</td>
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<tr>
<td>25</td>
<td>Sidewalk construction in missing gaps on East Yale Circle near the Yale Station Park-n-Ride</td>
<td>Bike/Ped</td>
<td>Recommend a broader mobility analysis throughout the station area which would identify, among other things, sidewalk gaps to identify the location(s) of needed improvements. Recommend that the Southeast Mobility Hubs Study being completed by Transportation Solutions (and others) includes further analysis on this recommendation due to transit access and safety-focused components. Meets the Study’s connectivity goals.</td>
<td>City general funds, RTD funds</td>
</tr>
<tr>
<td>26</td>
<td>Improve multimodal access and movement at Yale Station throughout the station area, including potential wayfinding, crosswalks, sidewalks, and station access path through the parking lot</td>
<td>Bike/Ped</td>
<td>Sidewalks within the station area are narrow with obstructions (e.g. light poles, sign poles, mailboxes, etc.). Recommend a broader mobility analysis throughout the station area which would identify, among other things, locations where access and movement is restricted. RTD would lead some of these efforts as these improvements would occur on their property at certain locations. Recommend that the Southeast Mobility Hubs Study being completed by Transportation Solutions (and others) includes further analysis on this recommendation due to transit access and safety-focused components. Meets the Study’s safety and connectivity goals.</td>
<td>City general funds, RTD funds</td>
</tr>
<tr>
<td>27</td>
<td>Improve pedestrian-scale lighting at Yale Station throughout the station area</td>
<td>Bike/Ped</td>
<td>Recommend a broader mobility analysis throughout the station area which would identify, among other things, locations throughout where lighting is substandard or poses safety issues. This would most likely be accomplished through a lighting analysis. Recommend that the Southeast Mobility Hubs Study being completed by Transportation Solutions (and others) includes further analysis on this recommendation due to transit access and safety-focused components. Meets the Study’s safety goals.</td>
<td>RTD funds, Xcel Energy funds</td>
</tr>
<tr>
<td>28</td>
<td>Formalize a pedestrian and bicycle connection from the Yale Station to East Vassar Avenue (requiring modification to the sound wall). This would be a new LRT station access point.</td>
<td>Bike/Ped</td>
<td>Recommend a broader mobility analysis throughout the station area which would include, among other things, an analysis to identify the exact location and design of a new Park-n-Ride access point to accommodate bicyclists and pedestrians from the University Hills North Neighborhood without having the travel to Yale Avenue. See Figure 33 for more information. RTD, CCD, and neighborhood organizations and residents should be involved in this effort. Recommend that the Southeast Mobility Hubs Study being completed by Transportation Solutions (and others) includes further analysis on this recommendation due to transit access and safety-focused components. Further coordination with the University Hills North neighborhood, RTD, and Arapahoe County is needed. Meets the Study’s connectivity goals.</td>
<td>City general funds, RTD funds</td>
</tr>
</tbody>
</table>
Introducing an access point off Vassar Avenue into the Yale Station Park-n-Ride parking lot (red circle above) would drastically reduce the distance University Hills residents must travel to access RTD services. The yellow line noted above is a typical walk/drive from Vassar and Dahlia to the station. The new access point would cut that same origin and destination distance by 50% (blue line). The access point would only be for bicyclists and pedestrians, not vehicles. Additional parking control measures should be evaluated as part of the planning effort for this improvement.
Circulation in and around the Yale Station poses safety, circulation, and accessibility issues as seen in photos above. East Yale Circle has minimal lane markings which can slow traffic. A sidewalk gap to the south and west of the Park-n-Ride lot near the Garden Court Yale Station Senior Housing forces bicyclists and pedestrians into the roadway. Other obstructions such as sign poles and mailboxes limit accessibility for those in wheelchairs and other mobility devices. However, the new traffic signal at Yale Circle presents safe access to and from the station.
FIGURE 47 - EAST YALE AVENUE GLENCOE STREET TO I-25 - EXISTING CROSS-SECTION

Yale Avenue
Glencoe to I-25
Existing

Dimensions are estimates measured from Google Maps
Yale Avenue
Glencoe to I-25

Proposed

Dimensions are estimates measured from Google Maps

FIGURE 48 - EAST YALE AVENUE GLENCOE STREET TO I-25 - PROPOSED CROSS-SECTION

64' Curb to Curb Width
Focus Area 7 – Yale Station to the High Line Canal

The 2,000-foot segment of East Yale Avenue between Yale Station and the High Line Canal represents the most vehicular-oriented area of the corridor. This area sees narrow (substandard) sidewalks, excessively wide travel lanes, the Yale & I-25 interchange, higher travel speeds (30 mph speed limit with higher speeds measured), and the highest traffic volumes of the entire Study area (between 20,000 – 25,000 vehicles per day).

Numerous unsafe crossing movements are present across all modes. The East Yale Avenue and I-25 interchange has seen the most accidents of any intersection throughout the Study area between 2013 and 2020. Multiple crashes involving bicyclists and pedestrians have also been recorded in this segment of the Study area. More information about travel speeds, volumes, and crash data can be found in the Existing Conditions Report included in Appendix A.

The tree canopy on Yale east of Colorado Boulevard is lacking in comparison to that west of Colorado. While trees have been planted in and around the station, additional efforts should be undertaken, when possible, on a corridor-wide level.

These recommendations are focused on improving the bike and pedestrian environment from the Yale Station east to the High Line Canal, including through the Yale & I-25 interchange. This is the busiest segment of the corridor in traffic volumes, speeds, and bike/ped volumes.

The recommendations shown in Figures 51 – 53 represent interim recommended conditions, meaning they reflect short-term improvements. Long-term improvements are recommended to be implemented if/when the area sees redevelopment activity and/or if additional funds are identified to implement more permanent improvements. These long-term recommendations are shown in the cross-sections in Figures 54 and 55.

The recommendations are mapped in Figure 49 with further details provided in Table 9. Additional renderings, photographs, and cross-sections showing existing and future conditions are included in Figures 50 – 55.

Previously planned projects present in this focus area include the new signal at Yale Avenue and East Yale Circle (project D) which was completed in early 2021, multimodal infrastructure on Yale from I-25 to Quebec Street (project E), High Line Canal crossing improvements (project F), and wrong way driving signal and signage improvements at Yale and I-25 (project G).
### TABLE 9 - YALE STATION TO THE HIGH LINE CANAL RECOMMENDATIONS

<table>
<thead>
<tr>
<th>PROJECT ID</th>
<th>RECOMMENDATION DESCRIPTION</th>
<th>PROJECT TYPE</th>
<th>KEY IMPLEMENTATION STRATEGIES</th>
<th>POTENTIAL FUNDING SOURCES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SHORT-TERM</strong></td>
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<tr>
<td>30</td>
<td>Bicycle/pedestrian crossing safety improvements at I-25 on/off ramps including additional signage, improved crossings, pedestrian refuge(s), lighting, and formalizing the footpath from Service Road south to the Yale &amp; I-25 northbound I-25 on-ramp.</td>
<td>Bike/Ped</td>
<td>Recommend that the Southeast Mobility Hubs Study being completed by Transportation Solutions (and others) includes further analysis on this recommendation due to transit access and safety-focused components. Coordination between DOTI and CDOT recommended due to right-of-way and wayfinding elements. Meets the Study's safety, connectivity, and multimodal goals. See Figure 36 for more information.</td>
<td>There is the potential for an incremental approach to the installation of the safety improvement components. This could allow for further collaboration and a joint funding approach between DOTI, CDOT, and Arapahoe County.</td>
</tr>
<tr>
<td>34</td>
<td>Design and install intersection improvements at Yale &amp; Hudson Street (south)/Service Road (north), potentially including crosswalks, curb extensions, and lane striping changes to improve intersection function and safety.</td>
<td>Vehicle/Bike/Ped</td>
<td>Recommend investigating the potential to implement this recommendation in conjunction with #31 (Sidewalk and Travel Lane Standardization) for capital and schedule efficiencies. Explore signal feasibility and potential for an enhanced pedestrian crossing through additional analysis. This recommendation has broad community support and meets the Study's safety improvement goals. See Figure 37 for more information.</td>
<td>City general funds, Arapahoe County funds</td>
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<tr>
<td>35</td>
<td>Enhance the connection to the High Line Canal at Grape Street, including signage visibility to enhance safety, provide direct access to the High Line Canal, and travel under I-25 by foot or bike without passing through the Yale/I-25 interchange</td>
<td>Bike/Ped</td>
<td>DPR should lead evaluation and implementation efforts. Improved wayfinding/signage alternatives throughout the corridor could be packaged together for more efficient design and installation. This recommendation has a high return with minimal investment, broad community support, and meets the Study's multimodal improvement goals.</td>
<td>City general funds</td>
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<tr>
<td><strong>MID-TERM</strong></td>
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<tr>
<td>33</td>
<td>Install LPI and pedestrian signage at the southbound I-25 on-ramp</td>
<td>Bike/Ped</td>
<td>Further analysis of traffic conditions at the Yale &amp; I-25 interchange is needed. In-depth coordination with CDOT is needed as well as modeling the impacts of slowing or otherwise altering traffic flows accessing the interstate. Meets the Study’s safety goals.</td>
<td>City general funds, CDOT funds</td>
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<tr>
<td><strong>LONG-TERM</strong></td>
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<tr>
<td>29</td>
<td>Traffic calming measures for vehicles approaching I-25 from both the eastbound and westbound approaches</td>
<td>Vehicle/Bike/Ped</td>
<td>Further analysis of traffic conditions at the Yale &amp; I-25 interchange is needed and in consideration of the new signal installed at Yale Circle in 2020. In-depth coordination with CDOT is needed. A solar powered radar speed sign could help slow travel speeds approaching the interstate as quick right turns onto the highway could pose hazards for bicyclists and pedestrians. Integration and coordination with the upcoming CDOT wrong way driving signal and signage improvements project is required. Meets the Study’s safety goals.</td>
<td>City general funds, CDOT funds</td>
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<tr>
<td>PROJECT ID</td>
<td>RECOMMENDATION DESCRIPTION</td>
<td>PROJECT TYPE</td>
<td>KEY IMPLEMENTATION STRATEGIES</td>
<td>POTENTIAL FUNDING SOURCES</td>
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<tr>
<td>31</td>
<td>Add consistent widened sidewalks and standardize travel lane widths from Clermont Drive to Holly Street</td>
<td>Bike/Ped</td>
<td>Coordination between DOTI, CDOT, RTD, and Arapahoe County is recommended where jurisdiction is applicable to ensure smooth planning, design, phasing, and installation of sidewalk upgrades and travel lane adjustments. The Study recognizes the high capital investment needed to accomplish this as well as right-of-way constraints and limitations. Design efforts should also account for any potential drainage issues along these segments of Yale. Meets the Study’s safety goals. See Figure 37 for more information.</td>
<td>City general funds, CDOT funds</td>
</tr>
<tr>
<td>32</td>
<td>Safety measures to improve/control the right turn onto Yale Avenue from northbound I-25</td>
<td>Vehicle/Bike/Ped</td>
<td>Further analysis is needed for converting to a controlled right. The implications to the off-ramp queue lengths would require modeling. In-depth coordination with CDOT is needed as this change could cause a ripple effect and alter the configuration of the entire interchange. Integration and coordination with the upcoming CDOT wrong way driving signal and signage improvements project is required. Meets the Study’s safety goals. See Figure 38 for more information.</td>
<td>City general funds, CDOT funds</td>
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This Elevate Denver-funded project will design and construct a new, safer crossing for the High Line Canal trail and East Yale Avenue and Holly Street. Improvements for this crossing were identified in the 2014 Feasibility Study for High Line Canal Crossing, developed by Arapahoe County. The current trail alignment requires trail users to cross an undersized bridge sidewalk and at-grade crossing of Yale. Potential challenges included limited access to storm sewer utilities, possible right-of-way acquisition and construction near the High Line Canal Structure, East Yale Avenue, and Holly Street. The project is expected to begin in late 2021.
A future shared use path (with an associated tree lawn) is recommended east of Colorado Boulevard along Yale Avenue. It may be on north or south side of the street. Additional analysis is required and is challenging due to capital costs, right-of-way constraints, and other design considerations.

Existing sidewalks to be wide enough to comfortably carry people walking and biking. This shared use path will provide an off-street connection east-west on Yale Avenue.

Need coordination with Arapahoe County and CDOT
Highway interchanges are inherently complex and can be difficult – if not dangerous – for bicyclists and pedestrians to travel through. High travel speeds and traffic flows (especially in rush hours), and the potential for drivers making unsafe movements all pose issues for pedestrian and bicyclists alike. By introducing protected pedestrian crossings by way of the center median and maximizing the width of a future shared use path, a more comfortable multimodal environment can begin to take hold. Tightening the turning radii from the offramps and introducing striping and/or vertical barriers (e.g. flex posts), conflicts with turning vehicles could be minimized.
The crossing at Yale & Hudson (south)/Service Road (north) has wide travel lanes, no marked pedestrian crossings, and poses safety issues for vehicles turning onto Yale. By introducing striping and vertical elements (flex posts) to standardize the travel lane widths and minimize crossing lengths for pedestrians as well as installing a signalized pedestrian crossing similar to a high-intensity activated crosswalk (HAWK) beacon, the intersection can see balanced prioritization between vehicles and bicyclists/pedestrians.
FIGURE 54 - EAST YALE AVENUE I-25 TO HUDSON STREET - EXISTING CROSS-SECTION

Yale Avenue
I-25 to Hudson
Existing
Yale Avenue
I-25 to Hudson
Proposed

Dimensions are estimates measured from Google Maps

Need coordination with Arapahoe County and CDOT

* Existing retaining wall in this location. Expand to maximum of 12” where possible. Meet City of Denver’s pedestrian and trail standards where possible.
Next Steps

East Yale Avenue serves as a vital connection for multiple neighborhoods in Southeast Denver, linking residents and visitors alike to retail, schools, parks and open space, houses of worship, and transportation connections throughout the Denver metro area. While East Yale Avenue was designed and built with vehicles in mind, ensuring that multimodal transportation is also a viable option for those who want it will truly round out the corridor’s mobility options.

Key implementation strategies and associated project timeframes were developed in the analysis of each of the Study’s seven focus areas. Several key themes arose from these strategies, including:

- **Leverage existing City and County of Denver funding programs**
  The City and County of Denver has multiple programs in place to plan, design, finance, and/or construct improvements identified as part of transportation studies such as this. The Capital Improvement Program (CIP) and Elevate Denver Bond Program represent the two most viable options. However, leaning upon existing relationships with neighboring jurisdictions and other transportation agencies could provide additional funding.

- **Continue partnerships with neighboring jurisdictions and other transportation agencies**
  The East Yale Avenue corridor spans three jurisdictions within the Study area (City and County of Denver, Arapahoe County, and City of Englewood) in addition to crossing two CDOT-managed roadways and an RTD light rail corridor. Denver has existing relationships and efforts underway with all these jurisdictions and agencies to improve transportation along multiple corridors. Coordination, focused at least in part on improvements identified within this and other studies impacting transportation on East Yale Avenue, should continue and be further empowered to help make East Yale Avenue safer, more accessible, and more connected.

- **Redevelopment opportunities can spur further change**
  Denver is seeing dramatic redevelopment efforts across the City. As these redevelopment projects occur along East Yale Avenue, efforts should be made to ensure that transportation infrastructure at and near these projects is reconstructed in a way that adheres to the safest, most connected vision of the corridor presented as part of this Study. Infrastructure such as wider sidewalks, improved pavement conditions, lighting, signage, and other elements would further improve multimodal transportation as redevelopment projects are constructed along East Yale Avenue.

This Study offers nearly three dozen recommendations to improve multimodal transportation infrastructure along the East Yale Avenue Corridor. The primary goal of any future project, however, should be the improved safety, accessibility, and connectivity to the rest of the transportation network.

East Yale Avenue has numerous destinations and the initial elements of a truly multimodal transportation network. With the right mix of projects, funding, partnership, and community input, the community will see a safer and more connected corridor.

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**FIGURE 56 - NEW SIGNAL AT YALE AVENUE AT EAST YALE CIRCLE**