



North Foothills Bikeway Feasibility Report Executive Summary

Adopted by the Board of County Commissioners August 13, 2024

Submitted to:
Boulder County
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Project Overview

The US 36 North Foothills Highway Bikeway Project is a proposed 11-mile long, 12-foot-wide paved bikeway that will provide separation for bicyclists from motorized traffic between North Boulder (intersection of US 36 and Broadway) and Lyons (intersection of US 36 and CO 66). The Project extends from milepost 21.8 to 32.4 along US 36. The proposed Project is primarily located within the existing Colorado Department of Transportation (CDOT) US 36/North Foothills Highway right-of-way (ROW).

The Project will be regionally transformative by connecting communities, providing critical safety improvements for people using all modes of travel, and enhancing access to regional Lyons Flyer transit stops along the US36 corridor.

Currently, US 36 North Foothills Highway between Boulder and Lyons is a popular destination for strong and fearless cyclists. The Project area, which extends along the US 36 corridor from just south of Broadway in Boulder to State Highway 66 (CO 66) in Lyons, has among the highest bicycle volumes of any road in CDOT Region 4, with a total cyclist count of 78,581 riders recorded by the CDOT loop counter located near mile marker 32 in 2020.

It is also one of the most dangerous corridors for cycling. Between 2009 and 2018 there were 67 severe or fatal bike and pedestrian crashes in unincorporated Boulder County and 30% of those occurred on US 36 between Jay Road and CO 66. These crashes could be greatly reduced or eliminated by providing a bikeway that is separated from traffic.

Summary of Findings

Based on the technical analysis of this Project, the project team has determined that construction of a 12- foot-wide paved bikeway in the US 36 corridor from Boulder to Lyons (Broadway to CO 66) is feasible.

- The bikeway could be constructed within CDOT ROW, with encroachments onto open space land owned by Boulder County and the City of Boulder.
- The bikeway alignment should be located along the east side of US 36 to maximize use of the existing CDOT ROW and minimize impacts to the adjacent properties and sensitive habitats.
- Additional analysis is required for the 3000 feet of the south end, Neva, Lefthand and the north end.
- Extensive use of retaining walls, vehicular guardrails and bikeway railing will be required due to the highly variable terrain to contain the Project within the existing CDOT ROW. This is a contributing factor to the cost of the Project.

Action Requested

Boulder County Board of Commissioners adoption of the US36 North Foothills Bikeway Feasibility Study Report.

Feasibility Study Process and Funding

The Project was led by the Community Planning & Permitting Department's Transportation Planning Division, working closely with steering committee representatives from, Boulder County Parks and Open Space (BCPOS), Boulder County Public Works, City of Boulder Open Space and Mountain Parks (OSMP), City of Boulder Transportation and Mobility, the Town of Lyons Community Programs and Relations Department, and the Colorado Department of

Transportation (CDOT). Otak Inc., the engineering consultant, provided the technical analysis and prepared the study report.

This feasibility study was funded by a Denver Regional Council of Governments (DRCOG) Community Mobility Planning and Implementation grant with local matching funds provided by Boulder County Transportation Sales Tax funds, Boulder County Parks and Open Space Department and City of Boulder Open Space and Mountain Parks Department. In addition, Coalition4Cyclists, a local non-profit organization, contributed \$30,000 to the study.

Report Contents

The Report presents the recommended conceptual-level alignment for the bikeway, the four small sections where future analysis is required, identified potential impacts, determined the location of the existing Right-of-Way (ROW) and needs for additional ROW, and developed anticipated construction costs.

Study Area

The US36 North Foothills Bikeway study area is 11 miles in length and includes four segments to allow it to be implemented in phases, if needed. The following segments were established:

Segment 1: Broadway to Joder/Coyote Trailhead (North of Neva Road) (3.3 Miles)

Segment 2: Joder/Coyote Trailhead to Nelson Road (2.5 Miles)

Segment 3: Nelson Road to St. Vrain Road (2.4 Miles)

Segment 4: St. Vrain Road CO 66 (2.8 Miles)

Although the goal is to complete the bikeway for the entire corridor length, any of the individual segments could be constructed as stand-alone projects that would provide a valuable facility on its own.

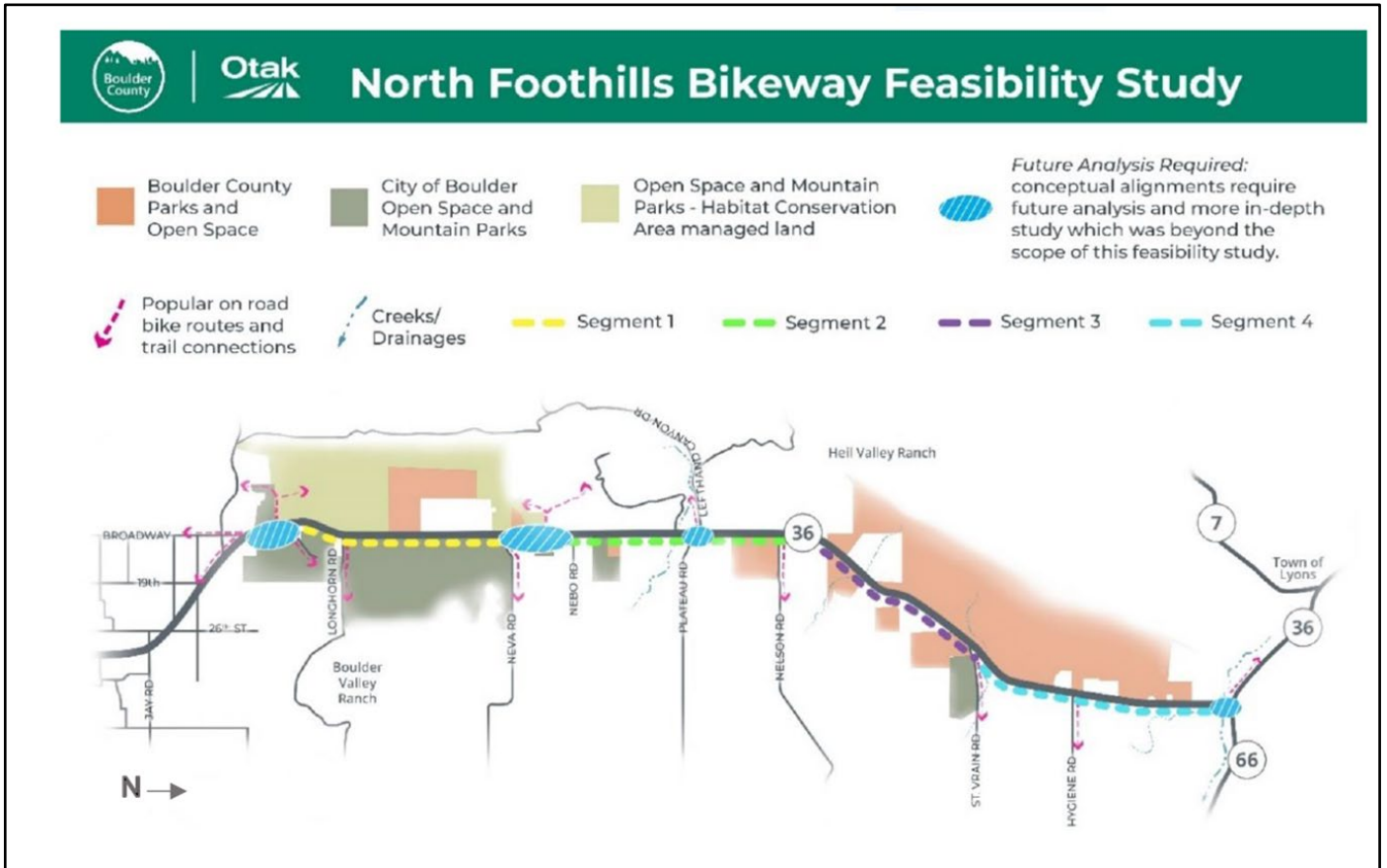


Figure 1 Bikeway Overview and Segment Map

Separation from Roadway

The distance between the bikeway and roadway is a key contributing factor when considering a user's overall safety, comfort and experience. While each of these aspects are improved with greater separation from the roadway; this also increases the potential for impacts to the adjacent environment and the need to acquire additional right-of-way.

The US 36 corridor includes challenging terrain, with 36% (approximately 4 miles) of the bikeway requiring structures (retaining walls, barriers, and/or railings). These structures add complexity to the project and contribute to the project cost.

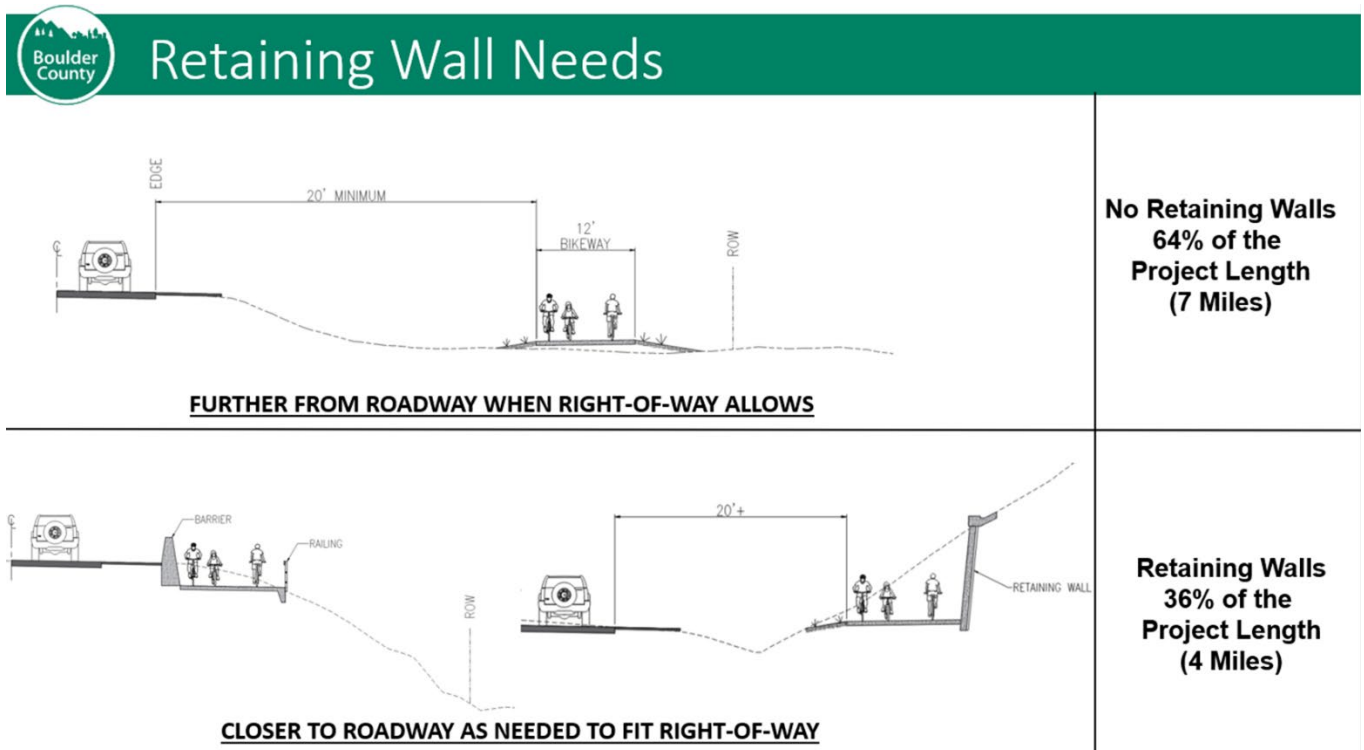


Figure 2 Bikeway Retaining Wall Needs

Future Analysis Required Locations

South End

A total of six alignment alternatives were identified and evaluated by the project team (See Appendix D). The analysis was discussed with the Steering Committee and reviewed by OSMP staff because most of the alignment alternatives would be located on OSMP land. It was determined that more detailed topographic survey, environmental delineations, and a cultural resources inventory where an alignment encroaches onto OSMP land will be required to properly evaluate the potential impacts of each alternative.

Alternative 1 Provides best connectivity to the existing shared use path and other destinations on the northwest side without having to cross highway at-grade. Replacement of existing underpass would be needed and could impact high-quality wetlands west of US 36 in CDOT ROW. This alignment bisects OSMP property east of 36, south of Foothills Trailhead. This alternative requires OSMP property disposal.

Alternative 1A Best connectivity to the existing shared use path and other destinations on the northwest side without having to cross highway at-grade and avoids high quality wetlands at

west. It would require a new underpass and bisects OSMP property east of 36, south of Foothills Trailhead. Requires OSMP property disposal.

Alternative 2 Stays in CDOT ROW. Requires an at-grade crossing of Broadway, safety enhancements and signal modifications to improve safety of this crossing will be needed. Extensive grading and retaining walls required.

Alternative 3 Stays away from highway and does not bisect OSMP property. Safety enhancements and signal modifications to improve safety of the at-grade crossing will be needed. May require easement acquisition from private properties.

Alternative 3A Stays away from highway, does not bisect OSMP property, would require a long underpass would be costly and uninviting for users. Easement acquisition from private properties would be needed. Significant additional cost compared to other Alternatives.

Alternative 3B Provides good connectivity to the existing shared use path and other destinations on the southwest side without having to cross the highway at-grade and avoids high quality wetlands at west. This alternative would require a long underpass which would be costly and uninviting for users. Easement acquisition from private properties would be required. Significant additional cost compared to other Alternatives.

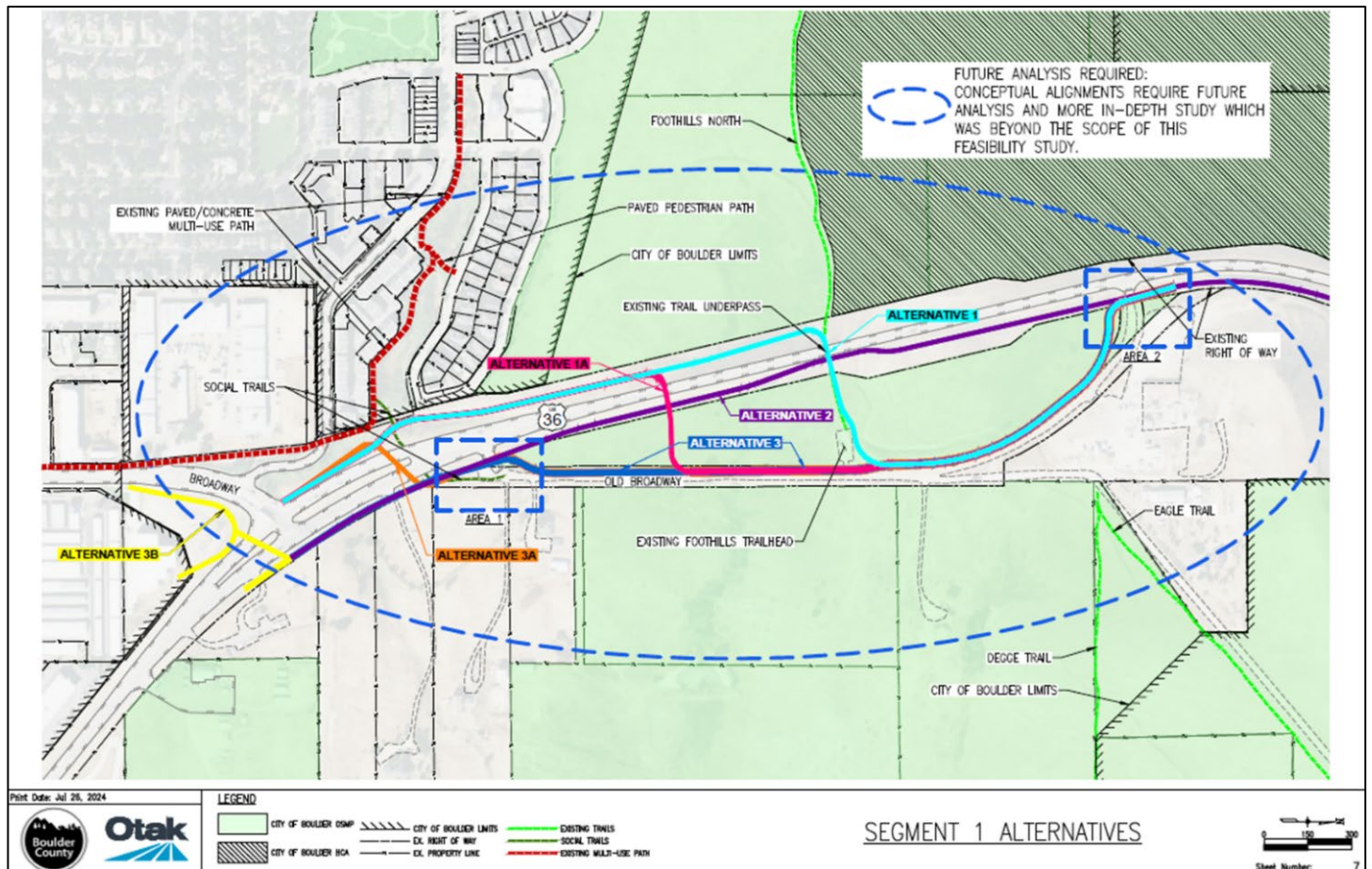


Figure 3 Segment 1 Alternatives- south end

Neva Road

The bikeway section adjacent to the Neva Access Road is an especially challenging area due to the steep grades adjacent to US 36, combined with the skewed geometry of the intersections at both ends of the Neva Access Road with US 36. An important geologic formation exists both within and beyond the ROW within the intersection continuing north and includes the BCPOS Six-Mile Fold open space.

Additional bikeway alignments were analyzed in this area (Appendix E of the Report). Alternative 1, which follows US 36 was chosen as the recommended alignment. The other alternatives would require a bikeway grade that exceeds the 5% grade, wetlands impact or change in traffic movements along Neva Road or large walls to stay within ROW. recommended by federal and state guidelines for bikeway design. Additional considerations are outlined in Appendix E of the Report.

North End

Connectivity to the Town of Lyons' future multi-use trail along the north bank of St. Vrain Creek and existing bike lanes along CO 66 were considered as part of this study. The St. Vrain Creek bridge has sufficient clearance to accommodate a bikeway connection beneath the bridge at the north abutment. However, ROW acquisition would be required north of St. Vrain Creek and east of the existing bridge to create a connection between the bikeway and bridge underpass. ROW acquisition to facilitate the bikeway connection and safety improvements to the existing signalized intersection at US 36 and CO 66 will be studied in the next phase of design.

Minimizing Adjacent Property Impacts

The alignment was developed to avoid impacts to private and public properties, including environmentally sensitive areas, outside of the CDOT ROW. In many cases, structures (guardrails, railings and/or retaining walls) will be required to construct the bikeway within the existing ROW, considering the topographic challenges of the site.

Although an overwhelming majority of the Project can be built within the existing ROW, there are a few locations where the ROW width is insufficient to construct the bikeway. The most significant potential impacts to adjacent property along the 11-mile-long bikeway are on the City of Boulder OSMP land on the south end and at Neva Road. The OSMP land is less than 0.80 miles of the 11-mile bikeway. The majority of these impacts would be grading and located outside of wetland areas. Extensive coordination with OSMP will be conducted as part of the next phase of detailed design to provide safety improvements while also minimizing and mitigating any necessary site impacts.

Wildlife Crossing Project

Community Planning and Permitting has worked closely with Parks and Open Space to ensure that the US36 bikeway alignment is compatible with any future proposed wildlife fencing or built crossing structures in the corridor.

This was ensured by incorporating the high-level recommended crossing locations made in the CDOT/CPW Eastern Slope and Plains Wildlife Prioritization Study into the bikeway conceptual plans. In the meantime, BCPOS has initiated, and is in the final phases of, a comprehensive analysis of crossing structure locations in the corridor. As BCPOS has moved through this process, CPP has continued to be closely involved. Overall, the proposed locations of crossing structures are typically located where there is the greatest grade difference between the road

and the adjacent terrain. In these locations, the bikeway would be located closer to the roadway to accommodate wildlife crossing structures.

Conceptual Design Plans

Conceptual design plans and cost estimates have been prepared for each segment of the proposed US36 bikeway corridor and are included in Appendix A and B of the Report.

Public Engagement

Public engagement was a key element of the US36 bikeway feasibility study throughout the planning process and were multi-faceted to reach as many people as possible and for the project team to hear diverse perspectives and suggestions from the community. County staff engaged with landowners, the general public, community members in Lyons and Boulder, and bicycle safety advocacy groups to gather input on the proposed bikeway.

Property owners located directly adjacent to the study area received two letters. The first mailing was sent in July 2023 to 107 property owners on the east side of US 36. The second mailing was sent in February 2024 to 328 property owners on both sides of US 36. In response to the mailings, a few emails of support were received, and a few emails asking questions about how the bikeway would affect their access to mailboxes and the road were received.

Public Meetings

A virtual public meeting was held on April 16, 2024. There were 65 attendees. Many of the attendees expressed support for the Project.

An in-person public meeting was held in the Town of Lyons on April 30, 2024 with 33 attendees and two Town of Lyons elected officials.

A meeting was held with Community Cycles and Coalition4Cyclists locally based bicycle safety advocacy groups.

Public Comment

The county received numerous public comments through email during the public outreach phase. A full summary of public comments and survey results is included in Appendix C of the Report. Comments received by email included:

- A letter of support with 45 signatures from residents of Lake of the Pines, a subdivision located along US 36.
- A few comments expressing concern for how the bikeway will impact intersections and cross driveways.
- Email of support from the Second Wind Cycling Club.
- 16 emails of support from individuals.
- One email in opposition to the bikeway, and in support of just adding wider shoulders.

Survey

An online survey was launched on April 22, 2024, and closed on May 31. The survey received 294 responses. Respondents classified their cycling abilities; a majority of respondents were either “strong and fearless riders” (16.4%) or “enthusiastic and confident riders” (46%). Respondents were primarily located in Lyons and Boulder and 21% live within one mile of the corridor. Of those that ride on US 36 now, 75% would ride if the bikeway were built. and Of those that do not currently ride on US 36, 94% said they would if the bikeway were built.

Nearly all respondents preferred a bikeway with 20 feet of separation from the road compared to a bikeway with barriers between the road and the bikeway. Nearly all respondents would ride a bikeway with a mix of typical section styles. Only 4% of respondents would not use the bikeway out of fear that other cyclists would slow them down.

Opinion of Probable Cost

An Opinion of Probable Cost has been prepared for each segment of the proposed bikeway (Appendix B of the Report). The overall project cost of the bikeway, based on current estimates, is \$95,650,000. The unit pricing used in the cost estimate is based on Otak's experience with several past similar projects and recent cost estimating that has been completed by a general contractor for the CO 119 Bikeway Project. The cost estimate includes the following:

Preconstruction

- Environmental studies
- Subsurface Utility Engineering
- Topographic Survey
- Final Design

(ROW acquisition and utility relocations not included in cost)

Construction

- All major construction items expected to build the project as shown in the plans
- Allowances for known minor construction items
- Allowance for additional items not identified in the plans
- Allowance for minor contract revisions during construction
- Construction engineering
- Construction indirect costs (agency administrative costs)
- Risk reserve
- Cost escalation (assumes construction begins in 2027 with a duration of 2 years)
- Design

Cost Reduction Opportunities

Additional strategies to potentially reduce costs can be explored in future phases of the design/engineering.

The goal of this cost estimate is to capture an all-inclusive scenario by including allowances for miscellaneous items, risk reserve, and cost escalation. However, there may be opportunities for value engineering to reduce cost. Some of the potential cost saving opportunities include:

Reduce use of Guardrail Type 9: Reduce cost by using Guardrail Type 3 barrier (less initial cost, requires more maintenance over time)

General Design Refinement: This phase of the feasibility study was not allocated to provide a detailed design for the entire length of the bikeway. It may be possible to eliminate some structures with more detailed design efforts. Additionally, once a more detailed wetland delineation is available, it may be possible to reduce the structures currently in the design to avoid wetland buffer areas.

The construction cost is based on the approach that all private property acquisitions will be avoided. There are several cases where easement acquisition could result in significant reduction of retaining walls. It is estimated that savings in the order of \$5M - \$10M of construction cost could be eliminated with easement acquisition. The potential cost of ROW acquisition is unknown and is not estimated in this study.

Next Steps

The following information should be gathered as part of the next phase of the project. The following action items will be required for any of the delivery methods under consideration.

Topographic Survey, Environmental Delineations and Reports: Wetland delineations for the entire alignment. A threatened and endangered species habitat assessment, including Preble's meadow jumping mouse, cultural resource surveys, and rare plant surveys.

Geotechnical Reports: Soil borings and geotechnical design recommendations will be required for bikeway pavement, proposed structures, slope grading analysis, and site restoration recommendations.

Subsurface Utility Engineering: This can be completed concurrent with the topographic survey.

Design Analysis: The four areas along the alignment that will require additional information before the design can be furthered.

OSMP Coordination: Acquisition of temporary construction and grading permits, and possible property disposal may be required on OSMP lands.

Consultation with Adjacent Property Owners: There is the potential for cost savings if additional ROW can be acquired from five key property owners in specific locations. Acquiring ROW would reduce the need for structures, which is expected to be a large portion of the total project cost. Initial discussions with the property owners could be initiated to determine their level of interest in providing additional ROW for the Project.

Wildlife Crossing: Ongoing coordination with BCPOS and CDOT regarding the design of the wildlife crossing and consideration of joint grant funding opportunities.

Connectivity Study and Intersection Improvements: To create a safe connection to the existing signalized intersection at US 36 and CO 66, ROW acquisition will need to be investigated. At-grade improvements connecting the bikeway to the intersection at US 36 and North Broadway will need to be investigated with CDOT and the City of Boulder.

Connections to transit: Create detailed design plans for safe and direct connections for cyclists to access the Lyons Flyer bus stops along the US36 corridor.

CDOT Coordination: Continued discussions with CDOT to explore the potential to eliminate the additional through lane on the west of US 36 at the intersection of Lefthand Canyon Drive.

Ongoing Community Engagement: During each milestone, the project manager will hold remote and in person meetings, small group meetings with residents along the corridor and bicycle and safety advocates and present to City of Boulder and Town of Lyons.

Ongoing pursuit of funding: To implement the North Foothills Bikeway project through local, regional, state, and federal sources to leverage Boulder County Transportation Sales Tax funding.

Acknowledgments

The project team has accomplished important work during this feasibility study. Community Planning & Permitting (CP&P) and especially the Bike Planner have great appreciation for all the funding partners and Steering Committee members and the time and energy individuals in the community contributed through their public input.

CP&P staff is committed to seek funding to advance next steps necessary to achieve these critical safety improvements along the full US 36 corridor. This is a complex project that requires significant resources. Assuming funding for design is available it would take two years for the design process and construction could start after that if funding is available