

# BERTHOUD TRAILS MASTER PLAN



ADOPTED  
February 2022

BERTHOUD.ORG

# ACKNOWLEDGMENTS

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**Garden  
Spot of  
Colorado**

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# INTRODUCTION

The Town of Berthoud, with the enthusiastic support of our residents, has been focused on improving our existing multi-use trails and greenbelts; envisioning and building new trails; and preserving open spaces. This 2021 Trails Master Plan provides guidance on future priorities for regional and local trail development, incorporates design standards and maintenance responsibilities, and outlines a detailed action plan for implementation. This section summarizes the need for the plan update, guiding direction contained in existing plans, and community priorities which were used to establish trail system goals.

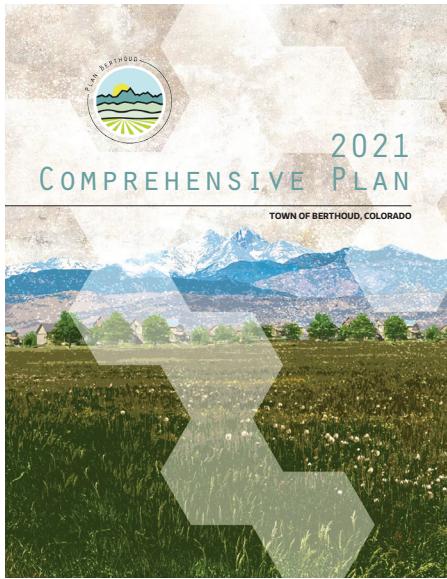
## NEED FOR PLAN UPDATE

Residents' interest in trail-based leisure activities, as well as local outdoor recreation opportunities, are at an all time high. The Town of Berthoud is a great place to recreate and is active in bringing new recreation amenities and trail connections online. Berthoud opened its new Berthoud Recreation Center and Waggener Farm Park in 2021, and is in the process of developing a new bike park, redesigning the Town Park, constructing new amenities at Richardson Park, and extending the Front Range Trail connection with the City of Loveland. More than ever, people have turned to parks, trails, and recreation spaces like never before - for fresh air, safe space, exercise, outdoor gatherings, and much needed mental health.

The Town has completed many of the priorities called for in the 2018 Berthoud Unified Trail Master Plan. That Master Plan graphically represented existing, planned, and envisioned trails within the Town and their connections to adjacent regional trails. The community's desire for more trails were a common theme in the development of the 2021 Open Space Master Plan and 2021 Comprehensive Plan. The Town decided that now was an opportune time to revisit and align the Trails Master Plan to these plans.

## GUIDING DIRECTION

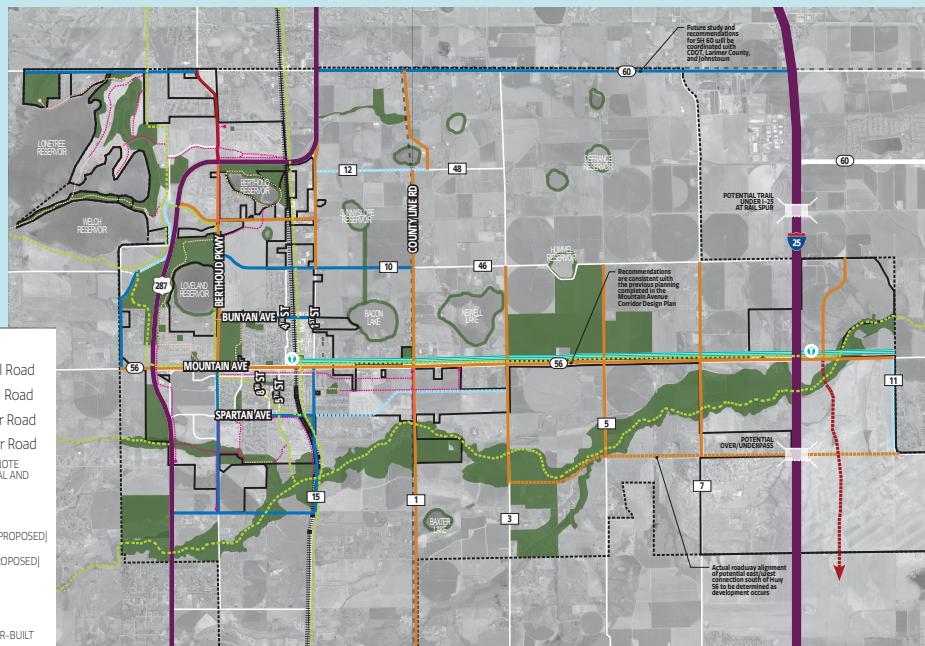
Various previously adopted master plans provide guiding direction on future trail development and passive recreational opportunities.



## BERTHOUD COMPREHENSIVE PLAN UPDATE (2021)

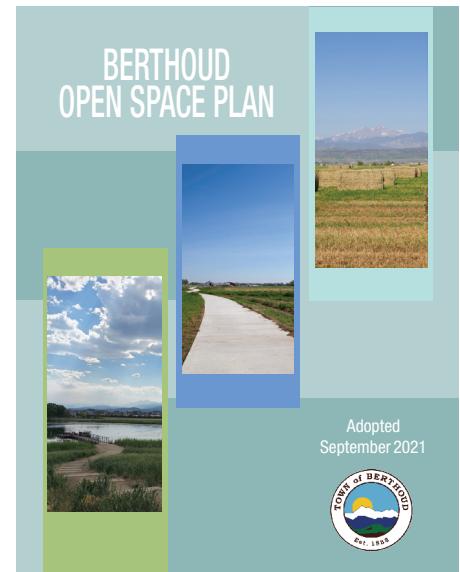
The 2021 Comprehensive Plan Update shapes future growth through a Future Land Use Map as well as maintains the Town's distinctive character. The Berthoud Comprehensive Plan is a statement of how the community views itself, what the Town envisions for the community's future, and the actions the Town will undertake to implement the vision and goals of the community. It provides the policy framework for a roadway and bicycle/pedestrian system, including community vision statements and associated achievable goals and key strategies. The reader should review the Comprehensive Plan's community profile, historic and archaeological assets, and plan direction as these are not duplicated in this plan.

**The Comprehensive Plan depicts the multimodal transportation system which includes bicycle and pedestrian recommendations.**



## OPEN SPACE PLAN (2021)

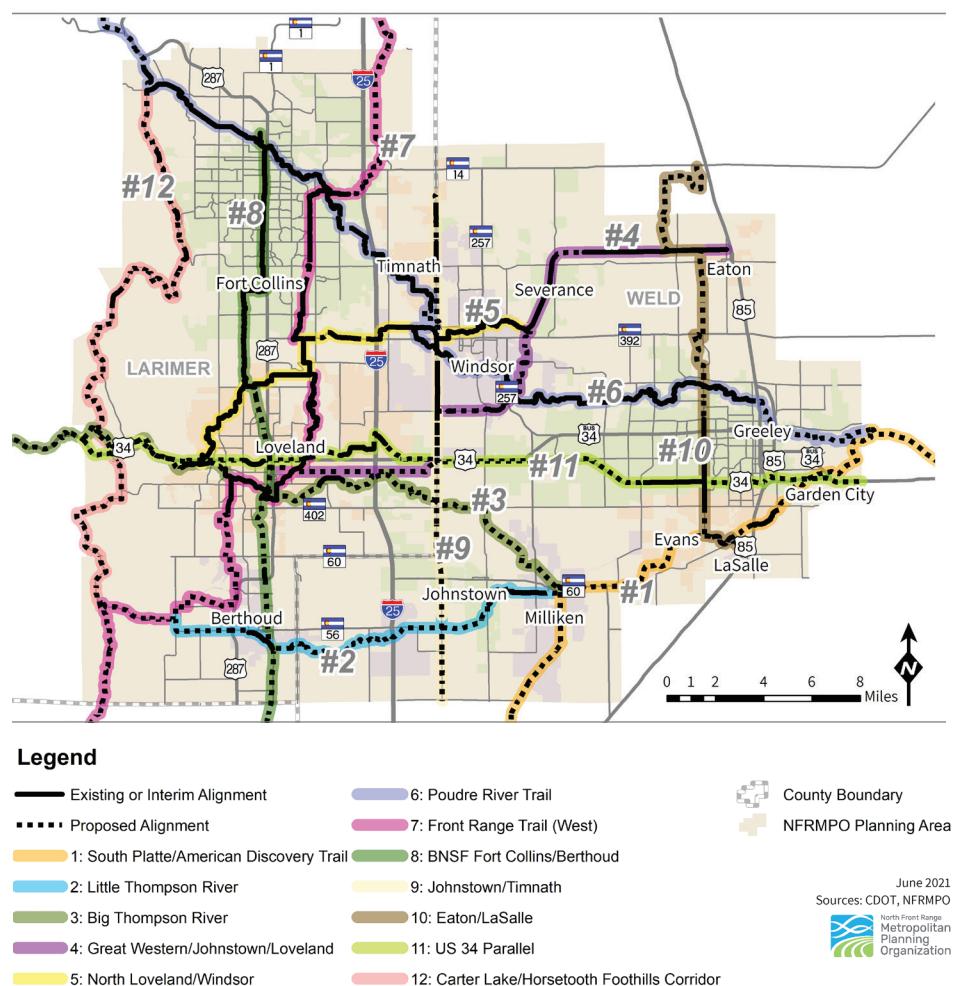
Since the early 2010s, the Town of Berthoud has seen exponential population growth, and much of the natural and agricultural open lands that have defined its character for the last 120 years have been developed into neighborhoods or other urban uses. The Open Space Plan serves as the Town's policy foundation to expand support for open space priorities and clarify the Town's role and strategic actions. Large corridors for paved or natural surface trails that serve the entire community and conserve linear features such as rivers, drainage corridors, railroads, and utility easements were identified in the 2021 Open Space Plan as one of the three focus areas.



## NORTH FRONT RANGE METROPOLITAN PLANNING ORGANIZATION NON-MOTORIZED PLAN (2021)

In 2021 the NFRMPO completed a Regional Active Transportation Plan, which expands important local connections, major barriers, and funding opportunities. In Berthoud these include the Colorado Front Range Trail along the west side of town, the Little Thompson River/Dry Creek corridor south of town, and the BNSF corridor through town. Sections of the Colorado Front Range Trail are currently under development within the Heron Lakes subdivision.

The 2016 Larimer County Open Lands Master Plan also highlights similar regional trail corridors and is intended to be used primarily for the coordination of regional connectivity between open space and jurisdictions.



## COMMUNITY PRIORITIES

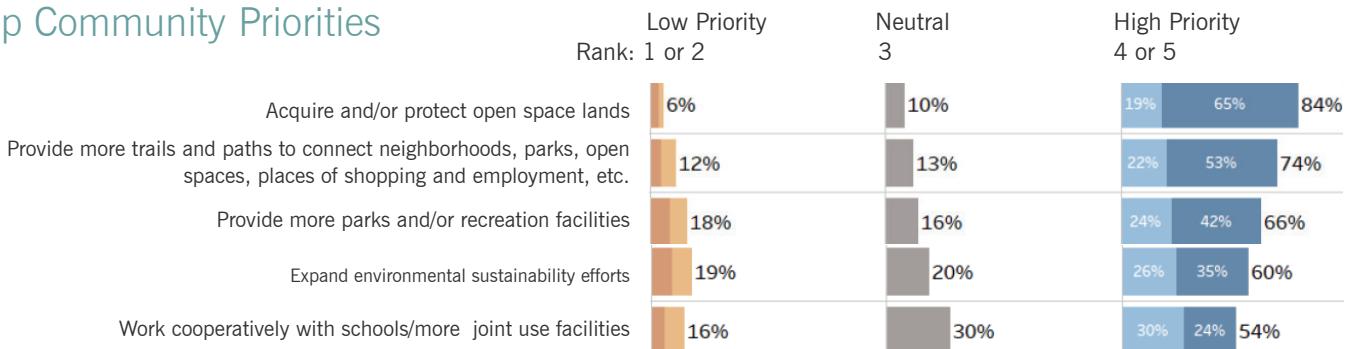
The Comprehensive Plan Update included an extensive survey in July 2020 to understand the values and priorities of the community. The survey contained several questions that evaluated “Improvement or Enhancement Priorities.” Trails ranked at the top of the list for most residents, even when compared to other efforts.

### Sustainability Priorities



Comprehensive Plan Survey, July 2020

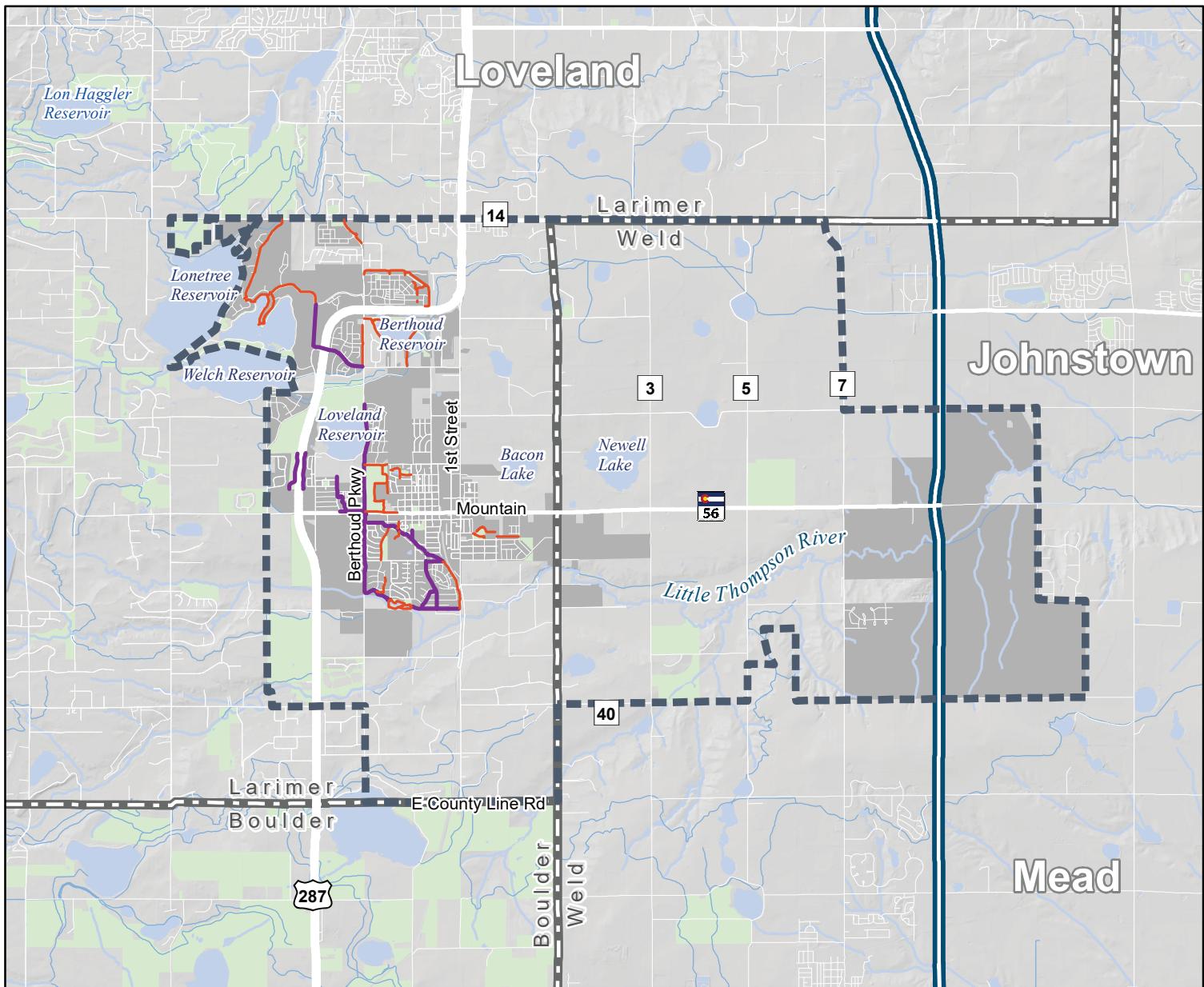
### Top Community Priorities



Comprehensive Plan Survey, July 2020

## EXISTING TRAIL SYSTEM

Open Space and Parks Departments oversee the development, management, and maintenance of town-owned trails, as well as other town facilities. Trails can also be maintained by Homeowner Associations or Metro Districts per development agreements. There is approximately 9.9 miles of existing neighborhood trails (not counting sidewalks or on-street connections) and 7.7 miles of regional trails. The following map identifies the existing neighborhood and regional trail system.



0 0.5 1 2 3 Miles

Sidewalks and bike lanes are not shown and provide additional network connectivity.

## Existing Trails

- Existing Regional Trail
- Existing Neighborhood Trail

- Waterbodies and Wetlands
- Existing Parks, Open Space, & Conservation Easements
- County Boundary
- Berthoud Growth Management Area
- Town Limits

## GOALS

The following goals, which were refined from previous plans to reflect current trends and desires, establish the direction for the Trails Master Plan.

- 1** Create an active, healthy, and aesthetically pleasing trail system.
- 2** Maximize accessibility for all families, including strollers, wheelchairs, and adult trikes.
- 3** Provide regional recreation opportunities that attract area businesses and residents.
- 4** Provide a variety of experiences from short neighborhood loops to a larger regional trail system, including the Colorado Front Range Trail and adjacent trail systems.
- 5** Neighborhood trails connecting the community to parks, recreation, schools, and downtown core.





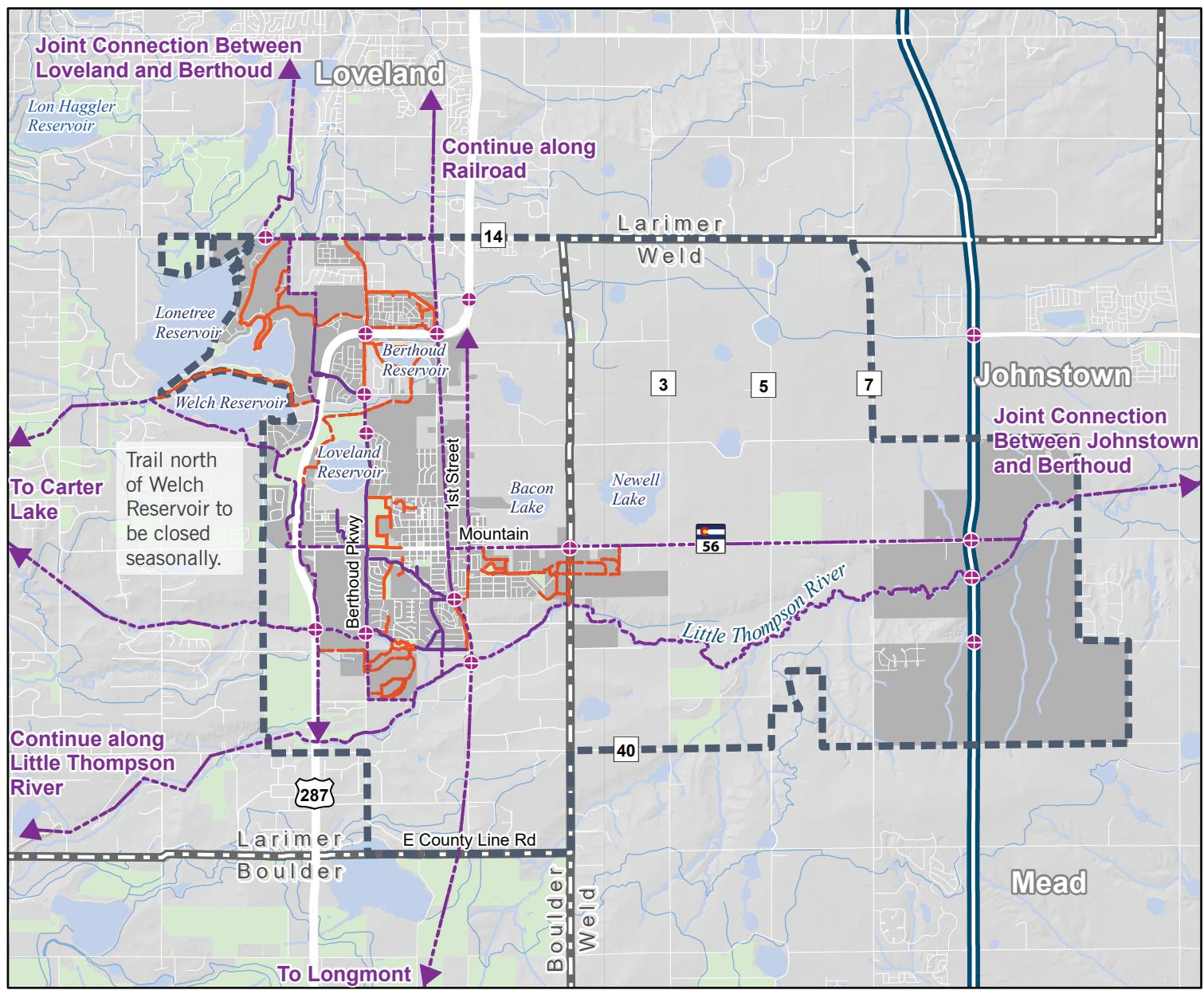
# RECOMMENDATIONS

This section maps the future trail connections and provides direction on design and construction for the various trail classifications to meet the long-range goals of an attractive and robust system.

## TRAILS MASTER PLAN MAP

The Trails Master Plan Map on the following pages illustrates the future vision of interconnected regional and neighborhood trails. The long-range vision of a complete trail system concurrent with development includes a total of an additional 22 miles of neighborhood trails and 30 miles of regional trails within the Growth Management Area.

Development applications should conform to this map and other trail connections identified during the development review process. It is important to note that all trail connections would be subject to landowner willingness to participate and acquisition of easements or property. Final alignments of all future trails are subject to additional planning and engineering during the development review process; however, the connectivity goals should be met.

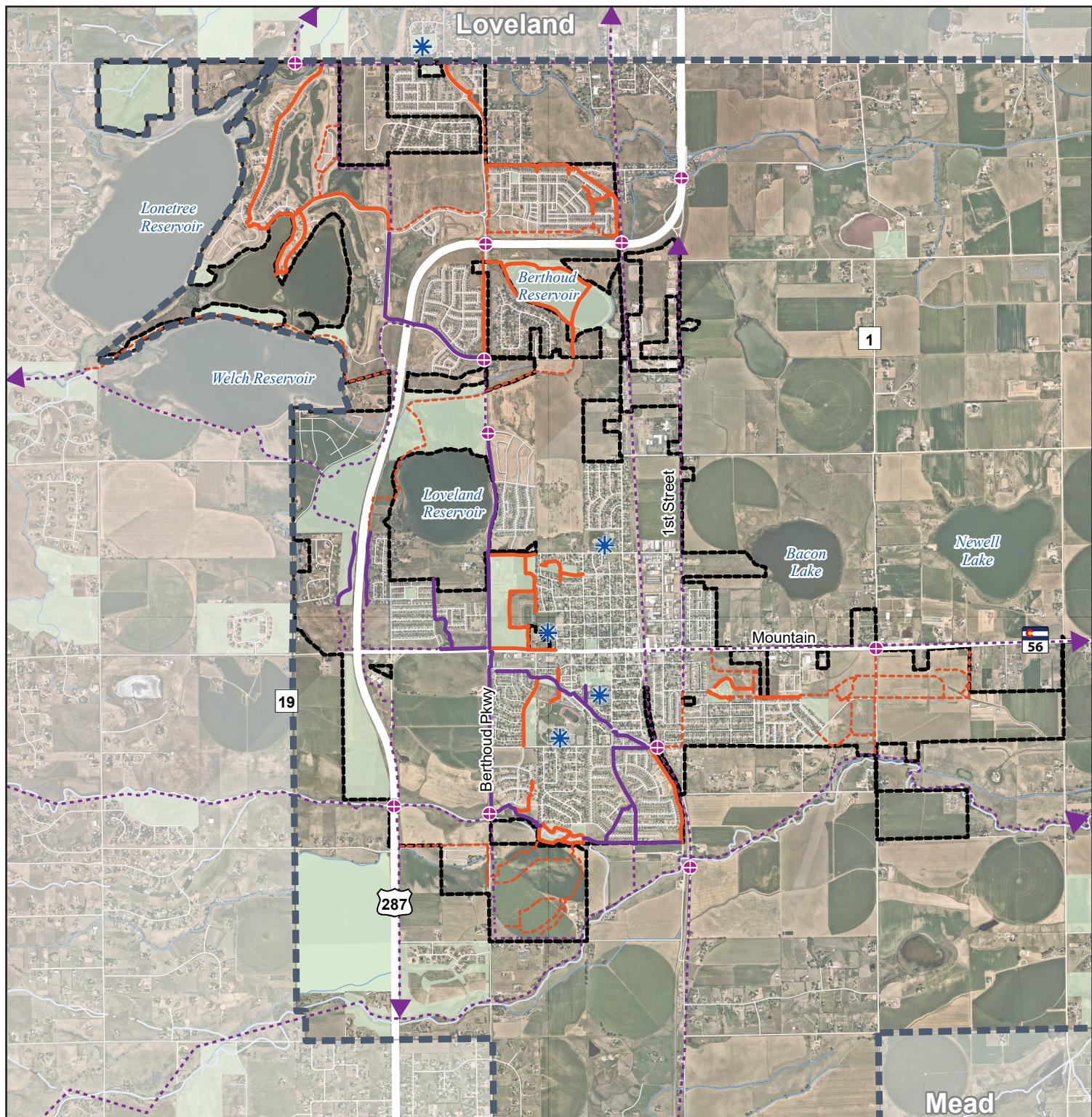


Sidewalks and bike lanes are not shown and provide additional network connectivity.

### Trails Master Plan

- Existing Neighborhood
- - - Planned Neighborhood
- Existing Regional
- ... Planned Regional

- ⊕ Trail Crossing Opportunities
- Existing Parks, Open Space, & Conservation Easements
- County Boundary
- Berthoud Growth Management Area
- Town Limits



### Trails Master Plan (Enlargement)

- Existing Neighborhood
- - - Planned Neighborhood
- Existing Regional
- - - Planned Regional
- ⊕ Trail Crossing Opportunities
- \* Schools
- ████████ Berthoud Growth Management Area
- ████████ Town Limits
- ██ Existing Parks, Open Space, & Conservation Easements

0 0.25 0.5 1 Miles

Sidewalks and bike lanes are not shown and provide additional network connectivity.



# NEIGHBORHOOD TRAILS

## Maintenance Responsibility:

Town. When on Town property.

HOA/Metro District. Engineering Standards and Municipal Code 30-2-109 require the developer or the HOA/Metro District to be responsible to install and maintain all of the trails within their development.

## Uses:

Local connection within neighborhoods for bicyclists, pedestrians, and other non-motorized users

Use by the general public is allowed

Connects neighborhoods to the Regional Trail system

## Material:

Concrete or stabilized crusher fines

Trail surface type should consider consistency with trails system connections

## Width & Corridor:

6' to 8' minimum (6" depth)

20' corridor. If attached to a curb along a major roadway, include buffer or barriers where appropriate to protect trail users

Maximum 6:1 slope for land immediately adjacent to corridor

## Lighting:

Utilize adjacent roadway lighting where possible

At underpasses crossings, and intersections with other trails

## Grade:

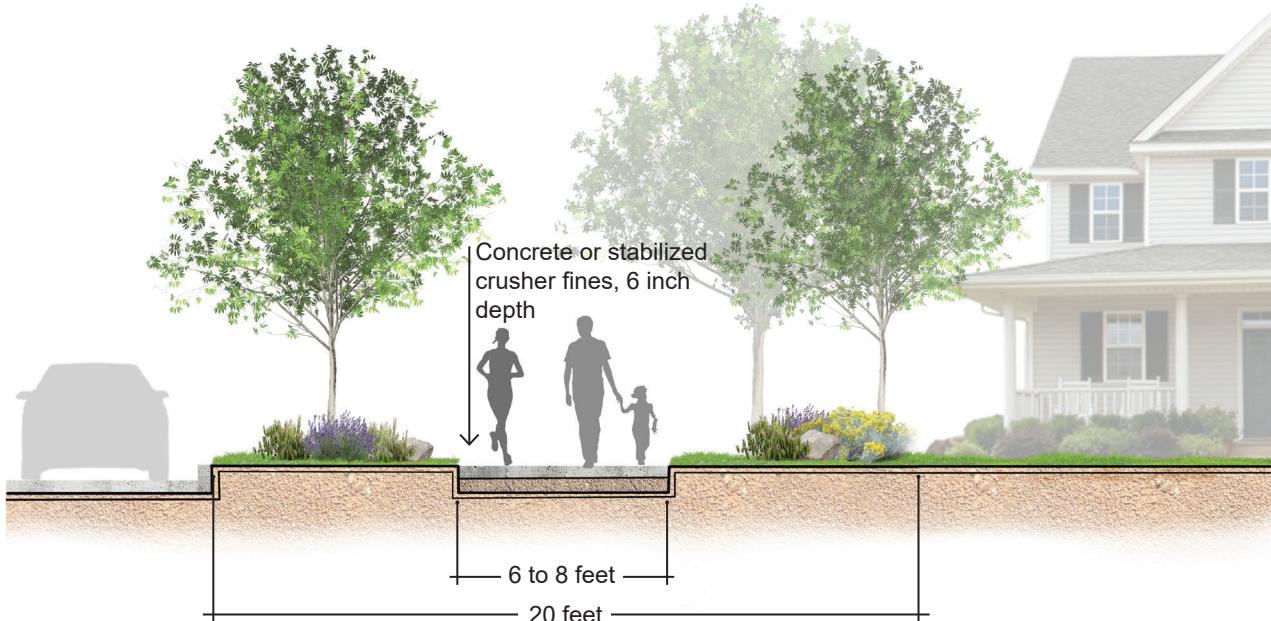
5% maximum, per ADA standards where feasible

## Cross Slope:

2% maximum, per ADA. Pavement low point on downhill side

## Signage:

Mapping at trailheads and key access points  
Major intersections per MUTCD



## SOFT SURFACE (OPEN SPACE) TRAILS

### Maintenance Responsibility:

Town. When on Town property.

HOA/Metro District. Engineering Standards and Municipal Code 30-2-109 require the developer or the HOA/Metro District to be responsible to install and maintain all of the trails within their development.

### Uses:

Recreation destination for pedestrian, bicyclists, and other non-motorized users within open space/park property

Some trails may be oriented to a single-track use

### Material:

Stabilized crusher fines

### Width & Corridor:

6-8' for loop trails and other major trails in open space areas

3' minimum for single track hiking/bicycling, or lower volume and slower walking/nature observation

Corridor width can vary, typical 3' clearance from brushy vegetation

### Lighting:

At access points

### Grade:

Single track hiking/biking trails: (IMBA Guidelines) 5% or less for beginners, Average 10% or less for intermediate, 15% or less for advanced

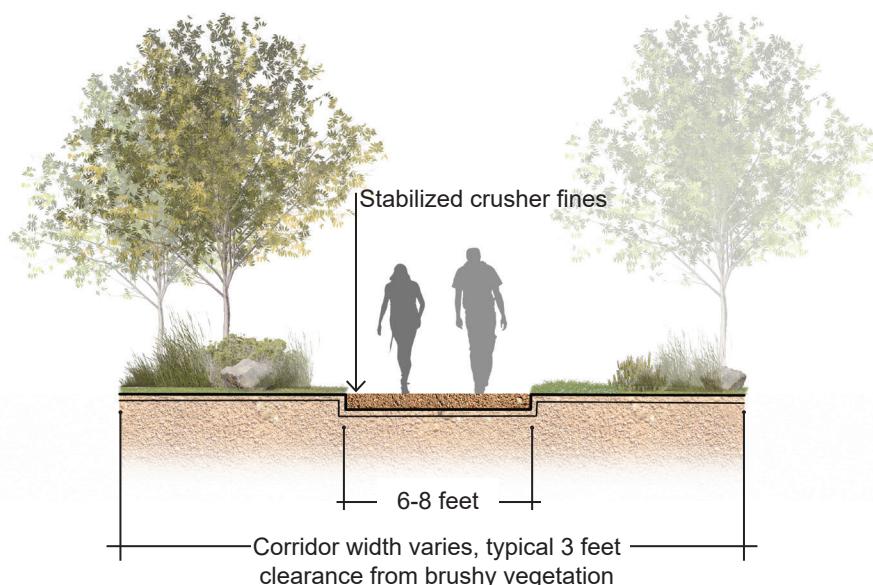
Steps may be required on hiking only slopes with grades steeper than 10%

### Cross Slope:

2% maximum per ADA segments. ABAAS/FSTAG standards for other applicable segments

### Signage:

Mapping at trailheads



## AT-GRADE CROSSING

### Raised Medians or Refuge Islands:

Installed in a two-way left-turn lane.

Medians and refuge areas should be wide enough to accommodate wheelchairs and bicycles, typically six feet minimum

### Intersection Lighting:

Lighting should meet roadway standards of illumination to maximize visibility at the intersection

### Crosswalks and Markings:

Crosswalks with zebra stripes or other high-visibility marking

Always augmented with additional signs, markings and beacons

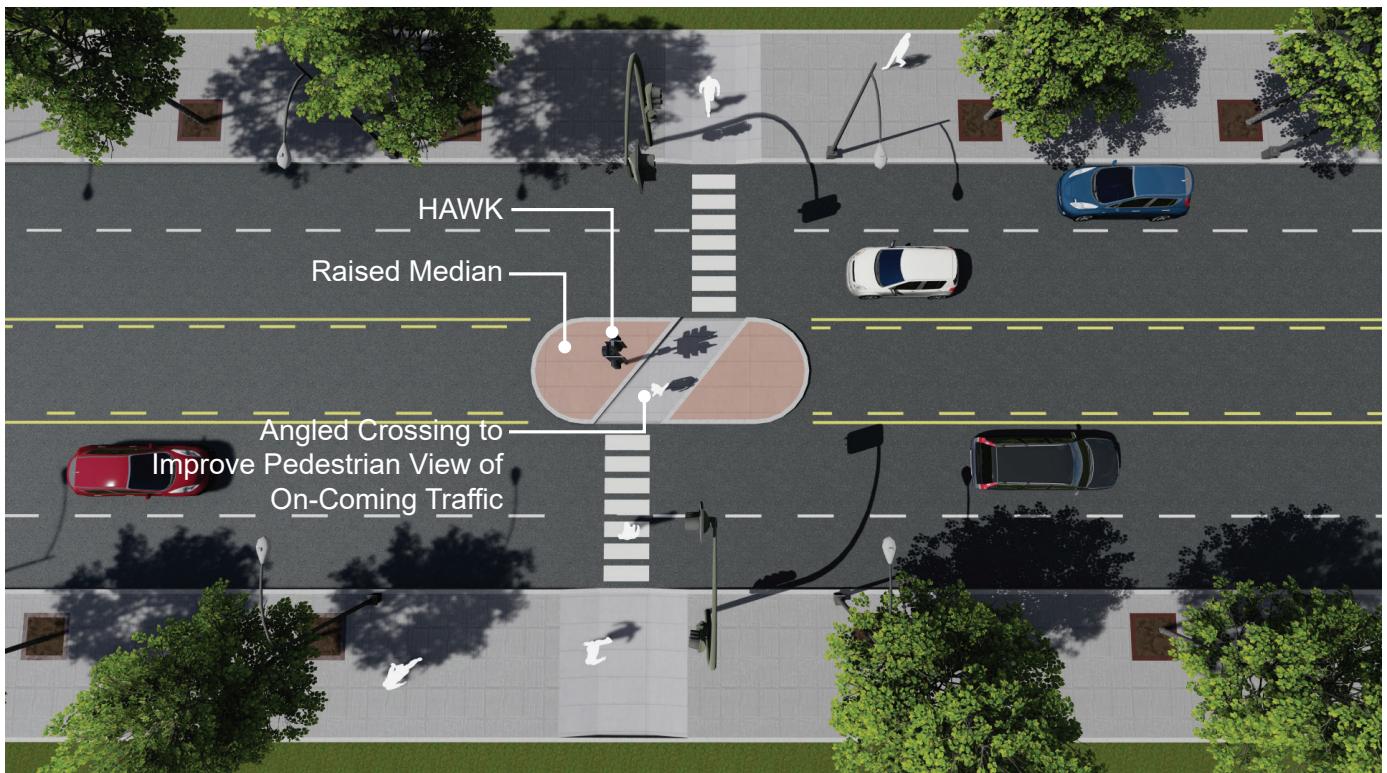
Incorporate bright green markings that specifically designate bicycle movement

### Signage:

Directional wayfinding and traffic control per MUTCD

### Warning beacons:

Pedestrian-activated traffic signal (such as HAWK Signal)



# GRADE SEPARATED CROSSING

Grade separated crossings improve safety for both pedestrian and vehicles by removing pedestrians from crossing the roadway. They are most useful in areas of high pedestrian/bicycling use and where traffic speeds are higher.

**Height (Underpass):** 10 feet desirable, 8 feet minimum

**Clearance (Overpass):** Clearance between bottom or low chord of pedestrian structure and roadway—17'-6" minimum on state highways. On other city roadways, consult the Larimer County Urban Area Street Standards.

Width (Underpass):	Length:Width
< 80 feet:	14 Feet
80-110 feet:	16 feet
150-200 feet:	20 feet
>200 feet:	22 feet

Includes 2 feet on each side of the structure for drainage pans and/or amenity (such as handrails, rubrails) clearance. For structures of 80 feet or greater in length, skylights shall be provided in the roadway median if a median is available.

For structures >150 feet in length, and where there is a median of sufficient width, two separate structures should be used to provide an opening of natural light. If two separate structures cannot be provided, skylights placed in a median, if available, shall be required.

**Lighting (Underpass):** Ensure safety lighting is integrated. To avoid glare indirect lighting preferred.





# ACTION PLAN

## OVERVIEW

This section provides a detailed action plan and anticipates general planning-level costs for future budgeting efforts.

## ACTION PLAN

Plan implementation follows the same framework as the Comprehensive Plan, Section 4. The primary responsibility for leadership will be the Town of Berthoud with the support of developers and other partners. The following table presents specific action items and priorities to implement the goals and Trails Master Plan.

## Trail Prioritization

As the Town continues to grow and evolve, other trail opportunities may arise. Future priorities may need to be re-evaluated from time to time and should be based on the following criteria:

- Safety
- Town-wide community benefit
- Project partners/funding source
- Completes key connections
- Ease of Implementation
- Upgrades existing trails for surface consistency

ACTION	COST	PRIORITY	TIME-FRAME	FUNDING SOURCES	ROLES
Working with Loveland, complete Front Range Trail connection between Heron Lakes to Eagle Vista, including install of pedestrian crossing on W Co CR 14. Trail construction through Heron Lakes will be developed per existing agreements.	\$\$	1	Planning In-progress; Implementation Short Term	Existing Sales Tax; Staff Time; Grants	Town/ Loveland
Complete the planned connection along Berthoud Parkway from Recreation Center to CR10E including at-grade crossing improvement at Water Avenue. Consider opportunities to cross the Handy Ditch.	\$\$\$	1	Planning In-progress; Implementation Short Term	CDOT Grant acquired	Town
Working with Heron Lakes developer, complete permanent paved Front Range Trail connection from Heron Lakes Parkway to CR10E.	\$	1	Mid Term (temporary trail to be completed 2022)	Developer	Developer
Investigate pedestrian and bicycle safety improvements on the CR10E bridge over Hwy 287, including possible widening or jersey barriers.	\$	1	Short Term	General Fund	Town
Update Town code with trail standards identified in this Trails Master Plan.	\$	1	Short Term	Staff time	Town (Planning)
Complete the planned soft-surface Rookery Trail loop.	\$	1	Short Term	Staff time	Town
Prepare and publish a Town Bike and/or Trails Brochure with safe routes map and safety tips. Print and post the map at trailhead kiosks and major intersection locations. Include safe sidewalks and bike lane connections and suggested routes/loops with distances.	\$	1	Short Term	General fund	Town/ Consultant
Building on the Safe Routes to School and Bike Lane Plan efforts, utilize roadways to install bike lane network to connect to trails to further the system's connectivity.	\$	1	Short Team	Staff time, grants	Town
Build on the ADA Transition Assessment and other universal design elements, to integrate sidewalks into trail connections for a complete system where trails are not feasible.	\$	1	On-going; Short Term	Grants; Staff time	Town

<b>Cost:</b> \$ = <\$100,000 \$\$ = \$100,000 - \$500,000 \$\$\$ = \$500,000	<b>Priority:</b> 1. Critical 2. Vital 3. Desirable * Also found in the Comprehensive Plan Implementation Matrix	<b>Timeframe:</b> Short Term: 1-3 Years Mid Term: 3-5 Years Long Term: 5+ Years Ongoing: As Needed
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ACTION	COST	PRIORITY	TIME-FRAME	FUNDING SOURCES	ROLES
Working with emergency management and the NOCO Bike and Ped Wayfinding Plan framework, sign regional and neighborhood trails with mileage markers, destination signs, etc.	\$	1	Planning In-progress; Implementation Ongoing	Existing Sales Tax; Staff Time; Grants	Town/PORT
Complete easement connection to Welch Ave from the Neilsen Greenway Trail. Assess opportunity to cross ditch.	\$	2	Planning In-progress; Implementation Short Term	Staff time, Existing Sales Tax	Town, private property
Continue to work with CU student group on Berthoud Parkway/287 intersection improvements and investigate opportunities and funding measures for future implementation.	\$	2	Mid Term	Grants	Town/CDOT
Work with Colorado Department of Natural Resources and CPW to update trail layers on the COTREX, the most comprehensive trail app in Colorado.	\$	2	Short Term	Staff time	Town
Town staff to provide clean and safe open spaces and maintenance of town owned trails including, signage, garbage bins, dog waste bags, trail surface maintenance, snow removal, etc. Continue to monitor needs and implement additional facilities, staffing, and services as needed. For HOA/Metro District maintained trails, Ensure all properties are creating and following Municipal Code 30-2-109 that requires maintenance plans for parks, trails, and open spaces.	\$	3	Ongoing	Staff time, Existing Sales Tax	Town
Investigate feasibility of Mountain Ave trail in coordination with Mobility Hub and future development. Highlight on future NFRMPO mapping needs. Work with rural land owners and conservation easements to define corridor implementation.	\$\$	3	Long Term	Existing Sales Tax; grants	Town/ CDOT/ NFRMPO
Continue to work with Planning and PORT to assess trail connections through future development projects; ensure connectivity to regional trail system.	\$	3	Ongoing	Staff time	Town/PORT

## FUTURE COSTS

### PLANNING-LEVEL COST ESTIMATES (2021\$)

Cost for trail construction is varied and dependent upon trail design established and construction method used. The following costs assumptions include:

- Costs include material and labor costs based on recent projects within Berthoud.
- Design and engineering could be up 20% of the construction costs and mobilization, traffic control, and contingencies are typically budgeted at 30%. These are not added to the total cost.
- Necessary permits and land acquisition costs have not been assessed.
- Costs will also need to be escalated over the years to adjust for inflation and current market conditions, typically 5% per year.
- Future budgets should also consider long-term maintenance and capital costs, which is not included in the planning-level construction costs below.

These cost estimates present planning-level costs for future budgeting and will vary when designed.

**10' Concrete Trail:** \$6.50/square foot, \$65/lineal foot

**8' Soft Surface Trail:** \$2.25/square foot, \$18/lineal foot

## EXISTING AND POTENTIAL FUNDING SOURCES FOR TRAILS

Potential Annual Revenue Collected for Trails:

\$ = <\$100,000

\$\$ = \$100,000 - \$500,000

\$\$\$ = \$500,000

REC'D FUNDING SOURCES	POTENTIAL AMOUNT	PARTNER TYPE	APPLICABLE TO LIFE CYCLE COSTS			NOTES
			Land Acquisition	Capital Construction	Long-Term Stewardship	
1998 1% Sales Tax (Existing)	\$	Town	X	X	X	This 1% sales tax may be utilized “exclusively for uses presently allowed and for the construction, operation, and maintenance of capital improvements to parks, open spaces, recreation facilities, and trails” including “for the purchase of land to be used as open space and as buffer areas.” Annual revenues typically pay for street and sidewalk improvements and Berthoud Area Transportation System.
2019 1% Sales Tax (Existing)	\$	Town		X		Voters approved a 1% sales tax in 2019 “to use solely for parks and recreation purposes”. Annual revenues, which vary with sales tax collections, make possible the recreation center and many other recreation priorities including trails.
CO Conservation Trust Fund (Existing)	\$	Town/ State	X	X	X	Very reliable and steady state disbursements to each local government occur quarterly based on percent of state population, which will continue to grow. Some local governments dedicate Conservation Trust Funds exclusively towards conservation or trails. Berthoud uses these funds for all types of parks, open space, and recreation expenses.
Larimer County HPOS Sales Tax Share- back  (Existing)	\$\$\$	Town	X		X	Annual revenues of approximately \$200,000 are based on the percent of County population. Berthoud uses Help Preserve Open Space (HPOS) revenues for a variety of parks, open space and recreation needs.
Parks and Recreation (including trails) Impact Fee  (Existing)	\$\$\$	Town	X	X		The Town collects a Parks and Recreation Impact Fee that includes trails as a one-time development fee for each new residential unit. The Impact Fee allows growth to pay its way for the expansion of the trail system. The fee would be imposed one-time on each new residential unit.
Collaboration with Adjacent Jurisdictions  (Existing)	\$\$\$	City/ County	X	X		Several projects have been accomplished in collaboration, most notably the Little Thompson Farm. Proactively and jointly identify projects to complete with Larimer and Boulder counties, Loveland, Johnstown, and Mead.
NFRMPO	\$-\$\$	MPO/ County	X	X		Apply for annual funding for regional trail corridors and multi-modal improvements.

