

City of Cherry Hills Village Trails Inventory



Condensed Web Version

March 7, 2016

Acknowledgments:

This project commenced in September 2015, with completion in February 2016. Below is a list of contributors to the City of Cherry Hills Village Trails Inventory. The City of Cherry Hills Village and the Consultant Team would like to extend a thank you to the members of the Parks, Trails, and Recreation Commission for their contributions.



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Table of Contents

CHAPTER I: PROJECT INTRODUCTION	1
Project Introduction + Goals	1
Past Documents.....	2
CHAPTER II: LONG-RANGE MAINTENANCE PROGRAM	3
Existing Trail Inventory.....	3
Analysis + Recommendations.....	9
CHAPTER III: GIS MAPPING SYSTEM	19
GIS Mapping Introduction + Uses.....	19
GIS Data.....	19
Webmap Platform.....	20

Pre-Existing Appendices (Under Separate Cover)

Appendix B: John Meade Park Master Plan

Appendix C: University Crossing Study

Appendix D: Little Dry Creek Study

Appendix E: Blue Ribbon Committee Report

Appendix F: Original SSPRD Easement Book

Appendix G: 2008 Cherry Hills Village Master Plan

Appendix H: CHV Trails Inventory of Existing Conditions

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CHAPTER I: PROJECT INTRODUCTION



Project Introduction + Goals

In the spring of 2015, the City of Cherry Hills Village received a grant from Arapahoe County Open Space to conduct a survey of all existing trails and associated infrastructure and prepare a long-term maintenance and repair program with the goal of maintaining the current system and increasing access for non-motorized activities. One of the main objectives of the project is to examine all easements and rights-of-way (ROW) to ensure City trails are currently within these easements/ROWs, as well as identify any 'unused' easements. This task involved researching approximately 280 plats within Cherry Hills Village and matching these up against the City's existing Parks and Trails Map. The results of this research are described in more detail in Chapter IV.

The City's trail system is well used and maintained, and its users are comprised of pedestrians, bicyclists, and equestrians. As the City does have a large equestrian community, many of the trails are Bridle Trails that are fairly informal and not ADA compliant. All of the trails are used by residents as well as visitors. The High Line Canal Trail bisects Cherry Hills Village from North to South, and there are numerous connections between City trails and the High Line Canal Trail.

While the trail system is in good usable condition, the objective of this project is to evaluate and inventory the entire City's trail systems, align them with existing legal data, and make recommendations for the long-term success and improvement of the trail system.

In order to accomplish this, the following **Goals and Objectives** have been developed:

- ▶ **Verify and document easements and ROWs for all City Trails.**
- ▶ **Create an easily accessible online map that displays information on all City Trails and accompanying easements.**
- ▶ **Inventory all City Trail segments and evaluate for condition, improvements, and use-type.**
- ▶ **Develop realistic recommendations for implementation through a modified Context-Sensitive Solutions (CSS) process to ensure a balance of Safety, Mobility, Community, and Environmental goals.**
- ▶ **Identify potential future connections to major trails and facilities.**

These goals, along with background documents and information, provide the guiding principles and vision for the City of Cherry Hills Village Trails Inventory.



Past Documents

The City of Cherry Hills Village has an existing trail system that is generally well maintained and well used by residents of Cherry Hills Village, as well as neighboring communities. Many of the trails are on-street or adjacent to streets, while others straddle private properties and intersect with public spaces such as parks. The City currently has a Parks and Trails Map which depicts the existing trail system.

In addition to this Parks and Trails Map, the City has completed multiple studies and plans for the trail system. Below is a list of these documents, along with a brief summary of each:

John Meade Park & Alan Hutto Memorial Commons Master Plan:

Completed in the summer of 2015, this Master Plan ([Appendix B](#)) creates a new vision for the Village Center area at the intersection of University Boulevard and Quincy Avenue. The Master Plan incorporates the Alan Hutto Memorial Commons into the Village Center and adds amenities such as natural areas, trails, and gathering places. The Plan recommends a location for the future Administration Building as well.

University Underpass Study:

Completed in 2007, this study ([Appendix C](#)) identified and examined the feasibility of installing pedestrian crossings over University Boulevard at Quincy Avenue and Union Avenue. The study provided analysis, planning, and cost estimates for the multiple options.

Dry Creek Study:

Completed in spring of 2010, this study ([Appendix D](#)) focused on protecting and enhancing the Little Dry Creek Corridor within Cherry Hills Village. This included studying flood hazards, vegetation, wildlife resources, and opportunities for recreation. The report addresses ownerships, easements, and issues along the creek corridor as well.

Blue Ribbon Panel Report:

The Blue Ribbon Panel Report ([Appendix E](#)) outlines the Vision for Cherry Hills Village Parks, Trails, Recreation, Historic Preservation and Open Spaces to be achieved by 2020. While the report is very extensive and covers multiple topics, there are some over-arching ideas and themes throughout the document. First, Cherry Hills Village has long been defined by larger private properties and the characteristics that accompany this. These include an aesthetic and character more reminiscent of country living than urban cities. Next, there are 'Scenic Treasures' within the City that need to be

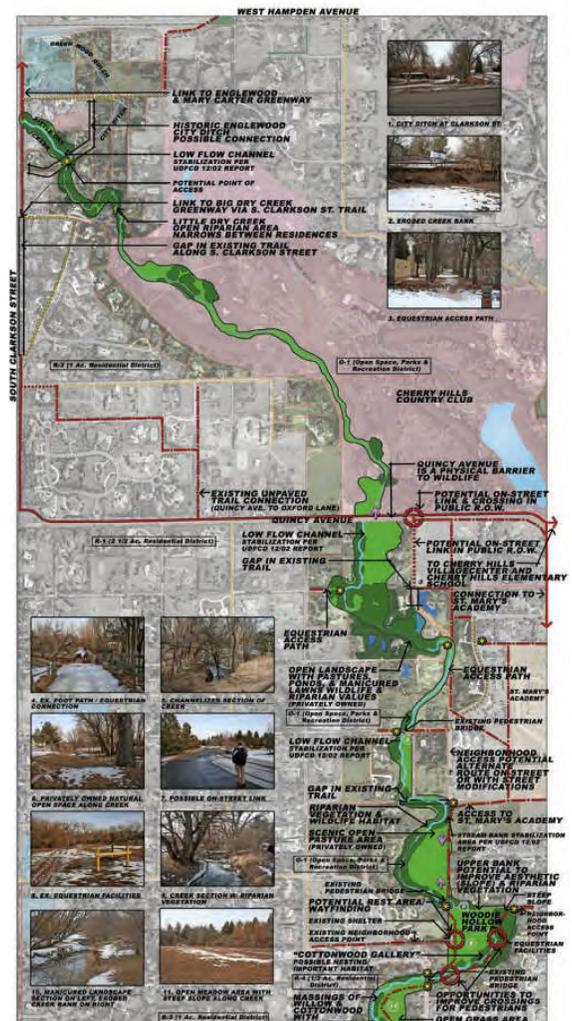
protected, including the High Line Trail Canal Trail corridor, the East-West Wetlands Trail corridor, and view corridors from Quincy, Colorado Blvd, Holly Street, and Cherry Lane Drive.

Original Easement Book:

The original Easement Book ([Appendix F](#)) is a document created by South Suburban Parks and Recreation District (SSPRD) that lists approximately 220 plats and 10 vacations. The document lists the plat, the book and page where found, and a description of any easements. The Book was last revised January 18, 2000.

Cherry Hills Village Master Plan:

The 2008 Cherry Hills Village Master Plan ([Appendix G](#)) defines the community's vision, including the existing and intended character of the City. It also defines goals and strategies for Land Use/Development, Character, and most important to this project, Open Space, Parks, Trails, and Recreation. Goals and strategies from this document were used as a basis for the goals and vision of this project.



Dry Creek Study Map



CHAPTER II: LONG-RANGE MAINTENANCE PROGRAM

This chapter details the findings of the trails inventory and analysis. Much of the inventory data was collected by City staff and verified by the consultant team. To verify the City collected data, the consultant team first reviewed all GIS data and accompanying spreadsheets. The data was then reviewed for accuracy as it relates to location, data, and condition notes. Any corrections were made in the GIS databases. A criteria for defining trail conditions was established, based on qualitative notes in the CHV Trails Inventory of Existing Conditions (*Appendix H*) and field visits.

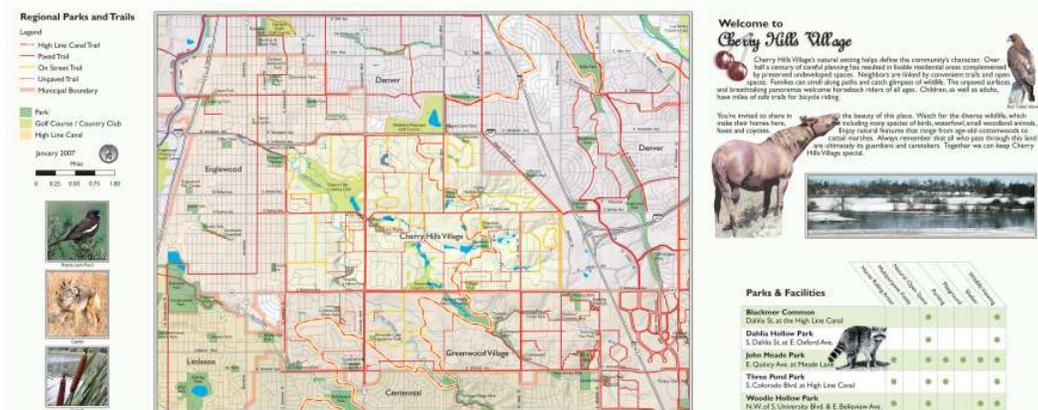
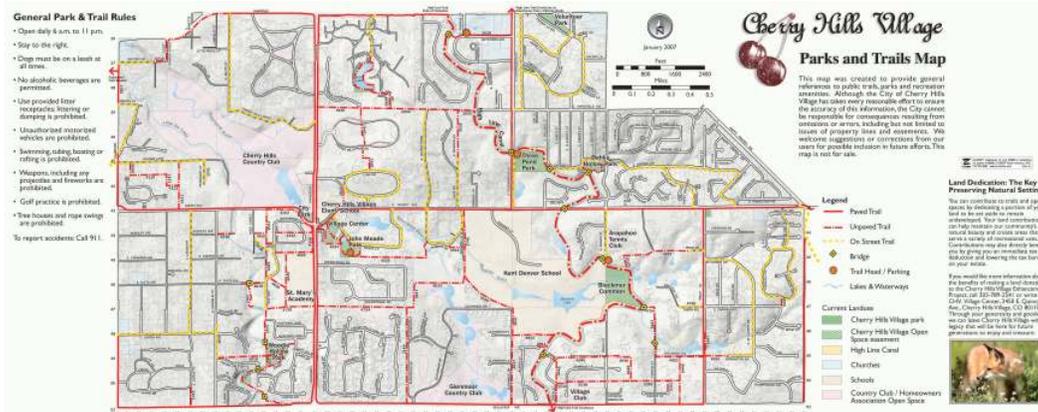
The legal document research portion of the project, which investigated all existing trail easements and plats in relation to City trails, is addressed in *Chapter IV*.

Existing Trail Inventory

The existing trail system within Cherry Hills Village is well maintained and used. It consists of a variety of trails ranging from on street trails, to sidewalks, to unpaved trails, to bridle trails. Cherry Hills Village is largely an equestrian community and many of the trail system users are equestrian riders.

The existing trail system provides connections between public facilities and residential communities throughout the City, including the High Line Canal regional trail. The High Line Canal runs through Cherry Hills Village and provides many amenities for residents and visitors alike.

Cherry Hills Village currently has a Parks and Trails Map that diagrams the majority of the trails as well as their trail type. This map shows the City Trail Numbers, which are based on a map grid numbering system. The first two digits of the trail number refer to the grid location of the primary direction of the trail. The second two digits refer to the grid location perpendicular to the trail. The map is available physically at the City offices, and digitally from the City's website.



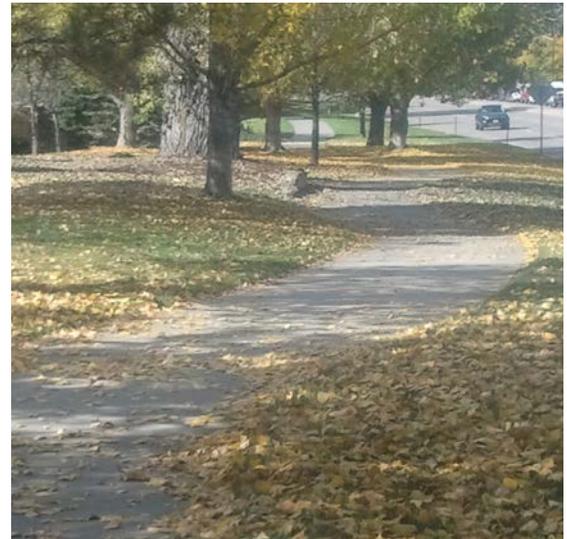
Current Parks and Trails Map



Prior to, and during the beginning stages of the project, the City utilized staff to collect massive amounts of data on the existing trails in Cherry Hills Village. Data collection was done manually with GPS units, and included data such as:



- **Trail Number** - *Cherry Hills Village Trail Number, based on the City's Trail Numbering system, described in previous section.*



- **Trail Surface** - *Type of trail surface, along with notes concerning condition and ruts.*
- **Trail Dimensions** - *Length and width of trail segments, and estimated square footage.*



- **Areas in need of Repair** - Ruts, dips, etc. listed and described by trail segment.



- **Vegetation Notes** - Notes on trail vegetation, mainly vegetation that is encroaching on the existing trails.



- **Seeding Notes** - Notes concerning native grass alongside trails (or on trails for some bridle trails), including condition and areas needing repair.





- **Trail Markers and Signs** - *Listed by trail segment, with condition notes.*



- **Trail Obstructions** - *Notes on items such as utility boxes, telephone poles, drainage issues, and other miscellaneous obstructions*

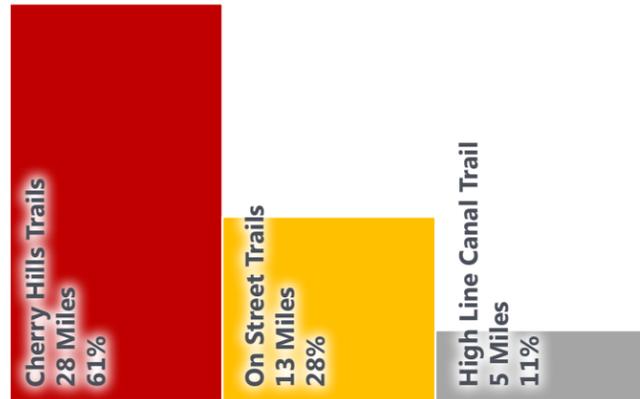
Along with this GPS data, the City also collected photographs and detailed notes for each of the elements.

Many of the trails within Cherry Hills Village are on street trails. These trails are generally in residential areas with very low traffic flows. For these trails, there is no formal trail, simply the paved or unpaved road. While there is not a formal trail, these trails serve as important connectors and are well used by residents within their neighborhoods, as well as to reach larger trails and parks. While these trails are shown on maps, the conditions of these trails were not inventoried as they are primarily roads, and are inventoried and maintained as roads.

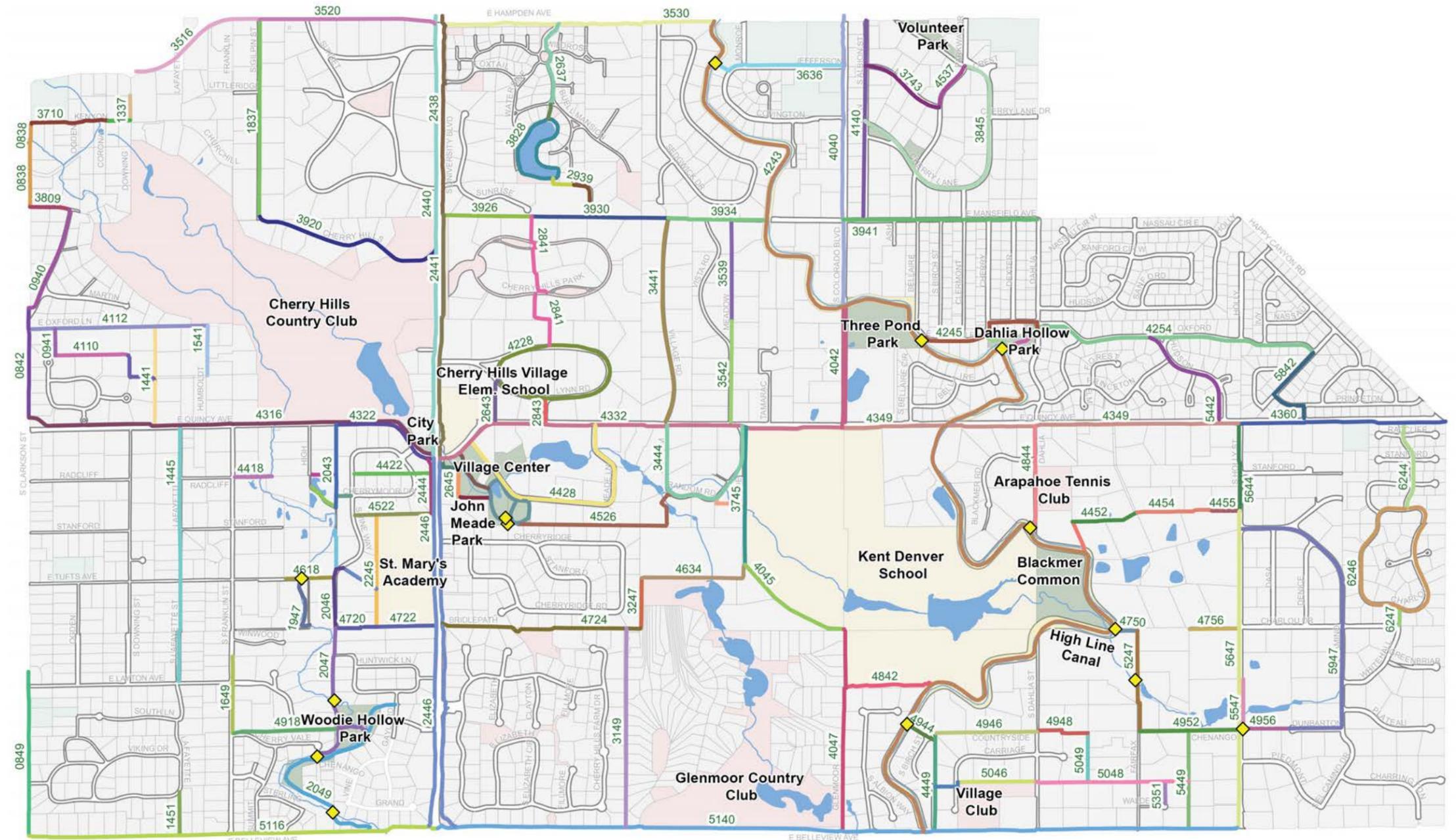
All of the City's collected data has been rectified with County GIS data and basemaps, and then integrated into the overall GIS databases being created for this project. The consultant team has added additional data fields to the City collected data as well. Finally, all of the data will be made available to the City for use through both Desktop GIS and the Online WebGIS map.



The total inventory of trails has resulted in 444 segments of trail comprising 126 unique trail numbers. The total trail system (including on street trails and the High Line Canal trail) is approximately 46 miles. The High Line Canal is 5 miles through the City of Cherry Hills Village. The on street trails account for 26 miles of trail.



The number of trail segments is very high because the trails are split according to easements, ROWs, and plats. The 126 trail numbers, however, are not split based upon easements. There are significantly more trail numbers than currently exist on the City's Parks and Trails Map. This comes as a result of the decision to number all trails, including on street trails and sidewalks along major roads. Neither of these categories of trails were previously assigned Cherry Hills Village trail numbers.



Trail Map by Cherry Hills Village Trail Number

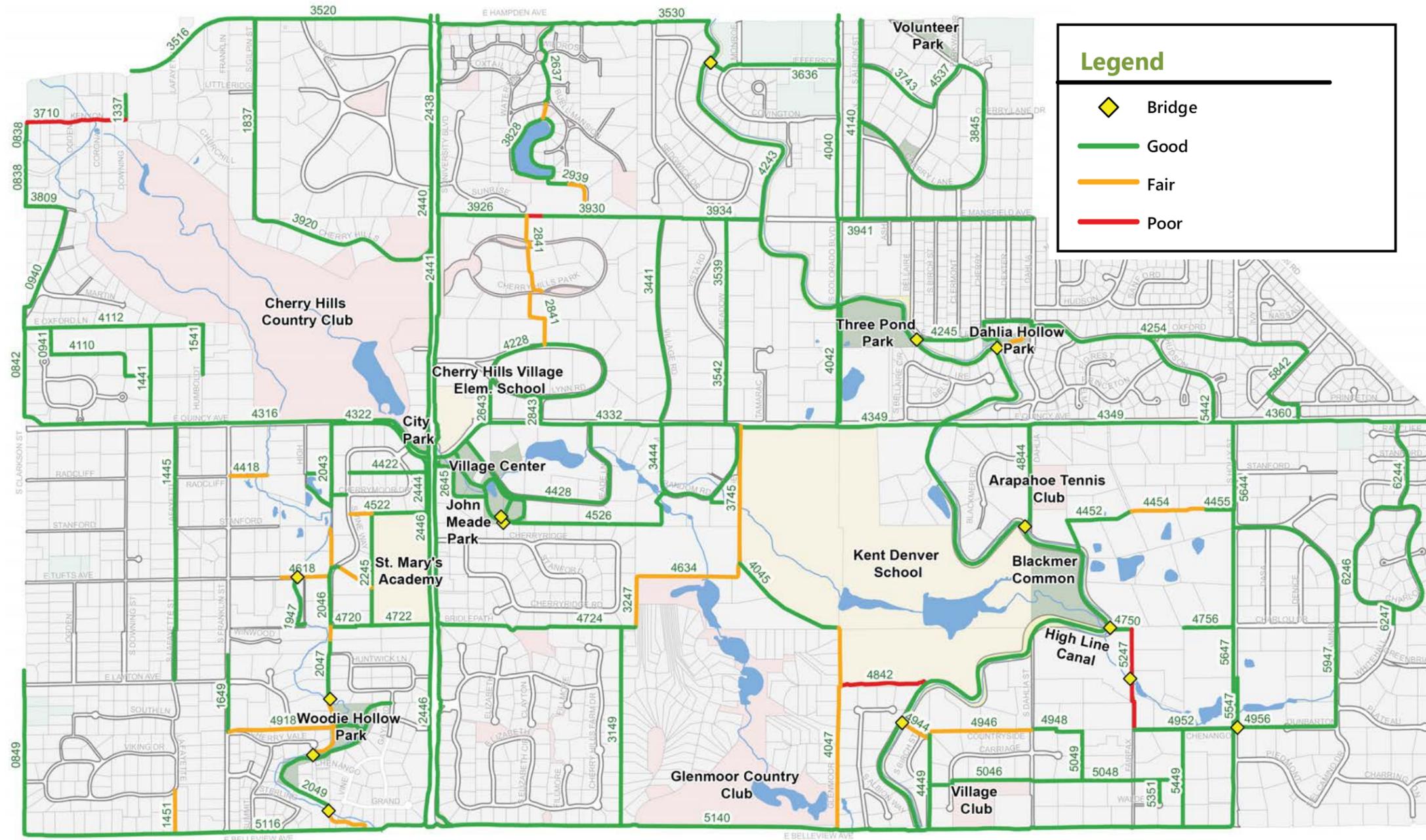




Examples of Trail Surface Conditions

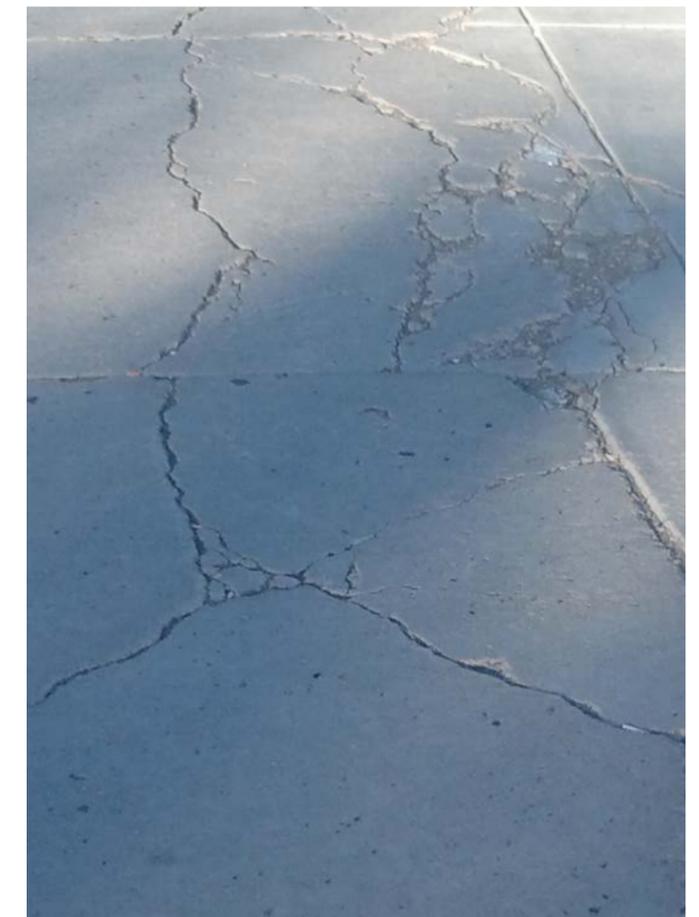
The majority of these trails are in good or fair condition, however some of the trails are in need of some scale of rut/damage repair. This damage was inventoried by trail number and segment. To evaluate the trails' overall condition, the following scale was used:

- **Good** - No major repairs needed. The trail is in good usable condition and does not pose any safety risks due to surface condition or upkeep.
- **Fair** - Minor repairs are needed, including minor ruts. The trail is in good usable condition and does not pose major safety risks due to surface condition or upkeep.
- **Poor** - Areas are in need of repair in order for the trail not to pose safety risks due to surface condition or upkeep. The trails labeled as Poor generally have areas of significant ruts or trail washout. There were only a select handful of trails labeled as Poor, and the majority of these only require repairs in select areas along the trail.



Trail Map by Existing Trail Condition

The map at left shows the entire trail system by condition. All on-street trails were assumed to be in Good condition based on the fact that these trails are primarily roads that are also used as trails and trail connections.



Analysis + Recommendations

In order to address the expansion, continued success, and prioritization of future trail projects, the following set of five recommendations have been developed. These recommendations were developed based on:

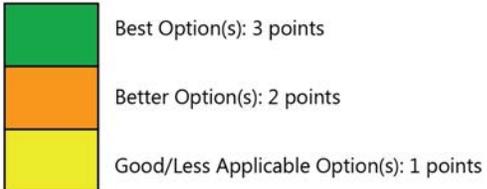
- Industry standards
- City staff input
- Findings of the legal document research
- Experience from previous trails master plans and studies
- Comparisons to similar community's trails master plans

In order to ensure all recommendations made by this Trails Plan are realistic, implementable, and meet goals, a modified Context-Sensitive Solutions approach was implemented. Each recommendation was graded based on the following goals:

- Accommodates use by pedestrians, bicyclists, and equestrians
- Fits aesthetic characteristics for Cherry Hills Village
- Creates stronger connections to the Village Center area
- Increases connectivity between areas within Cherry Hills Village
- Increases connectivity between CHV trails and the High Line Canal Trail
- Provides safe road crossings
- Increases public knowledge and awareness of the City Trail System
- Increases City knowledge for future planning efforts
- Low installation/up front cost
- Low maintenance/on-going cost

The CSS chart below shows the result of the vetting process. Each recommendation is given a score of Good, Better, or Best for each goal. Best choices are worth 3 points, Better options 2 points, and Good options are 1 point each. Totaling the scores shows that Recommendation #1 meets the most goals the best, followed by Recommendations #2 and #4. The fact that all of the scores were close shows that all of the proposed recommendations do meet multiple goals.

	#1 Trail Design Guidelines	#2 Research Unused Easements	#3 Signs + Kiosks	#4 General Repairs	#5 University Crossing
Accommodates use by pedestrians, bicyclists, and equestrians	Best	Better	Good	Better	Better
Fits aesthetic characteristics for Cherry Hills Village	Best	Good	Better	Better	Good
Creates stronger connections to the Village Center area	Better	Best	Good	Better	Better
Increases connectivity between areas within CHV	Better	Best	Better	Better	Better
Increases connectivity to the High Line Canal Trail	Better	Best	Better	Better	Good
Provide safe road crossings	Better	Better	Better	Good	Best
Increases public knowledge of the City Trail System	Better	Good	Best	Best	Good
Increases City knowledge for future planning efforts	Better	Best	Better	Better	Good
Low installation cost	Better	Better	Better	Better	Good
Low maintenance cost	Better	Better	Good	Better	Best
Total Scores:	22	20	18	19	17





Recommendation #1 - Establish Trail Design Guidelines:

The first recommendation is to establish and implement trail design guidelines for all City trails. Based on the existing trails and the trail users' needs, the following four trail types have been established:

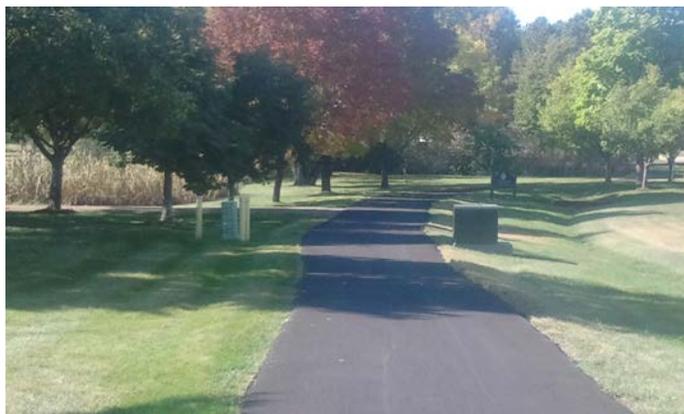
- *Paved Mixed Use Trails*
- *Unpaved Mixed Use Trails*
- *Bridle Trails*
- *On Street Trails*

All four trail types are designed to accommodate walking/jogging, biking, as well as equestrian use. Both of the mixed use trail types are designed to be ADA accessible, while the Bridle Trails are more informal and not required to be ADA accessible. Because these trails are less formal, the level of difficulty is higher than that of the mixed use trails. Detailed explanations and specifications of each trail type are discussed on the following pages.

Paved Mixed Use Trails

The Paved Mixed Use Trail (PMU) Design guideline applies to all City trails that are paved and separated from roadways. This includes attached (on-curb) sidewalks, detached (with street lawn) sidewalks, and paved park trails. These trails generally serve as major routes and thoroughfares, but are also found in less major locations. All PMU trails should meet ADA requirements and accommodate pedestrians, bicyclists and equestrians. Where possible, a soft surface shoulder of at least 3' wide should be installed for better equestrian use. Currently, most of the PMU trails do not have this soft shoulder, and it is only possible in certain locations. Many PMU trails are adjacent to sod or native grass, which is also acceptable for better equestrian use, although it will not hold up as well to increased use.

Minimum Tread Width	8' (6' if not a major route)
Surface	Concrete or Asphalt
Slope	0-5% (ADA ramps allowed if needed)
Cross-Slope	Max. 2%
Curve Radii	Aesthetic considerations
Sight Distance	As required for road crossings
Horizontal Clearance	2' from edge of pavement
Vertical Clearance	10' Min., 12' preferred



Paved Mixed Use Trail Example

Attached Sidewalk (PMU Trail Example)



Unpaved Mixed Use Trails

The Unpaved Mixed Use Trail (UMU) Design guideline applies to all City trails that are not paved, excluding bridle trails. These trails are more formal than the bridle trails, with wide established paths. The surface material is typically compacted soil or crusher fines. All UMU trails should meet ADA requirements and accommodate pedestrians, bicyclists and equestrians. These trails are the most versatile of the trail types, and are suitable for use as major routes, minor routes, connector trails, and loops. When possible, these trails should connect to create loops, reducing the need for turn-around areas. The specifications below were designed with special considerations for equestrian users.

Minimum Tread Width	6' if not intended for equestrian 8' if intended for equestrian
Surface	Crusher Fines or Compacted Soil
Slope	0-5% Max.
Cross-Slope	Max. 2%
Curve Radii	10' Min., 12' preferred
Sight Distance	Minimum of 50' for equestrians, 100' at road crossings
Horizontal Clearance	3' from edge of trail tread
Vertical Clearance	10' Min., 12' preferred



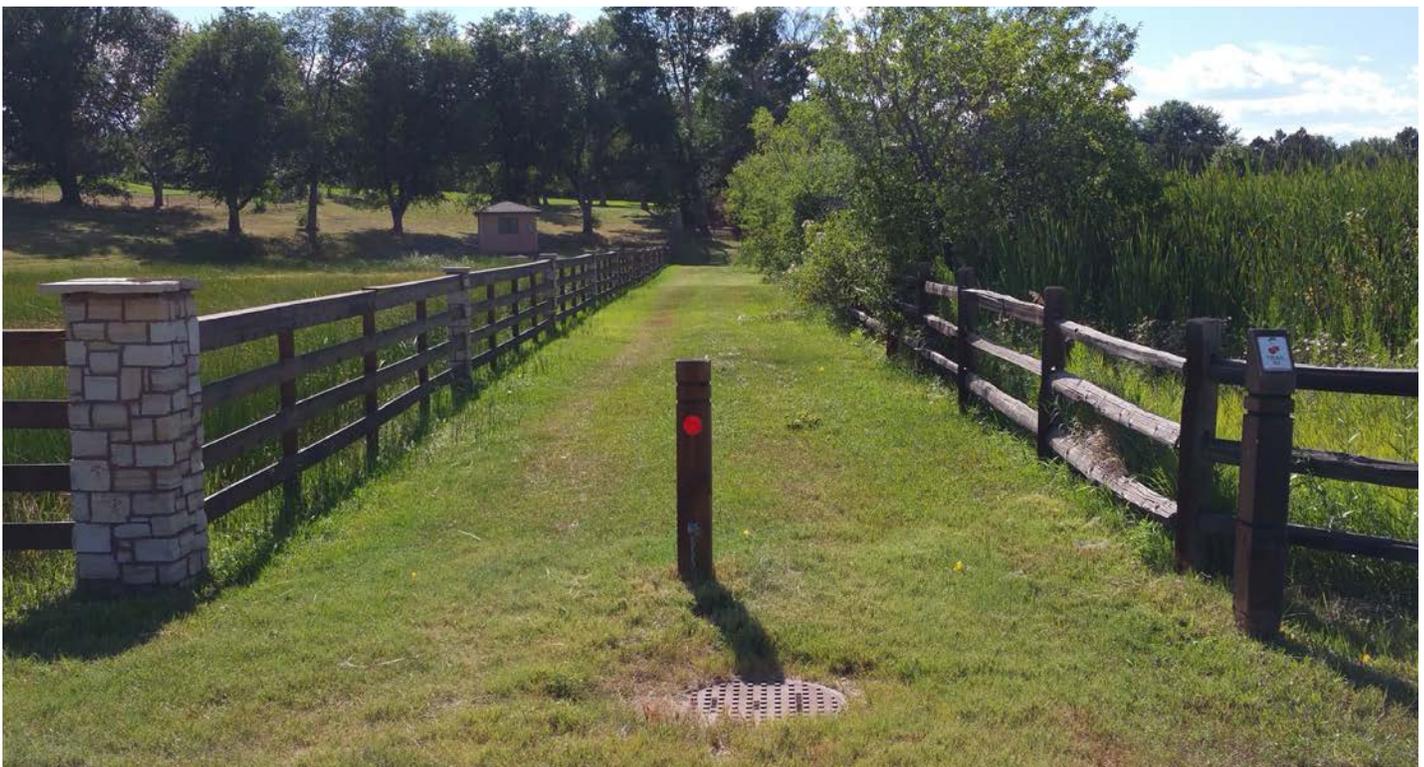
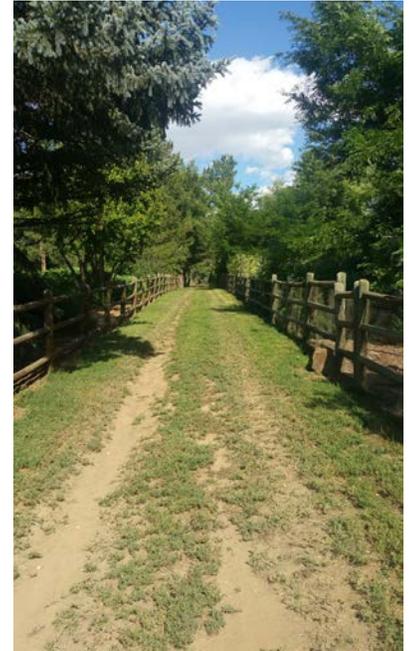
Unpaved Mixed Use Trail Example



Bridle Trails

The Bridle Trail (BT) Design guideline applies to all City trails that are not paved and are not ADA accessible. These trails are less formal than the UMU trails, and are often single or double track trails. The surface material is typically compacted soil, mowed native grasses, or a combination of the two. The compacted soil is often a result of use of the trail rather than intentional compaction as a result of trail construction. All Bridle Trails should accommodate pedestrians, bicyclists and equestrians, although the difficulty is greater than the PMU and UMU trails. These trails can serve as connecting trails and minor routes, but usually are not major routes. When possible, these trails should connect to create loops, reducing the need for turn-around areas. The specifications below were designed with special considerations for equestrian users.

Minimum Tread Width	6'
Surface	Compacted Soil, Mowed Native Grasses, or a combination
Slope	0-12% Max.
Cross-Slope	Max. 2%
Curve Radii	8' Min., 10' preferred
Sight Distance	Minimum of 30' for equestrians, 100' at road crossings
Horizontal Clearance	3' from edge of trail tread
Vertical Clearance	10' Min., 12' preferred



Unpaved Mixed Use Trail Example



On Street Trails

The design guidelines for the On Street Trails (OS) are less defined because these trails are roads first, and trails second. The surface, width, and other parameters of the 'trail' will vary based on the road. These are generally smaller residential roads that also serve as trails and trail connectors. Because Cherry Hills Village is largely a residential City, there are numerous On Street Trails on residential roads. These should accommodate pedestrians, bicyclists, and equestrians, although all of these uses should be at lower speeds to avoid conflicts with vehicles.



Paved On Street Trail Example



Unpaved On Street Trail Example





Paved Mixed Use Trail Example



Paved Mixed Use Trail Example



Unpaved Mixed Use Trail Example



On Street Trail Example



Bridle Trail Example



Bridle Trail Example

As described above, all four of the trail design guideline types are intended for pedestrian, bicyclist, and equestrian users. All of the existing Cherry Hills Trails have been categorized based on these design guidelines, and improvements to existing trails should be made to meet these guidelines. In general, the completion of general repairs and maintenance/up-keep as noted in the CHV Trails Inventory of Existing Conditions ([Appendix H](#)) is all that is required for the existing trails to meet these design guidelines.

Construction of all future trails should be based on these trail design guidelines as well.



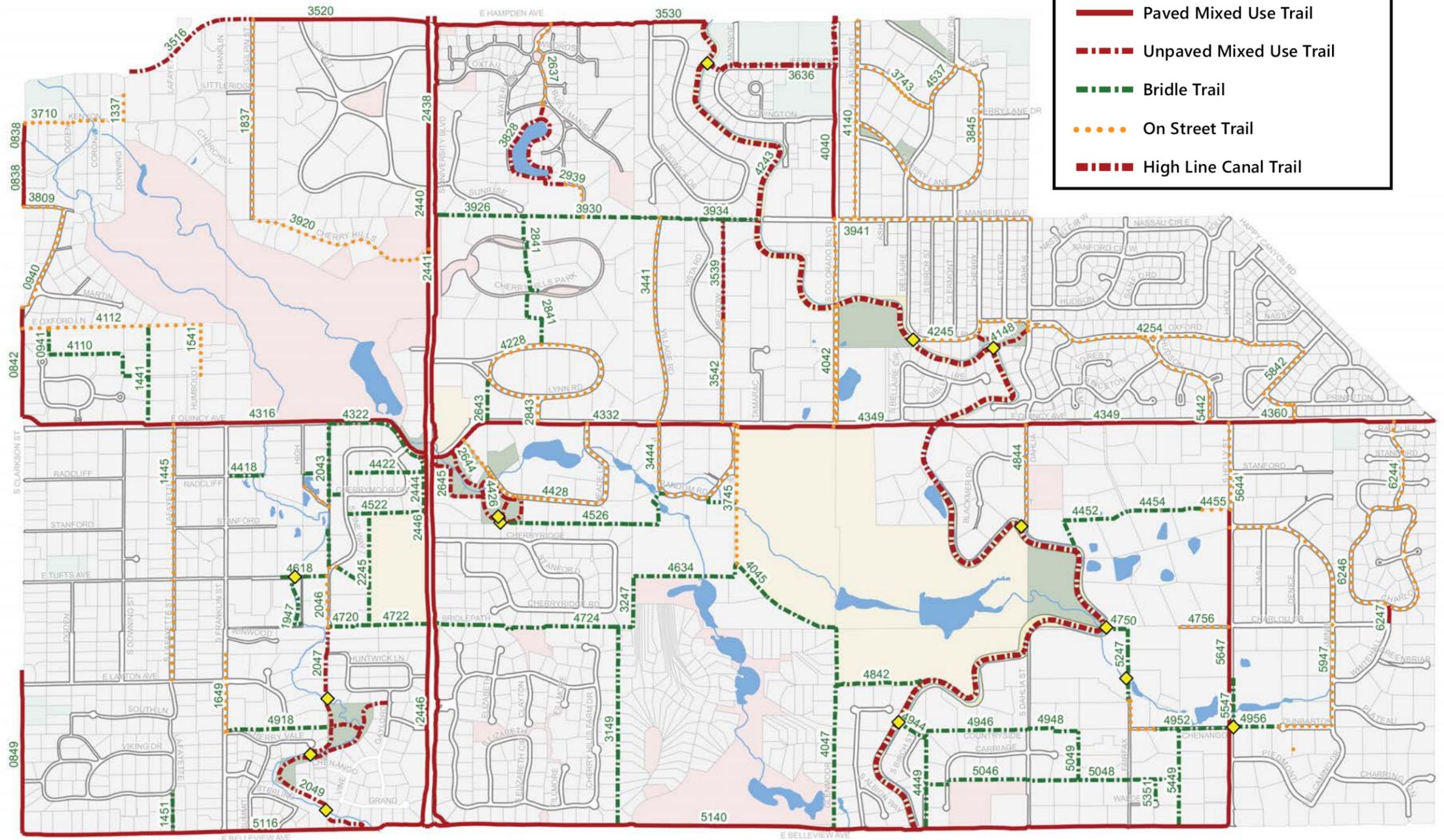
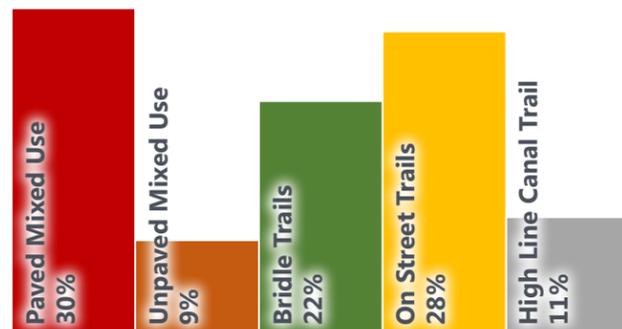
There is a fifth category of trail, although this project will not make any recommendations pertaining to it. This category is the High Line Canal Trail, a regional trail that is not under the jurisdiction of the City of Cherry Hills Village. This trail is a significant resource for the City, and this project has only made recommendations pertaining to connections to the High Line Canal Trail. The City has received funding for an underpass at Hampden Avenue to create a stronger connection for the High Line Canal Trail across Hampden Avenue. Construction is expected to begin in 2017.



High Line Canal Trail

The existing trails have been categorized into these five trail types, resulting in the following lengths:

Paved Mixed Use Trails -	14 Miles
Unpaved Mixed Use Trails -	4 Miles
Bridle Trails -	10 Miles
On Street Trails -	13 Miles
High Line Canal Trail -	5 Miles



Trail Map by Cherry Hills Village Trail Type



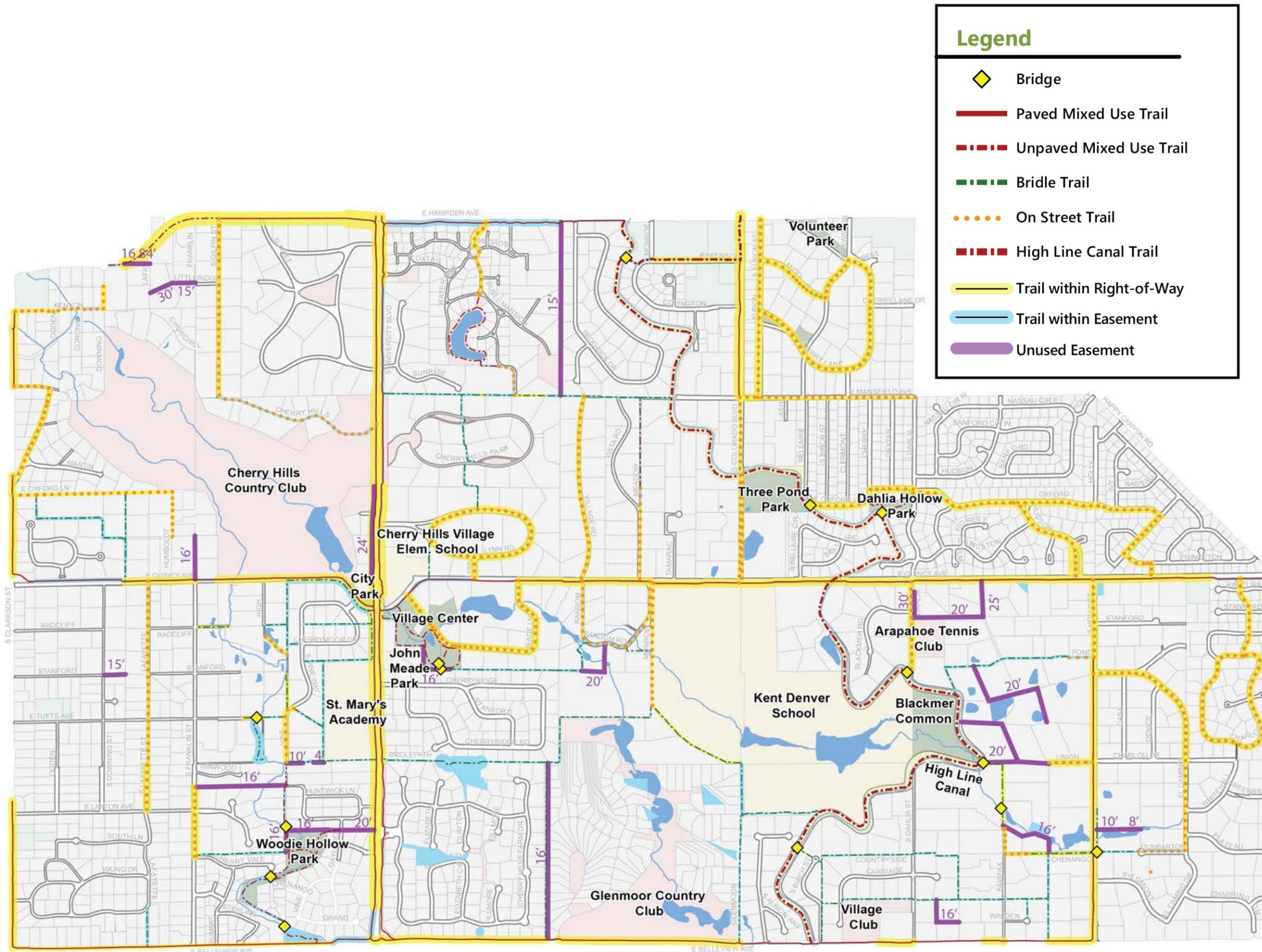
Recommendation #2 - Further Research Potential Uses for Unused Easements:

The map at right shows existing trail easements and right-of-ways. Trails within easements are shown with blue highlights, and right-of-ways are shown with yellow highlights. The highlights are drawn at the approximate width of the ROW or easement, centered on the trail centerline. Trail easements that are currently unused are shown with purple highlights. Some of the 'Unused Easements' are directly adjacent to existing trails. These are still shown as Unused because there are 2 or more easements and the trail is only utilizing one of them. Therefore, these are still easements available for future use for trail facilities.

While some of the unused easements would not likely provide meaningful connections, some of them could:

- Create key connections to existing and proposed trails and facilities
- Improve connectivity to the Village Center
- Improve connectivity to the High Line Canal Trail

The unused easements identified by this plan have been reviewed by City staff and the PTRC, and improvements to these easements may be pursued in the future. However, easements from additional property owners may be needed in order to complete projects. Any proposed improvements will be addressed on a case-by-case basis by City staff and the PTRC.



Easements, Right-of-Ways, and Unused Easements



**Recommendation #3 -
Improve Signage and Trail Network Identity**

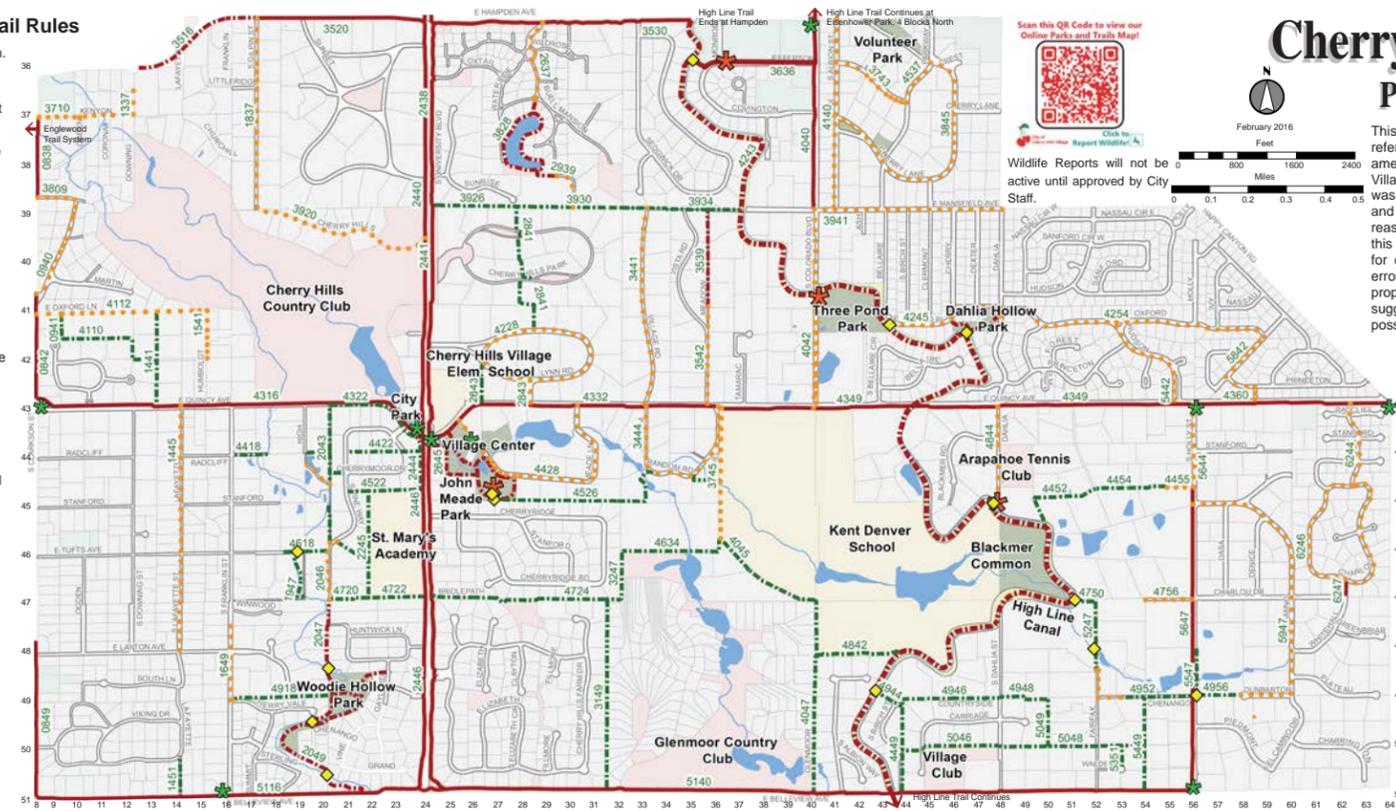
The next recommendation of this Trails Plan is to increase public awareness of the trail system by:

- Fixing any broken or leaning trail markers. These are noted in *Appendix H*.
- Continue to add visible trail marker signs and bollards as necessary. These trail numbers should be aligned to the trail numbers assigned in this Trails Plan document.
- A number of existing trail markers have an incorrect trail number. These should be corrected, and the trail numbers in this Trails Plan document should be used in the case of discrepancies. The incorrect trail markers are noted in *Appendix H*.
- As part of this project, the printable Cherry Hills Village Parks and Trails Map has been re-created to be in line with the trail numbers, trail types, and trail locations shown in the Webmap. These maps should be printed and kept in stock at the City Administration Building.
- A QR code has been added to the foldable Parks and Trails Map that links Users to the online Parks and Trails Webmap Application.
- A sticker with the QR code has been created, which will link Users to the online Parks and Trails Webmap Application.

General Park & Trail Rules

- Open daily 6 a.m. to 11 p.m.
- Stay to the right.
- Dogs must be on a leash at all times.
- No alcoholic beverages are permitted.
- Use provided litter receptacles; littering or dumping is prohibited.
- Unauthorized motorized vehicles are prohibited.
- Swimming, tubing, boating or rafting is prohibited.
- Weapons, including any projectiles and fireworks are prohibited.
- Golf practice is prohibited.
- Tree houses and rope swings are prohibited.

To report accidents: Call 911



**Cherry Hills Village
Parks and Trails Map**

This map was created to provide general reference to public trails, parks and recreation amenities located within the City of Cherry Hills Village. The information contained in this map was collected from various outside sources and data. Although the City has taken every reasonable effort to ensure the accuracy of this information, the City cannot be responsible for consequences resulting from omissions or errors, including but not limited to accuracy of property lines, easements, etc. We welcome suggestions or corrections from our users for possible inclusion.

Land Dedication: The Key to Preserving Natural Settings

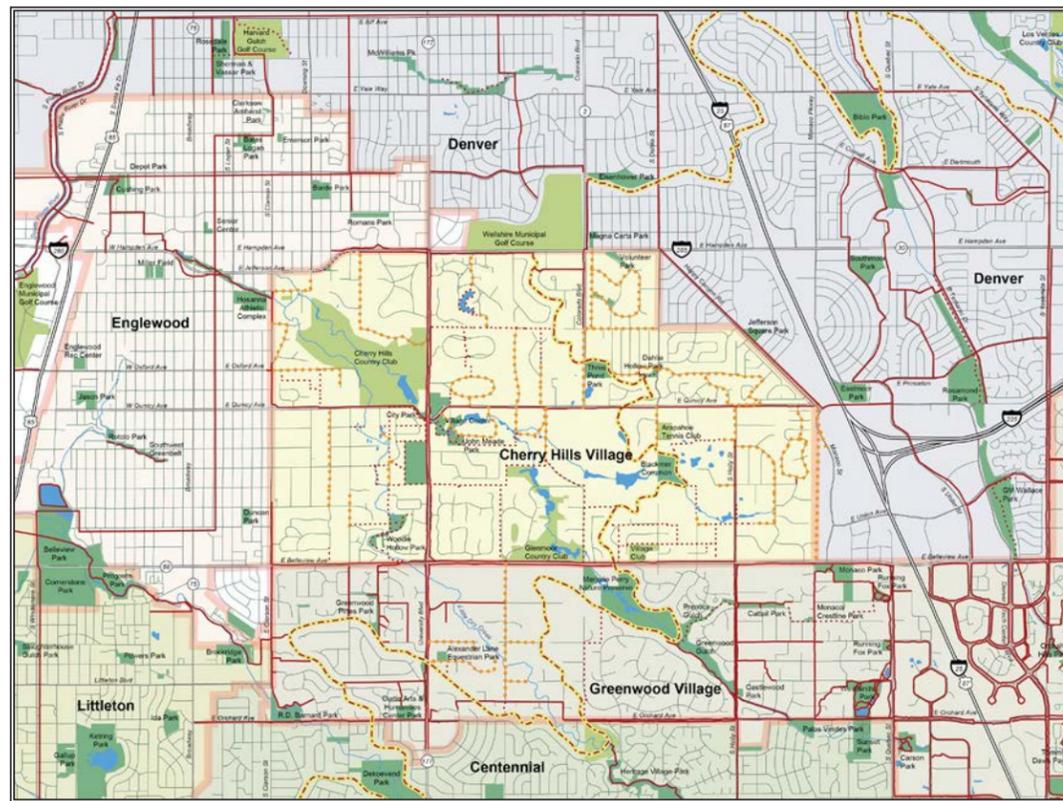
You can contribute to trails and open spaces by dedicating a portion of your land to be set aside to remain undeveloped. Your land contribution can help maintain our community's natural beauty and create areas that serve a variety of recreational uses. Contributions may also directly benefit you by giving you an immediate tax deduction and lowering the tax burden on your estate.

If you would like more information about the benefits of making a land donation to the Cherry Hills Village Enhancement Project, call 303-789-2541 or write to CHV, Village Center, 2450 E. Quincy Ave., Cherry Hills Village, CO 80110. Through your generosity and goodwill, we can leave Cherry Hills Village with a legacy that will be here for future generations to enjoy and treasure.



Regional Parks and Trails

- Legend**
- High Line Canal Trail
 - Paved Trail
 - On Street Trail
 - Unpaved Trail
 - Municipal Boundary
- Park
 - Golf Course / Country Club
 - High Line Canal



**Welcome to
Cherry Hills Village**

Cherry Hills Village's natural setting helps define the community's character. Over half a century of careful planning has resulted in livable residential areas complemented by preserved undeveloped spaces. Neighbors are linked by convenient trails and open spaces. Families can stroll along paths and catch glimpses of wildlife. The unpaved surfaces and breathtaking panoramas welcome horseback riders of all ages. Children, as well as adults, have miles of safe trails for bicycle riding.



Parks & Facilities

	Horse Riding Areas	Multipurpose Areas	Natural Open Space	Parking	Playground	Shelter	Wildlife Viewing
Blackmer Common Dahlia St. at the High Line Canal							
Dahlia Hollow Park S. Dahlia St. at E. Oxford Ave.							
John Meade Park E. Quincy Ave. at Meade Lane							
Three Pond Park S. Colorado Blvd. at the High Line Canal							
Woodie Hollow Park N.W. of S. University Blvd. & E. Bellevue Ave.							



2"x2" QR Code Sticker



Recommendation #4 -
General Repairs based on Trails Inventory:

The City's CHV Trails Inventory of Existing Conditions (*Appendix H*) compiled a great deal of information on obstructions, vegetation, structures, signs, and trail surface conditions. Many of these data points include notes on condition and needed repairs. These repairs vary, and include items such as:

- Trimming overgrown vegetation
- Re-seeding grass areas
- Fixing ruts and trail wash-out areas
- Fixing broken or leaning bollards, trail marks, and signs
- Repairing pavement cracks and damage
- Repairing fences

All of this data has been included in the online Webmap viewable only to City staff. As part of on-going maintenance and upkeep, the City should complete the repairs listed in this data, and once complete, should update the GIS data accordingly.

Recommendation #5 -
Soft Recommendations for Improving the Connection Across University Boulevard:

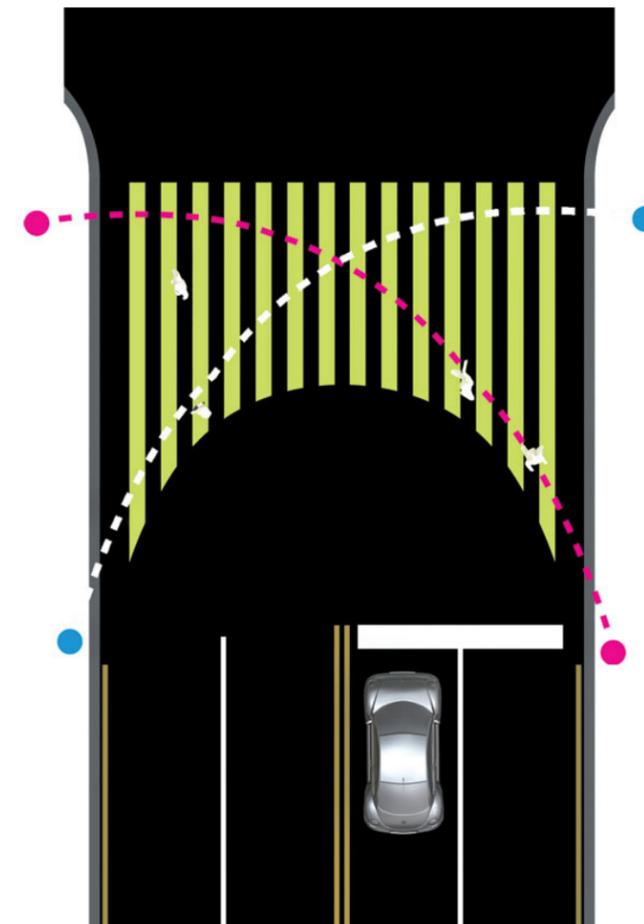
Although the crossing at Quincy Avenue and University Boulevard is currently in safe and usable condition, there have been past studies on how to improve this crossing based on the amount of pedestrian, and especially youth traffic at the intersection. Because the City is already involved in discussions and potential plans for improvements at the intersection, this project will only make a series of 'soft' recommendations. These recommendations are in line with past and current discussions/studies, and should be taken as suggestions more than recommendations. The soft recommendations for this intersection are:

- Improve curb ramps. The existing curb ramps do have a certain amount of cracking and damage.
- Improve the crosswalk paint. The existing crosswalk paint does have fading from the large amount of vehicular and pedestrian traffic. Because this intersection is directly adjacent to the Village Center area, Cherry Hills Elementary School, and St. Mary's Academy, there is an opportunity to create a fun themed crosswalk that relates to the Cherry Hills community, and the surrounding schools.

Another option is to create a curved crosswalk to create wider pedestrian access to the crossings. This can be implemented only on one of the streets, or both streets.

- As the John Meade Park/Alan Hutto Memorial Commons design continues to evolve, there should be an emphasis on creating safer and stronger connections to the crossing at University Avenue. Consideration should also be given to how the Park design can improve pedestrians crossing Quincy Avenue to Cherry Hills Elementary, as well as vehicular traffic for school drop-offs.

- The overpass/underpass options at this intersection, as well as other nearby locations, should continue to be researched and evaluated based on the community needs.



Curved Crosswalk Example



CHAPTER III: GIS MAPPING SYSTEM

GIS Mapping Introduction + Uses

At the beginning of this project, the City did have some internal GIS databases, but the majority of the GIS data available was owned by Arapahoe County.

This project created a new series of databases based on Arapahoe County data, field collected data, legal document research, and planning data created as a result of this project. The intended uses of this data is two-fold:

- Public Use - Some of the data is intended for public use to increase awareness of the trail system and its amenities. This data also allows users easier access to legal documents such as plats. All of these documents were previously available to the public via the Arapahoe County Assessor's office, however they are now available via a quicker and more efficient process.
- City Staff Use - All of the field collected data, as well as detailed information on the legal document research is now available to City Staff through the GIS database and Webmap. One intended use is for City staff to quickly and easily update databases information pertaining to trail repairs, as they complete the repairs.

GIS Data

Once the consultant team gathered the City collected GPS/GIS data, the data was then organized and analyzed for use in the project geodatabase. The trails data did need to be converted to *polyline* data. The City staff completed this by utilizing the existing Arapahoe County GIS *polyline* data for trails, and joining attributes from the field collected *point* data.

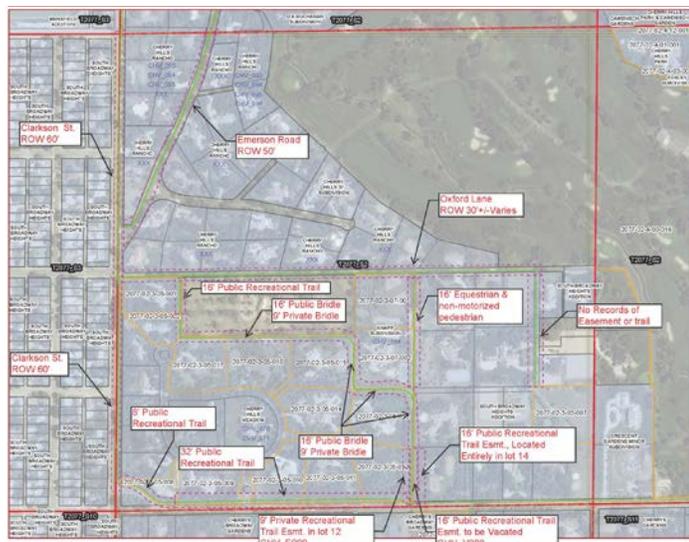
With the trails data converted to polylines, the legal documents could be linked. Legal documents were attached via the following links:

- Trail polyline linked to PDF Legal Reports
- Subdivision polygon linked to PDF Legal Reports

In order to graphically display the network of easements and ROWs, easement and ROW buffers were created by offsetting trail centerlines (provided by Arapahoe County) the appropriate easement/ROW width. Trail polylines were given attributes defining easement/ROW width, type and notes.

The consultant team created 3 new shapefiles in order for the Webmap to more closely resemble the existing Parks and Trails Map. These shapefiles are:

- Land Uses - This file depicts the Cherry Hills Village Parks, the High Line Canal, Churches, Schools, and Country Club/HOA Open Spaces.
- Trailheads/Parking - This file shows approximate locations of trailheads/parking areas based on the original Parks and Trails Map.
- Entry Features - This file shows approximate locations and notes for entry features owned by the City. This data was created based on existing City data.



Map Book showing Legal Research Mark-Ups

All project GIS data was compiled into a single geodatabase containing four feature datasets:

- Base_Layers: Contains layers such as Parcels, Subdivisions, Land Uses, Streams, Lakes, etc.
- City_Features: Contains City collected point data on structures, vegetation, obstructions, bollards, etc.
- Trail_Features: Contains Trail polylines, Trailheads/Parking, bridges, etc.
- Trail_Easements: Contains easement and ROW buffers, HOA/City Recreation Tracts, Unused Easements, etc.



Webmap Platform

In addition to created an offline GIS database for the City staff to utilize, this project was also tasked with providing public access to records through interaction with the City's website. This was accomplished by creating an interactive Webmap application. This allows City staff to view all uploaded data, and the public to view certain data. Below is a full list of the data uploaded to the Webmap. Items in *red italics* with an asterisk are for City Staff viewing only (non-public data).

- Street Labels
- Trails Labels
- Entry Features
- Trailheads/Parking
- Wildlife Spotting
- Bridges
- Trails
- *Unused Easement Documents**
- *Unused Easements**
- *City/HOA Recreation Tracts**
- *Easements**
- *Rights-of-Way**
- PLSS Grid
- *Utility Boxes**
- *Poles**
- *Telephone Pole**
- *Fire Hydrant**
- *Vegetation Trim**
- *Weeds**
- *Trees**
- *Grass Seed Needed**
- *Sign - Dog Owner**
- *Sign - No Motor Vehicles**
- *Sign - Natural Feature**
- *Sign - Informational**
- *Trail Markers**
- *Bollard**
- *Trash Can**
- *Bench**
- *Ruts in Trail**
- *Drainage**
- *Storm Sewer**
- *View of Trail**
- *Misc. Features**
- *Encroachments**
- Streams
- Lakes
- Land Uses
- Subdivisions
- Assessor Parcels
- City Limits
- Aerial Imagery
- CHV TrailSegPlats (this is the table that holds all linked legal documents, not a graphically visible layer)

In order to separate the public vs. City layers, three Webmap applications were created:

- **City Staff Webmap** - For view and use by City staff only. This Webmap includes all of the GIS data collected and created for the project.
- **Parks and Trails Webmap** - This map is for public use and does not include data such as the Easement and ROW buffers, Unclaimed Easements, Trail Repairs (Ruts in Trail), Trail Markers, or other Obstructions. This map will be linked on the City's Parks and Recreation webpage and will also be linked through the QR code on the foldable Parks and Trails map. This is the only application with the Wildlife Spotting Feature enabled.
- **Community Development Webmap** - This map is for public use and contains the same data as the Parks and Trails Webmap. The one difference is that it will show the Subdivisions layer (with linked legal documents) by default. This map will be linked on the City's Community Development webpage with the intent of providing developers easier access to relevant plats and easement documents.



Basic Use + Maintenance Instructions

At right is a view of the Webmap application. Below is a list of the tools called out on the screenshot:

1 *Zoom/Navigation Controls* - Allows users to zoom in or out. Home button will bring the view back to the original extents (view of full City). The crosshairs button will locate the user using the GPS of the user's device (i.e. GPS enabled smartphone).

2 *Search Bar* - Allows users to search the map by landmark, CHV Trail Number, or Assessor Parcel Number.

3 *Wildlife Reporting Button* - Allows users to report wildlife spotting incidents with notes and a picture. Submitted reports must be approved by City staff before it is published to the public map.

In the City Staff map, this is replaced by the Edit Button, which allows City Staff to edit certain features. The Edit Button symbol is:



4 *Measure Button* - Allows users to measure distances and areas on the map.

5 *Information Button* - Displays the map name and last edit date

6 *Draw Button* - Allows users to draw shapes on the map. These shapes will not be saved to the map databases.

7 *Layer Slider Button* - Allows users to have a visual slider control for a selected layer.

8 *Charts* - Displays 2 chart types; length of trails by trail type and length of trails by trail condition. These charts can be refreshed based upon the current view extents.

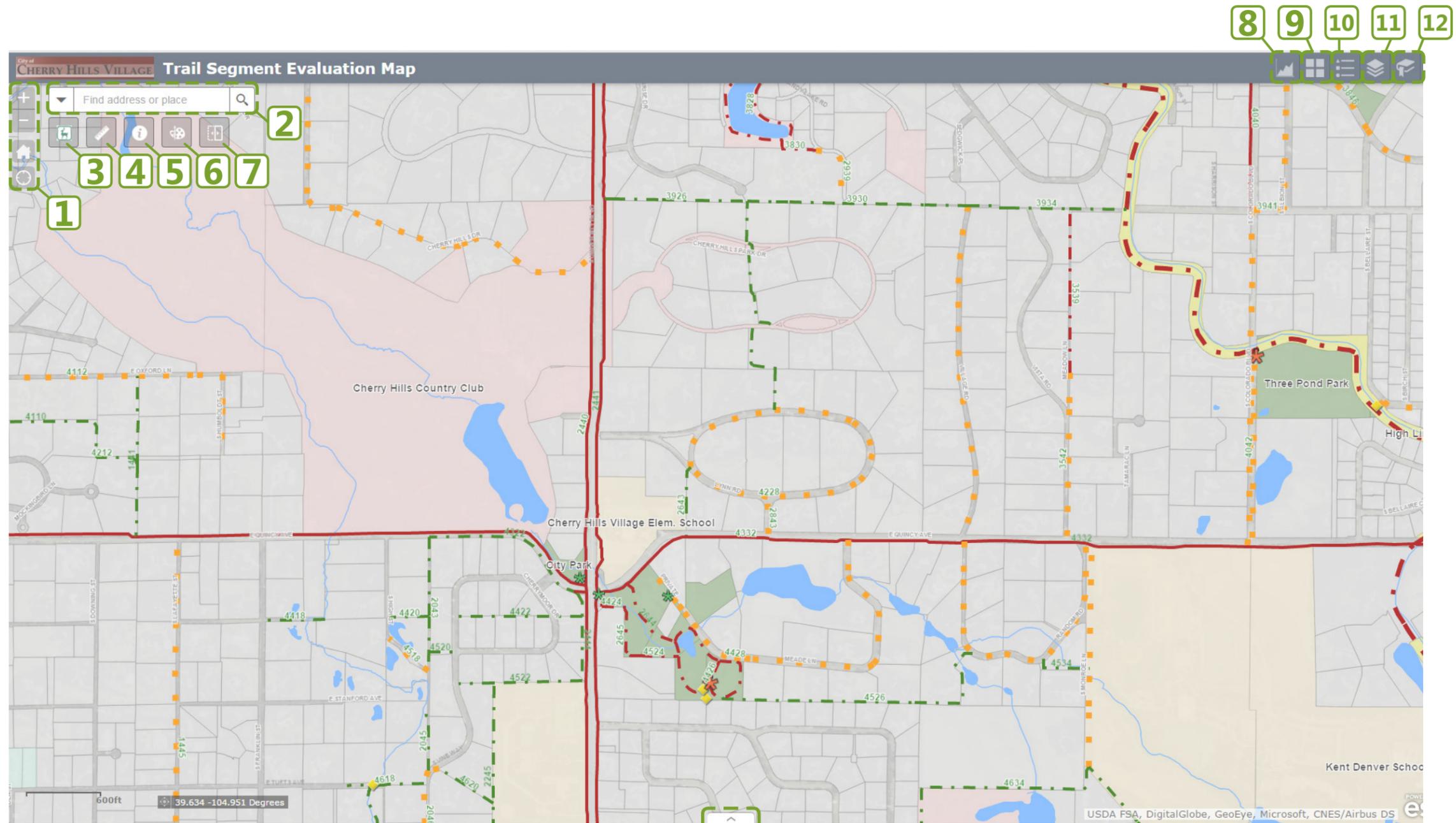
9 *Basemap* - Users can select other basemaps; default is set to aerial imagery without labels.

10 *Legend* - Displays a legend of layers currently turned on.

11 *Layers* - Allows users to turn layers on and off.

12 *Bookmarks* - Allows users to set custom views. Bookmarks are unique to a users device and will not be saved to the actual Webmap data.

13 *Attribute Table* - Clicking will expand the attribute tables for layers in the Webmap.



Screenshot View of Online Webmap Application



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