



Cottonwood Heights
**BICYCLE AND TRAILS
MASTER PLAN**





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Introduction & Goals

Purpose

The purpose of the Cottonwood Heights Bicycle and Trails Master Plan is to propose strategies to create a cohesive and functional network of trails and bicycle lanes throughout the city, in addition to increasing recreational opportunities, promoting safe travel for multiple modes of transportation, and enhancing human-scale activity throughout Cottonwood Heights.



Introduction

Cottonwood Heights originated in 2005, when it officially became a city after previously being part of unincorporated Salt Lake County. The city was already largely built out at the time of incorporation, and as such, inherited both the good and bad traits from the area's previous county jurisdiction. The city is a suburban community, catered to people who commute downtown or to other cities each day. While there is a growing employment base in Cottonwood Heights, it is still largely a commuter city. Because of this, development patterns and infrastructure networks are heavily focused on automobile travel and convenient driving.

However, Cottonwood Heights' geographic location that spans from Big Cottonwood Canyon to Little Cottonwood Canyon, situated on the foothills of the Wasatch Mountain range mean that the city sees a large number of recreation seekers pass through the city. From hiking, to mountain biking, to skiing, hundreds of thousands of people pass through Cottonwood Heights every year for recreational purposes. Additionally, the scenic views, with mountains in the foreground and the entire Salt Lake Valley in the background, make Cottonwood Heights a haven for pass-through cyclists, especially on Wasatch Boulevard.

There is an opportunity to attract thousands of cyclists from the foothills and canyons to the heart of the city, but it is difficult given the current shortage of adequate bicycle facilities. With little to no east-west bicycle facility connection, the city remains a pass through for local cyclists and recreational visitors alike. City streets could be bustling with cyclists and automobile traffic, safely sharing the roads. Bicycle travel takes place on a human scale, and increased bike traffic means increased pedestrian activity on the city's streets. The impact of a complete bicycle lane and trail network could have a huge effect on the city's recreational reputation and economic vitality, not to mention increased convenience for those seeking alternate means of travel.



Goals and Objectives

Goals and objectives for the Cottonwood Heights Bicycle and Trails Master Plan lay the groundwork for future development in the city. They are one of the most important components of the planning process, and they will aid in drafting policies and making decisions to create a more balanced pattern of transportation development in the city. These goals reflect the intent of the General Plan, and seek to address the needs of Cottonwood Heights' citizens and visitors as they relate to bicycle travel, trail use, and general outdoor recreation.

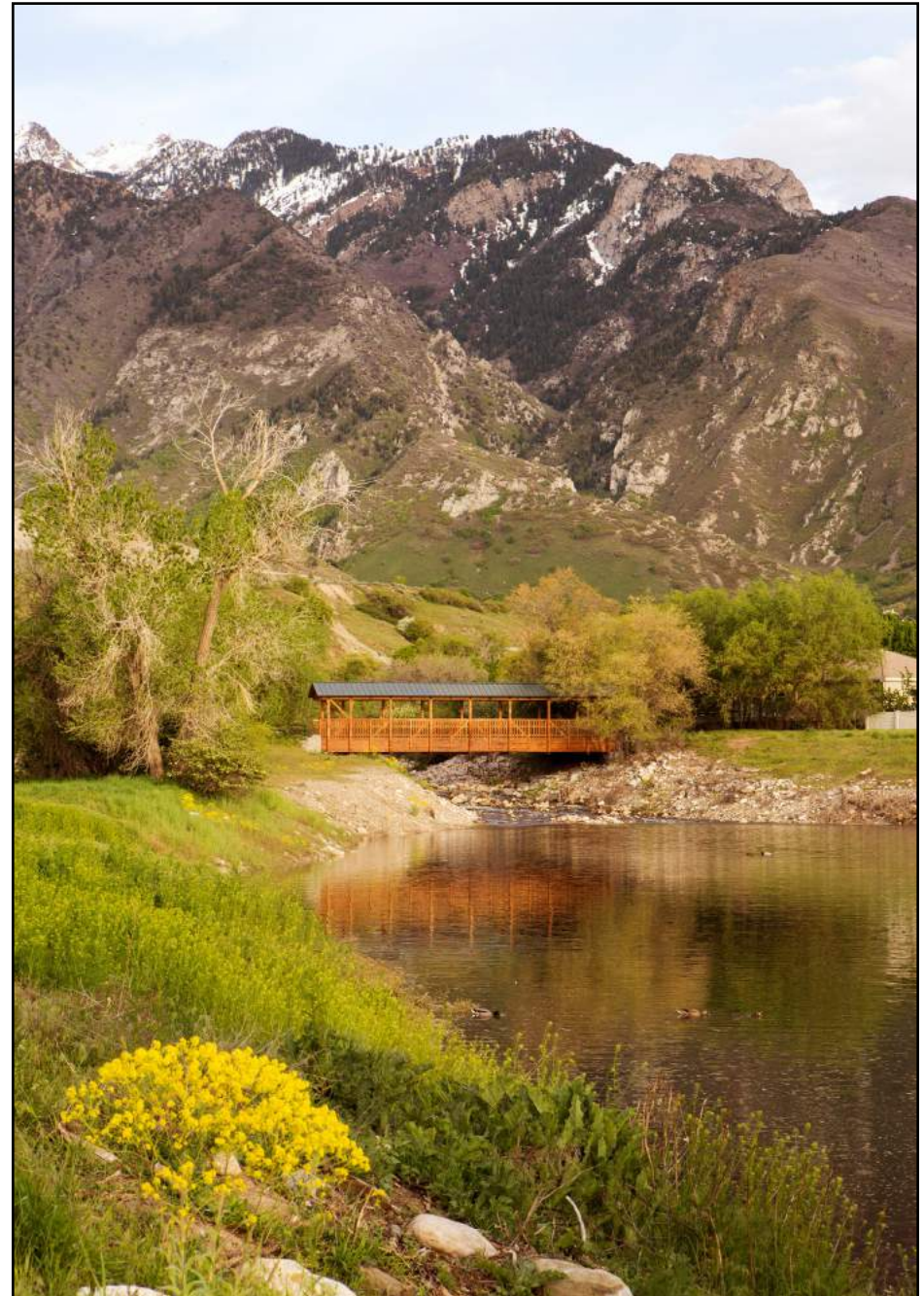
Each goal indicates a desired outcome for the Bicycle and Trails Master Plan. They are intentionally broad in nature, and are achieved through the fulfillment of corresponding objectives. Objectives, then, are more specific statements or policies that serve as stepping stones for achieving each goal.

Goal - Promote Healthy lifestyles through bicycle and pedestrian travel options

- Objective I – Promote the expansion of the Cottonwood Heights bicycle lane and trail network, and bring more attention to it.
- Objective II – Provide informational material highlighting the benefits of safe bicycle and pedestrian travel.
- Objective III – Increase the number of bicycle parking facilities throughout the city.
- Objective IV – Gain recognition as a bicycle-friendly community through organizations such as UDOT's Road Respect program and the League of American Bicyclists.

Goal - Make bicycle and pedestrian travel a viable option within the city, and between Cottonwood Heights and its surrounding communities

- Objective I – Take measures to increase the feeling of safety in bicycle lanes by upgrading existing lanes to make cyclists more comfortable, and by studying the existing bike lane network to determine where upgrades and/or new bicycle facilities are needed.
- Objective II – Identify and assess connections between Cottonwood Heights and surrounding jurisdictions, and prioritize the improvement of intercity connections.
- Objective III – Create a complete bicycle lane network to ensure that all bicycle lanes are connected and to ensure that safe, effective bicycle travel is feasible throughout the city.
- Objective IV – Provide consistent way-finding signage for existing bicycle lanes and trails throughout the city.
- Objective V - Incorporate bicycle lane and trail upgrades in the city’s established policies, specifically the Capital Improvements Plan. Every time a road is treated and requires new striping, bicycle lanes should be considered.



Goal - Promote Cottonwood Heights as an outdoor recreation destination

- Objective I – Assess bicycle lane and trail connections between existing parks and open space, and identify deficiencies in those connections.
- Objective II – Identify the types and condition of bicycle lanes and trails throughout the city.
- Objective III – Highlight connections to natural trails and assess the quality of pedestrian travel options and conditions leading to those connections.
- Objective IV – Sponsor and organize community events that promote non-motorized transportation.
- Objective V – Create and promote community level recreational amenities that appeal to both residents and nonresidents (Big Cottonwood Canyon, Little Cottonwood Canyon, local ski resorts, etc).
- Objective VI – Make recommendations for existing trail upgrades, including trail types and future connections.

Goal - Focus on bicycle lanes and trails as catalysts for economic development

- Objective I – Create incentives for pedestrian and bicycle-friendly development in the city.
- Objective II – Establish methods to increase non-motorized travel and safety in commercial areas of Cottonwood Heights, especially in the Gateway Overlay District identified on the city's zoning map.
- Objective III – Establish strong partnerships between Cottonwood Heights and local businesses.
- Objective IV – Enhance existing regional partnerships with Salt Lake County, the State of Utah, and surrounding municipalities.





MARKET STREET GRILL

Public Engagement

Residents and local bicycle enthusiasts were invited to participate in an open house held by city staff to provide input and feedback on this plan. The comments received were invaluable and to the greatest extent possible have been implemented to reflect the needs and desires of city residents.

Maps showing the proposed bicycle lane network were displayed, and attendees were encouraged to review the maps and provide written feedback directly on each map. This level of interaction and involvement was successful in demonstrating the value placed on public participation.

Comments received ranged from recommendations for additional bicycle infrastructure, to the identification of conflict points, to other recommendations for how to improve and promote cycling throughout Cottonwood Heights. The feedback received was extremely positive, and the open house reaffirmed the importance of creating a better, more cohesive network of bicycle lanes and infrastructure in the city.





Big Cottonwood Canyon Trail

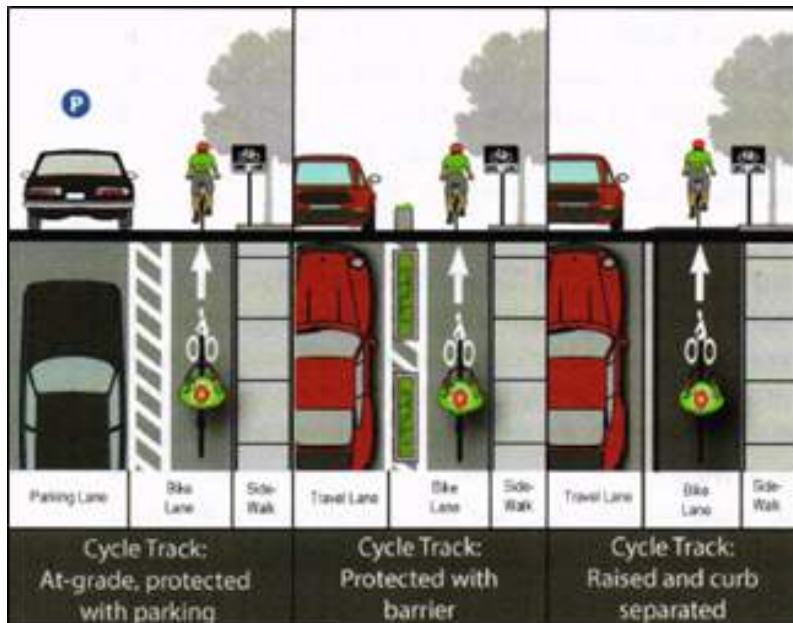
Bicycle and Trail Network

Introduction

The Bicycle and Trails Master Plan is a comprehensive look at the bicycle and trail network in Cottonwood Heights. A majority of the existing bicycle lane network has been implemented since Cottonwood Heights incorporated in 2005. Prior to incorporation, very few roads included any type of bicycle infrastructure. This section of the plan will provide an analysis of both existing and recommended bicycle and trail infrastructure in Cottonwood Heights. The Bicycle and Trails Master Plan will use the following classification system for bicycle and trail infrastructure to identify existing conditions and future needs:

Category 1: Cycle Tracks

At-Grade Protected with Parking / Protected with Barrier / Raised Curb Separated

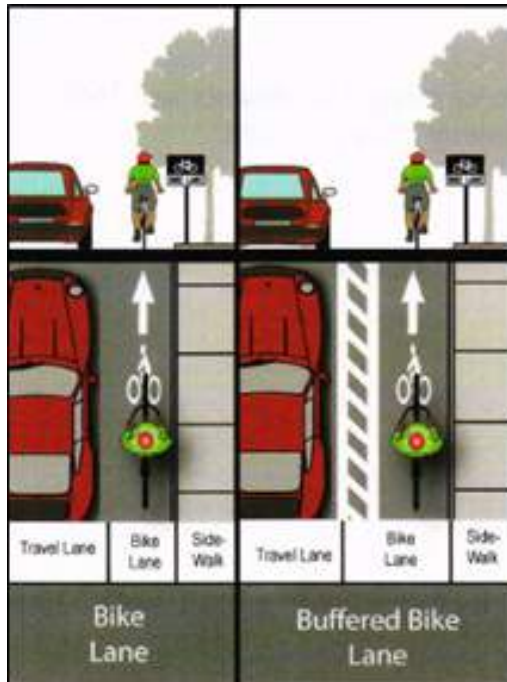


Example of Category 1 Cycle Tracks

A Category 1 bikeway provides space exclusively for bicycles by combining the user experience of a separated path with on-street infrastructure of bike lanes. Cycle tracks are located on the outside of on-street parking, making the track separated from vehicle travel lanes, parking lanes, and sidewalks. Separation may be enhanced with planters, bollards, or curbing. Cycle tracks should be continued through intersections and crossings, and may either be level with the adjacent travel lane or raised slightly and/or colored to enhance visibility. The cycle track may be dropped to a bike lane approximately 16 feet before intersections and should be striped as it makes such a transition. Cycle tracks may be more difficult to maintain than other bikeways because traditional service vehicles do not fit within the space. Specialized maintenance equipment may be required.

Category 2: Separated Bike Lane

Bike Lane / Buffered Lane



A Category 2 bicycle lane provides horizontal separation from cars and pedestrians. This type of bikeway uses signage and striping to allocate roadway space to bicyclists, and is best suited for speed limits between 25 and 40 miles per hour. Separated bike lanes encourage predictable movement by bicyclists and motorists. These lanes sometimes conflict with on-street parking stalls and are not necessarily protected from cars moving in and out of them. Lines and/or color should be used through intersections to provide prominence of the bike lane. The use of colored lanes indicates that such space is exclusive for cyclists. Pedestrians (including walkers, joggers, wheelchairs and strollers) are separated from bike lanes, usually via a raised park strip and sidewalk.

Examples of Category 2 bicycle facilities in Cottonwood Heights include 2300 East (north of Fort Union Boulevard), Creek Road (west of Highland Drive), and Wasatch Boulevard.



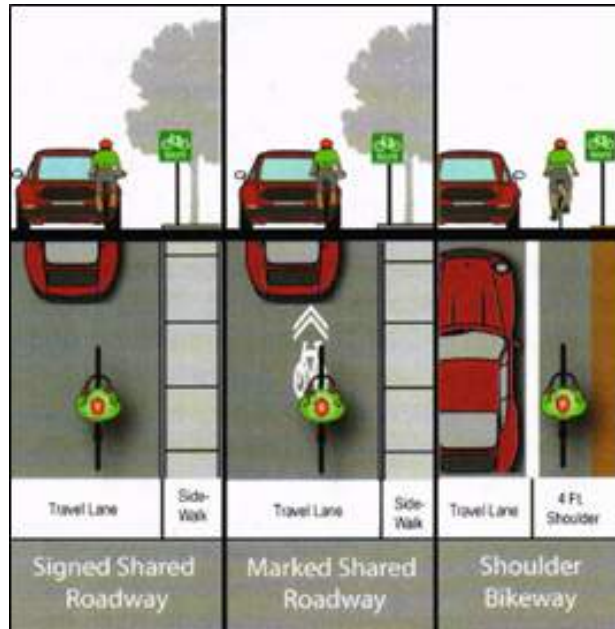
2300 East, Cottonwood Heights



Wasatch Boulevard, Cottonwood Heights

Category 3: Shared Roadways

Signed Shared Roadway / Marked Shared Roadway / Shoulder Bikeway



On this type of bikeway, bicyclists and cars operate within the same travel lane, either side by side or in single file depending on roadway configuration, outside lane width and presence of shoulder space. This bike lane is recommended for speed limits of 20 miles per hour or less. There are two primary subtypes of Category 3 bikeways:

Signed / Marked Shared Roadway

This is a specific type of facility that provides continuity to other bikeway types or is used to designate preferred routes through high-demand corridors where higher-level bikeways do not exist.

Shared lane markings may be used to give further indication to drivers and bicyclists that they are sharing the roadway space and to encourage bicyclists to properly position themselves laterally. Shared roadways require the least amount of maintenance, as standard service vehicles can be used and usually only require occasional sign replacement and/or paint refreshment.



Example of shared lane markings

Shoulder Bikeway

Another type of Category 3 facility is the shoulder bikeway. Shoulder bikeways are typically located in less-dense areas. They are paved roadways with striped shoulders, wide enough for bicycle travel, but not signed or marked.

Examples of Category 3 bicycle facilities in Cottonwood Heights include portions of Kings Hill Drive and Prospector Drive.

Urban Trails

Shared-Use Pathway

Commonly known as a “shared-use pathway,” an urban trail facility is typically a paved trail that is physically separate from roadways and other transportation facilities. An urban trail is designed for simultaneous use by cyclists, joggers, etc. These facilities typically meet specific standards for components such as trail width and accessibility.



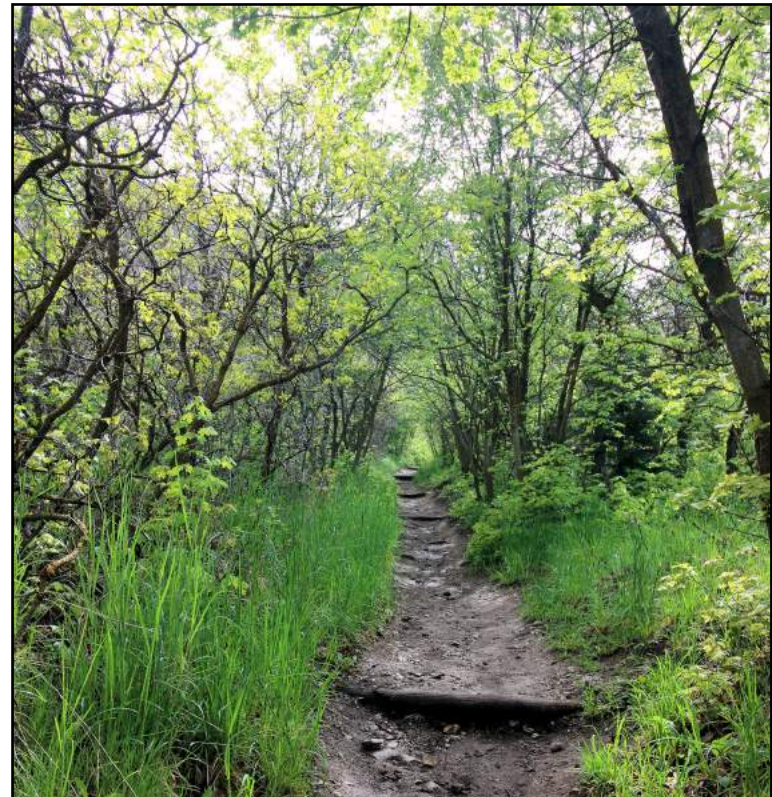
The best example of an urban trail in Cottonwood Heights is the Big Cottonwood Canyon Trail, shown above.

Natural Trails

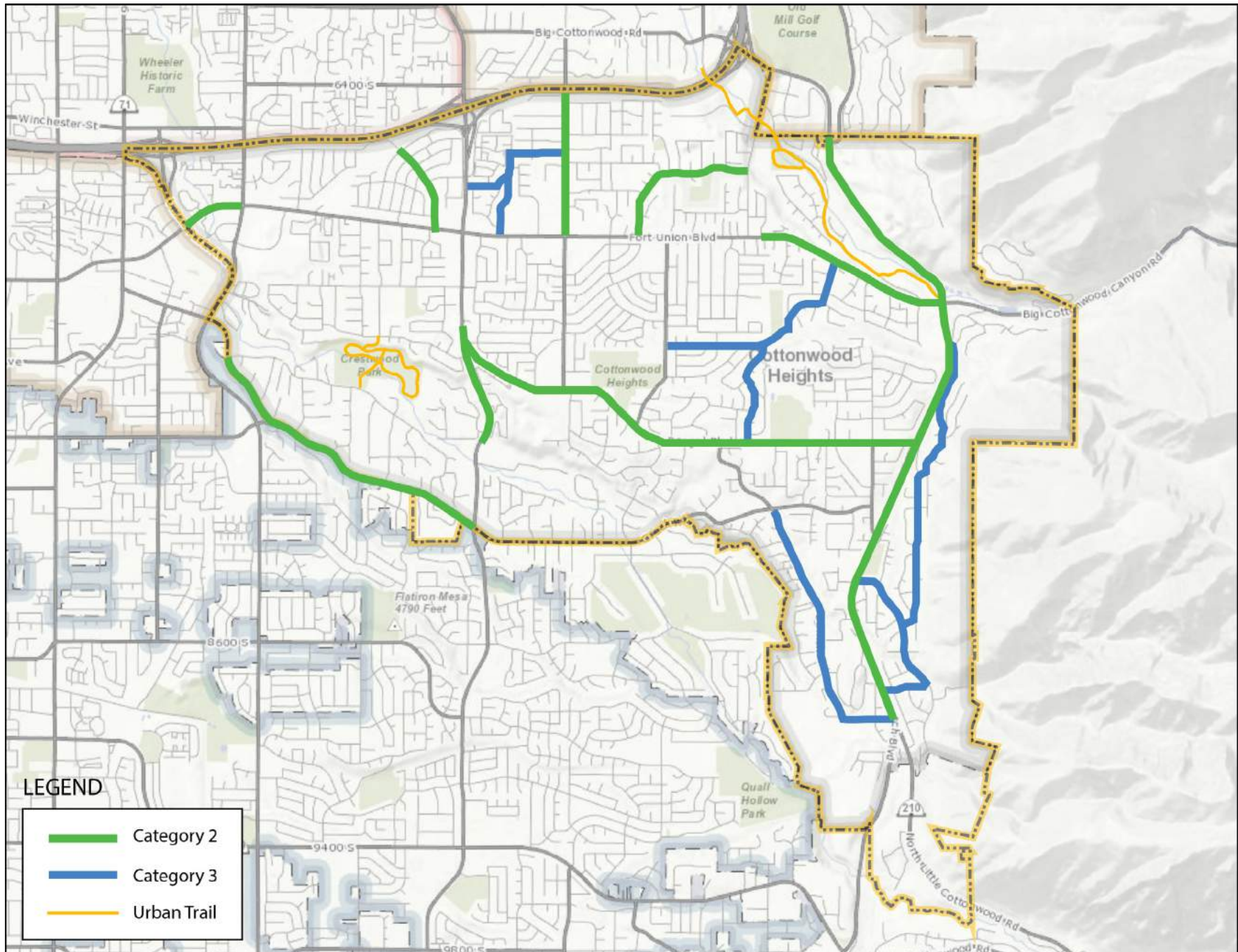
Natural trails can be defined generally as an improved or unimproved path through a natural area designed for the enjoyment of scenic views, natural areas, and outdoor recreation.

Although not the focal point of this plan, natural trails are important to acknowledge, as Cottonwood Heights is home to multiple natural trail access areas.

Examples of natural trails beginning in Cottonwood Heights include the Ferguson Canyon Trail, the Deaf Smith Canyon Trail, and the planned Bonneville Shoreline Trail.



Existing Network



The number of streets with either bicycle lanes, striping, or signage is very small in comparison with the total number of streets in the city. Further, with the exception of portions of Wasatch Boulevard, it is apparent that there is very little connectivity between existing bicycle lanes. Thanks to bicycle lane improvements on the entirety of Wasatch Boulevard through the city, the bicycle network is at its best at the eastern portion of the city. A cyclist could reasonably use Wasatch Boulevard as an efficient alternate to vehicular travel.

East-west bicycle travel is difficult, and in many areas, nonexistent. Fort Union Boulevard is the primary east-west road in the city. Given that the dedicated bicycle lane on Fort Union Blvd runs from approximately 3200 East to Wasatch Boulevard, it is not a viable road for safe bicycle travel on the corridor in its current configuration. Busy traffic, numerous conflict points, a 40-mph speed limit, and a very small shoulder make Fort Union Boulevard unfit for bicycle travel.



Fort Union Boulevard Shoulder

Alternate options for east-west travel in the city include Bengal Boulevard and Creek Road. Bengal Boulevard is also a road with no bike lanes or signage, however a smaller amount of traffic and conflict points makes it a more feasible road than Fort Union Boulevard for bicycle travel. Creek Road has a dedicated bicycle lane on both sides of the street that runs continuously from Union Park Avenue to Highland Drive. East of Highland Drive, Creek road is still viable for bicycle travel given its lower speed limit, traffic counts, and reduced conflict points than a busy road like Fort Union Boulevard.

Highland Drive is one of the primary north-south roads in Cottonwood Heights, and its bicycle facilities are barely existent. There is a dedicated bicycle lane for approximately one mile without connections on either end. Similar to Creek Road, however, the bicycle lane cuts off abruptly on both sides, making for a transition into a heavy traffic area with inadequate bicycle travel facilities.

While many residential roads are feasible and reasonably safe for bicycle travel, very few actually contain dedicated bicycle lanes or signage. More concerning is the lack of interconnectivity between existing facilities, making cycling for anything other than recreation inefficient and unsafe. The following table summarizes the city's existing bicycle infrastructure.

The table below provides an inventory of the existing bicycle lane network in Cottonwood Heights. Included in the table are streets containing bicycle facilities, the category of each facility, the length of each facility, and most importantly, a list of connections to each lane.

Existing Bicycle Lane Network

Street Name	Category	Length (ft)	Connections
Fort Union Blvd (east)	2	4,971	Wasatch, Nutree
Fort Union Blvd (west)	2	1,200	None
Creek Road	2	16,989	Fort Union, Top of the World, Kings Hill, Golden Hills
2300 East	2	3,824	6675 S
Greenfield Way	2	2,564	None
Highland Drive	2	2,452	None
Bengal Boulevard	2	11,918	Highland Drive
Banbury Road	3	3,319	Brighton Way, Nutree
Nutree Drive	3	2,485	Brighton Way, Banbury Road
Brighton Way	3	2,767	Banbury Road
Kings Hill Drive	3	3,573	Top of the World, Golden Hills Ave
Golden Hills Avenue	3	1,155	Wasatch, Kings Hill
Top of the World Drive	3	7,213	Kings Hill
6675 South	3	1,421	Nye Dr, 2300 East
Nye Drive	3	2,197	Rolling Knolls Way, 6675 South
Rolling Knolls Way	3	1,197	Nye Drive
Danish Road	3	9,964	None
TOTAL LENGTH		72,209	

Recommendations

Although the existing bicycle lane network is small and incomplete, the condition of the existing bicycle lanes is generally adequate. The following recommendations should be applied to pertinent city policies and documents to ensure that the existing bicycle lane infrastructure remains strong:

- The existing Category 2 bicycle lane on Wasatch Boulevard should be upgraded to better accommodate for bicyclist safety. Category 2 bicycle lanes are adequate on roads with speed limits of 25-40 miles per hour. The speed limit on Wasatch Boulevard is currently 50 miles per hour. With only a narrow striped bicycle lane located directly adjacent to the travel lanes, this creates an uninviting and potentially unsafe conditions. The ultimate goal should be to improve Wasatch Boulevard to a Category 1 bicycle lane;



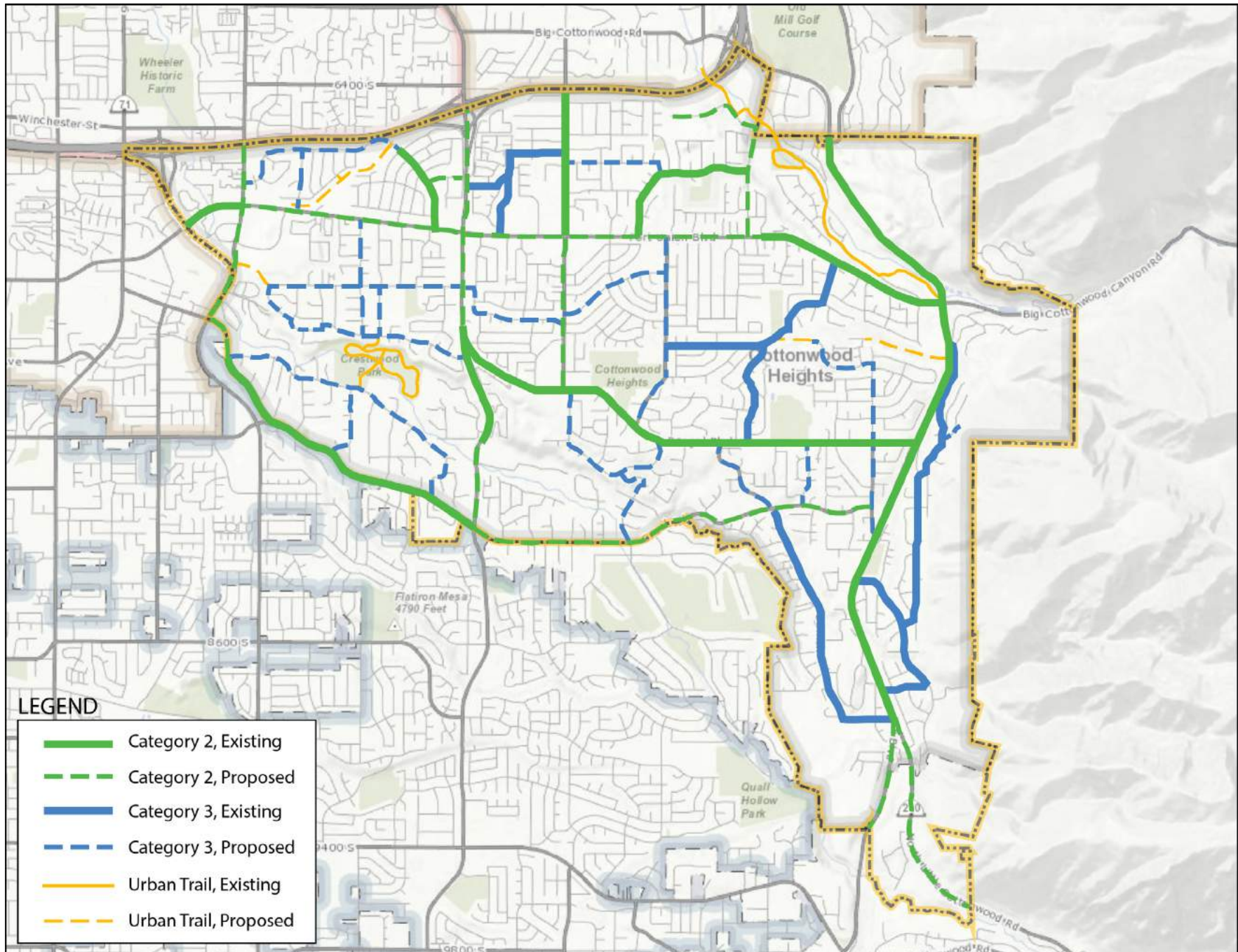
Existing Category 2 bicycle lane on Wasatch Boulevard



Example of a bike lane striped through an intersection

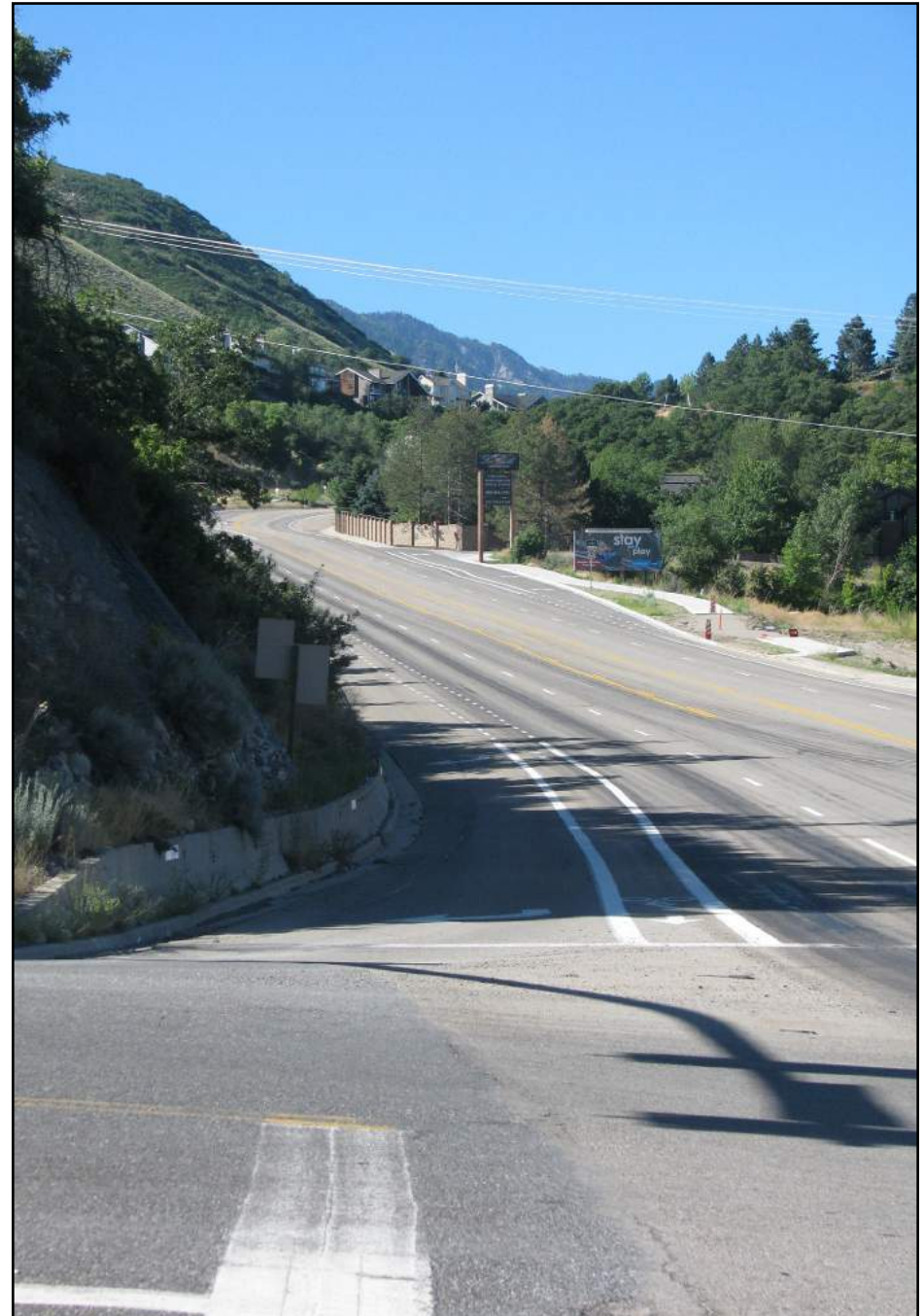
- Existing Category 3 bicycle lanes should be periodically assessed for quality. For example, the bicycle wayfinding markings on Danish Road are heavily worn and hardly visible. Given that roads with Category 3 bicycle treatment are generally narrow, but often still well-traveled by cyclists, faded painting and markings can cause unsafe cycling conditions;
 - Category 2 and 3 bicycle striping should be incorporated into the city's Capital Improvements Plan (CIP) and/or road maintenance schedule. Any city roadwork should budget painting or restriping into its cost, and restriping of existing lanes should be scheduled into the plan at regular intervals determined by the City Engineer and Public Works department;
 - In addition to striping and road symbols, bicycle sign posts should be considered on heavily traveled Category 2 and 3 bicycle facilities, such as Wasatch Boulevard, Danish Road, and Creek Road. Similar to the above point, maintenance and repair of wayfinding signage should be programmed into the CIP, at regular intervals determined by the city engineer.
- Continue existing category 2 bicycle lane striping or coloring through intersections. Every intersection includes a break in bicycle lane painting. Continuing paint treatment through intersections will alert automobile drivers of the existence of a bicycle lane and the potential for riders, thereby improving safety for cyclists in a subtle, low-impact way;
 - In addition to continuing Category 2 bicycle facilities through intersections, Cottonwood Heights should ensure that all Category 2 bicycle lanes are continuous and uninterrupted. The existing bicycle lane on the west portion of Fort Union Boulevard is heavily interrupted, leading to confusion from cyclists and motor vehicles alike. An emphasis on continuity of existing facilities is important;

Proposed Network



The existing bicycle lane network in Cottonwood Heights is lacking interconnectivity. Although bicycle lanes exist, very few of them connect to each other. There is an opportunity to expand the interconnectivity of the existing bicycle lane infrastructure in the city, and this plan will help accomplish that. A complete bicycle lane network would ensure that all bicycle lanes are interconnected in some way, and would ensure that safe, effective bicycle travel is feasible anywhere in the city. The proposed bicycle lanes in this plan were recommended based on the following factors:

- **Interconnectivity** – All bicycle lanes should connect to one another, creating one continuous bicycle network. Emphasis should be given on improving bicycle travel along the city’s major corridors (e.g. Wasatch Boulevard, Fort Union Boulevard, Highland Drive, Creek Road, etc.)
- **Convenience** – Traveling from one point in the city to another via bicycle lane should be as direct as possible. Bicycle networks should be strategically located to create the most direct connection possible between any two points in Cottonwood Heights;
- **Trail Connections** – Cottonwood Heights is home to both urban trails and natural trail heads. They are important community amenities, and it is important to ensure that these trails can be easily accessed via bicycle.



The following table is an inventory of all proposed bicycle lanes (urban trails excluded), and can be used as a guideline to establish cost estimates for future bicycle infrastructure improvements:



Proposed Bicycle Lane Network

Category	Street Name	Length (ft)	Cost/ft	Total Cost
2	1300 East	1597	\$ 2.51	\$ 4,008.47
2	Fort Union	15876	\$ 2.51	\$ 39,848.76
2	Highland Dr (north)	6133	\$ 2.51	\$ 15,393.83
2	Highland Dr (south)	2506	\$ 2.51	\$ 6,290.06
2	Creek Road	10802	\$ 2.51	\$ 27,113.02
2	2300 East	3723	\$ 2.51	\$ 9,3443.73
2	3000 East	5375	\$ 2.51	\$ 13,491.25
2	2700 East	5170	\$ 2.51	\$ 12,976.70
2	Hollow Dale	2069	\$ 2.51	\$ 4,510.42
3	6670 South	2490	\$ 2.18	\$ 5428.20
3	1495 East	1446	\$ 2.18	\$ 3,152.28
3	6710 South	2711	\$ 2.18	\$ 5,909.98
3	Cavalier Dr	2982	\$ 2.18	\$ 6,500.76
3	3500 East	4661	\$ 2.18	\$ 10,160.98
3	Danish Rd	2462	\$ 2.18	\$ 5,367.16
3	Deercreek	1701	\$ 2.18	\$ 2,708.18
3	Oakcreek / Portsmouth	2639	\$ 2.18	\$ 5,753.02
3	Nantucket / 2325 East	4620	\$ 2.18	\$ 10,071.60
3	Siesta Dr	7634	\$ 2.18	\$ 16,642.12
3	Keswick Rd	2043	\$ 2.18	\$ 4,453.74
3	Parkridge / 7380 S / McCormick	6153	\$ 2.18	\$ 13,413.54
3	7200 S / Camino Dr	8417	\$ 2.18	\$ 18,349.06
3	1700 E / 1710 E	3038	\$ 2.18	\$ 6,622.84
3	Chris Ln	1307	\$ 2.18	\$ 2,849.26
Total		107,555		\$ 334,458.96



Big Cottonwood Canyon Trail

Urban Trails

Existing Urban Trails

Urban trails, while not technically classified as any category of bicycle lane, play an important role in the city's bicycle infrastructure and functionality. As defined at the beginning of this plan, urban trails are multi-use pathways that are physically separated from vehicular travel lanes and may be used by both pedestrians and cyclists. There are currently two urban trails in Cottonwood Heights, the Big Cottonwood Canyon Trail and the Crestwood Park Trail. Additionally, there is a private trail around the Cottonwood Corporate Center that, while not discussed in this section, has been included in the existing conditions map and is a valuable resource for nearby residents.

Big Cottonwood Trail

Possibly the only true urban trail in Cottonwood Heights, the Big Cottonwood Canyon Trail has been operational since 2013. The trail spans from the Interstate 215 underpass near the Cottonwood and Old Mill Corporate Centers to the parking lot at the mouth of Big Cottonwood Canyon. The majority of the trail is physically separated from automobile travel lanes, and is approximately 1.9 miles long. A large portion of the trail is situated parallel to the Big Cottonwood Canyon creek, which provides a scenic and serene atmosphere when the water is flowing. The trail is used by walkers, joggers, and cyclists alike, and provides a great pedestrian connection from Holladay City to the corporate centers and on to Big Cottonwood Canyon.



Crestwood Park Trail

While this trail does not meet the standard definition or specifications of an urban trail, it is included as one for the purpose of this plan. Located at approximately 1673 East Siesta Drive, the urban trail at Crestwood Park was originally constructed as a horse trail. This multi-use trail is one of the city's hidden pedestrian commodities. The trail provides a one-mile round trip through the natural hillside area at Crestwood Park.

There is a steep incline from the low-lying Siesta Drive area and Crestwood Park up to the neighboring residential area on Parkridge Drive. The natural topography of this portion of the city makes a direct connection between the two areas difficult. However, a dedicated pedestrian connection exists that directly connects Parkridge Drive to the Crestwood Park urban trail, making walking from Parkridge to Crestwood Park easier and more direct than driving.



Existing map of Crestwood Park Trail

The Crestwood Park urban trail isn't in need of much change, as its character and purpose is to be a more natural trail. However, it should be more publicized as a pedestrian commodity for both recreational and functional purposes. Unfortunately, the trail is not optimal for dedicated cycling. The entire trail is unpaved, and not preferable as a means of bicycle transportation.

Paving a portion of this trail to make it suitable for bicycle travel could help increase its utilization and popularity. However, it may also change the natural character of the trail that its current users value. Further study should be performed to determine the potential for converting a portion of this trail into a paved pathway.

Proposed Urban Trails

There are a few locations that would serve as valuable and effective urban trails. This section provides a summary of these proposals.

Racquet Club Urban Trail

The proposed Racquet Club urban trail would serve as a connection from the neighborhoods situated above Wasatch Boulevard to the west down to Wasatch Boulevard and its accompanying bicycle lane. There is currently an existing but abandoned and unused path running between the Canyon Racquet Club Condominium and the neighborhood above. If improved, this trail could become a useful and effective connection point for pedestrians and cyclists to travel to and from Wasatch Boulevard from the neighboring area.



Proposed map of Racquet Club Urban Trail

East Jordan Canal Urban Trail

The East Jordan Canal currently runs through Cottonwood Heights from approximately Greenfield Way to the intersection of Fort Union Boulevard and Park Centre Drive. The canal is fenced off from adjacent residences, and an unimproved path currently exists. Unfortunately, the path is closed to public access and unmaintained, making its utilization impossible.

Improving the path along the East Jordan Canal could serve as a valuable pedestrian amenity for Cottonwood Heights. A paved urban trail along the canal would create a path that is as scenic and peaceful as it is efficient. Currently, pedestrian and bicycle navigation from Highland Drive (near Greenfield Way) to Park Centre Drive (which contains one of the city's primary commercial / retail centers) is indirect and inefficient. An improved trail along the East Jordan Canal would serve as the perfect pedestrian connection through the residential area north of Fort Union Boulevard.

Priority should be given to the improvement of this trail. The residential area around the canal was designed with automobile traffic in mind, making travel by any other means difficult. Since the pathway for the trail already exists, a plan should be established to make improvements to it and begin to utilize its urban trail potential.



Proposed alignment of the East Jordan Canal Urban Trail



Examples of the scenic character of a creekside urban trail

Natural Trails

Although this plan focuses primarily on bicycle facilities, it is important to identify existing natural trails in the city. A natural trail can be defined as an unimproved or semi-improved pathway used for walking in natural areas. These types of trails are common in Utah's canyons and mountains. Of importance to this plan are city trailheads that access natural trails. An analysis of the primary trails and trailheads is given in this section.

Ferguson Canyon Natural Trail

The Ferguson Canyon natural trail is the only trail in the city with a fully improved trailhead. The trailhead begins on Timberline Drive and includes 16 paved parking stalls, plus unpaved overflow parking on Prospector Drive. There is a public amphitheater at the base of the trail that can be reserved and used for community events. The trailheads is improved and easily accessible. Given the popularity of the Ferguson Canyon natural trail, parking fills up quickly, especially on weekends.



Ferguson Canyon Trailhead

Recommendations

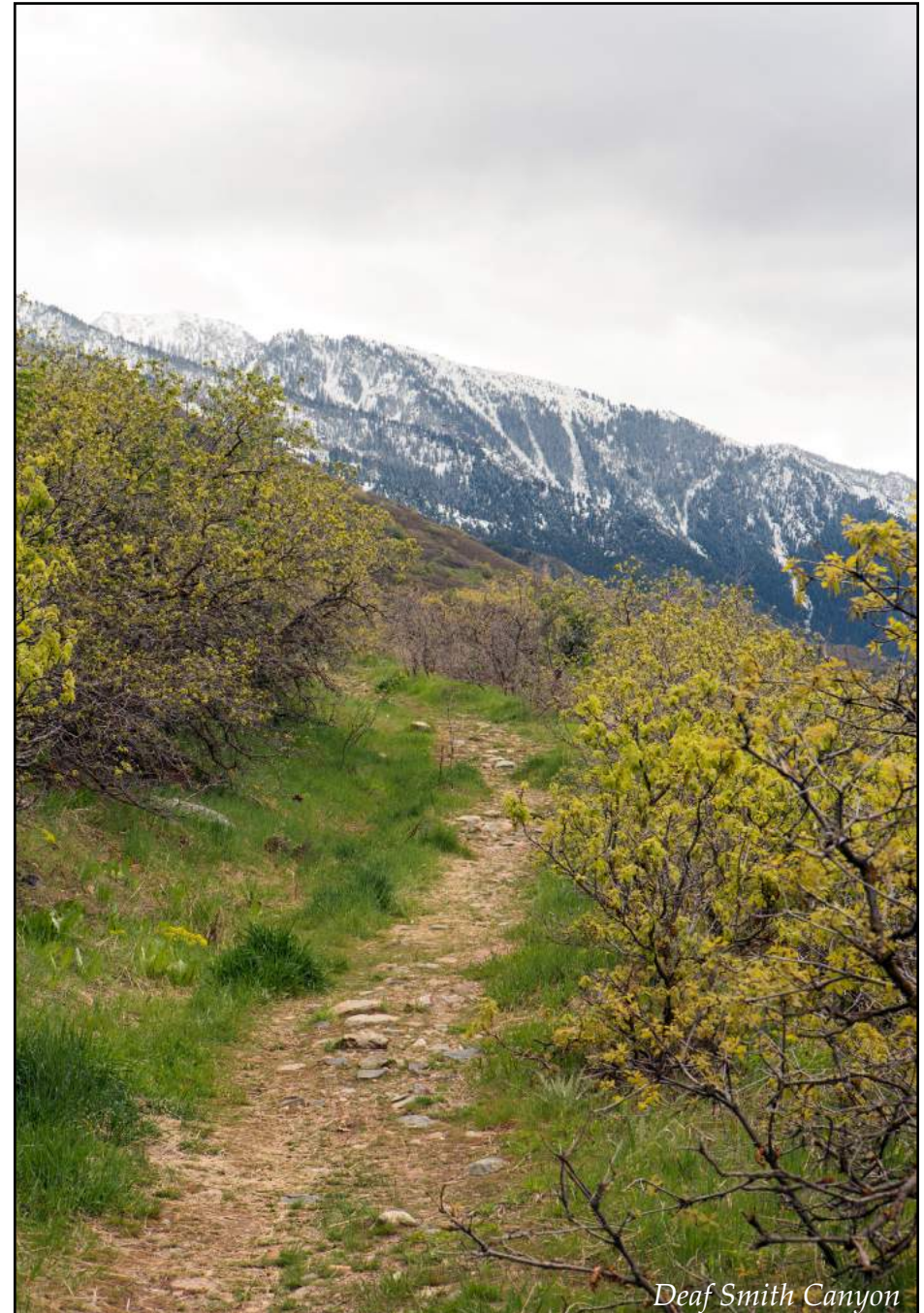
- Because of the trail's popularity, an increase in parking spaces could be easily justified and should be examined further. Additional parking stalls could be added south of the existing parking area;
- Wayfinding signage should be posted to help guide people to the trailhead. Without prior knowledge of the trail, it is difficult to actually find the parking area. The Ferguson Canyon natural trail is a great city amenity, and signage would help more people find and enjoy it;
- Bicycle parking should be provided at the trailhead. The current parking constraints could be offset by provided accommodations for bicycle travel. The trailhead could be easily accessed via bicycle traffic from both the surrounding residential area as well as the bicycle lane on Wasatch Boulevard.

Deaf Smith Canyon Trail

The Deaf Smith Canyon natural trail is another trail beginning in Cottonwood Heights that offers a great natural hiking experience and a scenic view of the Salt Lake Valley. The trail begins at approximately 3850 East Golden Hill Canyon Road. Unfortunately, there is currently no way to access the trail without traversing private property or hiking in from a long distance away. Because of this constraint, there is no improved trailhead and no public parking spaces. Given this unfortunate circumstance, the city cannot currently condone use of the private property for public trail access until an agreement is reached granted lawful access.

Recommendations

- Cottonwood Heights should work with private property owners in an attempt to negotiate a way provide legal trail access. Further recommendations are made under an assumption that this agreement is reached;
- Trailhead improvements should be planned. Because the primary trail access is via private road, the city should create an area master plan requiring future redevelopment of the area to provide reasonable trail access accommodations;
- If an agreement cannot be reached, the city should evaluate potential alternate access routes to the trail.



Deaf Smith Canyon

Bonneville Shoreline Trail

In Cottonwood Heights, the Bonneville Shoreline Trail is still under development. Currently, the proposed trail alignment includes a few portions that will traverse through city boundaries. At writing of this report, the alignment of the trail has been plotted, but has not yet been dedicated for public use.

The proposed Bonneville Shoreline Trail will run north-south through the foothills of Wasatch Boulevard. Much of the trail will not be located within city limits, but it is important to plan for and consider connection points in order to access the trail from within Cottonwood Heights.

Similar to the Deaf Smith Canyon Trail, access points to the future Bonneville Shoreline Trail will be located on private property. It is important for Cottonwood Heights to work with private property owners at potential trail connections to ensure that the trail can be used and enjoyed by everyone.



Proposed Bonneville Shoreline Trail Map





Deaf Smith Canyon

Policy Considerations

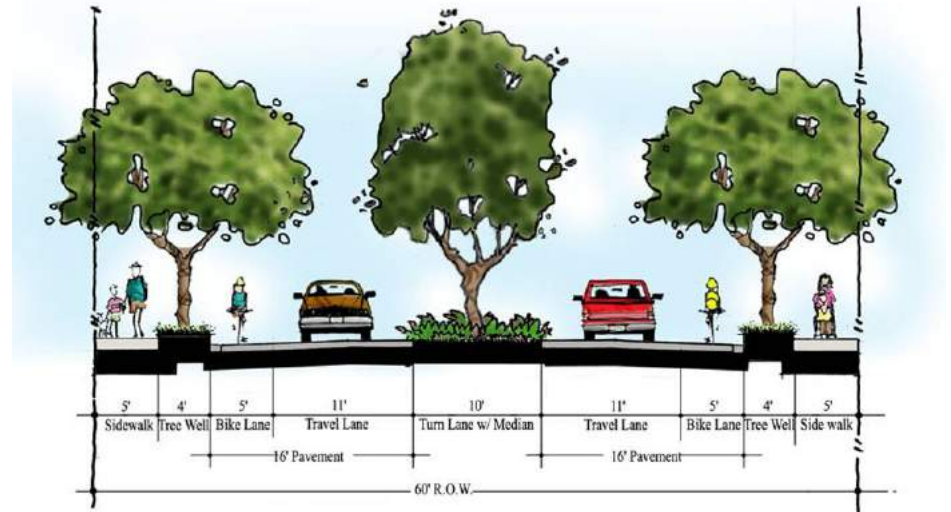
When planning future bicycle and trail infrastructure, it is important to consider and analyze the relevant existing policies. Such policies from various governmental entities affect the city and can be used as tools to assist implementation of this plan.

Cottonwood Heights General Plan

The Cottonwood Heights General Plan is the blueprint for the future of the city, and is therefore an important tool to use in the development of the Bicycle and Trails Master Plan. In fact, one of the primary purposes of any city plan should be to realize the goals and initiatives presented in the General Plan. Relevant chapters of the General Plan to consider include:

- Chapter Three – Transportation Element
- Chapter Five – Urban Trails Element
- Appendix B – Trail and Open Space Funding Sources

Goal 3 of the Transportation Element (Chapter Three) states, “Provide residents with transportation choices and convenient alternative modes of travel.” One of the objectives to achieve this goal is to “create a network of bicycle facilities throughout the City, to serve the transportation and recreation needs.” To further reiterate the importance of bicycle lane interconnectivity, the General Plan states, “The City has expressed a need for safe and interconnected bicycle facilities [throughout the City]. Cycling can provide opportunities for commuting, location transportation, and recreation within the City, all of which are valued by residents.”



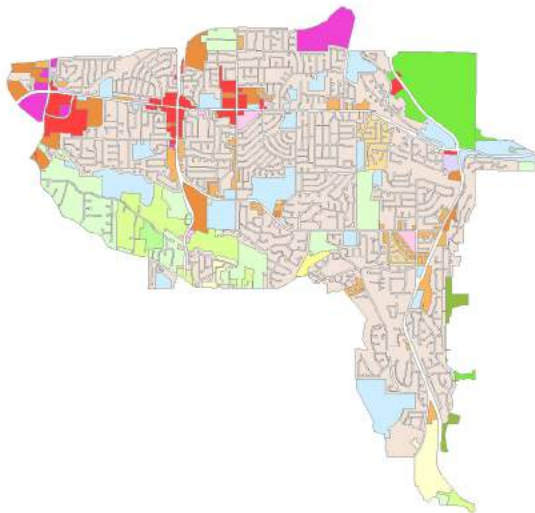
After review the General Plan, it becomes apparent that effective bicycle infrastructure is important to the city’s decision makers and residents alike. Because this is the first formal bicycle plan to be established in Cottonwood Heights, it is imperative that it aims to achieve the goals and objectives of the General Plan by prioritizing interconnectivity and cohesion among bicycle lanes in Cottonwood Heights.

Cottonwood Heights Capital Improvements Plan

The city's Capital Improvements Plan (a.k.a. Capital Facilities Plan) establishes prioritization of public infrastructure construction, repair, and maintenance. It is essential for the implementation of this plan to include bicycle and trail infrastructure as part of the city's capital improvements. In order to achieve the goals and objectives of this plan, bicycle and trail infrastructure must be constructed. Therefore, implementation of this plan must coordinate closely with the Capital Improvements Plan.

Cottonwood Heights Zoning Ordinance

As a tool to implement the General Plan, consideration of the Cottonwood Heights Zoning Ordinance should not be overlooked. In its current state, the Zoning Ordinance does not adequately address the need for pedestrian and bicycle-related improvements. Adoption of this plan will legitimize city requirements to construct bicycle and trail infrastructure as part of new development (e.g. bicycle lanes, sidewalks, trailhead improvements/access, etc.).



Other Policy Considerations

The Cottonwood Heights General Plan, Capital Facilities Plan, and zoning ordinance are the most important considerations in implementing the Bicycle and Trails Master Plan, the following plans and policies must also be carefully reviewed and considered:

- Cottonwood Heights Design Guidelines
- Cottonwood Heights Roadwork Moratorium
- Cottonwood Heights Parks Plan
- Fort Union Boulevard Master Plan
- Wasatch Choice for 2040
- Salt Lake County East-West Trails Master Plan
- Mountain Accord
- Wasatch Front Regional Council / Salt Lake County Active Transportation Plan Map and Schema

Partnerships

It has been established throughout this plan that the key to having a successful and usable bicycle lane and urban trail network is interconnectivity. City bicycle lanes should form a cohesive network that is able to efficiently and conveniently take cyclists to their destinations. Most cyclists, however, don't travel exclusively to and from places within Cottonwood Heights. Politically, city boundaries are important. To a person riding a bicycle, city boundaries are far less important than safe and efficient travel. Therefore, there should be an emphasis not only on interconnectivity within the city, but also great connectivity between cities. There are many stakeholders within and outside of the city that will have an effect on the development of the proposed bicycle lane and urban trail network. Establishing partnerships with these stakeholders is important in creating such a network. The following is a list of important community partners to establish relationships with in order to catalyze the development of the complete proposed bicycle lane and urban trail network:

Cottonwood Heights Recreation Center

The Cottonwood Heights Recreation Center is unique in that it serves as a Special Improvement District in charge of parks and recreation services. It maintains most of the city's parks and open spaces. Therefore, it is important to develop and maintain a beneficial agreement in order to include the maintenance of trail and bicycle facilities throughout the city.



Utah Department of Transportation (UDOT)

Wasatch Boulevard is a UDOT state highway, meaning UDOT has jurisdictional control of the entire right of way. Since Wasatch Boulevard is home to the city's longest continuous bicycle lane, it is important to establish the importance of it through a working relationship with UDOT. Cottonwood Heights should be included in all future road development discussions, and the inclusion of Wasatch Boulevard's Category 2 bicycle lane in this master plan indicates that it is an important feature of Wasatch Boulevard.



Additionally, UDOT is home to the Road Respect program. The Road Respect program, as found on its website, "is dedicated to promoting safety by educating both drivers and cyclists about the rules of the road and encouraging mutual respect so that everyone gets home safely." Beyond being an advocacy group, Road Respect offers a three-tiered certification program. Meeting designated requirements will get Cottonwood Heights recognized as a bicycle-friendly community, and could open up grant and funding opportunities. The city should seek to meet the requirements to become a Level 1 Road Respect Community as soon as possible. The city should continue to work on becoming bicycle friendly and eventually achieve the highest level of Road Respect certification (Level 3).

Wasatch Front Regional Council (WFRC)

The Wasatch Front Regional Council is an important regional planning partner that has resources available to help fulfill the goals of this plan. It offers professional-level staff assistance, collects and provides valuable county wide bicycle data, and offers grants and funding opportunities pertaining to bicycle plan development and implementation.



Salt Lake County

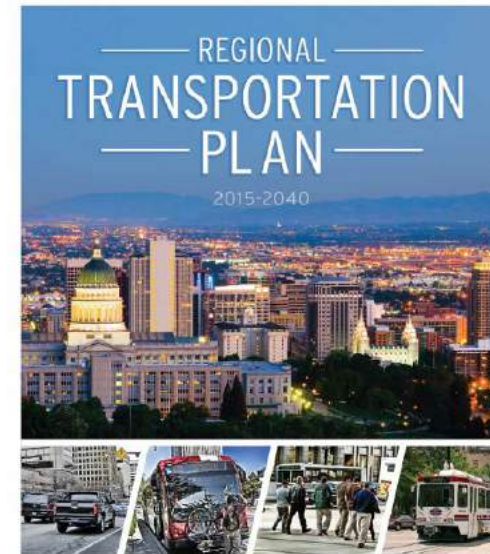
Salt Lake County also offers multiple funding resources to assist in the development and implementation of bicycle-friendly policies and plan implementation. Salt Lake County should be viewed as a key partner, as it has established county wide bicycle master plan frameworks, including standardized classification systems, sample plans, etc. Working closely with such plans, Cottonwood Heights has the opportunity to qualify for additional funding money that can assist in the implementation and fulfillment of this plan.



Midvale City

One of the most prominent deficiencies in the city's current bicycle lane infrastructure is Fort Union Boulevard. Improving bicycle infrastructure on Fort Union Boulevard is one of the highest priorities of this plan, and will help establish a functional and efficient bicycle route through the city.

However, Fort Union Boulevard does not begin and end in Cottonwood Heights. It continues through Union Park Avenue into Midvale City. Currently, there is no bicycle lane beyond this intersection into Midvale. Given that this is a very busy intersection serving Interstate-bound traffic, the transition is not easy. To address the connectivity and safety issues, the Cottonwood Heights must work with Midvale to promote the importance of intercity bicycle travel options along Fort Union Boulevard.



Holladay City

Cottonwood Heights shares three primary connection points with Holladay City: Wasatch Boulevard, the Big Cottonwood Canyon Trail, and 2300 East. Being a popular recreational bicycle route, the bicycle lane on Wasatch Boulevard transitions seamlessly between Cottonwood Heights and Holladay City. However, there is no continuous bicycle lane on 6200 South. This is understandable given that 6200 South becomes a large interchange for Interstate 215 at 3000 East. Additionally, there is a much better alternative for bicycle travel from Wasatch Boulevard to Holladay City.

The Big Cottonwood Canyon urban trail bridges the bicycle and pedestrian gap between Cottonwood Heights and Holladay. The trail begins at the mouth of Big Cottonwood Canyon and spans beneath Wasatch Boulevard, along 3000 East, and through the Cottonwood Corporate Center before emptying into Holladay City. For cyclists and pedestrians traveling between the two cities, this is the most efficient and safe route. As such, focus should be placed on maintaining and even improving the quality of this trail, and especially its connection from Holladay to Cottonwood Heights.

The final connection between Cottonwood Heights and Holladay City is 2300 East. Between Fort Union Boulevard and the northern boundary of the city, 2300 East contains a Category 2 bicycle lane on both sides of the road. The quality of the existing bicycle lane is high.



City boundary between Cottonwood Heights and Holladay City goes from Category 2 bicycle lane to an unmarked roadway.

However, the lanes end at the bridge that separates the two cities and does not continue on Holladay City's side of 2300 East. This stark change from Category 2 bicycle lane to unmarked roadway demonstrates the importance of establishing intergovernmental relationships and partnerships. Cottonwood Heights should engage Holladay City in discussion to address the lack of a connection, or even transition of bicycle lanes on 2300 East. Cyclists care more about safe and efficient riding than they do about city boundaries, and both Cottonwood Heights and Holladay must realize this and attempt to provide a safe solution.

Murray City

Murray City border the northwest portion of Cottonwood Heights. There are two primary connection points between Cottonwood Heights and Murray, and both are problematic for cycle traffic: Highland Drive and 1300 East. The Highland Drive connection also serves as an interchange for Interstate 215 traffic. Highland Drive, in both cities, contains no bicycle infrastructure or signage, making the road unusable for all but the most serious of cyclists.

1300 East is also unmarked by bicycle infrastructure or signage in both cities. Traffic counts do not reach the same number as Highland Drive, but the lack of bicycle infrastructure and narrow shoulders make 1300 East unsafe for cyclists as well.



The connection points between Cottonwood Heights and Murray at Highland Drive (left) and 1300 East (right) lack bicycle infrastructure in both cities, making bicycle travel between cities dangerous.

Sandy City

Holladay and Murray share roadways with Cottonwood Heights at very specific points where north-south roads cross between city boundaries. Shared roadways with Sandy City are a little more complex. Not only are there multiple north-south intersection points between Cottonwood Heights and Sandy, but the two cities also share an east-west connection in Creek Road. The dividing line between Cottonwood Heights and Sandy is the center of Creek Road (Technically, Cottonwood Heights owns half the road and Sandy owns the other half). The two cities share this connection from Union Park Ave to approximately 2055 East Creek Road, just past Highland Drive. In the span of Creek Road shared between Cottonwood Heights and Sandy, a Category 2 bicycle facility exists in both directions. This includes a striped shoulder with bicycle lane striping, as pictured.



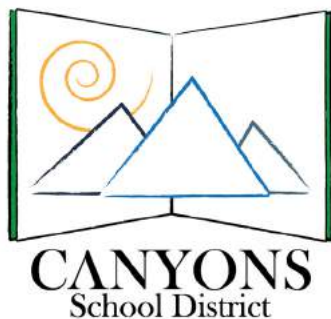
Creek Road, the boundary between Cottonwood Heights and Sandy, includes a Category 2 bicycle lane on both sides of the Road between Highland Drive and Union Park Avenue.

Canyons School District

Cottonwood Heights is home to six schools in the Canyons School District:

- Bella Vista Elementary (2131 East Fort Union Boulevard)
- Butler Elementary (2700 East Fort Union Boulevard)
- Canyon View Elementary (3050 East Bengal Boulevard)
- Ridgecrest Elementary (1800 East 7200 South)
- Butler Middle School (7530 South 2700 East)
- Brighton High School (2100 East Bengal Boulevard)

Creating a working partnership with Canyons School District will help establish safe alternatives to bus and automobile transportation to and from each school in the city. The Safe Routes to School program is a great way to receive funding to improve deficiencies in pedestrian routes around schools. The city should continue to seek Safe Routes to School funding to ensure school-age children choosing to travel to school on foot or bicycle can do so safely.



As schools are redeveloped in Cottonwood Heights, the School District should be under the same requirement as private developers to construct necessary public right-of-way improvements. Subjecting school districts to these requirements will ensure that bicycle and pedestrian infrastructure around new schools is safe for non-motorized travel.

Private Developers

With many capital projects vying for limited city funds, major infrastructure and road projects are likely to be prioritized over bicycle lane striping. Because of this budgetary limitation, implementing the entirety of this plan would take many years for the city to complete on its own.

Because of such limitations, the city can implement policies that require private developers to assist with bicycle lane construction and maintenance. In general, developers are required to make improvements to the curb, gutter, and sidewalk in front of their property during any new construction project. If adopted, this plan could add bicycle lane painting and maintenance to the public right-of-way improvements required during a new construction project. Over time, supplementing city projects with developer improvements, the bicycle plan has a better chance at seeing successful implementation throughout Cottonwood Heights. Existing ordinance requirements that enumerate the public improvements required during new construction should be modified to include bicycle lane infrastructure or repairs.

Local Bicycle Shops

Local bicycle shops are valuable partners in the planning and implementation of bicycle plans. Employees and customers at these stores are usually already bicycle enthusiasts, or looking to get into cycling for the first time. Establishing a partnership between the city and local bicycle stores will help create a sense of ownership in the future development of bicycle infrastructure in the city, and will ensure that local cycling enthusiasts and citizens are vested and involved in the city's long-term bicycle planning goals.



Cottonwood Cyclery



Infinite Cycles



League of American Bicyclists

The League of American Bicyclists is a national organization that aims to create safer roads, stronger communities, and a more bicycle friendly America. The League informs, advocates, and promotes bicycle-friendly travel throughout the country. Membership in the League of American Bicyclists will keep Cottonwood Heights up to date on the latest cycling statistics and trends, and will help expose the city to various outreach and recognition programs that can be promoted throughout the community.

Implementation

A clear, well-established implementation policy is vital to the success of the Bicycle and Trails Master Plan. There are many opportunities to create a functional and interconnected network of bicycle lanes and trail in Cottonwood Heights. This plan will help build the framework for effective implementation by addressing prioritization practices and potential funding strategies.

Prioritization

Given that budget allocation for bicycle lane and trail construction and maintenance may be limited, it is important to establish a basis for prioritizing which improvements are needed over others. A prioritization criteria has been created, based on the following five elements:

- **Coordination** - Coordinating the construction of bicycle lane and trail infrastructure with scheduled road maintenance (i.e. restriping, slurry seal, chip seal, etc.) is the most cost-effective method of constructing bicycle lanes on a road. Category 2 bicycle lanes in particular should always be included as a component of road overlays, as they often require restriping and painting.
- **Connectivity** - Lack of connectivity is the primary issue with the existing network of trails and bicycle lanes. There is no infrastructure in place that allows for safe east-west bicycle travel in the city. Additionally, there are many locations where existing bicycle lanes abruptly end. Connectivity should be measured by linkages to other bicycle lanes, trails, or pedestrian infrastructure, and by whether the addition of new infrastructure would create a connection where there currently is not one.

- **Proximity to Destinations** - There are dedicated cyclists in the city who currently ride on city streets (marked and unmarked) as a means of recreation. However, the proposed bicycle and trails should cater to those looking for a mean of effective transportation as an alternative to vehicle travel. When people travel, there is usually a specific destination in mind, and the city's bicycle and trail network should acknowledge this. Access to places of employment, schools, parks, and retail destinations is essential for this plan to be effective.
- **Population Density around Access Points** - Areas with high population density within a small proximity (i.e. 1/2 mile or less) of an urban trail or bicycle lane should be valued when prioritizing infrastructure improvements. The highest density areas should be given priority when considering bicycle infrastructure projects.
- **Community Support** - Community support plays an important role in prioritizing which bicycle and trail infrastructure improvements to allocate money to. Citizens should be given the opportunity to provide input on which improvements they see as a priority, and those opinions should be factored in to the prioritization of improvements.

Funding Strategies

Outside sources of funding are essential to the successful and timely implementation of this plan. With the adoption of this plan, Cottonwood Heights will qualify for grants and other funding sources to assist in completing the city's bicycle and trail network. Below are some specific examples of funding sources available at the time this plan was written. The purpose of this list is to demonstrate the various types of funding source from which to obtain capital to complete bicycle and trail-related projects. City staff and officials should be proactive in seeking funding from local, state, and federal resources:

- **Utah Transit Authority Pedestrian Improvements** - This source of funding offers capital to make improvements such as bus stops and sidewalks.
- **Transportation Alternatives Program (TAP)** - TAP funding is available to assist in the implementation of studies that help reduce mobile source emissions. A great way to achieve this is via non-motorized forms of transportation. In 2015, approximately \$7,000,000 was available in funding.
- **Wasatch Front Regional Council Transportation and Land Use Connection Program** - WFRC's Transportation and Land Use Connection program offers monetary and professional support for the implementation of bicycle and pedestrian plans and in creating a prioritization schedule for bicycle and pedestrian infrastructure. In 2015, approximately \$600,000 in funding was available to Wasatch Front communities through the Wasatch Front Regional Council.

Maintenance

The establishment of new bicycle lanes and trail is vital to the expansion and completion of the city's existing network. Of equal importance, however, is the maintenance of existing bicycle and trail infrastructure. Maintenance includes such activities as pavement stabilization, landscape maintenance, sign replacement, repainting and restriping, mowing, litter removal, and more. A maintenance policy establishing ongoing, year-round maintenance will help protect the quality and functionality of city bicycle lanes and trails. The following recommendations should be considered in create a maintenance policy:

- The Cottonwood Heights Public Works department should take care to ensure that routine bicycle infrastructure maintenance occurs on an annual basis;
- Establish an average lifetime for Category 1, 2, and 3 bicycle lanes. This established lifetime will aid in prioritizing which facilities need repair in any given year;
- Establish trail and bicycle lane maintenance as line items in the city's budget and capital facilities plan. Pavement repairs, painting, striping, signage replacement, and other maintenance practices should all be considered and implemented into the budget;
- Use private development requirements to provide bicycle lane and trail maintenance as a component of new construction projects.

Street Sweeping

The Cottonwood Heights Public Works department has the capacity to provide maintenance to bicycle lanes, including repainting, restriping, and sign repair. As previously stated, routine maintenance of this nature should occur at least once per year. Street sweeping services are performed four times per year on every city road. For optimal on-street cycling conditions, consideration must be given to increasing the number of times streets with Category 2 bicycle lanes are swept. At a minimum, such roads should be swept six times per year.

Average Maintenance Costs

The following tables provide estimated cost breakdowns for both Category 2 and Category 3 bicycle facilities:

Category 2 Bicycle Lanes

Bicycle Lane Component	Cost (Dollars per mile)
Bike Paint - (4) 4-inch white stripe	\$ 3,170
Bike Marking w/ Arrow (every 250', both sides of street)	\$ 1,800
Mobilization - 8% estimate	\$ 550
Traffic Control - 5% estimate	\$ 350
Sweeping (both sides of road)	\$ 220
Signs (6 per mile)	\$ 1,500
CONSTRUCTION TOTAL	\$ 7,600
Engineering & Layout	\$ 4,500
Budget Contingency	\$ 1,140
TOTAL ESTIMATED COST	\$ 13,250

Category 3 Bicycle Lanes

Bicycle Lane Component	Cost (Dollar per mile)
Bike Paint (2) 4-inch white stripe	\$ 1,590
Sharrow Marking	\$ 2,160
Mobilization - 8% estimate	\$ 550
Traffic Control - 5% estimate	\$ 350
Sweeping (both sides of road)	\$ 220
Signs (6 per mile)	\$ 1,500
CONSTRUCTION TOTAL	\$ 6,370
Engineering & Layout	\$ 4,200
Budget Contingency	\$ 950
TOTAL ESTIMATED COST	\$ 11,520

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