C I T Y O F B O U L D E R
INFORMATION ITEM FOR:

TRANSPORTATION ADVISORY BOARD – May 9, 2016
OPEN SPACE BOARD OF TRUSTEES – May 11, 2016
PLANNING BOARD – May 5, 2016
ENVIRONMENTAL ADVISORY BOARD – May 4, 2016
WATER RESOURCES ADVISORY BOARD – May 16, 2016
PARKS AND RECREATION ADVISORY BOARD – April 25, 2016

GREENWAYS ADVISORY COMMITTEE AGENDA ITEM
MEETING DATE: May 17, 2016

SUBJECT:
Draft CEAP for Fourmile Canyon Creek Greenways Improvements from Upland Avenue to West of Broadway

REQUESTING DEPARTMENT:
Annie Noble – Greenways Coordinator
Ward Bauscher – Engineering Project Manager, Flood & Greenways
Christin Shepherd-Civil Engineer I, Flood & Greenways

PURPOSE: A summary of the draft CEAP is being provided to board members as an information item. It is requested you review the full CEAP and forward any comments or concerns regarding the draft CEAP to your Greenways Advisory Committee representative. If you have questions on this material, please contact Ward Bauscher at 303-441-4199 or BauscherW@bouldercolorado.gov. The full CEAP is available at: https://www-static.bouldercolorado.gov/docs/DRAFT_2016_Fourmile_Upland_to_Broadway_CEAP-1-201604061106.pdf

GREENWAYS ADVISORY COMMITTEE ACTION REQUESTED:
A recommendation from the Greenways Advisory Committee to City Council concerning the CEAP for the Fourmile Canyon Creek Greenways Improvements from Upland Avenue to West of Broadway is requested. Pending GAC approval, City Council will receive the CEAP as a call up item in summer of 2016.

Attached is the Executive Summary from the Fourmile Canyon Creek Greenways Improvements from Upland Avenue to West of Broadway CEAP summarizing the proposed recommendations.

FOURMILE CANYON CREEK GREENWAYS IMPROVEMENT PROJECT
UPLAND AVENUE TO WEST OF BROADWAY
EXECUTIVE SUMMARY

In 2009, a Major Drainageway Plan was approved by City Council for Fourmile Canyon Creek and Wonderland Creek. The recommendations of the 2009 plan were finalized in the Fourmile Canyon Creek and Wonderland Creek Major Drainageway Planning Final Plan in May 2011 (MDP). The MDP proposed specific levels of flood mitigation for each reach along Fourmile Canyon Creek between Violet Avenue and Upland Avenue. In 2013, a formal CEAP process was underway for the mitigation measures outlined in the 2011 MDP as well as mitigation measures further upstream, from Violet to Broadway. Then, the September 2013 flood occurred, effectively halting further development of the CEAP document.

The September 2013 flood event produced high quantities of sediment, spill flows outside of the channel, and impassable roadways in the Fourmile Canyon Creek drainageway and created incentive for staff to revisit the mitigation measures outlined in the 2011 MDP. It also gave an incentive to revisit mitigation measures west of Broadway to see if new alternatives were feasible. Staff reviewed the 2011 MDP alternatives and investigated further options for spill flow control, sediment capture, and large scale detention ponds.

The existing Fourmile Canyon Creek floodplain between Violet and Upland Avenue extends beyond the creek channel, resulting in:

- One fire station in the 500year floodplain,
- One residential structure in the high hazard zone, and
- Water depths along Violet Avenue and Upland Avenue that preclude safe vehicular access to and from Crest View Elementary during a major storm event.

Staff reviewed the following flood mitigation alternatives:

- FM1: Multiple Detention Facilities
- FM2: Single Detention Facility
- FM3: Fourmile Canyon Creek 100-year Channel Improvements
- FM4: Spill Flow Diversion to Wonderland Creek
- FM5: Fourmile Canyon Creek 50-year Channel Improvements
- FM6: Fourmile Canyon Creek Sediment Capture Facility
- FM7: 2011 MDP recommendations

In 2012, a CEAP was developed for Fourmile Canyon Creek from 19th to 22nd Street that proposed alternatives for flood improvements, emergency access improvements, as well as pedestrian and bicycle access. The selected alternative includes an underpass at 19th Street that will allow the passage of the 100-year flood, as well as a grade-separated multi-use path. Construction of these improvements is anticipated to begin in 2016-2017. This CEAP will also evaluate alternatives for extending the multi-use path that was approved in the 2012 CEAP. Staff reviewed the following path alignment alternatives:

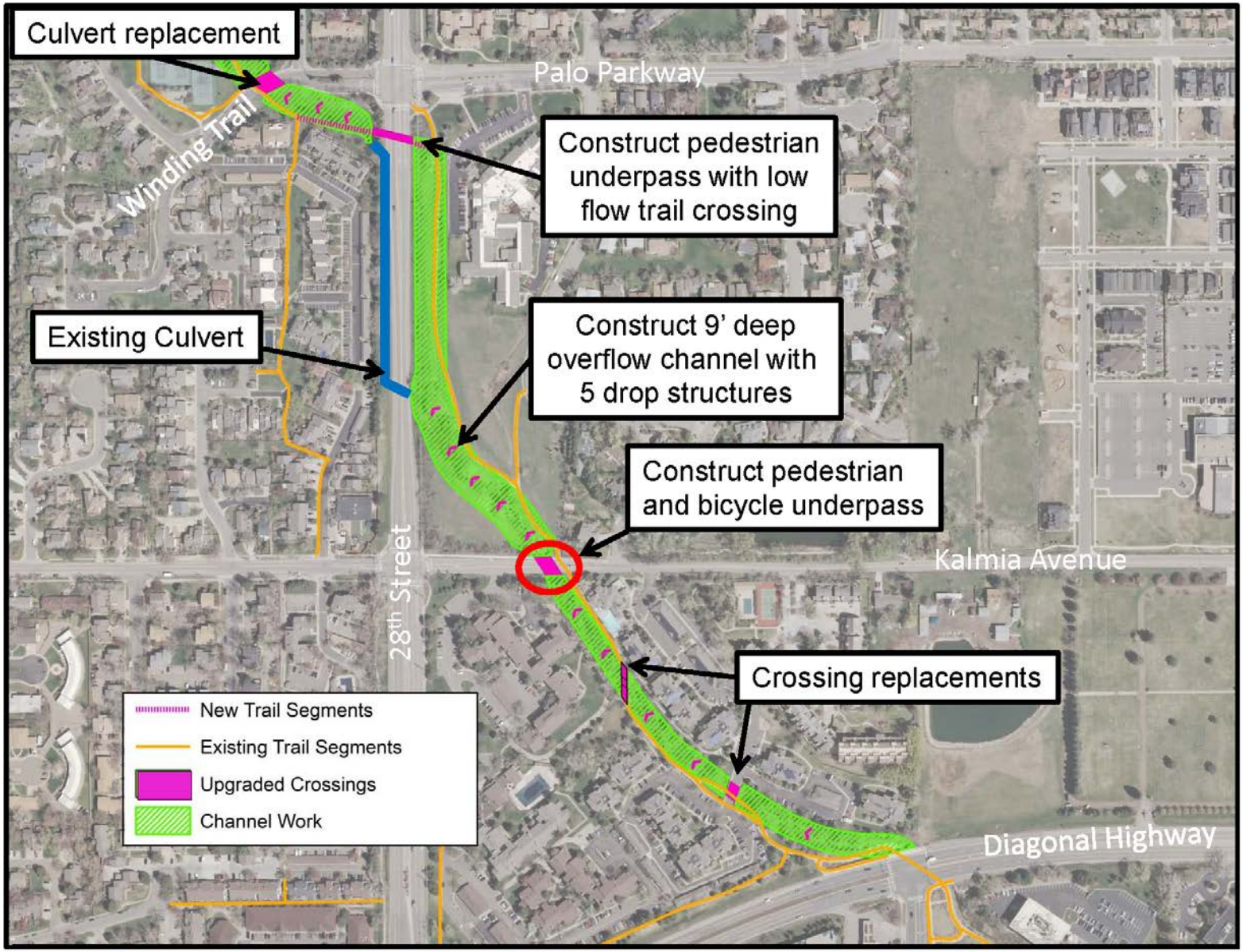
- Option 1: Connection to Countryside Village (mobile home park)
- Option 2A: North Alignment through Violet Park
- Option 2B: South Alignment through Violet Park
- Option 3A: Connect Upland to Violet via Fourmile Canyon Creek
- Option 3B: Connect Upland to Violet via 17th Alignment
- Option 3C: Connect Upland to Violet via South Alignment on Violet Avenue
- Option 3D: Connect Upland to Violet via North Alignment on Violet Avenue

STAFF RECOMMENDATION

Based on analysis that will be presented in this CEAP, the primary recommendation from City of Boulder staff is to pursue the recommendations outlined in the 2011 Major Drainageway Plan. These include replacing existing culverts under Violet and Upland Avenue, modifying the channel between these culverts to eliminate high hazard zone risk, and allowing for safe vehicular access to Crest View Elementary School. Sediment capture is recommended within Violet Park and staff recommends path alignment options 1, 2A, and 3A.

This approach allows for uninterrupted access to both the fire station and Crestview Elementary and the potential for the Fourmile Canyon Creek multi-use trail to be integrated into the flood improvements including trail underpasses at Violet Avenue, Upland Avenue, and 19th Street. Improvements have been budgeted in the Greenways and Flood Utility Capital Improvement Programs (CIP).

Summary of Recommended Alternatives



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GREENWAYS ADVISORY COMMITTEE AGENDA ITEM
MEETING DATE: May 17, 2016

SUBJECT: 2017-2022 Greenways Capital Improvement Program
REQUESTING DEPARTMENT: Annie Noble – Flood and Greenways Engineering Coordinator
PURPOSE: The 2017-2022 Greenways Capital Improvement Program is being provided to board members as an information item. If you have any comments or concerns regarding the 2017-2022 Greenways Capital Improvement Program, please pass them along to your Greenways Advisory Committee representative. If you have questions on this material, please contact Annie Noble at 303-441-3242 or noblea@bouldercolorado.gov
GREENWAYS ADVISORY COMMITTEE ACTION REQUESTED: A recommendation from the Greenways Advisory Committee to the City's Planning Board and City Council concerning the proposed Greenways Capital Improvement Program is requested.

Attached is information concerning the proposed 2017-2022 Greenways Capital Improvement Program (CIP) for review and consideration. A recommendation by the Greenways Advisory Committee to the city's Planning Board and Council will be requested at the May GAC meeting.

Attachment A: Greenways 2017-2022 Capital Improvement Program Overview
Attachment B: Greenways 2017-2022 Capital Improvement Program Summary Spreadsheet
Attachment C: Greenways Program CIP Map

Attachment A

Greenways 2017-2022 Capital Improvements Program
Overview of Department Mission

The City of Boulder Greenways System is comprised of a series of corridors along riparian areas including Boulder Creek and its 14 tributaries, which provide an opportunity to integrate multiple objectives, including habitat protection, water quality enhancement, storm drainage and floodplain management, alternative transportation routes for pedestrians and bicyclists, recreation and cultural resources.

The Greenways CIP follows an opportunistic approach, contributing funding toward projects that are being completed by other departments or private development in order to meet the various objectives of the Greenways Program. The Greenways CIP also looks to leverage funds with outside agencies in order to move projects forward that meet more than one objective of the Greenways Program, but may not be the highest priority when evaluating any one particular objective. Projects included in the Greenways CIP are typically called out in the Greenways Master Plan and are projects that Greenways staff can take the lead in coordinating.

Funding Overview

The total 2017 Greenways capital budget is $320,441, with an additional $105,000 in the operating budget. Greenways projects are funded from the Transportation Fund, Stormwater and Flood Management Utility Fund, and the Lottery Fund. Annual funding distribution for the Greenways Capital Program for 2017 is as follows:

Transportation	-	$97,500
Flood Utility	-	$97,500
Lottery Fund	-	$125,441

Historically the Lottery contribution to the Greenways Program has been $150,000 per year. As a result of a projected reduction of the city's allocation of Lottery funds, starting in 2015, the Lottery contribution to Greenways was reduced to $125,441 (based on Greenways receiving 15% of the city's funding allocation, with a projection of total Lottery proceeds assumed to be $836,275). The city's allocation of Lottery funds in 2015 exceeded the projected amount, therefore a budget adjustment will be made in the amount of $26,949 to reflect the increase.

The focus of the Greenways CIP in 2017-2019 is on flood mitigation, bicycle and pedestrian

multi-use paths and underpasses, and habitat and water quality improvements along the Fourmile Canyon Creek corridor. These improvements are also being coordinated with the development of the Violet Park site. In 2020-2022, funding for these types of improvements is shown for Bear Canyon Creek and Skunk Creek in anticipation of future major drainageway improvements along these corridors. For more information about the timing and details of these projects, please see the Utilities -Stormwater/Flood web page:
https://bouldercolorado.gov/flood/creek-projects
In addition to these projects, possible habitat restoration projects during the next few years include:

- Habitat improvements along Boulder Creek in conjunction with flood mitigation maintenance (sediment removal)
- Habitat improvements along Fourmile Canyon Creek upstream of Broadway in conjunction with flood mitigation maintenance (sediment removal)
- Habitat improvements at the confluence of Bear Creek and Boulder Creek at Foothills Community Hospital in conjunction with sediment removal
- Dry Creek habitat improvements through Flatirons Golf Course
- Goose Creek, railroad to 47th Street tree plantings
- Fish Passage enhancement projects in association with Fishing is Fun grants
- South Boulder Creek minimum stream flow
- Removal of Russian Olive trees east of 75th Street along Boulder Creek

Board Action
The Greenways Advisory Committee will meet on May 17, 2016 to review the 2017-2022 Greenways Program CIP and make a recommendation to Planning Board and City Council.

Guiding Principles & Project Prioritization
Greenways projects address many of the CIP guiding principles. Greenways projects are identified in multiple master plans and meet the community sustainability goals. Most of the Greenways projects leverage outside or interdepartmental funding. Greenways habitat improvements seek to be sustainable and are intended to reduce the future maintenance required.

The Greenways CIP has been developed within the context of and is consistent with the Boulder Valley Comprehensive Plan (BVCP), the Transportation Master Plan (TMP), the major drainageway flood mitigation plans, the Comprehensive Flood and Stormwater Master Plan and the Greenways Master Plan. The Greenways Master Plan was updated in 2011 to reflect

improvements that had been completed, and adopted changes that have been made in other master plans, city policies and ordinances that affect the Greenways Program since the last Master Plan update in 2001.

Prioritization:

Many of the Greenways projects shown in the CIP are being designed and constructed in coordination with major flood or transportation improvements. The Greenways funding associated with these projects focuses on habitat restoration, water quality improvements and trail connections. In addition to leveraging funding with the Transportation and Flood Utilities budgets, funding for Greenways projects is also available through the Urban Drainage and Flood Control District and Federal Transportation funds.

Projects not in Master Plans:

It should be noted that the city experienced a major flood in September 2013 that resulted in extensive flooding along most of the city's major drainageways. Following the flood, additional funds have been allocated in the Flood Utility CIP to reflect an increased interest in pursuing flood mitigation efforts along the city's major drainageways. As a result of updated mapping and the September 2013 flood, flood mitigation plans were initiated for Gregory Creek, Bear Canyon Creek and Boulder Creek to identify economically feasible improvement projects. Flood mitigation plans will be initiated in 2016 for Upper Goose Creek and Twomile Canyon Creek, and in 2017 for Skunk, King's Gulch and Bluebell Creeks after completion of flood mapping updates on these drainageways. Results from these flood mitigation plans will inform future capital improvements. Continued evaluation of potential improvement may result in additional changes to the Flood Utility and Greenways CIP in upcoming years.

New Facilities or Infrastructure Projects

Flood mitigation plans are currently being developed for several of the drainageways as a result of either flood mapping updates or deficiencies identified during the September 2013 flood. These plans will identify potential economically feasible CIP projects which may provide opportunities for future Greenways improvements. The Transportation Division is currently completing a minor structure inspection effort in order to develop a formal bridge asset management program. Information from this evaluation will help prioritize capital maintenance needs with funding that can be leveraged with the Greenways and Flood CIP.

Operation and Maintenance Impacts

$105,000 is budgeted each year for Greenways operations and maintenance. $80,000 of the

operating budget is dedicated to habitat maintenance. The Greenways habitat crew works closely with Parks and Open Space maintenance staff to provide on-going maintenance, as well as on collaborative projects as part of the operations budget. Major drainageway improvements are maintained by the flood maintenance staff and multi-use paths and underpasses are maintained by either Transportation or Parks maintenance, depending upon jurisdiction.

Deferred, Eliminated, or Changed Projects

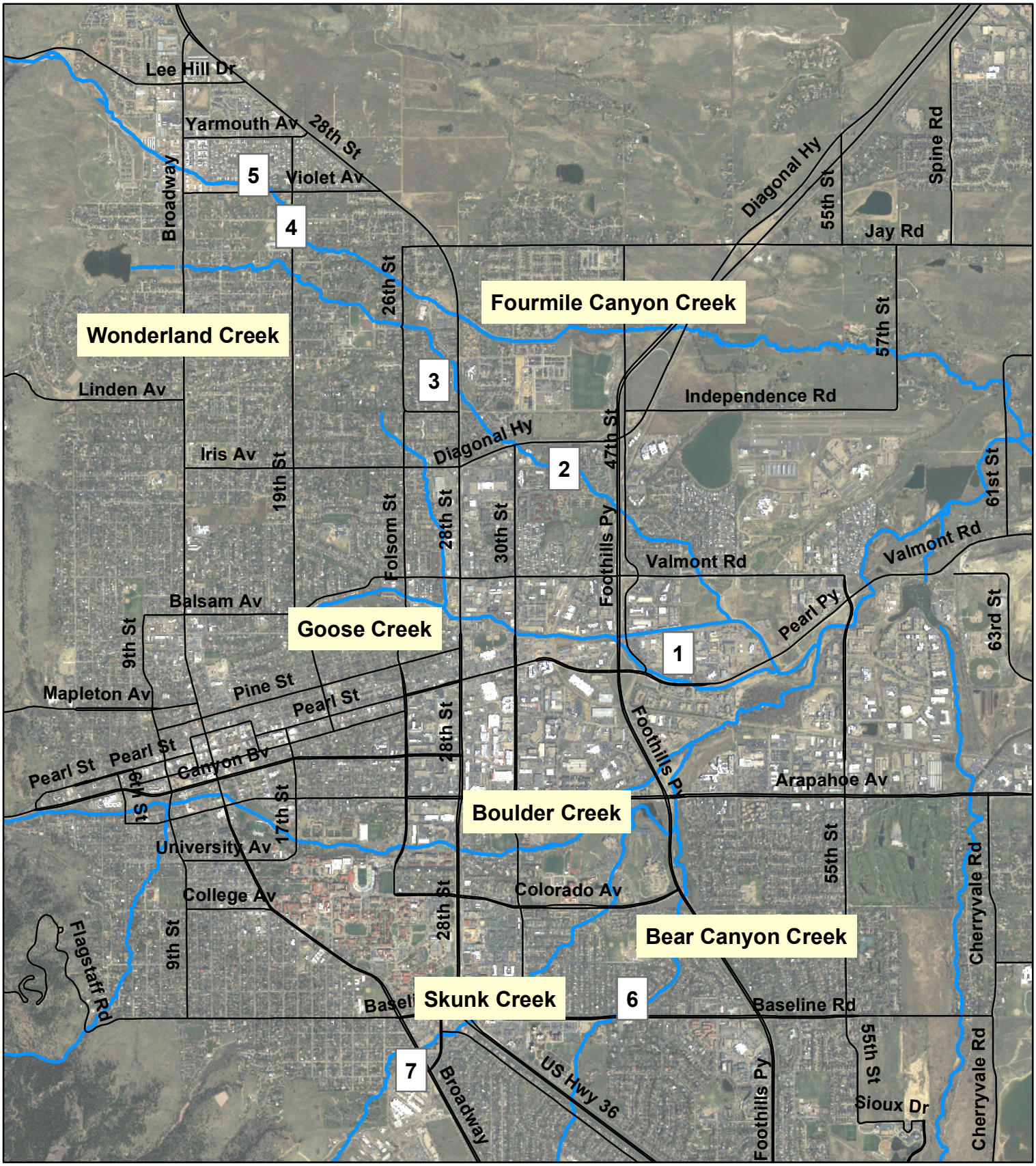
None

Unfunded Projects and Emerging Needs

Since the Greenways Program is opportunistic, taking advantage of projects that are funded through other departments, there are no unfunded needs.

	Attachment B		Greenways Program Summary Spreadsheet									
			2016 Greenways Budget				2017-2022 Greenways CIP					
		2015 Budget with Carry Overs	2016 Lottery 610SW63100	2016 Flood 610SW63000	2016 Trans 310TR630OC	2016 Budget with Carry Overs	2017	2018	2019	2020	2021	2022
#	Description											
	2015 Additional Lottery Revenues	ATB	$ 26,949			$ 26,949						
	CU Bridges	$200,000		$100,000	$100,000	$200,000						
1	Goose Creek Restoration	$0		$152,399		$152,399						
2/3	Wonderland Foothills to 28th	$914,467	$857,210		$57,257	$914,467						
4	Fourmile 19th-22nd - Crestview	$718,828		$457,883	$260,945	$718,828						
5	Fourmile Upland to Violet	$0	$100,000	$85,200	$85,200	$270,400	$270,400	$270,400	$270,400			
6/7	Bear/Skunk Creek									$270,400	$270,400	$270,400
	Restoration, Water Quality and Trail Improvements	$152,399	$25,441	$12,300	$12,300	$50,041	$50,041	$50,041	$50,041	$50,041	$50,041	$50,041
	Total	$1,985,694	$982,651	$807,782	$515,702	$2,306,135						
	2016 Budget		$125,441	$97,500	$97,500	$320,441						
	2015 Carry Overs		$857,210	$710,282	$418,202	$1,985,694						
	Total					$ 2,306,135						

Attachment C



Projects
1 Goose Creek Restoration
2 Wonderland Foothills to 30th St
3 Wonderland 28th St Underpass
4 Fourmile - 19th to 22nd
5 Fourmile - Upland to Violet
6 Bear Canyon Creek
7 Skunk Creek

2017 - 2022
Greenways Program CIP
Attachment C

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