WALK.BIKE.FIT | COMMERCE CITY

A MULTI-MODAL ACTIVE TRANSPORTATION PLAN

The City of Commerce City, Colorado

March 2012

W A L K . B I K E . F I T

Prepared by the DHM Design Corporation and the Greenway Team, Inc.


SPEED
25


ESTA LEJOS,
CERCA.

ACKNOWLEDGEMENTS

CITY OF COMMERCE CITY

City Council

Sean Ford, Sr., Mayor
Domenic Moreno, Mayor Pro-Tem/Ward I
Jim Benson, Ward II
Jadie Carson, Ward III
Ricky A. Teter, Ward IV
Crystal Elliott, Council-at-Large
Jason McEldowney, Council-at-Large
Steven J. Douglas, Council-at-Large
Rene Bullock, Council-at-Large

Interim City Manager Brian McBroom
Carolyn J. Keith, CPRP, The Director of Parks and Recreation

THE TECHNICAL WORKING GROUP

Jenny Axmacher, Planner
Mike Brown, Parks Planning and Operations Manager
Traci Ferguson, Parks Planner
Brian Garner, Planner
Jenna Johnson, Recreation Coordinator
Carol Maclennan, Tri-County Health Department
Lisa Schott, Community Enterprise
Nancy Ross, School District 27J
Tom Poe, Police Officer
Rainey Wikstrom, Adams County School District 14
Charles Schoepflin, Police Sergeant
Daren Sterling, City Engineer
Matt Wiederspahn, Engineer
Rachelle Urso, Engineer

PARTICIPANTS IN PUBLIC WORKSHOPS

The participants in the public workshops included neighbors; corridor property owners and businesses; recreationalists and numerous other individuals who shared their advice and expertise.

PLANNING CONSULTANTS

The Greenway Team, Inc.

Robert Searns, Principal Plan Author

DHM Design Corporation

Bill Neumann, ASLA, Principal Plan Designer
Ryan Holdorf, ASLA, Landscape Architect
Ken Abel, Report Layout and Graphics

Walkable and Livable Communities Institute

Dan Burden, Active Transportation Specialist and Executive Director
Sarah Bowmen, Active Transportation Specialist and General Manager

This plan was funded by grants from Tri-County Health.
Cover logo and logo art by Rebecca Searns.

Magnolia Street and West 72nd Place

CONTENTS

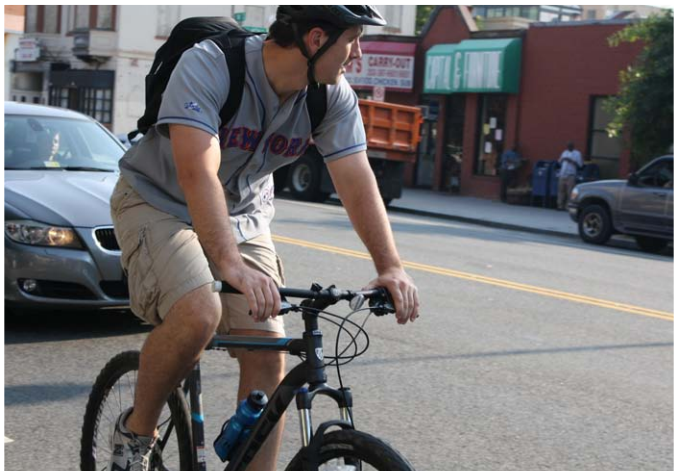
W A L K . B I K E . F I T

Pedestrian Crossing at Vasquez Blvd. and 60th Ave.

EXECUTIVE SUMMARY

INTRODUCTION AND PURPOSE

Active Travel Defined - A form of movement in communities that primarily and regularly engages people in walking, bicycling and other non-motorized transportation for commuting, recreation and other transportation. *Active travel* systems integrate with other modes such as public transit and automobile routes.



Photo, www.pedbikeimages.org/Elvert Barnes

BACKGROUND AND PURPOSE OF THIS DOCUMENT

Commerce City has been one of the Metro Area's fastest growing communities with a population exceeding 45,000 and 62 square miles within the city and its urban growth boundary. It could add another 30,000 residents by 2035. Over 24,000 people work in Commerce City and this number could increase to 42,000 by 2035. Abutting major interstate highways and Denver International Airport, Commerce City is a major industrial and trans-shipment hub poised to continue major growth and economic development.

Mission Statement
Help Commerce City mature into a healthy, prosperous, diverse and vibrant community by creating a safe, pleasant, practical and affordable multi-modal active travel network accessible to all residents and businesses, that is used regularly by a substantial segment of the population.

The active travel system will integrate with the larger metro bike and trail networks, regional destinations and other forms of transportation including transit and automobile modes and promote widespread use of cleaner and more energy-efficient forms of transportation.

Commerce City has been a trend-setter in the area of community livability and quality of life. This is evidenced by the implementation of its visionary plans, well laid out new residential communities, new activity centers like Victory Crossing and outstanding amenities including the Sand Creek Greenway and the Rocky Mountain Arsenal National Wildlife Refuge.

Commerce City faces challenges to its health and livability on two fronts. One is the impact of six decades of the domination of the automobile and automobile-based infrastructure creating barriers and disincentives to *active travel* for commutes to work, shopping and other trips. The other is an increasing rate of compromised health and fitness including overweight adults and children to the extent that it threatens their health and longevity. Both diet and a sedentary life style contribute to this problem. Fully 31% of Commerce City residents do not participate in regular physical activity—substantially worse than the national rate of 22%. These conditions have led to increasing rates of disease including diabetes, cardio/pulmonary issues and myriad other serious health problems which in turn have led to explosive heath care costs.

One key way to address this problem—as well as reduce air pollution and fuel consumption—is to promote better availability of *active travel* alternatives with safe, pleasant convenient to use facilities including sidewalks, street crossings, bike paths and on-street bike routes. Currently, however, many of Commerce City's residents and businesses, like many American cities, are almost totally dependent on the private automobile for transportation.

In response to these concerns the Tri-County Health Department funded this plan using funds distributed by the 2009 Federal Stimulus Program.

This document puts forth a vision and plan for a more walkable and bikable-friendly Commerce City. To accomplish this, the plan recommends specific alignments for a citywide/regional greenway and trail network, overcoming physical barriers to safe, pleasant *active travel*. The network integrates safe pleasant walking and biking corridors into the local neighborhood fabric including, where feasible, retro-fitting the existing street grid in the Historic Commerce City districts. The plan also suggests a roster of specific projects and alignments, street and trail cross section concepts, and other recommendations for setting policies, planning, operations and maintenance, raising funds and building support to build improvements.

THE STUDY AREA

The plan considered the entire City including the Historic District and the newly developing Northern Range neighborhoods. It also carefully considered surrounding destinations and links including: Denver, Aurora, the DIA area, Stapleton, Northglenn, Thornton, Brighton and others.

THE PLANNING PROCESS AND COMMUNITY ENGAGEMENT

The planning process was thorough and included field reconnaissance; preparing draft alignment alternatives, layouts and cross sections; review by an ad hoc Technical Working Group representing key agencies; a public participation process and a final review that included city agencies, City Council and other stakeholders. The plan was adopted by the Commerce City Council on March 5, 2012.

THE VISION, GUIDING PRINCIPLES, GOALS AND ACTIONS

CHALLENGES AND OPPORTUNITIES

While an era of motorized transportation has brought both convenience and economic development, it has also had a cost to community livability and people's health. Part of this is the result of barriers created by highways and arterial streets as well as inadequate, unpleasant walking environments. Additionally, massive traffic network infrastructure has shaped communities and travel patterns where increased distances to employment, shopping, schools and other destinations have discouraged *active travel* by foot and bike. Given that reality, a successful *active travel* plan must recognize the existing context and think in terms of incremental and practical solutions.

Part of the planning process must consider projects and retrofits that are catalytic. These are built projects and programs that can demonstrate new approaches and garner public support. That in turn can lead to expanding and replicating successful solutions over time. By comparison, Commerce City is ahead of other established communities in that a substantial portion of the city's land area has been developing after the year 2000 and, due to foresight, these areas reflect more progressive transportation diversity. Commerce City, however, also has significant built-up urban areas with barriers: sidewalks that do not encourage walking, and street networks with limited capacity to accommodate *active travel* due to constrained rights-of-way, dangerous crossings and other limitations.

Bicyclist at the Fernald Trailhead

THE VISION AND GUIDING PRINCIPLES

A "vision" creates an image of what can be–representing a shared community aspiration.

The key elements of the *active travel* vision for Commerce City are:

- A walk/bike/fit city with an integrated network of sidewalks, bike routes and trails.
- A city with quality neighborhoods in both its new and older sections where people will choose walking and bicycling as a part of their everyday lives.
- A city with broad access to *active travel* where virtually every home and place of business will have direct access to a citywide multi-modal network where a significant part of journeys– to work, schools, parks, and shopping–will involve *active travel*.
- *Active travel* integration and connectivity including interface with other modes including bus lines, light rail and, where necessary, automobile.
- An interconnected regional network with connections to destinations citywide and the surrounding metro area.

The following Guiding Principles help define the criteria for the vision and include:

1. A Universally Accessible/User-Friendly System
2. A Balanced and Integrated System of All Modes of Travel
3. A Sustainable, Livable, Healthy City Layout With Walkable/Bikeable Neighborhoods
4. Enabling and Promoting Daily Physical Activity
5. State-of-the-Art Design Standards
6. A Seamlessly Interconnected City-Wide System Without Gaps or Formidable Barriers
7. Both Regional and Neighborhood Bike and Pedestrian Networks that Work
8. Supporting Purpose Driven Trips to Shopping, Parks, Schools, and Work
9. Quality Outdoor Civic Spaces Such as Village Squares, Parks and Event Venues
10. Safe Routes to Schools, Parks and Recreation Centers
11. A Well-Maintained and Managed *Active Travel* System
12. A Better-Educated Population (Including Bicyclists, Pedestrians and Motorists) that Promotes Safer *Active Travel*

Based on the vision and guiding principles the plan sets the following Goals and Actions:

Goal 1: Close the Gaps, Overcome Barriers and Enhance the Existing *Active Travel* Grid
Identify and close major gaps and weak links in the system such as highways, railroads, dangerous road crossings and other barriers.

Goal 2: Create A City-Wide/Regional *Active Travel* Corridors Network
Start by building a solid grid of major city-wide and regional *active travel* corridors with trails, safe, pleasant-to-use on-street routes and greenways that link key destinations.

Goal 3: Achieve Broader Engagement in *Active Travel*
Take pro-active steps to encourage and enable residents and workers to use active travel modes through high visibility projects that provide better access to schools, shopping, work places and bus stops, and other daily destinations, promotional events and other incentives.

Goal 4: Implement Effective/Enduring Policies and Programs
Continue to pursue and engage pedestrian and bicycle-friendly policies and programs in the City's codes and plans including creating more complete streets, new development planning that support active travel with walkable/bikeable village layouts, coordination with RTD and other programs that further this plan's vision.

Bicyclists on Monaco Street

COMPONENTS

AN ACTION TRAVEL "TOOL KIT"— THE COMPONENTS THAT WILL ENABLE *ACTIVE TRAVEL*

This plan recommends a number of components that function as building blocks for the active travel vision. Some of these are designs and some are principles and policies. The list of elements was generated considering field conditions, wishes expressed at community meetings and state-of-the-art techniques and designs already implemented locally and around the nation.

The following categories of components—detailed with photos and illustrations—are presented in Chapter 3. These "tools" and policies have been successful both locally and in cities around the nation and the globe. Various combinations and applications of these techniques can be applied on a site-specific basis creating improved neighborhood, city-wide and regional active travel infrastructure and networks.

1. Use of The Existing Local Street/Sidewalk Grid
2. Healthy Street Design (Including Complete Streets)
3. Road Diets
4. Sidewalks
5. At-Grade Road Crossings
6. Grade-Separated Crossings (Including Tunnels & Bridges)
7. On-Street Bicycle Facilities (Including Bike Lanes, "Bike Tracks", Bicycle Boulevards & Shared Roadways)
8. Off-Street Multi-Use Trails
9. Signage and Wayfinding Elements
10. Furnishings that Support Walking and Biking

Bicycle Education at Monaco Elementary School

RECOMMENDED LAYOUTS AND ALIGNMENTS

STRATEGIC QUESTIONS AND INFRASTRUCTURE CHALLENGES

This plan aims to lay out a visionary, yet realistic and realizable approach to help Commerce City become a community where a major segment of the population is encouraged and enabled to engage in active travel on a regular basis. To achieve this, the staff, consultant team, and the stakeholder participants in the process set out to address the following questions:

- **What Currently Works**–such as existing trails, on-street routes, complete streets and other improvements already in place and how to best build on these?
- **Where Are The Most Significant Barriers and Gaps**–in the existing active travel network—such as railroads, busy highways, difficult and dangerous street crossings or traversing places that feel isolated, unsafe or insecure?
- **Where Are The Inadequacies**–what locations have inadequate capacity, unpleasant links, experience congestion and/or exhibit poor safety records (including inadequacies of existing street, trail and sidewalk infrastructure such as narrow and uncomfortable sidewalks, streets that are not bicycle friendly or in poor repair)?
- **How Can Neighborhood and Citywide Connectivity Be Improved**–from a practical standpoint, how can connectivity and safe, pleasant active travel access to key destinations be improved to form a workable, optimal network. What facilities are priorities, most needed, to create a system that residents and workers throughout the city will use on a regular basis?
- **How to Best Address Practicalities of Weather, Travel time and Distances**—to work, school and shopping, etc. and how to transport goods such as groceries?
- H**ow Can Modes of Travel Be Integrated**–how can the requirements of all modes of travel (vehicles, transit, bicycles, and pedestrians) best be integrated and accommodated?
- **How to Overcome Well-Ingrained Patterns of Behavior**–including dependence on the automobile for most or all trips and a multi-decade trend of automobile-driven urba n layout that has created formidable travel distances and barriers.
- **What are The Catalytic Projects**–what are the proof of concept and catalytic projects that should be implemented first and lead to expanding the system? When and where should these be implemented?

THE *ACTIVE TRAVEL* MASTER PLAN LAYOUT

The maps on pages 44 and 45 show an overall vision of an active travel network for Commerce City. The approach integrates a variety of facilities and modes of travel and strives to create an optimal integrated citywide network of user-friendly active travel corridors including: on-street bike routes, complete streets; sidewalk networks; trails and greenways and other improvements. The layout also strives for a multiple transportation mode interface–that links active travel seamlessly with other transportation modes including light rail, bus service, taxi, park-n-ride and other means of mobility as well as strengthening links to regional destinations–such as Stapleton, North Denver, Aurora, Thornton and Northglenn, the DIA area, Anschutz Medical Complex, Downtown Denver and other activity centers.

Photo, www.pedbikeimages.org/Dan Burden

ROSTER OF CATALYTIC PROJECTS

The process of achieving the active travel vision for Commerce City begins with moving forward expeditiously and building the system in a logical series of steps. To achieve this, a number of catalytic projects have been identified. Listed in Chapter 4, these are conceptual/schematic descriptions with typical cross-sections and layouts. The next step will be to prepare preliminary design layouts for each with more detailed analysis based on site-specific surveying and engineering.

Based on a number of criteria including closing gaps, demonstrating active travel and practicality to implement, the following 26 projects are identified (See Chapter 4 for detailed descriptions and maps):

1. 60th Ave. Cross-Town link (Dick's Sporting Goods Park/ Victory Crossing to Wal-Mart/ Commerce City Recreation Center and to Sand Creek Trail at Brighton Boulevard)
2. Town Center Greenway (Sand Creek Trail at Dahlia Trailhead to Fairfax Park)
3. 72nd Ave. Connector (Quebec to Light Rail Station at Colorado Boulevard)
4. 56th Ave. Bike Arterial (Dahlia to Quebec)
5. 64th Ave Connector (Hwy. 2 to Victory Crossing)
6. 66th Place Connector (Fairfax Park to Quebec Parkway)
7. Kearney Street Connector (Hwy 2 to Monaco Park)
8. Fernald to Refuge Connector (Via 70th and 69th Aves.)
9. Clear Creek to Derby to Refuge Connector (Clear Creek Trail to Quebec Pkwy.)
10. "Old" Quebec Connector (Hwy. 2 to 72nd Ave.)
11. Hwy. 2 Greenway (60th Ave. to E-470)
12. Quebec Connector (60th to 64th Ave and upgrade Refuge Perimeter Path from 64th to 96th Ave.)
13. 88th Ave. Cross Town Link (RTD Light Rail to Quebec)
14. Central Park Boulevard Connector (60th Ave. at Dick's Sporting Goods Park To Northfield, Sand Creek Trail and Stapleton)
15. Southside Greenway (Dahlia Trailhead to Quebec at 40th Ave.)
16. Dahlia Link (79th to 72nd)
17. Northern Range Loop Trail (Chambers to Platte River Trail)
18. Belle Creek/Historic City Connector (112th to 69th)
19. Peoria Link (120th to 96th Ave.)
20. 112th Ave. Connector (Peoria to Chambers)
21. Second Creek Greenway Link (96th and Buckley to 56th and Tower at High Point)
22. 120th Ave. Connector (Prairie View High School to Hwy 85)
23. Havana Link (Highway 85 to 96th Ave.)
24. Chambers Road Connector (96th to 121st)
25. 104th Ave. Connector (Peoria Street to Colorado Boulevard)
26. Westside Connection (Colorado Boulevard/Brighton Boulevard to 72nd Ave.)

IMPLEMENTATION

IMPLEMENTATION STRATEGY

Fully implementing this plan involves a significant reshaping of Commerce City physically and changing long-ingrained attitudes and behaviors that span generations. While there is a clear and demonstrated community need for achieving the vision and goals of this document, there are significant challenges. Some of the recommendations can be accomplished relatively quickly and affordably. Others will take more time.

Ultimately, success of this plan will depend on several factors including creating an active travel network that is attractive and usable from a practical standpoint as well as inspiring and motivating people to use the system regularly. Implementing the plan will call for a realistic understanding of what can be accomplished now, what is catalytic to promote longer term transformation and what it will take to keep the vision alive and building over what may be a decade or two. To meet the challenges and see timely results, the implementation strategy includes six elements:

1. **Effective Leadership**–Establish an effective enduring project leadership/oversight structure.

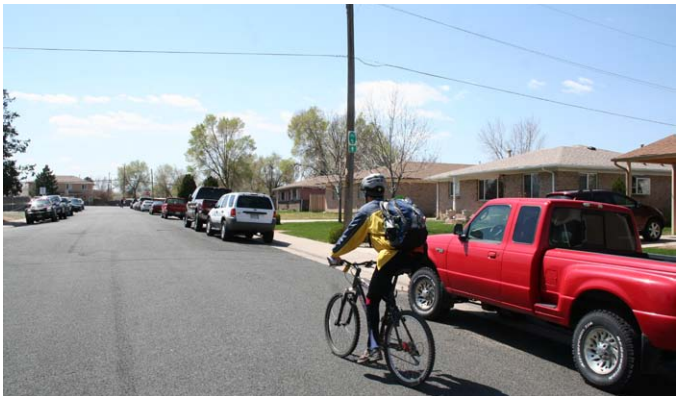
2. **Completion**–Prioritize and implement catalytic pilot projects.

3. **Community Engagement and Education**–Engage, educate and inspire residents, businesses and officials. Build awareness and safer practices on the part of motorists, cyclists and pedestrians.

4. **Long-Term Plan Sustainability**–Set a process in place that will grow the program over the long term.

5. **Operations and Maintenance**–Assure that active travel infrastructure is well maintained and managed over time.

6. **Funding and Resources**–Identify, secure and allocate funding and other resources to implement the plan.



Bicyclist on Olive Street

GLOSSARY OF TERMS

Active Travel- *A form of movement in communities that primarily and regularly engages people in walking, bicycling and other non-motorized transportation for commuting, recreation and other transportation. Active travel systems integrate with other modes such as public transit and automobile routes.*

At-Grade Crossing- *Refers to locations where a pedestrian or bicyclist must cross a street, highway or railroad at the same grade as vehicles. Typically, a crossing/traffic control device is required such as a stop sign, traffic light or caution signage. In the case of crossing a busier street, additional improvements such as a painted cross walk, a refuge island or a chocker that narrows the intersection might be necessary.*

Barriers- *An impediment to pedestrians and bicycles such as highways, railroads, dangerous road crossings and other barriers.*

Bicycle Boulevard- *Refers to a designed route of bike travel where certain improvements have been made to promote safe and pleasant bicycling along the length of the route for blocks or even miles. Typical characteristics and improvements include: lower traffic speeds; adequate traffic lanes for bikes and automobiles to share the road or designated bike lanes; intersections that are designed to promote unimpeded through-movement by bicycles while stopping cross-traffic (using stop signs on cross streets and/or traffic circles); and signage that clearly designates the route—to both bicyclists and motorists—as a bike boulevard.*

Bicycle Friendly- *Refers to a route, a neighborhood or a community where design characteristics, route layouts, urban planning and/or improvements create an environment where bicyclists can travel in a safer, more pleasant environment for nearly all trips. Bicycle-friendly improvements include: adequate travel lanes to accommodate both bikes and automobiles, designated bike lanes, separate bike paths, bicycle boulevards, well-defined, well-marked routes of bicycle travel and functional inter-connected bicycle travel networks throughout the community.*

Bike Lane- *A route of travel for bikes on the street designated by a painted delineator line and/or sharrows (a painted bicycle travel symbol). Typically bike lanes are one-way, same as the direction of auto travel in the lane, though sometimes the bike lane may accommodate two-way bike travel in the same bike lane. In some instances all, or segments of the pavement within the bike lane, may be painted for more distinct visibility.*

Blaze- *A marker that identifies a route. It may be a sign, a logo, or simply a colored strip placed along a bike route, trail or other active travel corridor at regular locations to inform users they are on the intended route.*

Catalytic project or catalytic attribute- *A project or a project component that demonstrates the active travel notion, builds public support, and encourages creating similar improvements. Often these improvements are implemented first as they will lead to expanding the system.*

Community Livability- *Refers to the quality of outdoor life in a neighborhood or a city including clean air, safe and secure streets, parks and green spaces, ability to reach shopping, schools, parks, jobs, transit and other destinations with minimal travel time and readily accessible networks of walks, trails, bike routes and other amenities.*

Complete Streets- *Complete streets are designed and operated to enable safe, pleasant access for all users. Pedestrians, bicyclists, motorists and bus riders of all ages and abilities are able to move safely along and across a complete street. Typically complete streets include: sidewalks (min. 5'-wide so two people can walk side-by-side); a landscaped tree median separating side walks and bike paths from the street; and depending on traffic speeds and volumes, a separate minimum 10-'wide pedestrian bike path on at least one side of the street, or a delineated bike lane in the street, or adequate outside lane to safely and comfortably accommodate automobiles and bicycles sharing the road.*

Curb Extension/Chocker- *This is where a street might be narrowed at an intersection to reduce the distance to cross the street and to promote slow traffic speeds.*

Cycle Track- *A specially designed improvement that accommodates bicycle travel on-street using a physical delineation such as bollards, a curb, or a raised riding surface for bikes. Cycle tracks may be one-way or two-way for bike use.*

Cyclovia- *Refers to the temporary conversion of a street or road for exclusive pedestrian and bicycle use. Typically is a regularly scheduled street closure during hours of low automobile usage such as weekends or evenings. Along with bicycle and pedestrian travel, cyclovia often become events with shopping, push carts, outdoor markets and other economic activities. Cyclovia originated in South America and in Canada but has recently spread to a number of American Cities including Denver.*

Economic Development- *Certain public infrastructure investments such as pedestrian and bicycle facilities may attract both businesses and new residential development or encourage businesses to stay or expand. These investments can improve the employment base, expand jobs and enhance property values creating economic development.*

Furnishings- *Includes a range of components such as benches, shelters, wayfinding signage, outdoor art pieces, bollards and other elements that make active travel more pleasant, attractive and prominent.*

Grade-Separated Crossing- *A structure such as a pedestrian/bike tunnel, bridge or adaptation to a viaduct that facilitates safe, pleasant bicycle and pedestrian crossing of a road, railroad or water way. In the case of roads or railroads, typically a grade separated crossing is recommended where impediments such as high traffic volumes and speeds or multiple lanes make crossing at grade unsafe or unpractical.*

Greenway- *Typically a designated corridor that includes a pedestrian/bicycle path, landscaping and often natural features such as a river or a stream. Typically all or most of the greenway corridor has an associated park-like or naturalistic swath of landscape wide enough to create a sense of open space.*

Guiding Principles- *These are guidelines that set a standard of quality and criteria for planning and design, leading to a first-rate active travel system.*

Healthy Streets- *Refers to a street design and maintenance philosophy that always incorporates safe, pleasant, comfortable bicycle and pedestrian travel that in turn promotes health and fitness through more walking and bicycle activity, less automobile traffic and associated noise and air pollution.*

Historic District- *Refers to the longer-established part of Commerce City west of Quebec Parkway and south of 88th Avenue.*

Infrastructure- *Refers to key systems that make communities functional such as roads, sewer and water lines, rivers and streams, and electrical utilities. Active travel improvements such as sidewalks, tree medians, bike lanes, bike paths and greenways are vital infrastructure.*

Living Street (or Woonerf)- *Refers to the shared use of a low-traffic, low volume neighborhood street (may also be applied in some instances to a commerce street) where both very slow moving vehicles and outdoor activities such as recreation are accommodated. A living street might include amenities such as a basketball court, a volleyball court or simply invite play and social gathering in the street.*

Multi-use Trail (also Referred to as Shared-Use Pathways)- *This is a trail totally separated from street traffic that accommodates bicycles, pedestrians, people in wheelchairs and other non-motorized modes of travel. Typically they have paved or crushed gravel surfaces.*

Non-Motorized Transportation- *A mode of travel by bike, foot, roller skate, wheelchair or other mode not using a gasoline or electric engine for a means of propulsion.*

Northern Range- *The more recently developing district of Commerce City mostly north of 96th Avenue extending from the South Platte River to the area north of Denver International Airport.*

On-Street Bicycle Facilities (Routes)—*Streets and highways that can safely and comfortably accommodate bicycle travel including bike lanes, cycle tracks, bicycle boulevards & shared roadways. In some instances preferred bicycle routes may be delineated with way finding systems and bicycle route designation signs.*

Purpose Driven Trips- *Travel to a destination such as a market, coffee shop, restaurant, shopping, park, school, library or work.*

Retrofits- *Refers to modifying an existing street, intersection, viaduct or other traffic corridor to better accommodate and promote safe, pleasant bicycle and pedestrian travel.*

Road Diets- *A term refers to a retro-fitting technique where a multi-lane street poses barriers to active travel is modified to better accommodate a diversity of travel modes.*

Safe Routes to Schools- *Refers to the delineation and improvements to sidewalks and streets—and in some instances trail improvements--to better enable safer walking and bicycle travel to and from school by students of all ages. Typically routes are also published or marked to build better community awareness.*

Shared Roadways- *Refers to streets that accommodate both bicycle and automobile travel.*

Sharrow- *Refers to a painted bicycle symbol and arrow pattern that delineates bicycle use on a street, typically indicating a lane of shared bike and auto travel.*

Sidewalk Networks- *An improved interconnected pleasant-to-use sidewalk system that is practical for most trips to destinations within walking distance (a ten to twenty minute walk).*

Sustainable- *Refers to a planning and urban development philosophy that promotes clean air, walking and bicycling, fitness, renewable energy resources and preservation of natural resources such as open space, clean water, and conserving lands for agriculture flora and fauna.*

Tool Kit- *Various designs, layouts and techniques that can be applied on a site-specific basis creating improved neighborhood, city-wide and regional active travel infrastructure and networks.*

Universally Accessible- *Refers to infrastructure that accommodates people of all abilities including people in wheel chairs, the elderly, people with permanent and temporary limitations on mobility, and children in accordance with the Americans with Disabilities Act (ADA)*

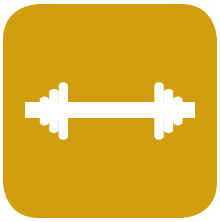
Urban Growth Boundary—*Refers to an adopted line of demarcation that encircles Commerce City and encompasses the longer term area of likely growth and development of the city. It is also an area of interest for planning, management of utilities and other infrastructure.*

Vision- *A "vision" creates an image of what can be– representing a shared community aspiration.*

Walk/Bike/Fit- *A phrase that encompasses the vision of active travel and health through the regular engagement of active travel for communities, including Commerce City.*

Walkable Village- *Refers to an urban design and development philosophy that lays out communities on a walkable (and bikeable) scale with key daily destinations such as shopping, restaurants, parks, public gathering places, transit hubs and other daily needs within a practical distance (a ten-minute walk) via pleasant, safe non-motorized routes.*

Wayfinding- *Refers to a system of signage, blazes, maps, and on-line systems (such as Google Maps) that provides pedestrians and bicyclists better directional guidance to destinations, lets them know they are following preferred routes of active travel and promotes higher community visibility of the active travel network.*



Wayfinding Systems- *On-street guidance such as signs, posted maps, blazes and on-the-web tools such as Google Maps.*

Local Children on Second Creek Greenway

CHAPTER ONE:

INTRODUCTION

Mission Statement

Background and Purpose of this Document

The Approach

Study Area Description

The Planning Process and Community Engagement

W A L K . B I K E . F I T

Multi-Use Trail in Reunion

MISSION STATEMENT

Help Commerce City mature into a healthy, prosperous, diverse and vibrant community by creating a safe, pleasant, practical and affordable multi-modal active travel network accessible to all residents and businesses, that is used regularly by a substantial segment of the population.

The active travel system will integrate with the larger metro bike and trail networks, regional destinations and other forms of transportation including transit and automobile modes and promote widespread use of cleaner and more energy-efficient forms of transportation.

Active Travel-An approach to transportation in communities that primarily and regularly engages people in physical activity including walking and bicycling for commuting, recreation and other travel—as opposed to motorized and carbon-dependent means.

Active travel systems integrate with other modes such as public transit and automobiles .

BACKGROUND AND PURPOSE OF THIS DOCUMENT

Commerce City has been one of the Metro Area's fastest growing communities. Since the 2010 U.S. Census, the population has expanded from 21,000 to 45,913 and the developing land area has more than doubled to 41 sq. miles (62 sq. miles including the urban grown boundary). According to the *Commerce City 2010 Transportation Plan*, forecasted growth could add another 11,790 households with 30,000 more residents by 2035.

Over 24,000 people work in Commerce City and this number could increase to 42,000 by 2035. Abutting Denver International Airport on two sides and as a major industrial and transshipment hub, Commerce City is poised to continue as a major growth and economic development area.

Over the past two decades, in the face of these changes and opportunities, Commerce City has been reshaping itself. With foresight and leadership, Commerce City has been a trend-setter in the area of community livability and quality of life.

"Close to 5,000 pedestrians and bicyclists die each year on U.S. roads.

Unfortunately, these roads have characteristics with which we are all too familiar…a lack of sidewalks or crosswalks, lanes too narrow to share with bicyclists, and poor accommodation for people with disabilities… incomplete streets."

~Knoxville, TN Regional Planning Organization

This is evidenced by the implementation of its comprehensive plans including the *2010 Transportation Plan, the 2010 Comprehensive Plan, the 2007 Derby Redevelopment/Health Impact Assessment Report* and the *2000 Prairieways Action Plan*. In addition, the re-shaping of the Derby District, Victory Crossing, Sand Creek Greenway, Rocky Mountain Arsenal National Wildlife Refuge and other progressive steps exemplify this trend.

Pedestrians at Monaco Street and East 72nd Place in Derby Area

Like most American cities, Commerce City faces challenges to its health and livability on two fronts. Six decades of automobile-based travel and automobile-dominated infrastructure has created barriers and disincentives to bicycle and pedestrian commuting to work, shopping, trips to school and other movement. This condition, and the resulting urban shaping, has led to, in many places, unpleasant and unsafe *active travel*.

The second is a seriously increasing rate of compromised health and fitness including high numbers of adults and children who are overweight to the extent that it threatens their health and longevity. This includes high rates of overweight and clinical obesity. (A 2008 survey sampling of Commerce City residents showed 36% overweight and 34% obese). Both diet and a sedentary life style contribute to this problem. Compounding this is that 31% of Commerce City residents do not participate in regular physical activity–substantially worse than the national rate of 22%.

60th Ave. at Vasquez Blvd.

These conditions have also led to increasing rates of disease including diabetes, cardio/pulmonary issues and myriad other serious health problems. These in turn lead to explosive heath care costs both locally and nationally.

In addition to diet changes and other healthy living behaviors, a key to promoting better health and fitness is to increase engagement in active travel. This calls for better availability of safe, pleasant, convenient-to-use facilities including sidewalks, street crossings, bike paths and on-street bike routes. Also important is an integrated transit system for longer trips and foul weather use.

Currently, however, many Commerce City residents and businesses, like many American Cities, are almost totally dependent on the private automobile for transportation. Though a number of bicyclists and pedestrians were observed during the planning process, it is evident that these comprised a very small percentage of the trips made.

While the newer portion of the City does have a number of quality bike and pedestrian improvements, there are still significant gaps. In the *Historic City*, opportunities to walk or bicycle to most destinations are hampered by absence of continuous walkways or bike corridors that connect to major destinations. In many cases where facilities exist, such as attached sidewalks, use is hampered by unattractive and even unsafe conditions.

Old Brighton Road at 72nd Ave.

THE APPROACH

In response to these concerns and challenges Commerce City applied for, and received a grant from the *Tri-County Health* Department using funds distributed by the Communities Putting Prevention to Work (CPPW) grant from the Centers for Disease Control and Prevention (the 2009 Federal Stimulus Program).

In the tradition of Commerce City's progressive planning and to address the challenges, this plan sets out a vision for a more walkable, bikable, healthy and physically fit Commerce City. It seeks to encourage more engagement in regular physical activity (20 minutes or more daily) on the part of people who live and work in Commerce City. The plan considers a range of *active travel* modes and types of uses including bicycling, walking, running, travel by wheelchair, and skating. It also considers adults of all ages and children for a full range of abilities and circumstances.

This plan recommends specific solutions including improving streets and sidewalks, creating better pedestrian crossings, overcoming barriers such as highways, railroads and busy streets, and enhancing alignments for a citywide/regional greenway and trail network. The goal is to create and expand active travel infrastructure with safe, pleasant walking and biking corridors that are woven into both the city-

"Today, though environmental hazards remain a critical issue, chronic diseases such as heart disease, stroke and type 2 diabetes pose a far greater health risk to the population as a whole. Physical inactivity and poor diet, major risk factors for these diseases, are fueling the chronic disease epidemic. Together they are responsible for more than 200,000 U.S. preventable deaths annually.

~Journal of the American Medical Association

Treating these conditions is very expensive. In 2000 the nation spent an estimated $76 billion in direct medical costs related to physical inactivity alone. Such enormous health care expenditures can take away resources from other areas of need, such as education and economic development."

~Physician and Sports Medicine

wide and the local neighborhood fabric. This includes, where feasible, retro-fitting the existing street grid in the *Historic City* districts.

The plan suggests a roster of specific projects and alignments, street and trail cross section concepts, and other recommendations for setting policies, planning, operations and maintenance, raising funds and building support to build improvements.

The strategy is to implement a number of specific catalytic projects and follow through with a sustainable long term process to ultimately achieve the complete vision. The projects are listed and described in detail in Chapter 4 under "The Roster of Projects".

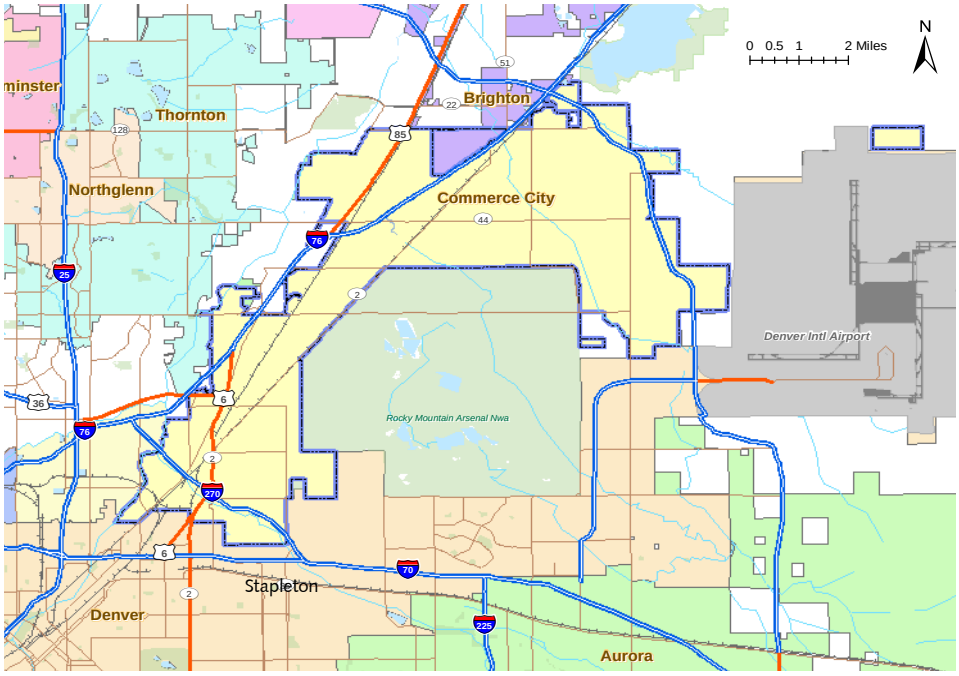
The Concept of Complete Streets-- "Complete streets are designed and operated to enable safe access for all users. Pedestrians, bicyclists, motorists and bus riders of all ages and abilities are able to safely move along and across a complete street."

~The National Complete Streets Coalition

STUDY AREA DESCRIPTION

In some ways, from an active travel perspective, Commerce City is two communities. The older portion of the city (pop. 27,500), planned and laid out two generations ago, has a marginal sidewalk infrastructure and is disadvantaged by a network of freeways,busy arterials and railroads that create formidable barriers–though portions of the local street grid do accommodate some bicycle travel.

The significantly larger (in land area), and newer portion of the city -The Northern Range (pop 15,000), located to the north and east, benefits from planning and subdivision guidelines that led to more walkable, bikable neighborhoods and more *complete streets (See example on page 24)* and arterials, many of which include adjacent sidewalks and bike paths. Key elements include a parks, trails and open space master plan (The Prairieways Action Plan) that was developed for this part of the city. While The Northern Range is well planned, development has yet to occur in some areas so the area is not built out completely. While this plan addresses gaps in The Northern Range, the overall plan for this area is in the Prairieways Action Plan.



Commerce City Regional Context Map

In addition to considering the entire 62 sq. mile land area within the city limits and the urban growth boundary, the plan considers linkages to surrounding communities, employment centers and travel corridors including: Denver, Stapleton, Aurora, Northglenn, Thornton, Brighton, Adams County, DIA, the Anschutz Medical Center, two RTD Light Rail lines, as well as the Platte River, Sand Creek, Clear Creek and other regional trails.

THE PLANNING PROCESS AND COMMUNITY ENGAGEMENT

The planning process includes six major elements:

1. **Site Inventory and Reconnaissance**–This included a thorough inspection and inventory of the resources, challenges, and opportunities for *active travel* in and around Commerce City. Site investigation involved a number of field visits where the team biked, walked and examined via automobile the neighborhoods and travel corridors of the city and surrounding areas. The planning team identified opportunities and constraints and reviewed potentials with community leaders, key staff and the public.

Staff and Consultants at Monaco Street and 77nd Ave.

2. **Draft Alignment Alternatives, Layout and Cross-Sections**–Working with staff and other stakeholders, the team laid out draft optimal trail alignments and prepared typical cross-sections, as well as cost estimates.

3. **Technical Working Group**–The team assembled and worked step-by-step with an ad hoc *Technical Working Group*, composed of representatives of city agencies including Public Works, Planning, Tri-County Health, Adams County Open Space and other representatives and stakeholders.

4. **Public and Stakeholder Participation Process**–A public participation process was key to the plan that consisted of three open community forums held in Commerce City. Attendees included: bicyclists; bike commuters; elected officials; individual residents and workers; property owners, and business representatives who were invited to candidly review and discuss needs and the plan vision.

   After the public review sessions a final draft plan was prepared and reviewed by the partnering agencies and posted on the Web for general public review and comment. To promote broad participation, printed notices were prominently posted in community announcement forums, on bulletin boards, in the local news and on-line. Meetings were well attended with 20-50 participants at each.

Technical Working Group Meeting

   Nearly all of the participants were engaged and enthusiastically supportive, though some expressed concerns and many suggestions were received. Changes were made to the plan to accommodate the many good ideas as well as the concerns heard at the meetings.

5. **Final Review and Implementation Strategies**–When the final draft plan and roster of projects was completed, it was circulated for review by the *Technical Working Group* and other key participants. Comments on the draft and implementation strategies were discussed.

6. **Approval and Adoption**– The plan was adopted by resolution by the City Council on March 5, 2012.

Staff and Consultants at Community Outreach, Pioneer Park

CHAPTER TWO:

THE VISION, GUIDING PRINCIPLES, GOALS AND ACTIONS

Challenges and Opportunities

The Vision

Guiding Principles

Goals and Actions

W A L K . B I K E . F I T

Photo, www.pedbikeimages.org/Dan Burden

CHALLENGES AND OPPORTUNITIES

In thinking about an active transportation plan for any American community, there are overarching challenges that come to mind. These can be tied to decades of automobile-based infrastructure and associated human behavior. While an era of motorized transportation has brought both convenience and economic development, it has also had a cost to community livability and people's health. Part of this is the result of barriers created by highways and arterial streets as well as inadequate, unpleasant walking environments.

Additionally, massive traffic network infrastructure has shaped communities and travel patterns where increased distances to employment, shopping, schools and other destinations have discouraged *active travel* by foot and bike.

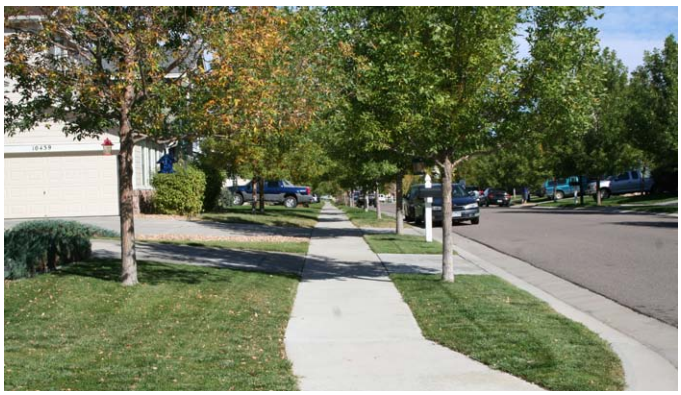
Part of the Legacy of Automobile-Dominated Infrastructure–
A Total Barrier to Bike and Pedestrian Travel

In the face of increasing fuel prices, costly and annoying traffic delays and issues of fitness and health, there has been a movement toward creation of more walkable/bikeable communities. This concept is rapidly gaining traction as a legitimate, important investment and endeavor for communities that want to remain competitive. The key challenge to reshaping communities and achieving widespread active travel lies in the fact that there is already a dominance of automobile-based infrastructure that is costly to change –in some cases prohibitive.

Given that reality, a successful active travel plan must recognize the existing context and think in terms of incremental and practical solutions. Part of the planning process should also consider projects and retrofits that are catalytic. These are built projects and programs that can demonstrate new approaches and garner public support. That in turn can lead to expanding and replicating successful solutions over time.

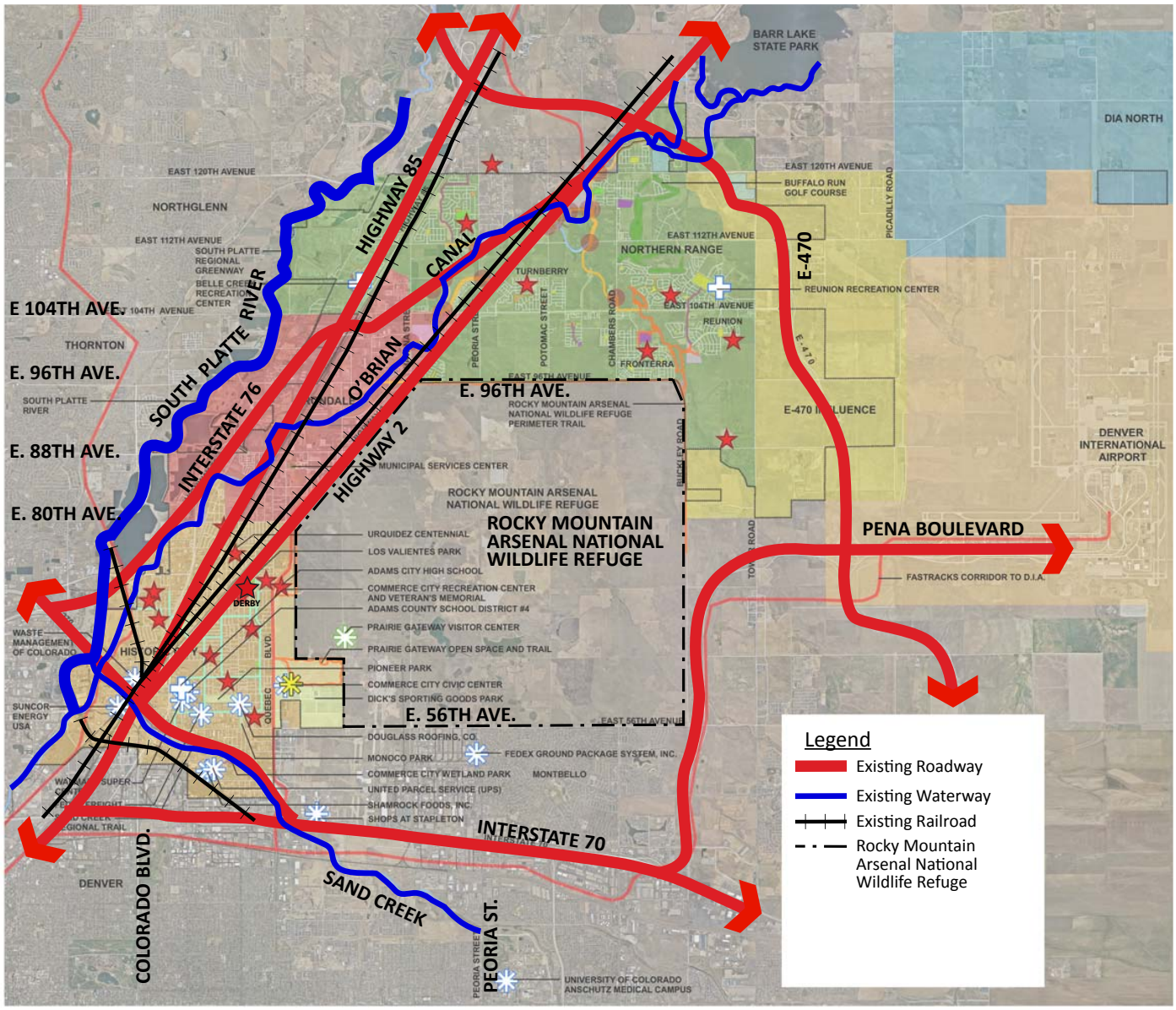
By comparison, Commerce City is ahead of other established communities in that a substantial portion of the city's land area has been developing after the year 2000 and, due to foresight, these areas reflect more progressive transportation diversity. Commerce City, however, also has significant built-up urban areas with barriers, sidewalks that do not encourage walking, and street networks with limited capacity to accommodate active travel due to constrained rights-of-way, dangerous crossings and other limitations.

Typical Sidewalk in the *Historic City*-Narrow and Not Level Due to Driveway Cuts



A "Walkable" Street that is Pleasant and Attractive to Use

Difficult Intersections Pose Barriers to Safe/Pleasant *Active Travel*
60th Ave. and Vasquez Blvd.

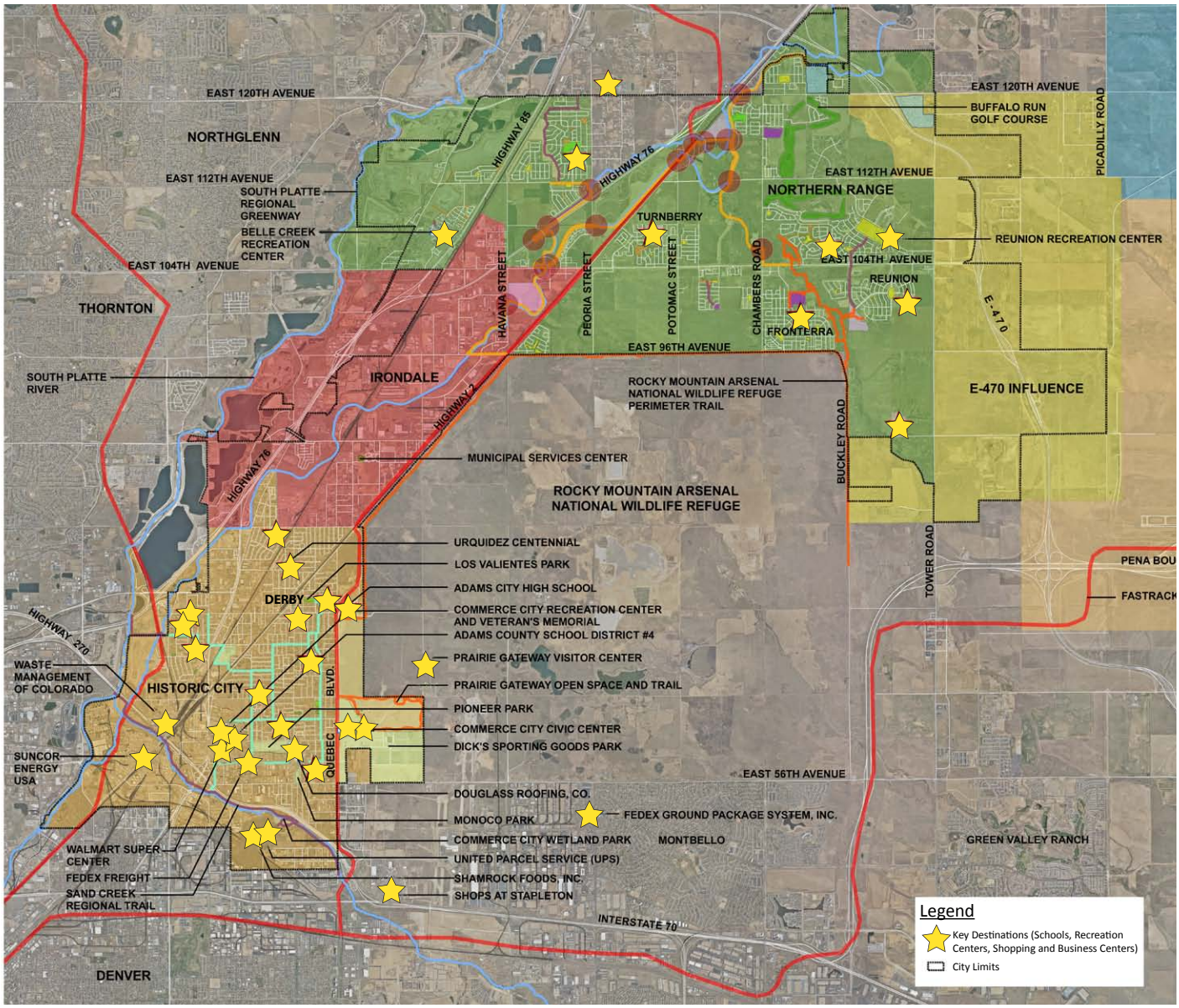


Highways, Railroads, Drainages, and Rocky Mountain Arsenal National Wildlife Refuge Create Barriers

RR Crossing at 80th Ave.

O'Brian Canal

Highway 2

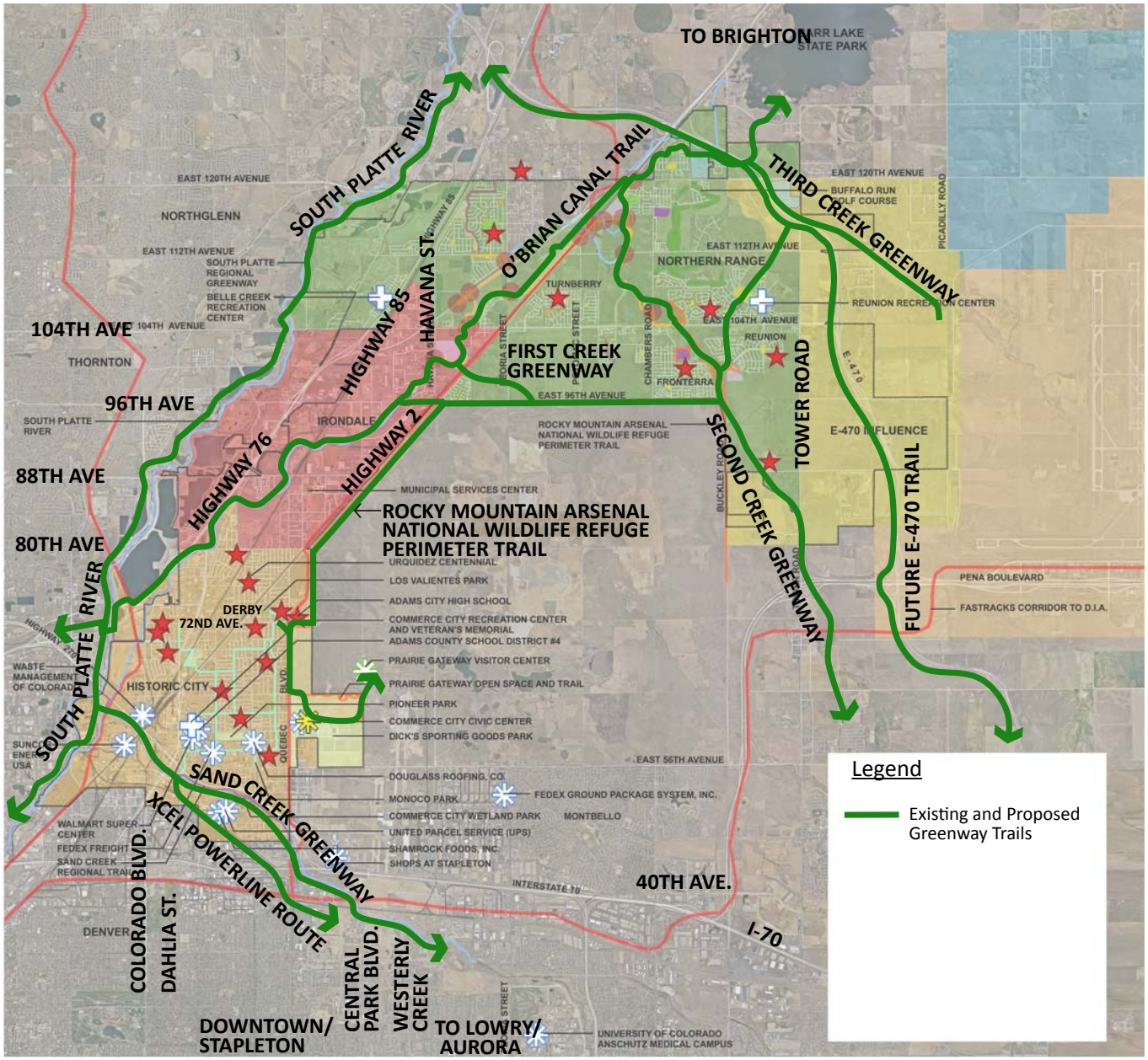


Major Commerce City Destinations

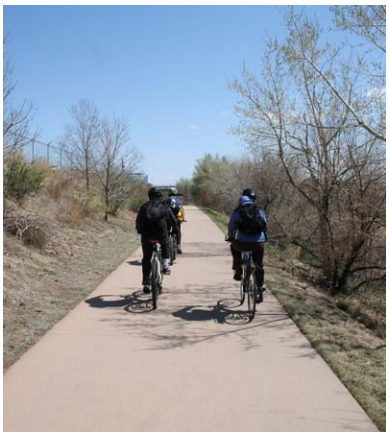
Dick's Sporting Goods Park

Pioneer Park

Rocky Mountain Arsenal National Wildlife Refuge Visitor Center

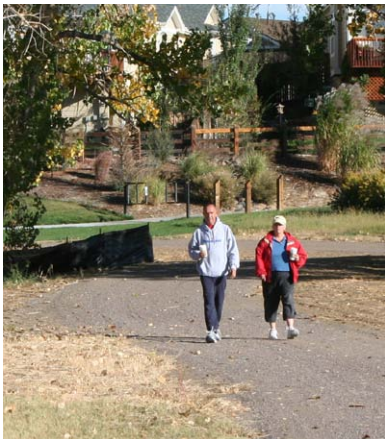


Existing and Proposed Major Greenways and Trail Network



Sand Creek Regional Greenway

Rocky Mountain Arsenal National Wildlife Refuge Perimiter Trail



Second Creek Greenway

THE VISION

A "vision" creates an image of what can be– representing a shared community aspiration.
The key elements of the vision are:

A *Walk/Bike/Fit* City—Commerce City will continue to be a leader in innovative urban planning and design. It will have quality walkable, bikeable neighborhoods as well as pleasant, safe active travel routes to work, schools, shopping, recreation and gathering places. The system will have connectivity with an integrated network of streets, sidewalks and trails. It will be a network that ties together workable modes of *active travel* in pleasant settings offering choices and promoting regular physical activity. There will be a sustainable, more livable, healthier Commerce City–a more competitive city in which to live and do business. In both its new and older sections, Commerce City will be a place where people will choose *active travel* (walking and bicycling) as a part of their everyday lives.

Broad Access to Active Travel— Virtually every home and place of business will have direct access to a city-wide multi-modal network where a significant part of their journeys– to work, schools, parks, and shopping– will involve active travel.

"Active employees and bike commuters are more productive and have less absenteeism. It is definitely worth it for a business to promote bicycling."
~Alison Dewey, American Bicyclist Magazine

Dahlia Trailhead at Sand Creek Greenway

Pedestrian Underpass at 104th Ave. and Landmark Drive

Active Travel Integration and Connectivity— The street network throughout will offer well-connected, safe and pleasant walking and bicycling facilities; barriers to *active travel* will be traversed or removed; new diverse village centers will develop for shopping and gathering; key transit hubs, such as RTD transit stations, will be readily reachable by walking or biking; and parks, greenways and trails will be readily accessible to every home and business.

An Interconnected Regional Network— This vision also includes an integrated network of regional greenways, trails and *active travel* corridors connecting the diverse neighborhoods of the city as well as the surrounding cities and employment destinations. In addition to active travel, this network will conserve, make accessible and connect natural resources, parks, open spaces and waterways.

GUIDING PRINCIPLES

"Guiding Principles" set the standard of quality for the components of the *active travel* system.

The guiding principles call for:

1. **A Universally Accessible/User-Friendly System–** Wherever feasible, offer all Commerce City residents (including children and elderly) and workers safe, pleasant (with shade, places to rest, eyes on the street, etc.) and readily-accessible routes of *active travel* from doorstep to all destinations within and beyond the city boundaries using *active travel* (bike or pedestrian) for all, or part of the trip. This includes places of employment both commercial and industrial.

Accessible Paved Multi-Use Trail

The system should serve a full spectrum of users from rudimentary to skilled levels. Include quality amenities and furnishings such as trailheads, wayfinding system, shelters, rest areas, parking, bike racks/lockers, parking, etc.

From Marina, CA General Plan
Goal E: A city designed for attractive, comfortable, convenient, welcoming and secure walking for people of all ages and abilities, in which most housing, shops, businesses, plazas, civic buildings and other community facilities are within easy walking distance of each other.

2. **A Balanced and Integrated System of All Modes of Travel–** For both closer and more distant destinations, offer all residents and workers access to a well-balanced multi-modal transportation and *active travel* system that interfaces non-motorized, transit (including Park N' Ride and Call N' Ride) and automobile modes as needed, but always promoting an active transportation element.

RTD Bus with Bike Rack

3. **A Sustainable, Livable, Healthy City Layout–** Achieve an urban layout and fabric that promotes walkable, bikable, physically and socially cohesive neighborhoods with reduced traffic congestion, noise, barriers, air pollution and fuel consumption.

4. **Promote Daily Physical Activity–** Systems should encourage daily active travel for all residents and workers with a goal of increasing regular physical activity. There should be a range of active travel and daily fitness opportunities ranging from a 10-minute walk or bike ride to an all-day outing. There should be a trail within 15 minutes of every household and workplace, a park or other open space within a pleasant 5-minute walk.

5. **State-of- the-Art Design Standards**– *Active travel* routes and components such as walks, trails, street crossings, and wayfinding systems should meet state-of-the-art design standards* universally accessible and, pleasant to use for a full range of age and ability groups from school children to the elderly including people using wheelchairs.

6. **Seamlessly Interconnected City-Wide System**– The *active travel* network in Commerce City should be city-wide and seamlessly interconnected with a consistent level of quality and user-friendliness with safe, convenient and pleasant ways to move about without gaps or formidable barriers (such as I-270, the railroads, Hwy 85, I-76, Hwy. 2) that discourage or make *active travel* unsafe or unpleasant. It should fully support "living in place" allowing people to live and carry out most of their trips where they rent or own homes and not be forced to rely on personal motorized vehicles.

7. **Both Regional and Neighborhood Networks that Work–** There should be a comprehensive range of *active travel* networks from the neighborhood level including routes to schools, parks and shopping to city-wide metro area regional connections. Connectivity should be both city-wide–connecting the *Northern Range* and *Historic City* districts--and to key destinations in surrounding communities and beyond.

Children at School Crossing

8. **Support Purpose Driven Trips**– There should be *active travel* infrastructure that supports a range of destination-oriented and purpose-oriented trips such as travel to a nearby coffee shop or grocery store, dog walking, a park, community center, library, school or work.

9. **Quality Outdoor Civic Spaces—**There should be a system of pleasant attractive, outdoor, pedestrian-oriented public spaces that attract people and become destinations for active travel. These can include village squares, parks, event venues and even street closures such as cyclovia that draw people on foot or bike. These spaces could be integrated with shopping areas or other destinations that would regularly attract people.

10. **Safe Routes to Schools**, **Parks and Recreation Centers**– All Commerce City schools, parks and active travel access options within their entire service radii—and these destinations should be interconnected.

11. **Well-Maintained and Managed Active Travel System**– Walking and bicycling facilities must be designed for durability and minimal maintenance costs. There should be routine inspection programs and a user problem reporting and response system for all walking and bicycling facilities.

12. **A Better Educated Population**–There should be programs for publicity, safety education (adults, schools and police/ for motorists, pedestrians and bikers) and enforcement. There should be effective education and enforcement of motor vehicle laws especially drunken and distracted driving, speeding and failure to yield.

** Per AASHTO, MUTCD, the ITE/CNU "Designing Walkable Urban Thoroughfares" NACTO Guide and other applicable guidelines.*

GOALS AND ACTIONS

This plan puts forward a concept that strives to be both visionary and practical, working with real world constraints and unique opportunities. Succinctly put, the plan set four major goals with associated actions.

"Goals" represent specific achievements to pursue and realize the vision of a walk/bike/fit Commerce City.

"Actions" lay out and detail specific steps that Commerce City (and partnering jurisdictions) can take to reach the goals both now and over the next five to ten years or more.

Goal 1: Close the Gaps, Overcome Barriers and Enhance the Existing *Active Travel* Grid

Enhance and Optimize the Existing *Active Travel* and Living Grid at the Neighborhood Level, City-Wide and Regionally.

Actions:

- Identify and close major gaps and weak links in the system. Prioritize projects based on closing gaps,

enhancing existing opportunities and addressing problem areas such as busy intersections, wide, high traffic streets, and railroads.

- Identify and remedy particular problem spots such as broken and missing sidewalks or street paving unsuitable for bicycling.

- Identify and create a usable grid of pleasant, safe, walking/bike friendly secondary streets in the *Historic City* with low traffic volumes and speeds, reduced driveways and curb cuts, adequate lanes and sidewalks and intersection designs that favor bike and pedestrian travel (such as *bicycle boulevards*).

- Identify and close gaps in the Northern Range area. (Note that Commerce City has a planning document for The Northern Range (*The Prairieways Action Plan*) that will continue to be implemented as development occurs. This plan identifies current existing key gaps.)

- Identify and pursue barrier-free, safe and pleasant *active travel* routes to shopping, employment and schools from all residences.

- Establish barrier-free, safe and pleasant to use, *active travel* access to parks, playgrounds, open spaces, trails, community centers and other recreational destinations.

- Establish barrier-free, safe and pleasant *active travel* routes to bus and *RTD Light Rail* stops.

- Where feasible, identify optimal street cross sections that can be retro-fitted.

- Improve lighting and other security features as appropriate.

- Address and plan how to avoid temporary barriers such as construction zones.

Goal 2: Create A City-Wide/Regional *Active Travel* Corridors Network

To achieve this goal, City Council needs to adopt this plan and it also must be acknowledged as an addendum to the Transportation Plan.

Actions

- Identify a grid of major city-wide and regional active travel corridors of trails, greenways and safe, pleasant to use on-street routes linking key destinations and providing a quality experience.

Second Creek Greenway

- Provide a system of recreation corridors such as trails and greenways readily accessible by foot or bike from all residences and places of employment.

- Create/expand new major active travel corridors such as Hwy. 2.

- Set procedures in place to proactively coordinate and establish better connectivity with surrounding jurisdictions such as Denver, Stapleton, Adams County, Aurora, Northglenn, Thornton, DIA, RTD, CDOT, Brighton and others.

- Improve network and promote active travel in the Historic City including retro-fitted street improvements, *bicycle boulevards*, better crossings, sidewalk improvements and wayfinding system.

"The number of Americans who ride bicycles is greater than all those who ski, golf, and play tennis combined."
~National Sporting Goods Association

Goal 3: Broader Engagement in *Active Travel*

Take pro-active steps to encourage and enable residents and workers to use *active travel* modes.

Actions

- Construct model projects in high visibility areas that demonstrate concepts that can be replicated.

- Establish barrier-free, safe and pleasant *active*

travel routes to routine shopping.

- Establish/enhance easy-to-access and use wayfinding systems both on-streets and pathways and using the internet.
- Establish easy to use, secure bike parking and storage systems at destinations.
- As recommended in the current *Parks and Recreation Master Plans* and other documents, create a system of outdoor civic spaces that are destinations for *active travel*.
- Work with RTD and others to provide for workable inter-modal connectivity for longer distance travel and foul weather including links to bus, transit and other modes.
- Create incentives (such as changing facilities, bicycle storage, rewards for healthy behavior, etc.) for both employers and employees to use active modes of travel to/from work and school.

Example of Wayfinding System

Goal 4: Effective/Enduring Policies and Programs (Many of the actions referenced below reflect requirements in the Commerce City Land Development Code.)

Actions

- City departments should continue to pursue and implement requirements and recommendations in the current *Land Development Code*, the *Comprehensive Plan*, the *Prairieways Action Plan* and the *Transportation Plan* for bicycles and pedestrians. This includes the adopted cross-section and design policies to promote and require complete streets for all new development and road improvement projects.
- Promote urban reshaping with walkable town centers and plan for walking and biking in all existing and new developments—as included in the *Land Development Code* and other existing city plans.
- Protect integrity of neighborhoods by preventing, or overcoming, barriers caused by highways, railroads, busy streets and other barriers.
- Incorporate *complete street* principles (pleasant walking and biking components) into all road and street planning and design that promotes *active travel* as an alternative mode.
- Establish and enforce guidelines and standards for traffic operations, signal timing, geometric design, ADA access, streets and sidewalks maintenance that facilitate biking and walking.
- Work with *RTD* to continue to enhance multi-modal interface such as accommodation of bikes on buses and trains, bike lockers, rental bikes, etc.
- Engage state-of-the-art and innovative *active travel* design technologies such as improved street crossings and on-street bicycle improvements. (See Chapter 3 for examples.)

Child Learning to Ride a Bike

CHAPTER THREE:

COMPONENTS

An *Active Travel* "Tool Kit"

The Components That Will Enable *Active Travel*

W A L K . B I K E . F I T

Multi-Use Concrete Trail at Pioneer Park along 60th Ave.

AN *ACTIVE TRAVEL* "TOOL KIT"

This plan recommends a number of components that function as building blocks for the *active travel* vision. Some of these are designs and some are principles and policies. The list of elements was generated considering field conditions, wishes expressed at community meetings and state-of-the-art techniques and designs already implemented locally and around the nation*.

It will be helpful to consider the components presented here as a tool kit with a range of different possible treatments for a range of conditions. When thinking about solutions for Commerce City, it is important to recognize that there is a wide spectrum of challenges, opportunities as well as traffic movement objectives. Accordingly the specific conditions of each site should be considered and the possible treatments, from those presented here or other sources, weighed when selecting an optimal solution.

Of course safety and practical functionality are always overarching factors when considering designs. It is also important to keep in mind that designs for retro-fitting existing transportation infrastructure may be quite different than new construction in undeveloped areas. In all cases the reality of human behavior must be considered if applications are to be effective.

With this in mind components can be grouped into nine major categories including:

1. **Use of Existing Local Street/Sidewalk Grid**
2. **Healthy Street Design (Including Complete Streets)**
3. **Road Diets**
4. **Sidewalks**
5. **At-Grade Road Crossings**
6. **Grade-Separated Crossings (Including Tunnels & Bridges)**
7. **On-Street Bicycle Facilities (Including bike lanes, "bike tracks", bicycle boulevards & shared roadways)**
8. **Off-Street Multi-Use Trails**
9. **Signage, Wayfinding Elements**
10. **Furnishings (Benches, Rest Areas and Shelters)**

Second Creek Trail Underpass at 104th Ave.

Buckley Trail at Unity Parkway and Parkside Drive North

Sand Creek Greenway Multi-Use Trail

**Note that the descriptions, plans, and cross-section drawings below are conceptual. They are not technical engineering designs. They are for planning, visioning and budgeting purposes. Careful and thorough engineering analysis and approval by city officials is required before constructing improvements.*

*** For more details, standards and design references see: Guide for the Development of Bicycle Facilities, American Association of State Highway and Transportation Officials (AASHTO); Manual of Uniform Traffic Control Devices (MUTCD) U.S. FHWA, mutcd.fhwa.dot.gov/ (for signage and other traffic regulation-related facilities for streets and bicycle facilities); Trail Planning Design and Development Guidelines, Minnesota Department of Natural Resources; and www.americantrails.org; and Guidelines for Accessibility per the Americanswith Disabilities Act www.access-board.gov. Visit also www.walkingbikeinfo.org and www.nacto.org for current engineering, policy and design standards information.*

THE COMPONENTS THAT WILL ENABLE ACTIVE TRAVEL

1. UTILIZE EXISTING LOCAL STREET/SIDEWALK GRID

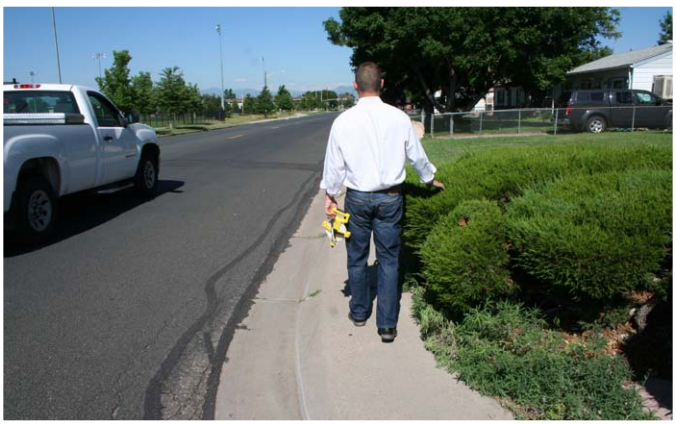
There exists significant mileage of already-built local streets in Commerce City. A substantial portion is in the older neighborhoods in *Historic Commerce City*. There is also now a significant network of local streets in the newer communities to the north and east–in the Northern Range. Typically, the local streets in the older neighborhoods consist of a paved road and attached concrete sidewalks. Speed limits are low (25 mph) and traffic volumes are generally light.

Typical Local Street in *Historic City* (Note Mountable Curb and Attached Sidewalk-60th Ave. at Olive Street)

Most of the local streets are bikable by almost all skill levels. While not ideal, the system is somewhat usable. The main issues being rough pavement in many places and a lack of continuity of the lower traffic, lower speed streets.

The walks tend to be narrow–less than 4' wide–and connected to the street by a mountable concrete curb. In many places frequent driveway cuts in the sidewalks result in an undulating surface. Cars sometimes park on part of the sidewalk, and the narrowness of the sidewalks and other obstructions such as overgrown vegetation and trash containers left on the walkway make walking less than desirable. Nonetheless, because this system is already built and rights-of-way are limited, this network is a practical reality.

Repaving streets, signage and other limited improvements along with better crossings of collectors, arterials and other barriers may enhance the functionality of this component. Lowering speed limits on secondary streets will also help promote safety and user comfort.



Narrow walk along 60th Ave.

2. HEALTHY STREET DESIGN (INCLUDING COMPLETE STREETS)

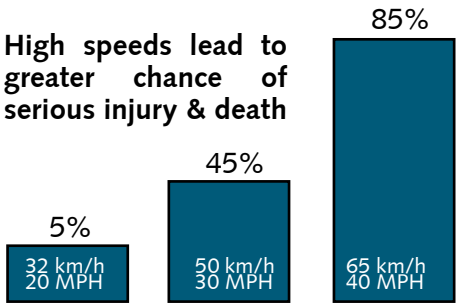
Crossing Crashes: Speed Matters

Speed Affects:

1. Drivers' field of vision & ability to see pedestrians
2. Drivers' ability to react and avoid a crash
3. Crash severity

Source- NHTSA Pedestrian and Bicycle Information Center

Speed Affects Crash Avoidance



Pedestrians' chances of death if hit by a motor vehicle
Source- Killing Speed and Saving Lives, US Department of Transportation

Source- NHTSA Pedestrian and Bicycle Information Center

Healthy street design encompasses the notion of safe, pleasant, practical shared use of the community's street and road network. This includes automobiles, trucks, buses, bicyclists of all ages and abilities, pedestrians of all ages and abilities and people with disabilities including wheelchairs. This vision calls for a barrier-free city-wide integrated network including the full hierarchy of streets and roads from local streets, to collectors, to major arterials.

Typical elements of a *complete street* include lanes for automobiles, lanes or other provisions for comfortable, safe on-street bicycling, an adequate sidewalk appropriate for the level of use always level and wide enough for at least two adults to walk comfortably side- by-side, with a separate minimum 10'-wide paved pedestrian/bicycle path along higher traffic volume roads and a landscaped buffer between the street and associated sidewalks and pathways.

Currently, planners, traffic engineers and policy-makers knowledgeable and supportive of healthy street designs have identified a range of street cross sections from a wide outside lane to a multi-lane parkway or arterial that includes healthy *complete street* elements such as bike lanes, adequate sidewalks, landscaped medians and separate bike paths where appropriate. The cross sections and example photos on the following pages represent a pallet of solutions that can be applied to promote a healthy streets community. A number of these are already part of Commerce City's official standards. Due to more stringent complete street policies in the newer Northern Range neighborhoods–Reunion and Belle Creek for example– much of the local street network in those areas is useable to promote active travel.

104th Ave. Looking West

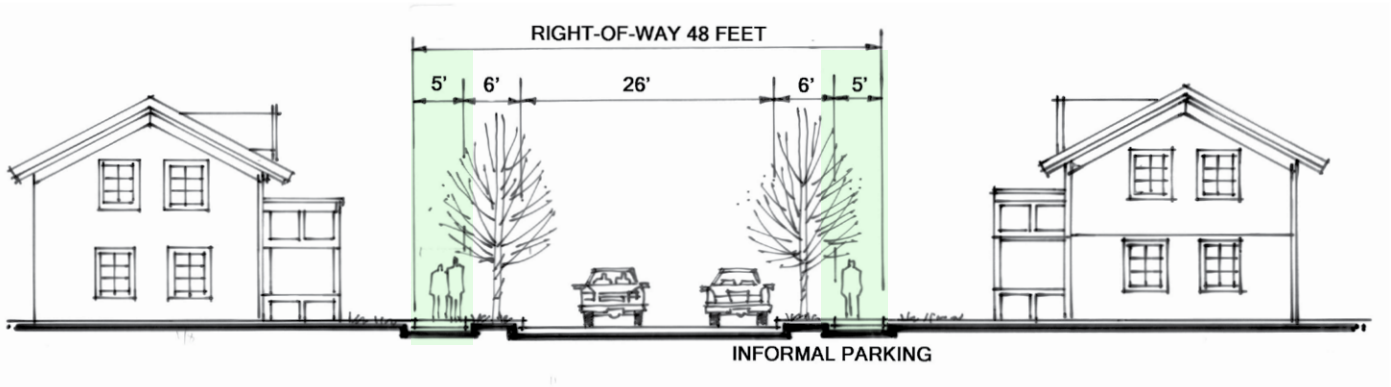
Local *Complete Street* in Commerce City's Northern Range

There are also additional and evolving state-of-the-art solutions that come from sources such as the National Association of City Transportation Officials (NACTO) The Pedestrian and Bicycle Information Center (PBIC) The Federal Highway Administration (FHWA) and others. These are available as well on the Internet. As this is an emerging area of design and engineering it is always advisable to check the latest information and studies.

The actual cross section applied may vary depending on the practicalities of local conditions and the limitations of existing rights-of-way, built infrastructure and other considerations. Similarly, in the near term, it may not be practical to apply all of these solutions in the older built up areas where restricted rights-of-way and built infrastructure pose limitations. It is essential to consult licensed engineers knowledgeable in these techniques before designing and implementing improvements.

Following are some key typical cross sections of a healthy streets system:

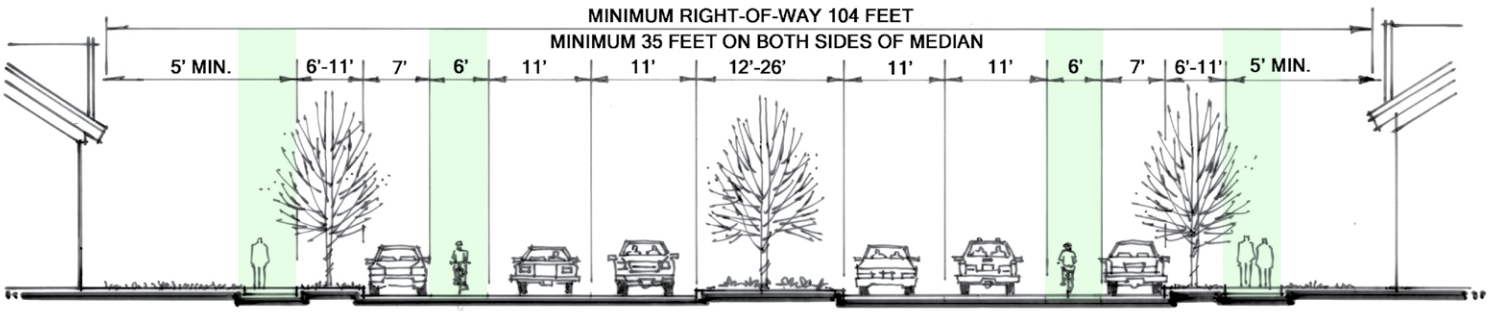
Local Residential Streets with Detached Sidewalks



Street width 26ft. with curb, gutter and informal parking. Planting strips 6ft Sidewalks 5ft. on each side
Average speed 20mph Requires a 48-foot ROW

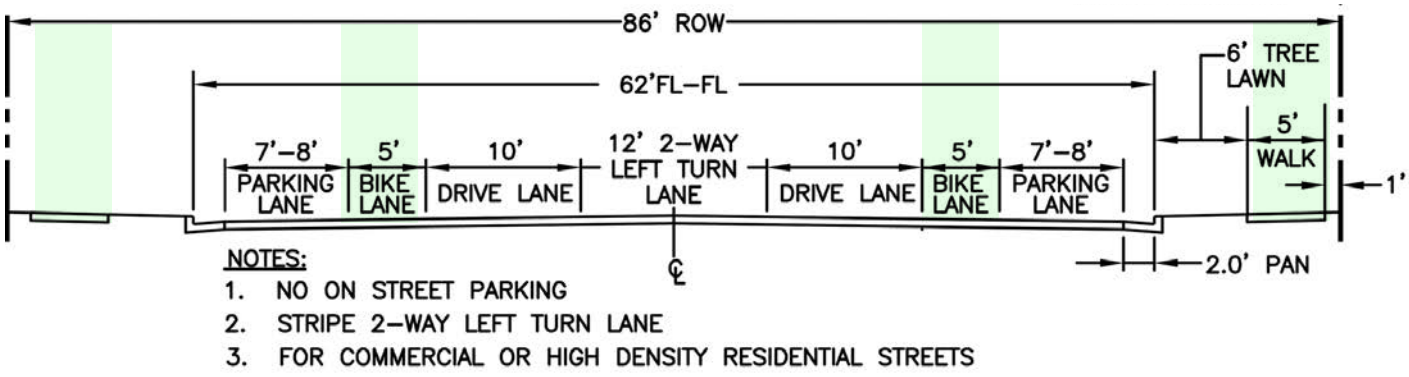
Source- Street Design For Healthy Neighborhoods by Dan Burden

A "Boulevard"



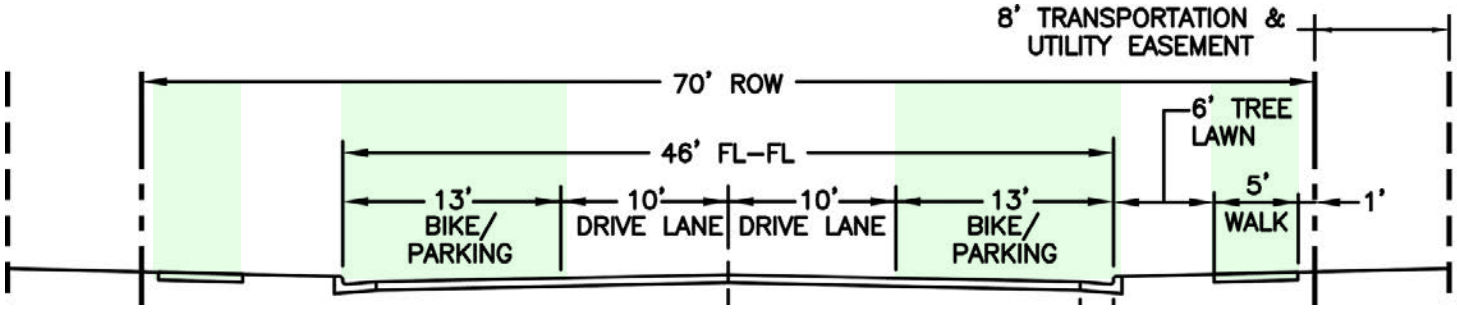
Source- Street Design For Healthy Neighborhoods by Dan Burden

A Local Commercial Street



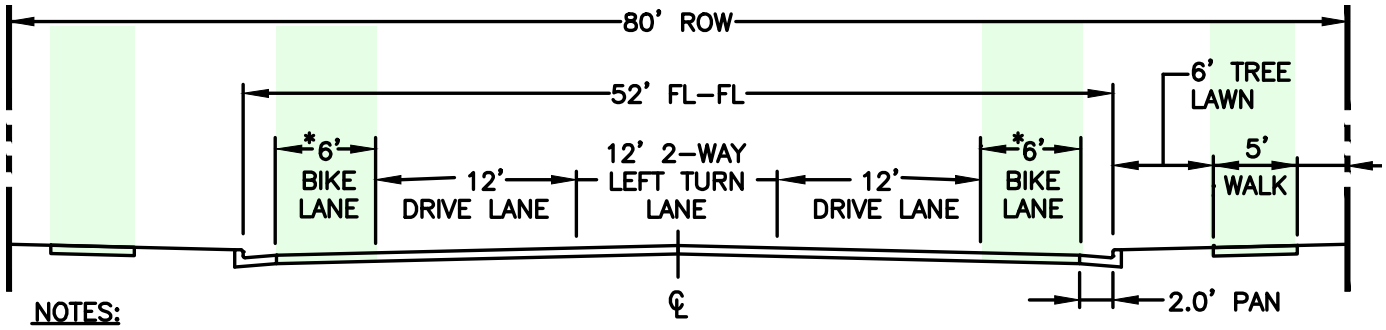
-Derived from Commerce City Standards

Minor Collector



-Derived from Commerce City Standards

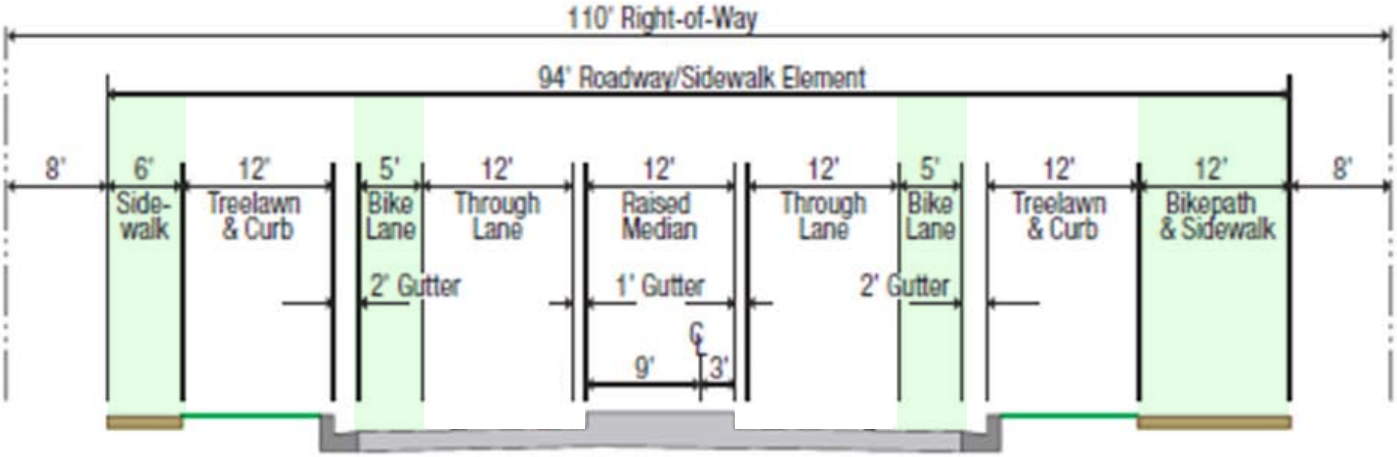
Major Collector



NOTES:
1. MAJOR COLLECTOR LANEAGE SHOWN
2. CITY ENGINEER TO DETERMINE STRIPING REQUIREMENTS FOR LOCAL INDUSTRIAL INDUSTRIAL STREETS ON A CASE BY CASE BASIS
*3. OMIT BIKE PATHS ON INDUSTRIAL STREETS (STILL 52' FL–FL)
4. NO ON STREET PARKING

-From Commerce City Standards

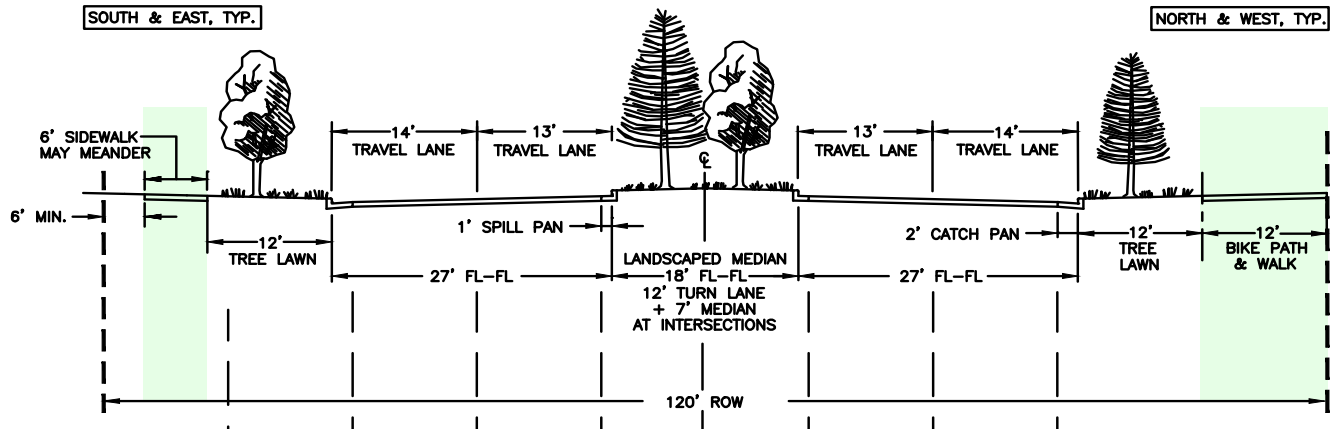
Multimodal Arterial Typical Cross Section



Source- *Commerce City Transportation Plan*

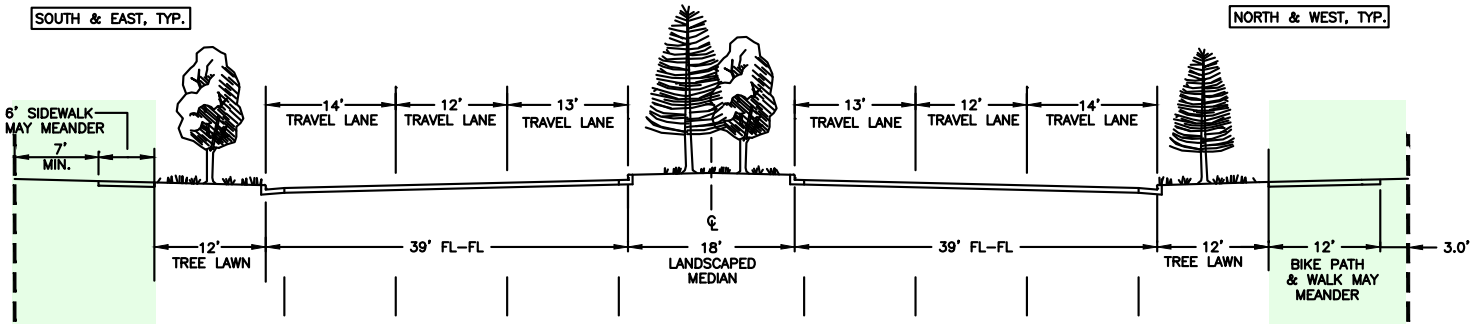
Minor Arterial

NOTES:
1. AUXILIARY LANES SHALL BE 12' WIDE, INCLUDING GUTTER PANS
2. EASEMENTS MAY BE DEDICATED AS ROW IF SETBACKS ARE NOT AN ISSUE



-From Commerce City Standards

Principal Arterial



-From Commerce City Standards

3. ROAD DIETS

The term *road diet* refers to a retro-fitting technique where a multi-lane street poses barriers to active travel are modified to better accommodate a diversity of travel modes. Types of modifications include:

- Reducing 4-lane roads to 3-lane roads that typically includes a center turn lane and two travel lanes;
- Reclaiming portions of the street space for other uses such as bike lanes and on-street parking;
- Reclaiming space for pedestrian islands;
- Reclaiming space for sidewalks/streetscape.

Classic Road Diet Before

Classic Road Diet After

Benefits of Road Diets for Pedestrians

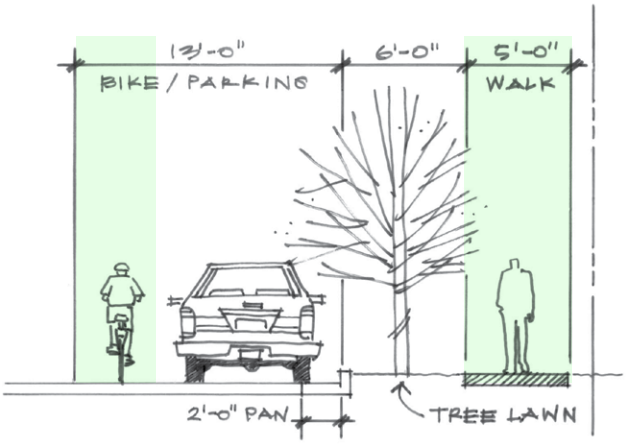
- Reduces crossing distance
- Reduces "multiple threat" crash types
- Provides room for crossing island to break crossing into 2 simpler crossings
- Reduces top end travel speeds
- Buffers sidewalk from travel lanes (parking or bike lane)
- Reclaims street space for "higher and better use" than moving peak hour traffic

Source- NHTSA Pedestrian and Bicycle Information Center

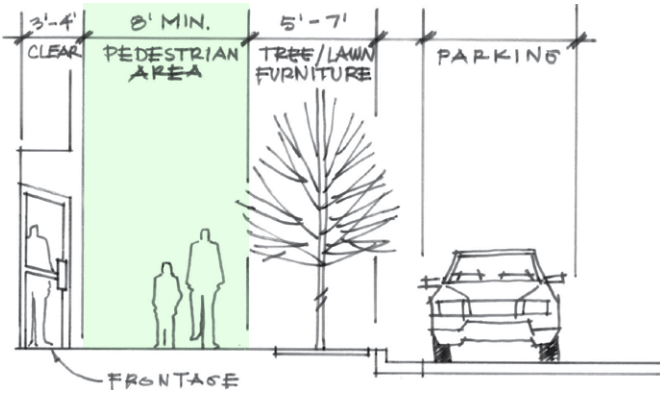
Reclaiming Road Space Creates Room for Ped Islands

4. SIDEWALKS

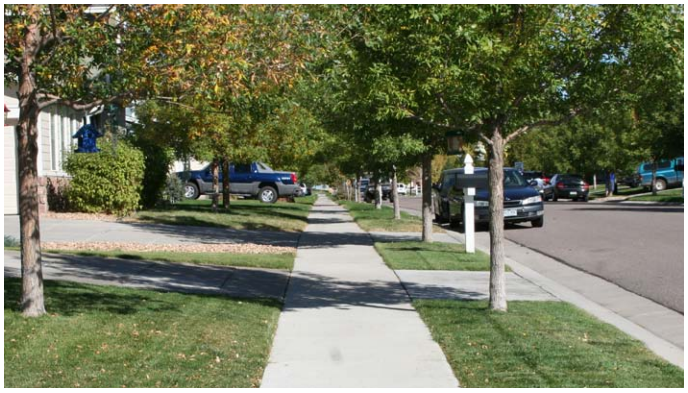
Walking is a major component of an active life style and, potentially, many trips can be walking trips. A successful sidewalk system that people will regularly use must have several elements including: a smooth level surface that is maintained free of ice, snow and debris; an adequate width to accommodate two people walking side by side and accommodate two wheelchairs passing–typically 5′ and wider (8′-12′ wide) in higher use or commercial areas; a pleasant walking environment including a landscaped tree median separating the walk from the street. The sidewalk system must also integrate with key daily destinations such as schools, parks, grocery stores, transit stops, places of employment and other routine trips. This connectivity should include safe, comfortable, convenient-to-use crossings of busier streets, highways, railroads and other barriers. Cross slopes should not exceed 2%.



Typical Residential and Collector Street Sidewalk Section
Source- Commerce City Standards



Typical Local Shopping District Sidewalk



Detached Walk with Tree Median

Narrow Attached Walk With Mountable Curb

Seperated Sidewalk Keeps Sidewalk Level At Driveways

5. AT-GRADE ROAD CROSSINGS

Commerce City has a number of locales where crossing busy streets is both daunting and, in some instances, potentially dangerous because of higher speeds, multi-lane roads and complex traffic movements. Having a workable pedestrian and bike system with community-wide connectivity must include having safe, easy to use, pleasant crossings of busy streets throughout the system.

Highway 2 and East 69th Ave.

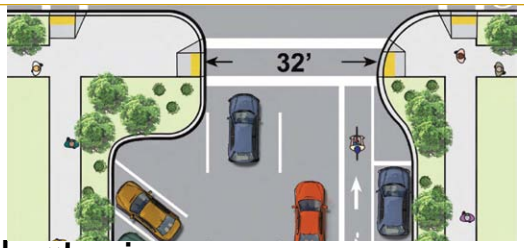
Pedestrian Crosswalks
(Mid-Block, Intersection and Single Lane and Multi-Lane)

Difficult, unpleasant and dangerous street crossings are a significant barrier to active travel in Commerce City. A number of steps and standards are needed to remedy this. All crosswalks should be properly located for visibility and functionality (logical places for people to cross and for traffic to stop). Depending on speeds and traffic volumes there should be appropriate signage and, where speeds and volumes are high, signals. There should be adequate illumination at night and proper pavement markings in accordance with national and local design standards.

In addition to appropriate signage and traffic lights, multi-lane and busy roads crosswalks should also have advance stopbars, shark's teeth (example on next page) and refuge medians where necessary. Signal timing should allow adequate time for people of all abilities to comfortably and safely make the crossing. A number of additional characteristics and criteria will help make crossings safer and more pleasant including:

- Tight (with shorter crossing distances preferred)
- Simple (as opposed to multiple traffic movements, turn lanes, and complex signals.)
- Square (Where streets and driveways intersect at right angles)
- Slow Speed (including smaller corner radii to slow turning cars—such as the driveway sketches on page 29)
- Easy to Understand (If complex, broken into
- smaller steps such as center refuge islands)
- Avoid free-flow movements (such as wide ill-defined driveways)

Source: FHWA and Pedestrian and Bicycle Information Center



Curb extensions

Benefits:

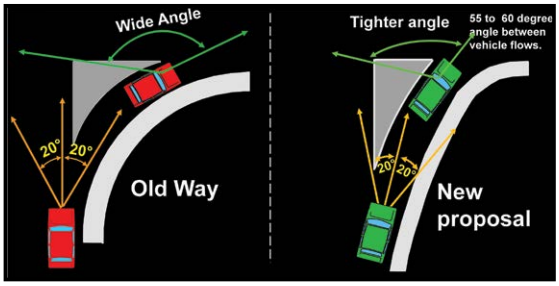
- Better visibility (both ways)
- Room for street furniture
- Traffic calming
- Reduced crossing distance
- Curb extensions should be the width on the parking lane and not encroach on bike lanes or travel lanes

Islands at Intersections

Benefits:

- Separate conflicts and decision points
- Reduce crossing distance
- Improve signal timing
- Reduce crashes

Right-Turn Slip Lane: Design for pedestrians



High Speed, head turner, low visibility of pedestrians

Slower vehicle speeds, good angle, good visibility of pedestrians

Recent national study findings and recommendations for crosswalks published by FHWA and Pedestrian and Bicycle Information Center

- Proper location
- High Visibility Markings
- Illumination
- Signing
- Median Islands
- Advance Stop Bars including "Shark's Teeth" Markers especially on multi-lane streets
- Curb Extensions
- Signals

Other Recommendations and Findings

- OK to mark crosswalks on 2-lane roadways
- On multi-lane roadways, marked crosswalks alone are not recommended on roadways with ADT greater than 12,000 without a median or ADT greater than 15,000 with a median
- Use raised medians to reduce risk
- Signals or other treatments should be considered where there may be many young and/or elderly pedestrians

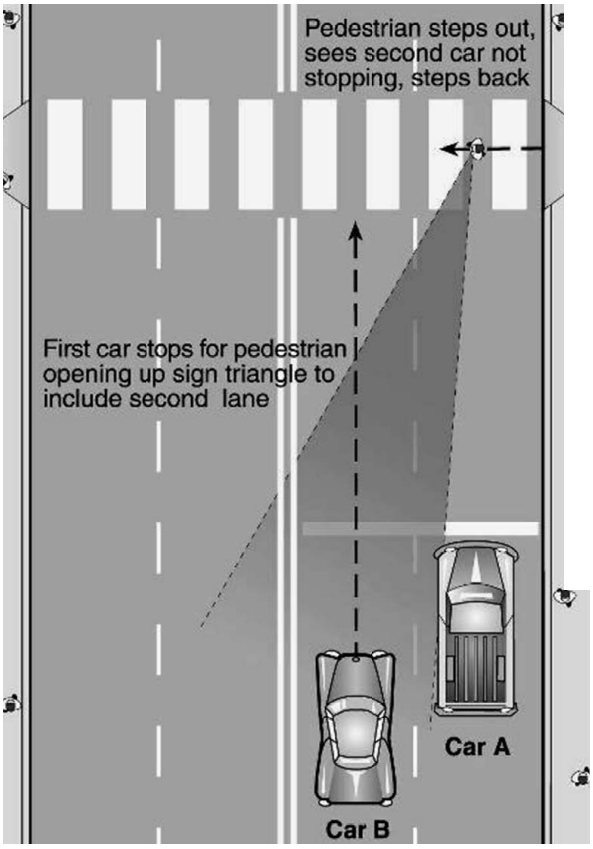
*Note: effect of advance stop bar not studied (none at any observed sites)

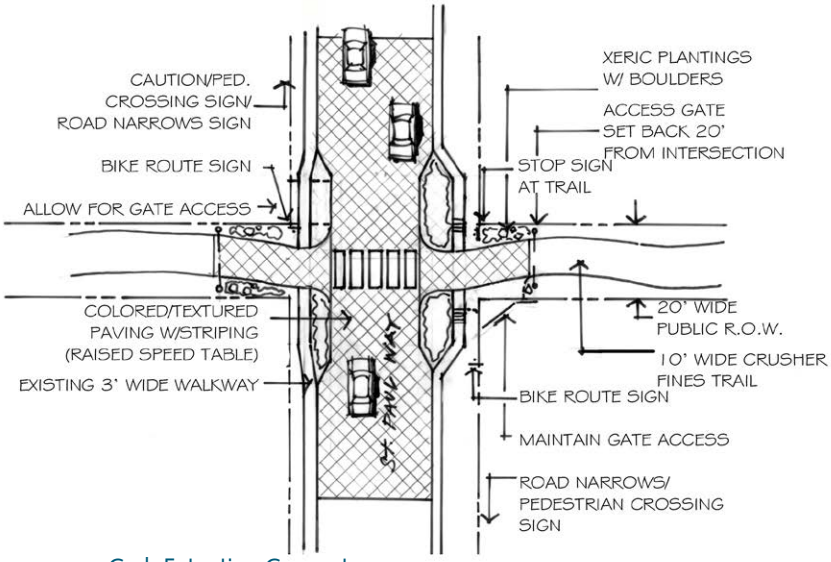
Above images by FHWA and Pedestrian and Bicycle Information Center.

Solutions such as curb extensions that make the pedestrian more visible to vehicles in the traffic lane can improve functionality of crossings. Pedestrian islands that break multi-land crossings and turn lanes at intersections will also help.

Note that marked cross walks must be visible to both the driver and the pedestrian. Generally longitudinal painted crosswalk lines are preferred to perpendicular

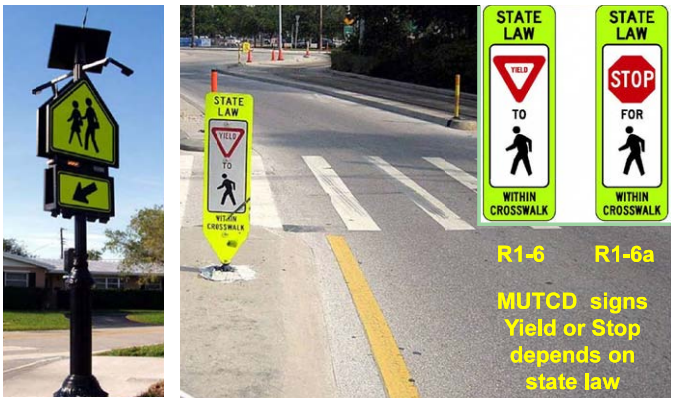
Bollard and Texture Delineation





Curb Extention Concept

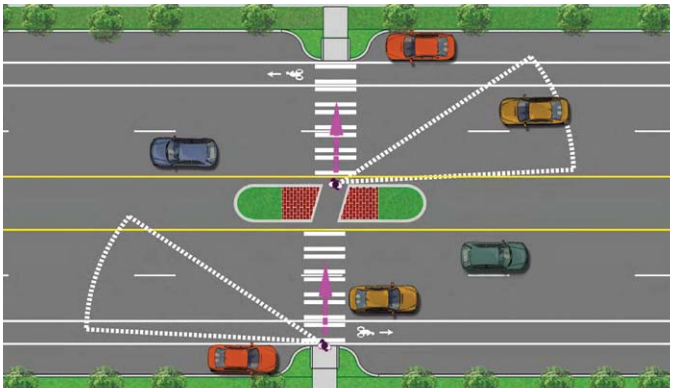
Crossing and Stop Bar Example



Pedestrian Crossing Devises

Shark's Tooth Stop Bar Example

Islands Improve Safety at Designated Crosswalks
Source: Pedestrian Bicycle Information Center



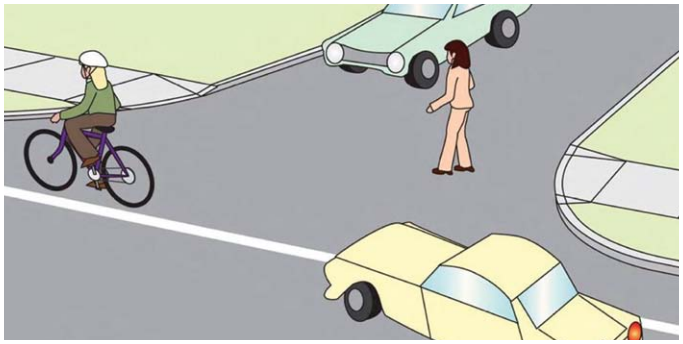
Crossing Island at Marked Crosswalk - Same Principle
Breaks Long Complex Crossing into Two Simpler Crossings
Source: Pedestrian Bicycle Information Center

for less wheel wear on paint.

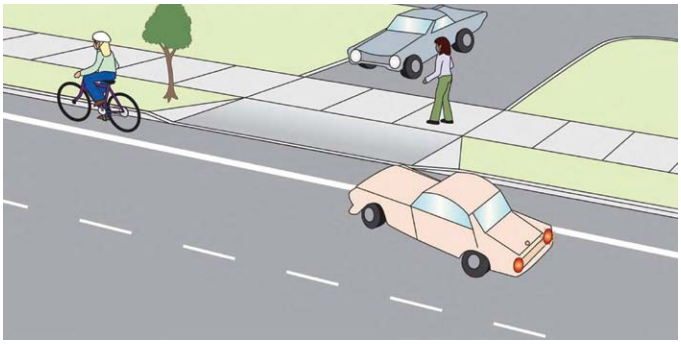
Raised Medians and Islands–Pedestrian crosswalks, that are clearly marked, are recommended for multi-lane and busy streets. In effect, islands break a long complex crossing into two shorter simpler crossings where the pedestrian needs to be primarily concerned about one direction of traffic for each portion of the crossing.

Studies show that raised medians and islands can reduce pedestrian crashes by as much as 46% at marked crosswalks (39% at unmarked crosswalks.) There are a number of pedestrian median design concepts that can be employed to improve crossing safety.

Intersections with Driveways–High volume driveways such as those entering shopping centers, fast food restaurants and other busy areas can act as unsafe and challenging barriers to pedestrians. These types of intersections should be constructed like driveways rather than street intersections to discourage high speed movements. Sidewalks should be kept level at driveways.



Driveways Built Like Intersections Encourage High-Speed Turns
Source: Pedestrian Bicycle Information Center

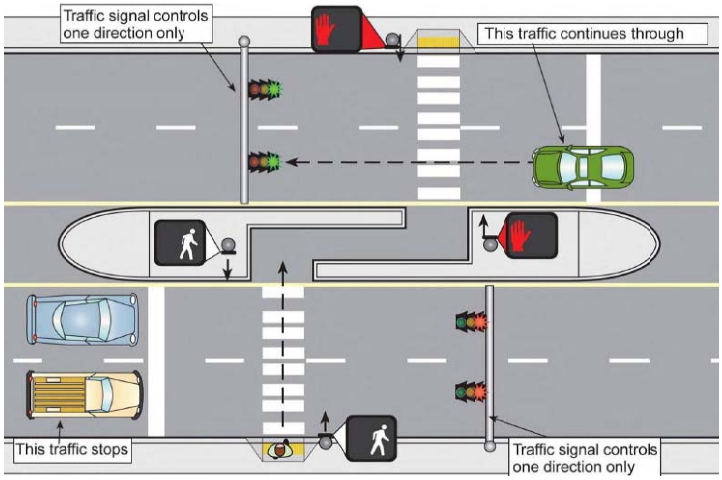


Driveways Built Like Driveways Encourage Slow-speed Turns
Source: Pedestrian Bicycle Information Center

HAWK (**H**igh-intensity **A**ctivated cross **W**al**K** beacon) is a pedestrian activated stop light. These are used in instances involving higher speed, higher traffic, multi-lane and mid-block crossings. A number of communities, including Fort Collins, Tucson and other cities are installing *HAWK* user-activated stop lights. Studies have shown the *HAWK* system to be significantly superior to, and safer than, other crossing demarcations such as flashing yellow lights, warning signs and street paint markings. And, with technological improvements such as solar-powered systems, they are significantly less costly than traditional stoplights.

Note that a key to the successful functionality of user activated lights such as a *HAWK* or traditional stoplight include a fast response time (30-second or less) before the light changes after the button is pushed. For bicycle use electronic sensors will be more effective than push buttons as it is not always practical to dismount from a bike to activate a pushbutton.

Crossings to Transit Stops–Special attention should be paid to street crossings to access transit and school bus stops. Many pedestrian crashes are associated with bus stops. Stops should always be convenient and accessible. They should be located and designed to ensure that users can safely and comfortably cross the street to access them.Indeed, every transit or school bus stop is a pedestrian crossing location.



Ped Pushed Button, Waits, Crosses To Island
Source: Pedestrian Bicycle Information Center

HAWK Bicycle/Pedestrian Crossing System

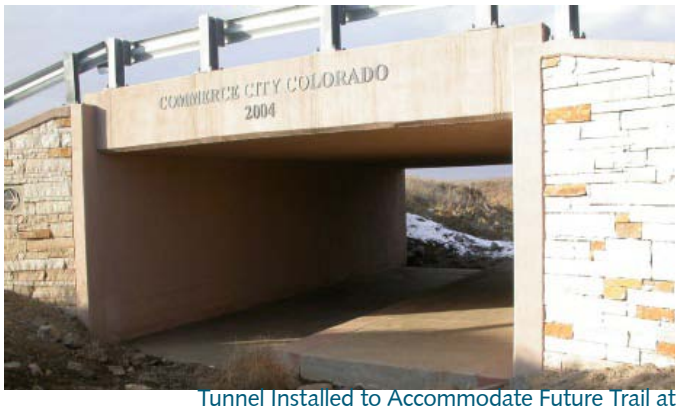
6. GRADE-SEPARATED CROSSINGS (INCLUDING TUNNELS AND BRIDGES)

In some instances a tunnel or pedestrian span will be required to traverse a significant barrier such as a stream, a railroad or busy highway. When planning grade-separated crossings several considerations should be applied:

- The facility must be a necessary and practical to use alternative to an at-grade crossing. Sadly there are numerous instances of costly structures being built that aren't used. Many people will not use a pedestrian bridge or tunnel if they must go significantly out of their way or climb ramps when there is a significantly quicker way to cross the street at-grade
- The facility must have adequate clearance for shared bicycle and pedestrian use–at least 10′ of unobstructed pathway width and at least 8′ (10′-12′ preferred) of head clearance.
- Grades must accommodate all users including people with disabilities
- Tunnels should have clear lines of sight and illumination to assure user safety and security
- Facilities should be well-drained and not prone to flooding (Where occasional flooding cannot be avoided a safe at-grade crossing should be available). Refer to next page for photographs of examples.

In Portland,OR, a complete streets approach resulted in a 74% increase in bicycle commuting.
~The National Complete Streets Coalition

Pedestrian Span Over I-25 Near Denver



Tunnel Installed to Accommodate Future Trail at 88th Ave. and Second Creek

Attractive, Light, Open Tunnel at CU Campus in Boulder

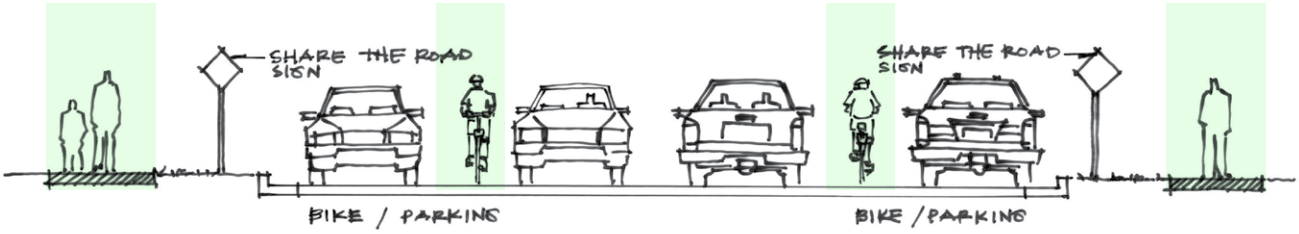
7. ON-STREET BICYCLE FACILITIES

(Including bike lanes, "bike tracks", bicycle boulevards and shared roadways)

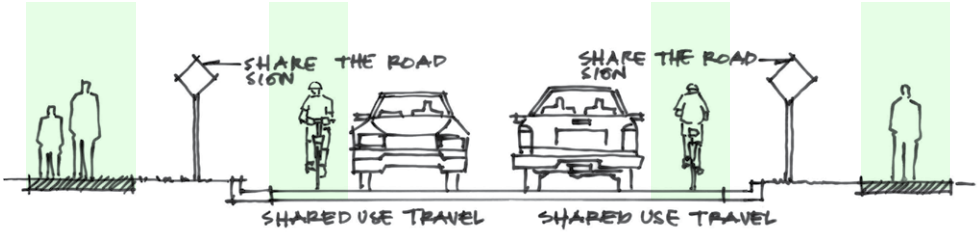
There is a range of design techniques that can better accommodate bicycles sharing roadways with automobiles. At one end of the spectrum are low-traffic, low speed streets that can accommodate bicycles without any signs or markings or with simple route designations and share-the-road signs. At the other end are structurally delineated *bicycle tracks* that may be defined by physical delineators, medians or actually raising the grade of the bike surface above the grade of the automobile lane.

The variety of solutions illustrated on the following pages include a range of street cross-section layouts, as well as linear solutions such as designated *bicycle boulevards*. Depending on traffic conditions and other considerations, the selection of a solution will vary from site to site. Consult the *AASHTO Guide to the Development of Bicycle Facilities* and the *NACTO Urban Bikeway Design Guide* (www.nacto.org) for more examples, details and specific design guidance.

Simple Shared Roadway–Workable for low traffic, low speed streets. Pavement should be well maintained for safe, comfortable bicycle use. May be signed or unsigned.



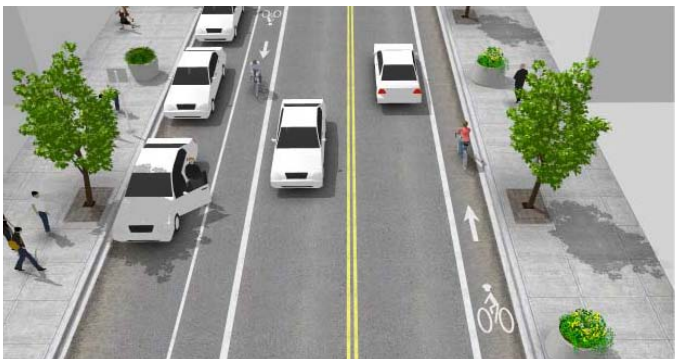
Conceptual Cross Section
Shared Use Travel With Parking



Conceptual Cross Section
Shared Use Travel - No Parking

Conventional Bike Lanes–Consists of a painted stripe-delineated or bike symbol (sharrow) bike- designated lane. In some instances the entire bike lane may be painted for higher visibility.

Conventional Bike Lane with Parking



Conventional Bike Lane without Parking

Left-Side Bike Lane

Shared Roadway with Sharrows

Buffered Bike Lanes and *Bicycle Tracks*–Consists of a buffered bike lane. Buffering may use paint or structures such as a raised median or other delineators such as bollards. *Bicycle tracks* use a raised surface to delineate the biking area from the motor vehicle lane.

One-Way Buffered Bike Lane

Two-Way Buffered Bike Lane

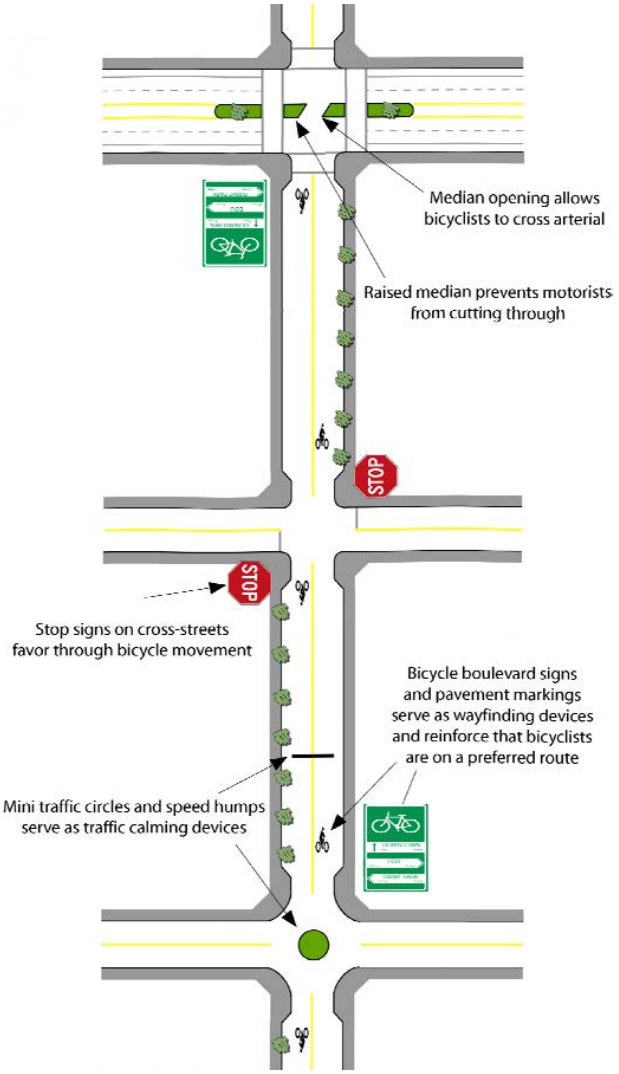
Buffered Bike Lane with Median

Raised Bicycle Track

Source For Above Illustrations: NACTO

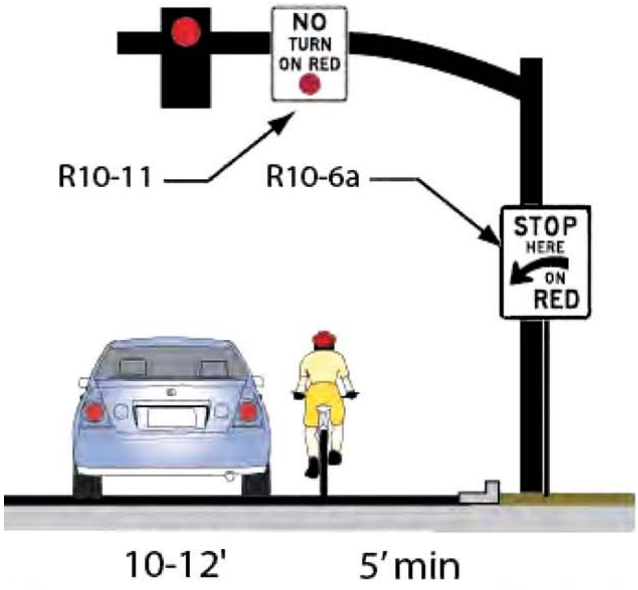
Bicycle Boulevards–*Bicycle boulevards* are a planning and street design tool that enhances a shared roadway bike facility to promote a more attractive, convenient, and comfortable bicycling (and often also pedestrian) environment for a wide range of ages and skill levels. Typically *bicycle boulevards* are created along low volume, low-speed streets creating a biking corridor that has been optimized for bicycle travel using traffic calming and traffic and speed reduction as well as signage and pavement markings.

Of particular significance are intersection treatments such as traffic circles, chicanes and other devices that prioritize through movements for cyclists while discouraging similar through trips by motorized traffic, while still allowing convenient motor vehicle access to properties along the route. An important element of the concept is minimizing through cross traffic at intersections by use of stop signs or signalization that promotes through bike traffic along the *Bike Boulevard*. (See *Bicycle Boulevard Design Guidebook* published by the Center for Transportation Studies, Portland State University.)



Bike Boulevard Concept
Source: Bicycle Boulevard Design Guidebook

Bicycle "Box"–This is a technique that promotes safer and better defined bicycle visibility and bike/vehicle interface at intersections particularly with regard to right turn conflicts.



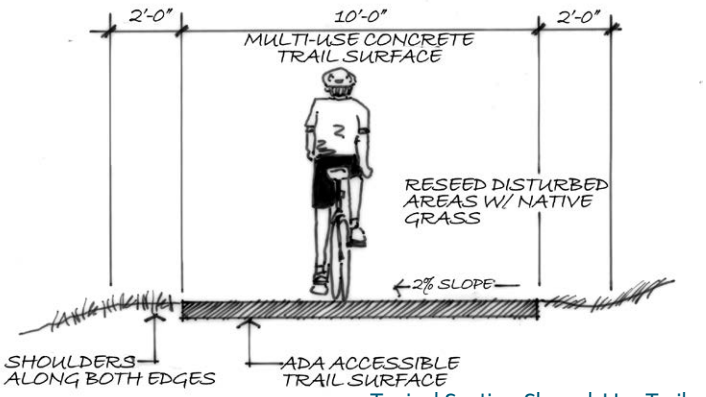
Bicycle Box City of San Mateo, CA Example

Bicycle Box City of San Mateo, CA Example

8. OFF-STREET TRAILS

Off Street Shared Use Trails– Off-street trails will form an important part of Commerce City's *active travel* network. These serve both transportation and recreation functions. Typically these follow open space and natural resource corridors such as Sand Creek, Second Creek, The *S*.Platte River, tributary streams, and the Rocky Mountain Arsenal National Wildlife Refuge perimeter. They can also follow other corridors where there are opportunities for mostly unimpeded off-street pedestrian and bicycle movement such as along the edge of highways, roads and rail corridors.

There are two preferred paved trail surface options–asphalt and concrete. However, it should be noted that because of its durability and lower maintenance requirements, concrete has certain advantages for trail projects. Generally, concrete is recommended for areas subject to frequent inundation or erosion such as along a stream. In addition a crushed granular stone surface (crusher fines) or compressed asphalt road millings (when old pavement is removed and crushed) may be appropriate particularly in more informal areas or where a more natural feel is desired such as portions of the perimeter trail around the Rocky Mountain Arsenal National Wildlife Refuge.



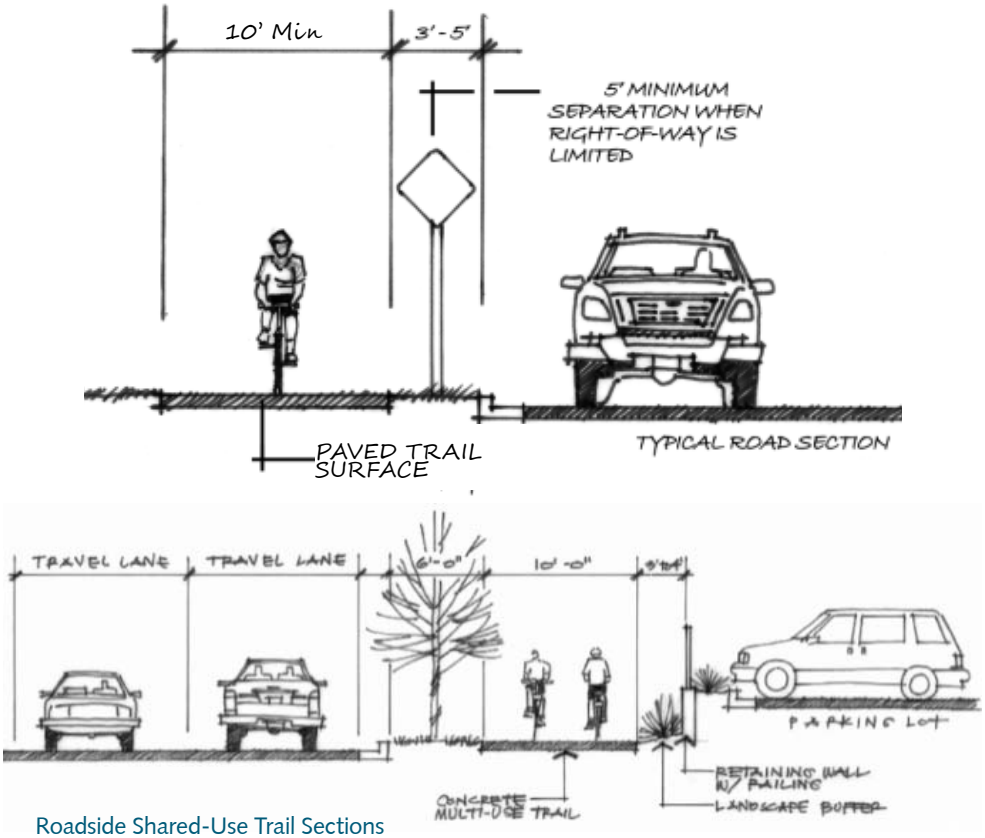
Typical Section Shared-Use Trail

Paved trail surfaces accommodate pedestrians, bicycles, skates, and wheelchairs. Typically the paved surface is 10′-wide and designed to national engineering (*AASHTO* for Bicycles) and *Americans with Disability Act* accessibility standards. There is a graded trail edge on either side between 30″ and 5′-wide with 5′ preferred. This shoulder area should be mowed and kept free of debris though the width of the mowed area may undulate for improved aesthetics. Typically, grades do not exceed 5% with up to 10% for very short distances. For purposes of this plan, the shared-use path, when adjacent to a roadway includes a 5′ to 10′-wide landscaped buffer between the trail and the adjacent road. There should be a 30″ minimum buffer between the trail edge and adjacent fences, walls or other obstructions.

Roadside (Shared-Use) Trail–In a number of places, a paved multi-use trail will run parallel and proximate to a roadway. Typically this consists of a 10′-to-12′-wide "paved" surface with a vegetated or landscaped buffer (5′ or more in width preferred) between the edge of the road and the trail. The trail allows for two-way bicycle and pedestrian traffic. If a 5′-wide buffer cannot be achieved than a minimum 42″-high safety barrier should be provided per AASHTO guidelines.

10′ Wide Concrete Trail - Sand Creek Greenway

10′ Recycled Asphalt Trail - Refuge Perimeter Trail



Roadside Shared-Use Trail Sections

Roadside Shared-Use Trail

Trailheads and Entry Features–Trailheads should be strategically located where users might logically want to access the corridor by automobile, where appropriate and necessary, and park to bike or hike. These could accommodate 10 to 20 automobiles and could have a paved or gravel surface. Trailheads should also include an entry monument or sign that includes a trail system map, with "you are here" marker, and applicable user courtesy/regulations and other information. These locations could also include restrooms, shade structures and drinking water. In some instances entry points might be more elaborately improved to enhance trail visibility to the public. These entry features might include special landscaping, trim elements, shade structures, and sculptural elements.

In other instances the trail entry point might not offer parking, serving rather as a "walk-up" or "bike-up" point of entry. These should include an accessible ramp from the street where applicable and neighborhood-appropriate signs or small pylons indicate the entry point. A small system map at these locations will also help with wayfinding systems.

Typically, trailheads, entry features, and other points where people can park or congregate, should not be placed proximate to residences. A gate that closes the area at night can be provided. A number of communities have used solar-activated automatic gates that close at sunset preventing access after dark.

Trailhead and Overlook at *Prairie Gateway*

9. SIGNAGE AND WAYFINDING ELEMENTS

Safety, Courtesy and Regulator Signage and Pavement Markings–These elements enable guidance to both people in motor vehicles and to pedestrians and bicyclists to assure a safer, more functional mix of travel modes. In many instances signage and pavement markings represent the lowest cost, most expedient way to improve *active travel*. All safety and regulatory signage and markings should conform to the published standards in the *Manual of Uniform Traffic Control Devices (MUTCD).*

There is an array of signage and markings available and specific application will vary by field conditions. In addition to conforming to the MUTCD signage should be prominent, though not excessive, and placed so the directives are unambiguous and visible at all decision and entry points. *Pedestrian Crossing, speed limit* and *share-the-road* signs are among the most rudimentary and effective devices.

Pavement markings may include bike lane delineators, pedestrian crossing markings, and stenciled bike lane markers and *sharrows*. These are also specified in the Manual of Uniform Traffic Control Devices. In addition to these more traditional markings, some communities have been deploying more prominent markings such as painting bike lanes and installing bollards and other lane delineators. Examples of these can be found at www.nacto.org.

Painted Buffered Bike Lane-NACTO

Sharrows

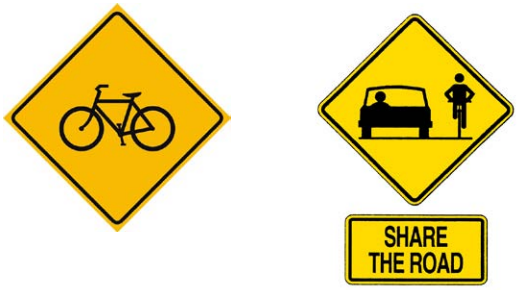


Figure 9C-9. Shared Lane Marking

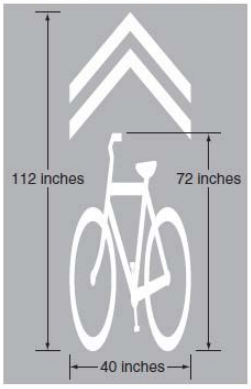
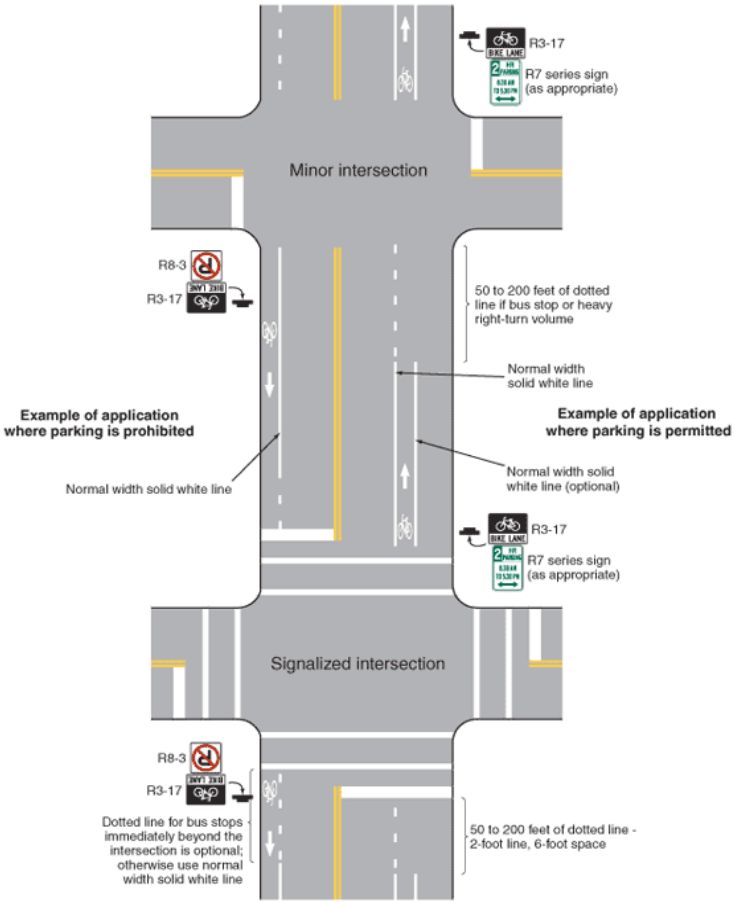


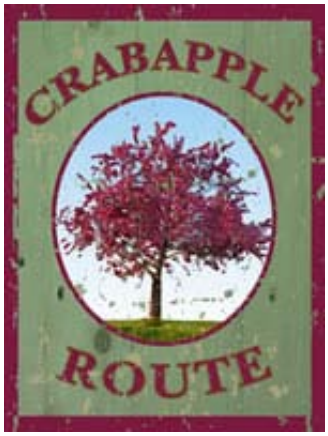
Figure 9C-6. Example of Pavement Markings for Bicycle Lanes on a Two-Way Street



Source: Pedestrian and Bicycle Information Center

Wayfinding Systems/Directional Signs–include signs and markers, some with maps placed at strategic locations–particularly along major bicycle and pedestrian corridors to inform users of their location, how to reach their destinations, distance from a destination, and other orientation information. The wayfinding system should include overview signs and maps used at major entries. (The system map should also be readily accessible on the Web).

Markers may have a specific logo, or they may be as simple as blaze, using pieces of brightly colored tape attached to sign posts to indicate the corridor. In general all wayfinding markers should be simple, use commonly known motifs and be easy to read from a moving bicycle in traffic. Commerce City may want to identify a number of featured corridors–such as routes that connect parks or travel through scenic neighborhoods–that are given their own branding and are easy to follow. Littleton offers an example of this with their *Crabapple Route* that follows streets featuring blossoming crab apple trees and other cultural features. While there are a number of styles and approaches to active travel wayfinding, NACTO and other state-of-art resources may be helpful in designing an effective wayfinding system.



NACTO Urban Bikeway Design Guide

Digital Wayfinding Tools–In recent years, Web-based and cellular technologies have revolutionized way finding for virtually all modes of travel. Applications such as Google Maps® are now available to a broad cross section of the population and can be easily accessed on computers or on many cell phones. These digital tools provide maps and point- by-point travel directions and times via automobile, bike, walking and transit.

As these technologies continue to evolve, Commerce City may want to explore ways to optimize the wayfinding benefits they offer more universally across the population. This might include enhanced integration of these digital systems with on-street signage, community Web sites, user training or other methods where appropriate.

10. FURNISHINGS (BENCHES, REST AREAS AND SHELTERS)

User comfort is an important element of a successful *active travel* system particularly to help accommodate people of limited physical abilities and children. To accomplish this the system should include strategically placed rest areas and shelters from weather. This might consist of a single bench or more improved sites with landscaping, shading and other amenities. Toilet facilities may also be necessary in strategic locations. Generally these should be available within a mile of any point in the system.

Shaded Rest Area with Benches

Site Furnishings and Landscaping at Reunion Park

Rocky Mountain Arsenal National Wildlife Refuge - Perimeter Trail

CHAPTER FOUR:

RECOMMENDED LAYOUTS AND ALIGNMENTS

Strategic Questions and Infrastructure Challenges

The *Active Travel* Master Plan Layout

Roster of Catalytic Projects

W A L K . B I K E . F I T

Bicycle Education at Monaco Elementary School

STRATEGIC QUESTIONS AND INFRASTRUCTURE CHALLENGES

This plan aims to lay out a visionary, yet realistic and realizable approach to help Commerce City become a community where a major segment of the population is encouraged and enabled to engage in *active travel* on a regular basis. To achieve this, the staff, consultant team, and the stakeholder participants in the process set out to address the following questions:

- **What Currently Works**–such as existing trails, on-street routes, completed streets and other improvements already in place and how to best build on these?
- **Where Are The Most Significant Barriers and Gaps**–in the existing active travel network—such as railroads, busy highways, difficult and dangerous street crossings or traversing places that feel isolated, unsafe or insecure?
- **Where Are The Inadequacies**–what locations have inadequate capacity, unpleasant links, experience congestion and/or exhibit poor safety records (including inadequacies of existing street, trail and sidewalk infrastructure such as narrow and uncomfortable sidewalks, streets that are not bicycle friendly or in poor repair)?
- **How Can Neighborhood and City-Wide Connectivity Be Improved**–from a practical standpoint, how can connectivity and safe, pleasant active travel access to key destinations be improved to form a workable, optimal network. What facilities are priorities, most needed, to create a system that residents and workers throughout the city will use on a regular basis?
- **How to Best Address Practicalities of Weather, Travel time and Distances**—to work, school and shopping, etc. and how to transport goods such as groceries?

Photo, www.pedbikeimages.org/Elly Blue

Photo, www.pedbikeimages.org/Dan Burden

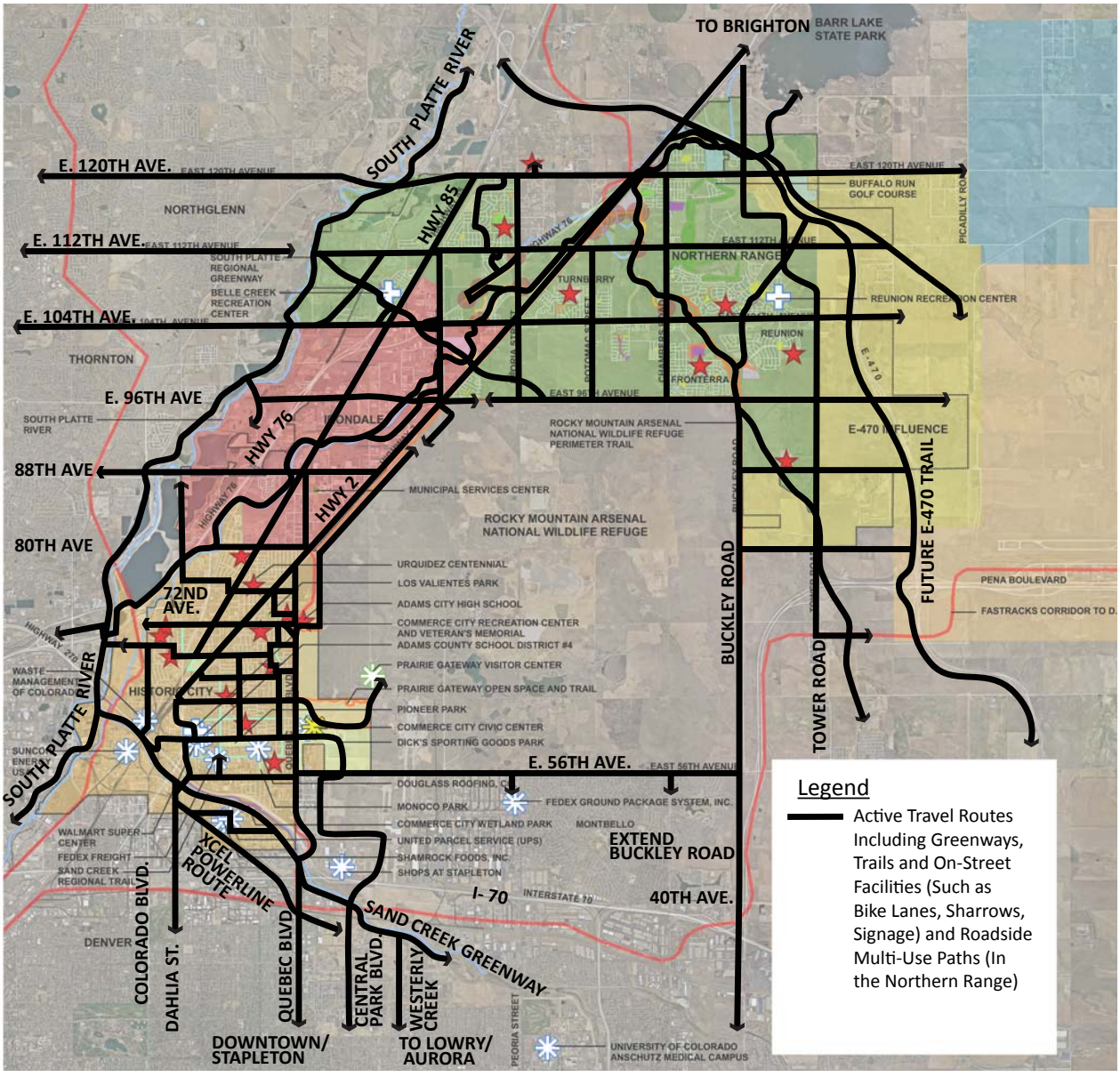
- **How Can Modes of Travel Be Integrated**–how can the requirements of all modes of travel (vehicles, transit, bicycles, and pedestrians) best be integrated and accommodated?
- **How to Overcome Well-ingrained patterns--of behavior**–including dependence on the automobile for most or all trips and a multi-decade trend of automobile-driven urban layout that has created formidable travel distances and barriers.
- **What are The Catalytic Projects**–what are the proof of concept and catalytic projects that should be implemented first and that will lead to expanding the system? When and where should these be implemented?

While there are formidable challenges there are also a host of opportunities that can be built upon. This is particularly true in Commerce City because of its foresight in recent years. Some of these include: creating a system of greenways and trails, pro-active planning and subdivision layout in the newer developing areas, gentle topography and grades and a number of existing bike-friendly streets and sidewalks (though not ideal) in the *Historic* district of the city.

THE *ACTIVE TRAVEL* MASTER PLAN LAYOUT

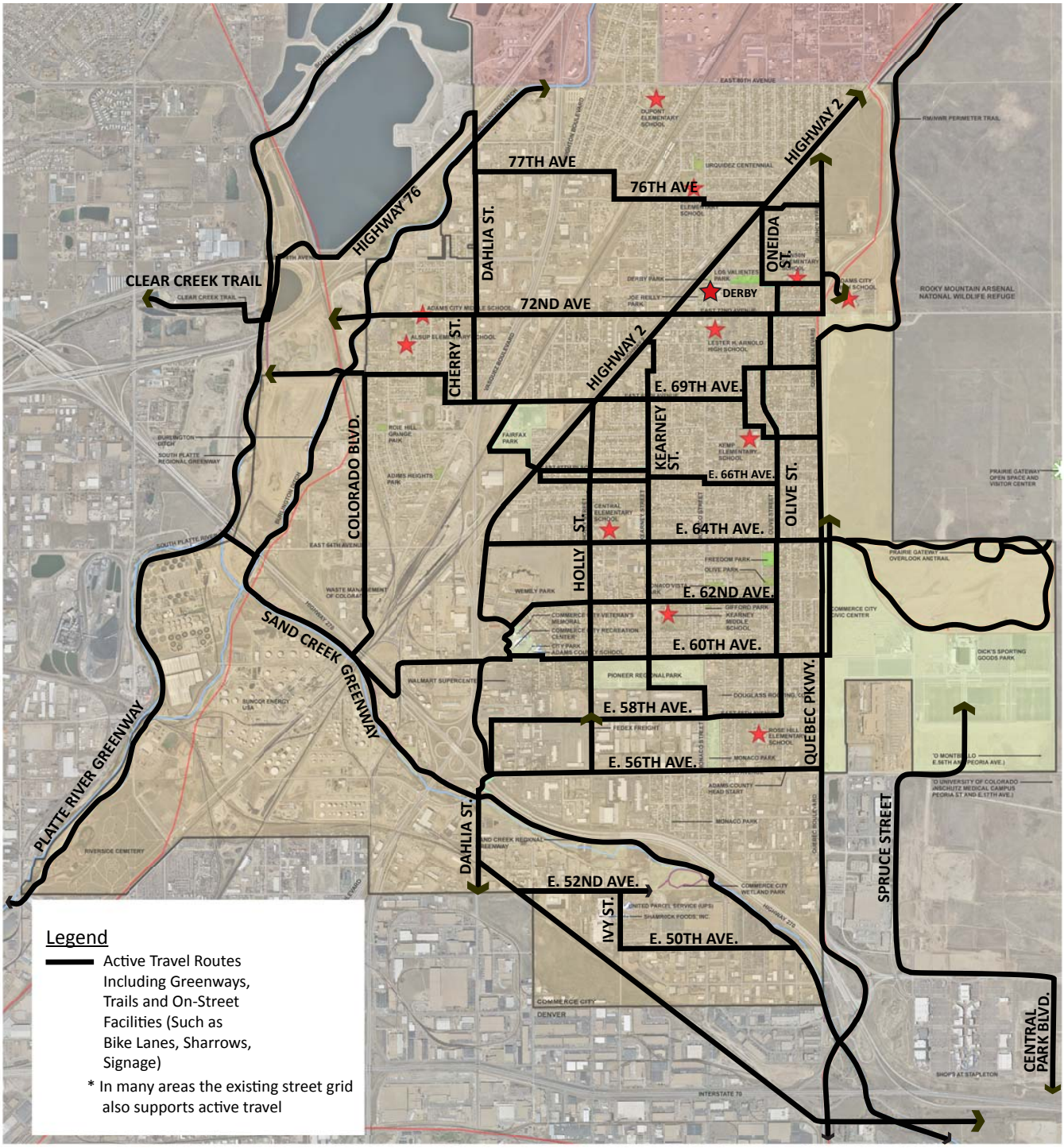
Figures 1 and 2 below depict an overall vision of an *active travel* network for Commerce City. The approach integrates a variety of facilities and modes of travel and strives to create an optimal integrated city-wide network of user-friendly *active travel* corridors including:

- **Complete Streets**–that include associated bike paths and sidewalks and on-street biking facilities;
- **Sidewalk Networks**–consisting of an improved interconnected pleasant-to-use sidewalk system wherever feasible;
- **Trails and Greenways**–that form an integrated network of city-wide and regional trails;
- **Multiple Transportation Mode Interface–**that links active travel seamlessly with other transportation modes including light rail, bus service, taxi, park 'n ride and other means of mobility;
- **Links to Regional Destinations**–such as Stapleton, North Denver, Aurora, Thornton and Northglenn, the DIA area, Anschutz Medical Complex, Downtown Denver and other activity centers.



COMMERCE CITY NON-MOTORIZED TRANSPORTATION AND VISION
CITY-WIDE TRAVEL NETWORK
Figure 1

- **Wayfinding Systems**–this can include both on-street guidance such as signs, posted maps and blazes as well as on-the-web tools such as *Google Maps*. (See"Wayfinding Elements" in Chapter 3). These systems can help users more easily find the active travel network and successfully negotiate to destinations using it.



COMMERCE CITY NON-MOTORIZED TRANSPORTATION AND VISION HISTORIC CITY MAP

Figure 2

Building on these elements, this master plan has been organized strategically to formulate a visionary and realistic, realizable system. Accordingly, to work toward an optimal *active travel* network the layout and alignment builds on the four goals laid out in Chapter 2. These are expressed in the layout maps, recommendations and *roster of projects*.

Strategy 1: Close Major Gaps, Overcome Barriers and Enhance Existing Grid– This is seen as a first step in the process focusing on projects that close key gaps and better link the existing infrastructure of streets, sidewalks and trails. It aims to address weak links in the system to better promote barrier-free, safe, pleasant *active travel* routes to schools, shopping, employment, parks, playgrounds, open spaces, trails and other destinations. It also strives to improve walking and bike travel to bus lines and future light rail stops.

Strategy 2: Enhance the *Active Travel* Network in the Historic City– Focus on establishing an easily accessible network of bicycle and pedestrian *arterials* or corridors that can better tie neighborhoods and destinations together as well as linking to the larger city-wide and regional grid. Key elements include: *complete streets* where space permits, creation of *bicycle boulevards*, improved street crossings, sidewalk improvements as space permits, improved bicycle lanes and other techniques such as *cycle tracks*, wayfinding systems and making better connections to the larger city-wide/regional network. The map on page 49 indicates a number of recommended improvements to enhance *active travel* in the *Historic City*.

Strategy 3: Complete a City-Wide/Regional *Active Travel* Network– The third major component of the layout plan is the completion of an integrated City-wide/Regional *active travel* network. This vision builds on a number of elements already in place including the Sand Creek Greenway, the Platte River Greenway, the Rocky Mountain Arsenal National Wildlife Refuge Perimeter Trail, the Second Creek Greenway and the network of trails and pathways created as part of new development north and east of the *Historic City*. It also strives to create seamless connectivity between the historic and newer parts of the City as well as links to surrounding destinations and activity centers beyond the city limits. (Note that Commerce City has a planning document for the Northern Range (the *Prairieways Action Plan*) that will continue to be implemented as development occurs.)

South Platte River Trail

Bicycle Education at Monaco Elementary School

ROSTER OF CATALYTIC PROJECTS

Achieving the active travel vision for Commerce City calls for formidable transformation to both the extensive built infrastructure and to the long-ingrained patterns of automobile based behavior. This is accomplished over time. However the process begins with moving forward expeditiously and building the system in a logical series of steps.

To achieve this, a number of catalytic projects have been identified. (Note that these are conceptual/schematic descriptions with typical cross-sections and layouts. The next step will be to prepare preliminary design layouts for each with more detailed cross-sections and layouts based on site-specific surveying and engineering.)

These efforts were identified and some rise to the top of the priority list based on a number of criteria including:

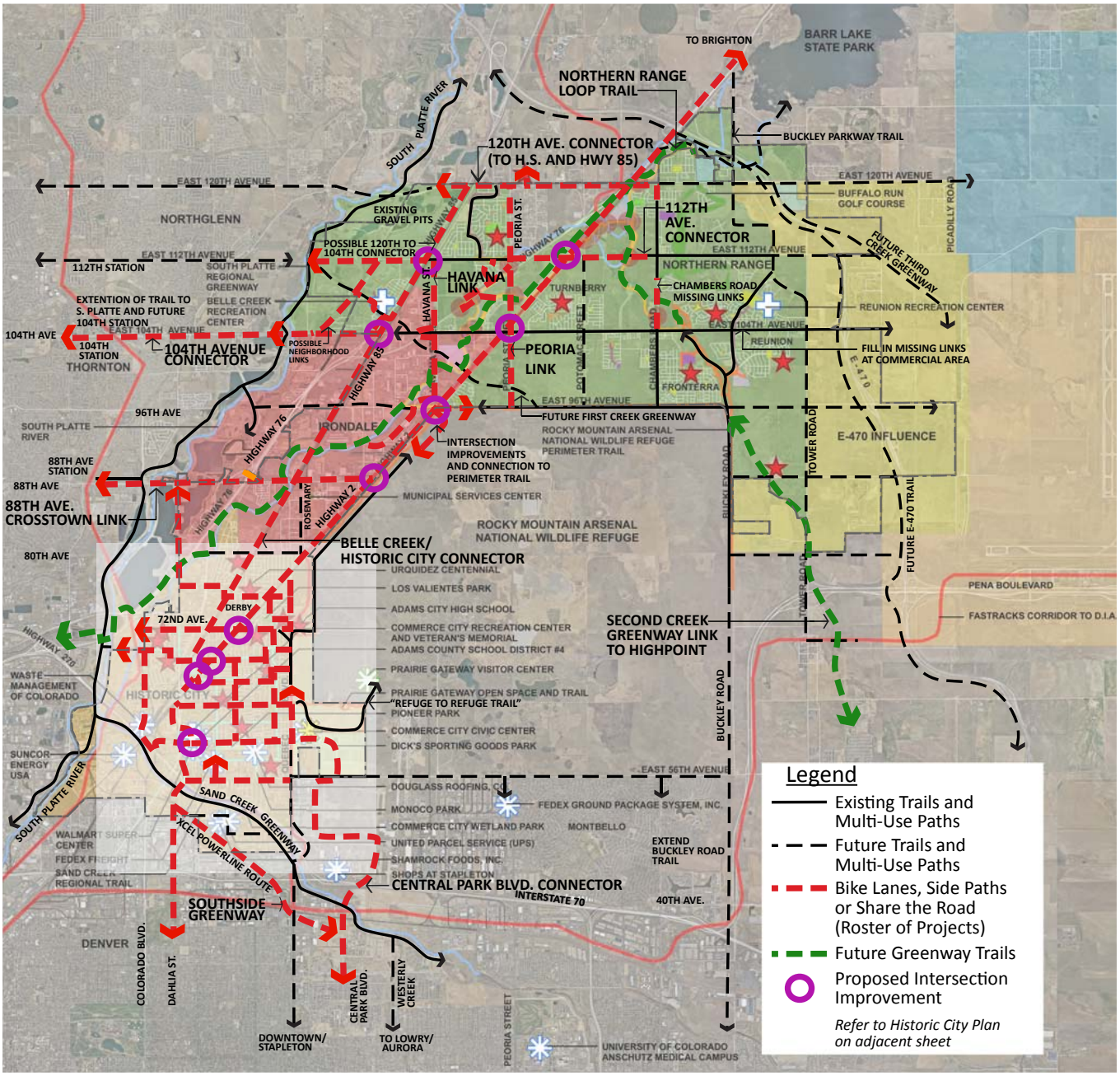
1. Safe and enjoyable to use;
2. Immediately improves and promotes local/daily *active travel*;
3. Addresses a critical problem such as a barrier or safety hazard that presently discourages active travel and creates or improves access/connectivity of city-wide/regional non-motorized travel/recreation corridor;
4. Promotes increased regular (multiple times per week if not daily) active/non-motorized recreation;
5. Establishes or strengthens corridors that link homes, schools, shops and workplaces, especially routes to key destinations and activity centers;
6. Sets a standard of quality for both design and user experience;
7. Projects or project segments that offer an exceptional experience and/or are highly visible to the public;
8. An immediate opportunity where a logical, usable connection or solution can be made with current or readily available resources;
9. Availability of rights-of-way and permitting;
10. Affordable to build and maintain with the best return and impact for the money spent;

Senior Bicycling on Street

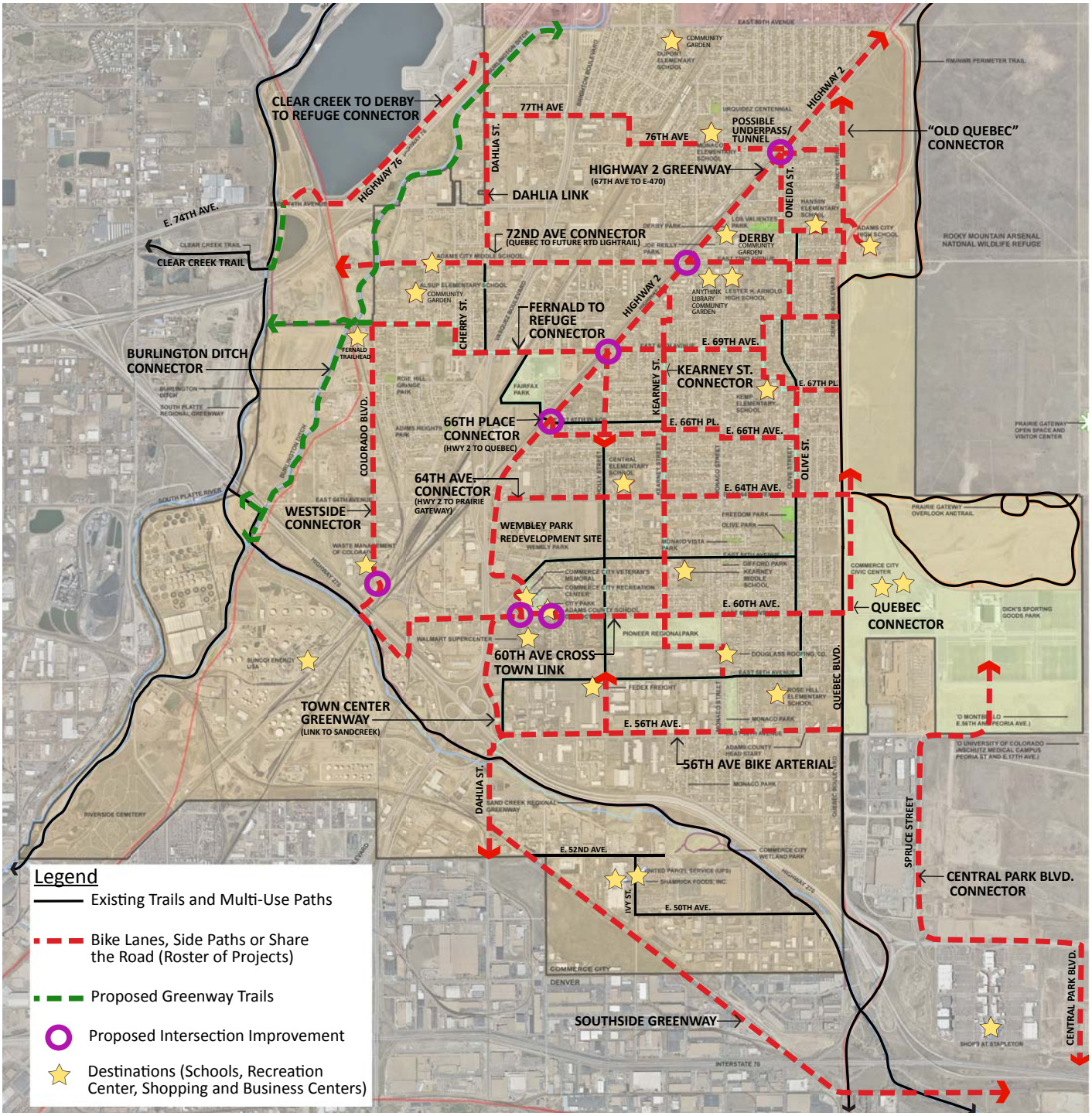
11. Availability of funding and/or grants to build and maintain improvements;
12. Catalytic projects that demonstrate the value of active travel, build public support and help promote further community support and fundraising;
13. Opportunity to include an improvement with a current private or public development project such as a highway project, access road or new subdivision;
14. More easy to implement phases (that can be completed in the next 1-3 years).

Based on these criteria, the following projects (not listed in any priority) have been identified:

Accessible Trail



COMMERCE CITY NON-MOTORIZED TRANSPORTATION PLAN
CITY-WIDE ROSTER OF PROJECTS



COMMERCE CITY NON-MOTORIZED TRANSPORTATION PLAN
HISTORIC CITY ROSTER OF PROJECTS

1. 60TH AVE. CROSS-TOWN LINK (DICK'S SPORTING GOODS PARK/ VICTORY CROSSING TO WALMART/ COMMERCE CITY RECREATION CENTER AREA AND TO SAND CREEK TRAIL AT BRIGHTON BOULEVARD.)

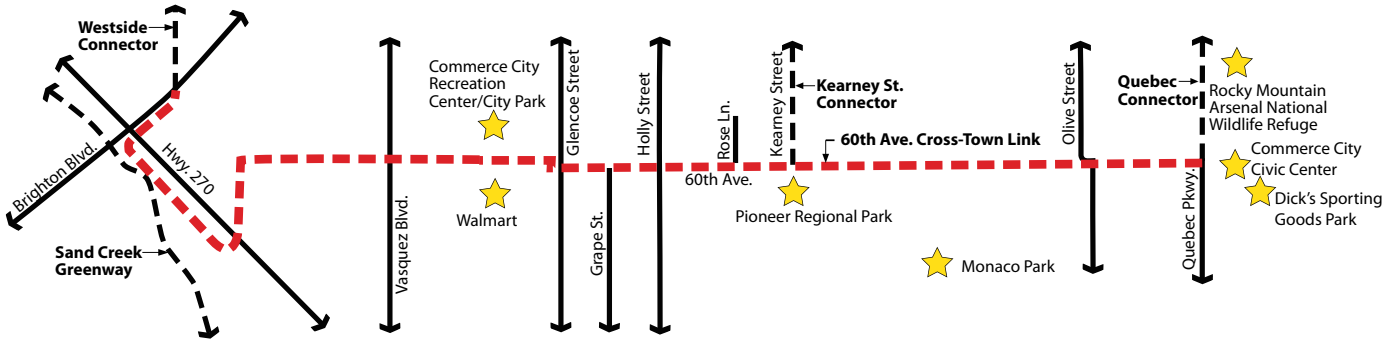
Improvement Type: Shared-use side path combined with *complete street* with a mix of on-street bike lanes, sidewalks, and off-street trails in places.

Description: This route envisions 60th Avenue as a *complete street* and a *bicycle boulevard*. The goal is to be able to safely and comfortably walk or bike the entire length of 60th Avenue from Dick's Sporting Goods Park on Victory Way to the Sand Creek Greenway at Brighton Boulevard.

The Corridor Includes:

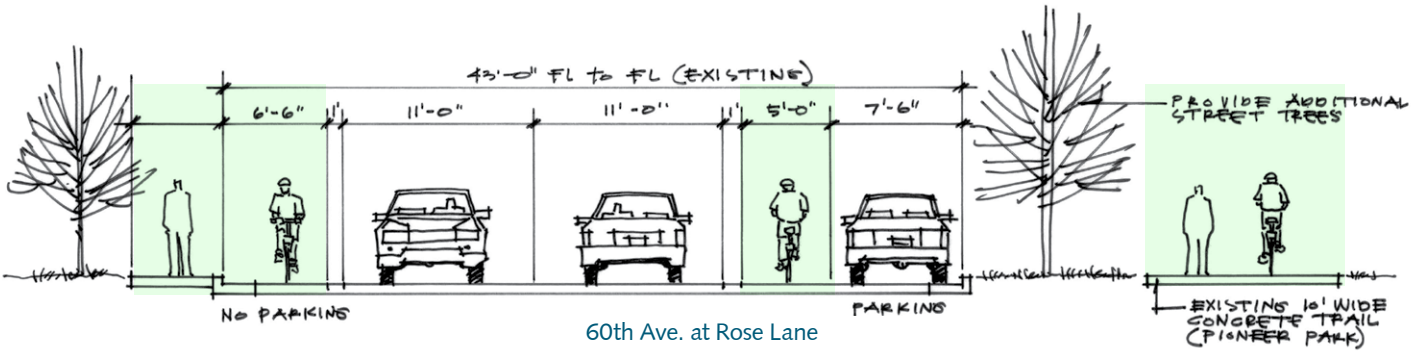
- **An Improvement of 60th Avenue from the Sand Creek Trail at Brighton Boulevard to Vasquez to better accommodate pedestrians and bicycles (This may involve share-the-road signage and sharrows).**
- **An Improvement of the pedestrian crossing at Vasquez and 60th Ave. to better accommodate pedestrians (This might include a center refuge island.)**
- **A new segment of shared use side path from Walmart to Glencoe Street.**
- **A Bike Boulevard from Glencoe to Quebec Pkwy with modifications to the street.**
- **Traffic-calming.**
- **Intersection improvements to favor bikes and pedestrians.**
- **Improvements to the pedestrian crossing at Walmart including a center island, a sharks tooth stop line for better visibility of pedestrians.**
- **Areas along the corridor where parking may need to be removed.**
- **An improved continuous quality sidewalk is recommended for the entire length of the corridor.**
- **Areas that may require replacement of existing conventional driveway cuts with shorter (1.5') mountable curb driveway "ramps" per City standards could facilitate smoother sidewalks that are more pleasant and conducive to walking.**

Benefit or Catalytic Attribute: Forms a major east/ west spine across the south central portion of the Historic City linking key shopping and recreation destinations. Also links to the Sand Creek Trail, major employment centers at the refineries at Brighton Road and to other destinations to the west. The corridor is highly visible and readily accessible from significant residential areas. This project connects many other destination points including Dick's Sporting Goods Park, Rocky Mountain Arsenal National Wildlife Refuge, Civic Center, Pioneer Park, and Walmart. It is only a block from Monaco Park and the Commerce City Recreation Center.

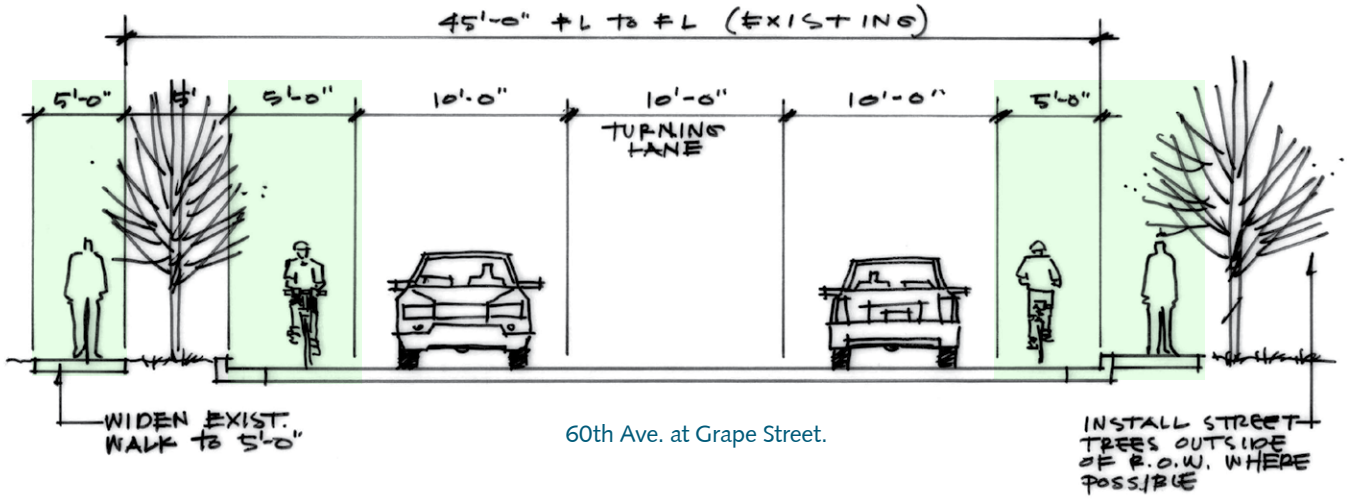


Conventional Bike Lane with Parking

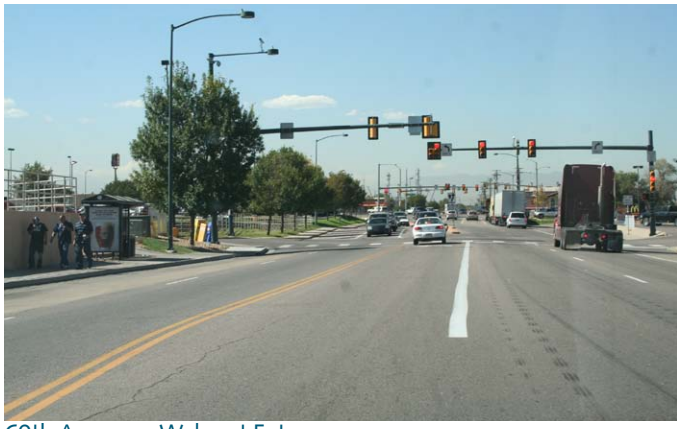
Example of a Bike Lane with Parking



60th Ave. at Rose Lane



60th Ave. at Grape Street.



60th Ave. near Walmart Entry

Existing Trail Along Pioneer Park

60th Ave. East of Monaco St.

Existing Traffic Calming at 60th Ave. Near Quebec Pkwy

2. TOWN CENTER GREENWAY (SAND CREEK TRAIL AT DAHLIA TRAILHEAD TO FAIRFAX PARK)

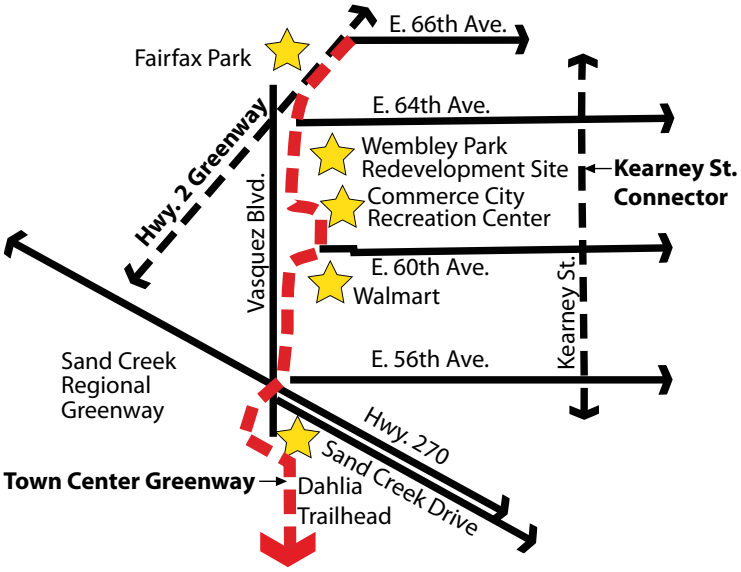
Improvement Type: Off-street multi-use trail.

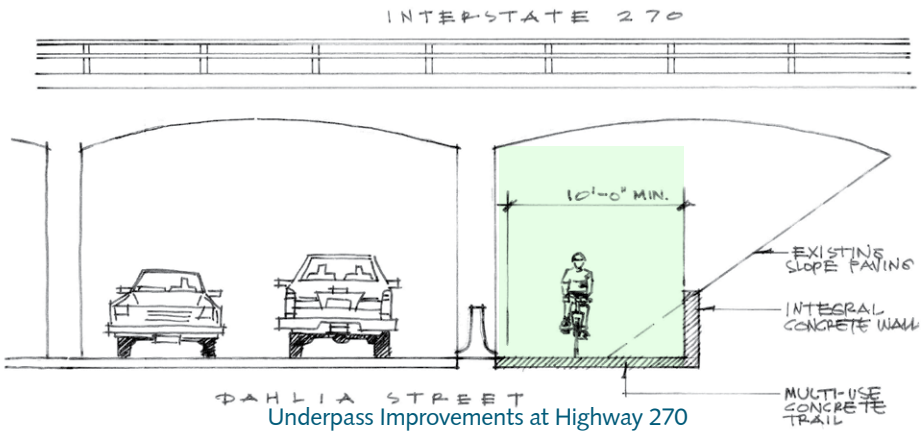
Description: Concrete pedestrian bike path in a landscaped corridor with street trees and wayfinding. This trail links the Sand Creek trail to the Walmart/Recreation Center activity area, to the King Soopers Shopping Center at E. 62nd Ave. and to Fairfax Park. This trail also forms part of a loop via Holly Street and E. 67th Avenue.

This Corridor Includes:

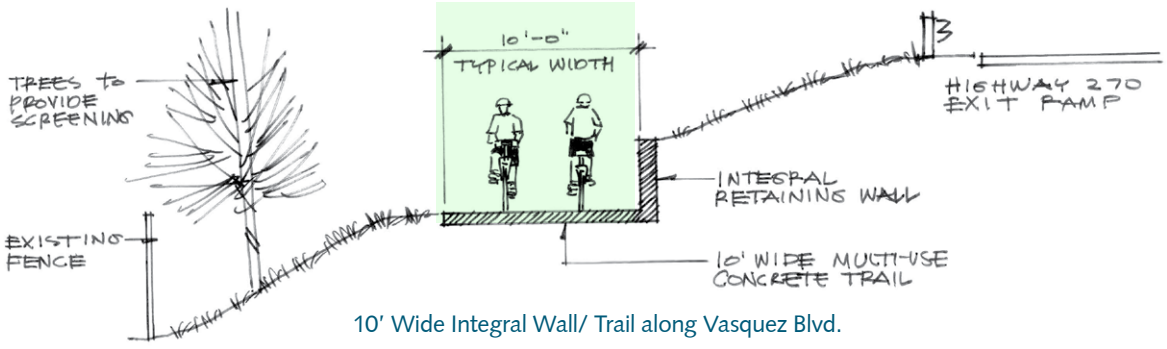
- **An enhanced pedestrian crossing of Sand Creek Drive at the Dahlia Trailhead.**
- **An improved bike/pedestrian passageway under Highway 270 at Dahlia.**
- **A paved hike/bike path in the median between Dahlia and Vasquez.**
- **Improvements to integrate the trail with the existing streets and commercial development in the vicinity of Walmart and the Commerce City Recreation Center.**
- **Paved hike/bike trail improvements utilizing vacant space and road right of way adjacent to Hwy. 2 linking the Recreation Center area to 66th Avenue.**

Benefit or Catalytic Attribute: Provides a north/south spine linking key destinations in the west central area of the *Historic City*. Provides access to key shopping and employment areas, restaurants, recreational and civic destinations. Connects neighborhoods to the existing Sand Creek Regional Greenway.





Underpass Improvements at Highway 270



10' Wide Integral Wall/ Trail along Vasquez Blvd.

Dahlia Trailhead at Sand Creek

Highway 270 Underpass

Highway R.O.W. along Vasquez Blvd.

Frontage Road West of *Walmart*

Frontage Road near 60th Ave.

Route near King Soopers

Frontage Road near Wembley Park Redevelopment Site

Existing Railroad Underpass to Fairfax Park

3. 72ND AVE. CONNECTOR (QUEBEC TO FUTURE LIGHT RAIL STATION AT 72ND NEAR COLORADO BOULEVARD)

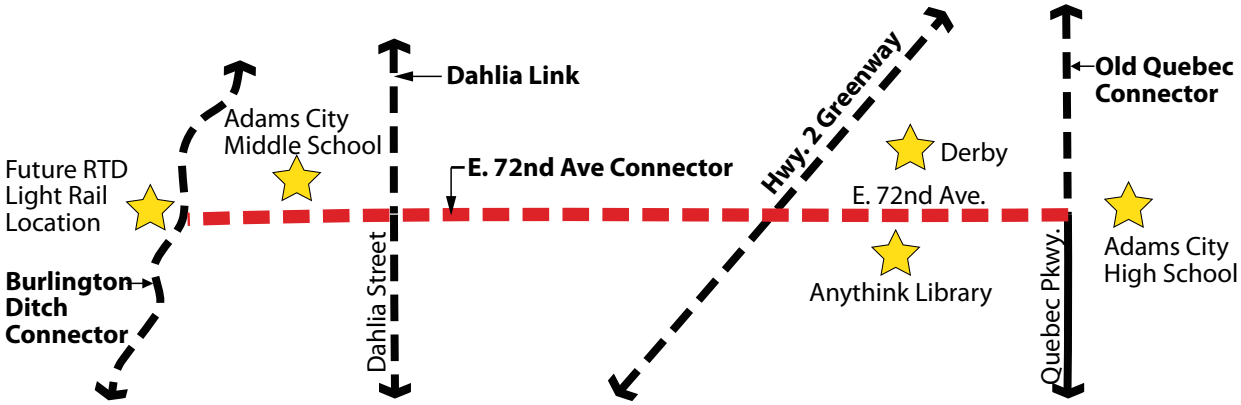
Improvement Type: *Complete Street* with bike lanes and sidewalk improvements.

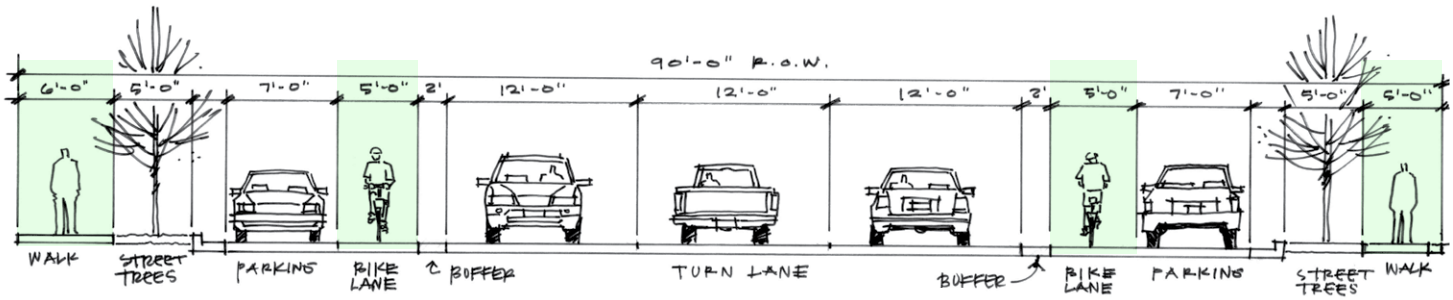
Description: Per earlier Commerce City studies and plans, 72nd Avenue would be transformed into a complete street by converting the present four lanes between Quebec and Hwy. 85 to three lanes and upgrading the street to add bike lanes and sidewalks from Hwy. 85 to the future light rail station at Colorado Blvd.

This Corridor Includes:

- **Pedestrian crossing improvements at Quebec, Hwy. 2 and Hwy. 85 to make those crossings safer and more pleasant for bicyclists and pedestrians to use. Right-of-way will need to be acquired in places to accommodate the improvements.**

Benefit or Catalytic Attribute:
This would become a key east/west spine and demonstrate a more pedestrian-friendly commercial corridor in serving the northerly portion of the *Historic City*. It will also close significant gaps in the *active travel* network. This corridor would link to several other major trails including the Rocky Mountain Arsenal National Wildlife Refuge perimeter trail, the proposed Hwy 2. Trail the Burlington Ditch Trail and the Platte River Greenway Trail via the Burlington Ditch route. It will also benefit business and economic development in this largely commercial corridor.





72nd Ave.

72nd Ave. at Colorado Blvd.

RTD Park-N-Ride on 72nd Ave.

Anythink Library of the Rangeview Library District at 72nd Ave. and Monaco St.

72nd Ave. At Ivy Street

Pedestrians at Monaco Street and East 72nd Place

Adams City High School

4. 56TH AVE. "BIKE ARTERIAL" (DAHLIA TO QUEBEC)

Improvement Type: Buffered bike lanes.

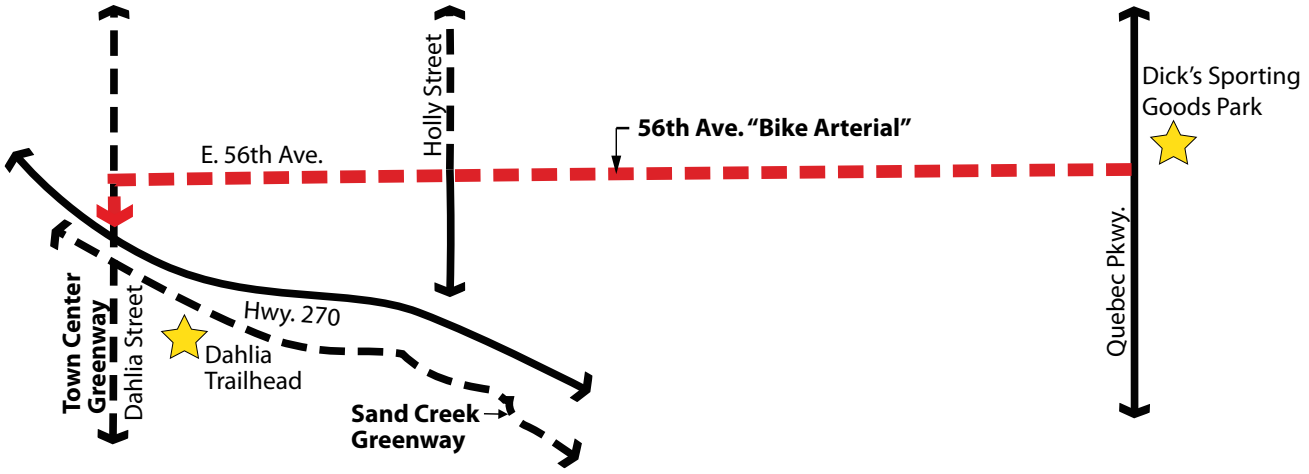
Description: This corridor follows East 56th Avenue from Dahlia Street to Quebec Parkway providing links to places of employment and a connection to the Dahlia Trailhead and Dick's Sporting Goods Park.

Example of Buffered Bike Lanes

This Corridor Includes:

- **Provide enhanced buffered bike lanes per NACTO recommendations. (See examples on this page and in Chapter 3.)**
- **This corridor would primarily serve bike commuters but may also accommodate recreational use especially on weekends when traffic volumes are lower.**
- **There may also be opportunities to widen the sidewalk on the north side of the street—particularly between Holly and Quebec to facilitate better employee access to businesses along 56th Avenue.**

Benefit or Catalytic Attribute: Demonstrates enhanced buffered bike lanes that are state-of-the-art per NACTO guidelines.



One-Way Buffered Bike Lane


Example of Buffered Bike Lanes

56th Ave. at Quebec Parkway

56th Ave. Looking East towards Dick's Sporting Goods Park

56th Ave. Near Olive Street Looking West

56th Ave. at Niagra Street Looking West

56th Ave. at Fairfax Street Looking West

56th Ave. at Monaco Street Looking West

5. 64TH AVE. CONNECTOR (HWY. 2 TO VICTORY CROSSING)

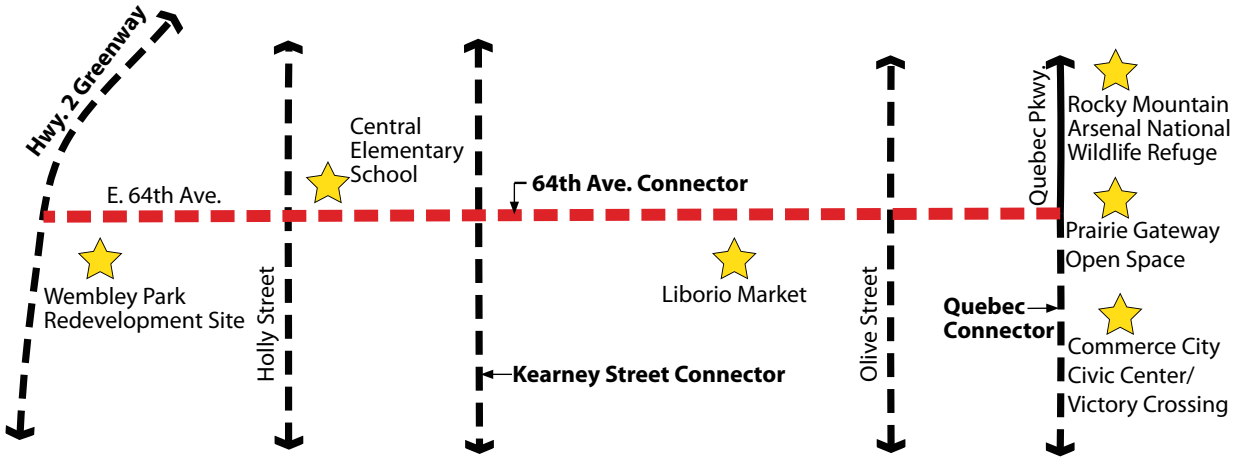
Improvement Type: Combination of paved shared-use side path and on-street bike facilities.

Description: Follows the 64th Avenue Corridor linking the Hwy. 2 Greenway to the Quebec Connector Trail and Rocky Mountain Arsenal National Wildlife Refuge Perimeter Trail.

This Corridor Includes:

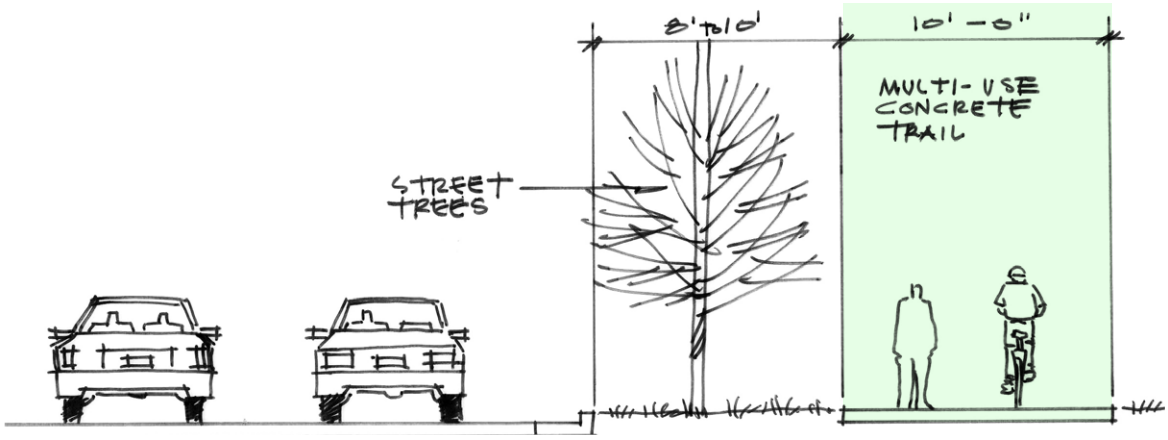
- **A segment from Hwy. 2 that will consist of a paved shared-use side path (along the north edge of the Wembley Park redevelopment site) from Hwy. 2 to Holly Street.**
- **A segment from Holly Street to Quebec Parkway that will be a combination of complete street and on-street bicycle improvements that will help facilitate active travel. From Holly Street to Quebec Parkway narrow the traffic lane to 10'-11' wide. Widen sidewalk (5'-6' wide) along the south side of street attached.**

Benefit or Catalytic Attribute: This route will serve an important commercial corridor and also provide residents access to key destinations including the King Soopers located near the west end of the corridor and the Liborio Market area near Kearney Street. It will also enhance redevelopment opportunities on the Wembley Park redevelopment site.



Conventional Bike Lane with Parking

Examples of On-Street Bike Lanes



Shared Use Side Path

64th Ave. near Olive Street

Liborio Market

64th Ave. near Kearney Street

64th Ave. near Holly St.

64th Ave. near Wembley Park Redevelopment Site Looking East

64th Ave. near Wembley Park Redevelopment Site Looking West

6. 66TH PLACE CONNECTOR (FAIRFAX PARK TO QUEBEC PARKWAY)

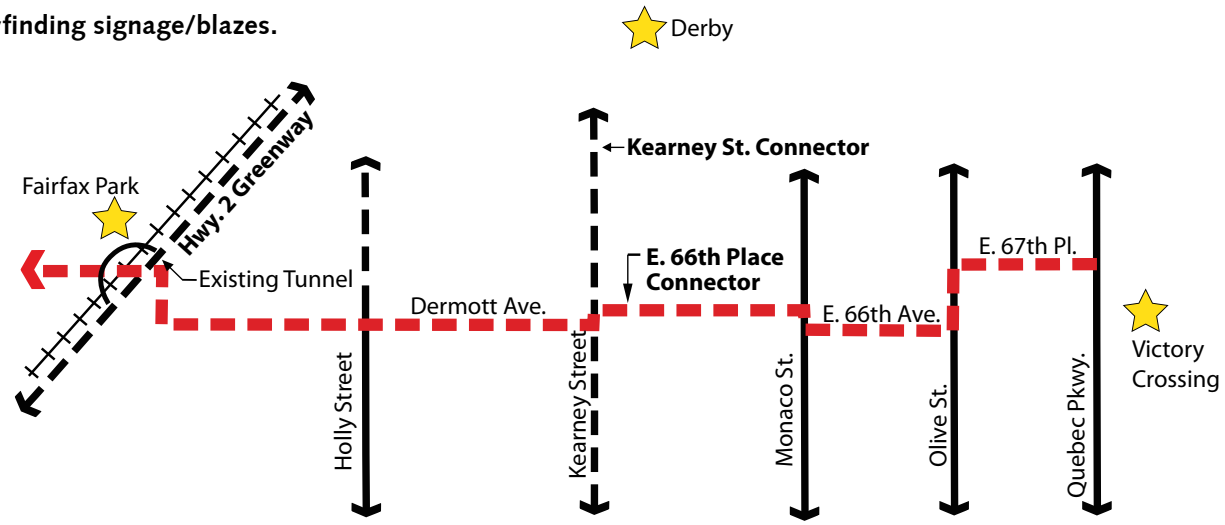
Improvement Type: On-street biking.

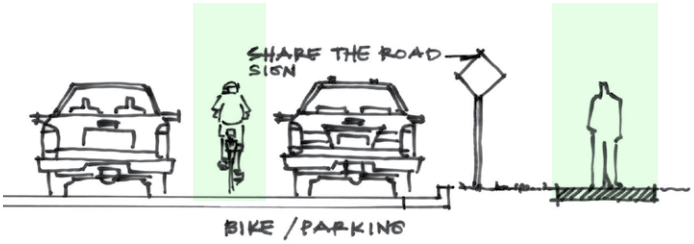
Description: An on-street corridor using low-traffic low volume streets primarily following 66th Place and Dermott Avenues from Fairfax Park at Hwy. 2 to Victory Crossing at Quebec.

This Corridor Includes:

- **Existing tunnel under railroad and Hwy. 2 pedestrian crossing.**
- **On-street bike travel facilitated by share the road signage, sharrows in heavier traffic areas.**
- **Wayfinding signage/blazes.**

Benefit or Catalytic Attribute: Forms another cross-town park-to-park *active travel* link and another crossing of the major barrier posed by Hwy. 2 and the railroad. May want to revisit existing Hwy. 2 crossing to see if functioning adequately. Consider adding a HAWK signal there.





Conceptual Cross Section
Shared Use Travel With Parking

Example of Shared Roadway with Sharrows

Dermott Street near Holly Street

66th Ave. near Olive Street

7. KEARNEY STREET CONNECTOR (HWY 2 TO MONACO PARK)

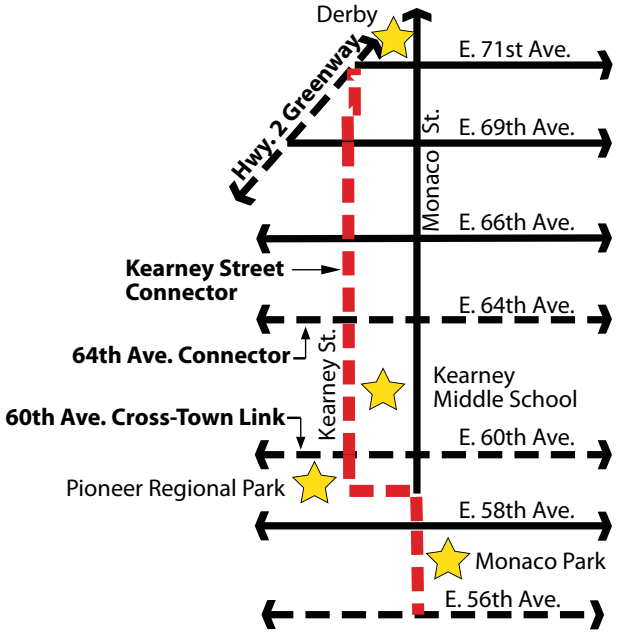
Improvement Type: Shared-use side path combined with *complete street* with a mix of on-street bike lanes, sidewalks, and off-street trails in places.

Description: Primarily follows Kearney Street from Hwy. 2 and 71st Avenue to Pioneer Park at 60th Avenue and Monaco St. (Short portion along 58th Avenue from Kearney alignment to Monaco Park.

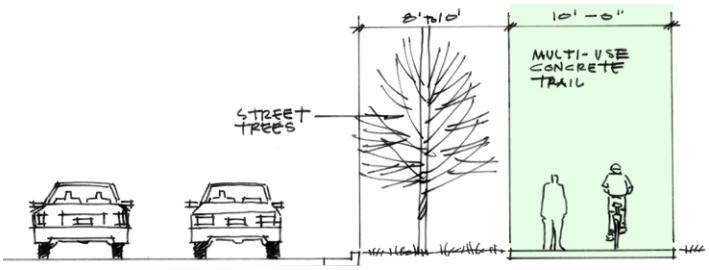
This Corridor Includes:

- **A segment along Kearney Street consisting of complete street and bicycle boulevard improvements.**
- **A segment passing through the center of Pioneer Park possibly following a drainage easement to 58th Avenue on a paved shared-use path.**
- **A segment at 58th Avenue that runs on a paved shared-use side path along the north side of 58th Avenue to Monaco Park where it runs the length of Monaco Park to link to the proposed 56th Avenue bike corridor.**
- **A reccomendation for pedestrian crossing and intersection improvements at 70th Avenue and Kearney Street, 60th Avenue and Kearney and at 56th Avenue and Monaco Street.**

Benefit or Catalytic Attribute: This will become a major north/south *active travel* arterial connecting parks, neighborhoods and other major "*active travel* arterials" in the *Historic City*. This corridor also provides connectivity to the Kearney Middle School, the Liborio Market District and employment areas along 56th and 58th Avenues.



Example of Shared Roadway with Sharrows



Shared Use Side Path

Kearney Street near School Crossing

Kearney Street Corridor Continues Through Pioneer Park

8. FERNALD TO REFUGE CONNECTOR (VIA 70TH AND 69TH AVE.)

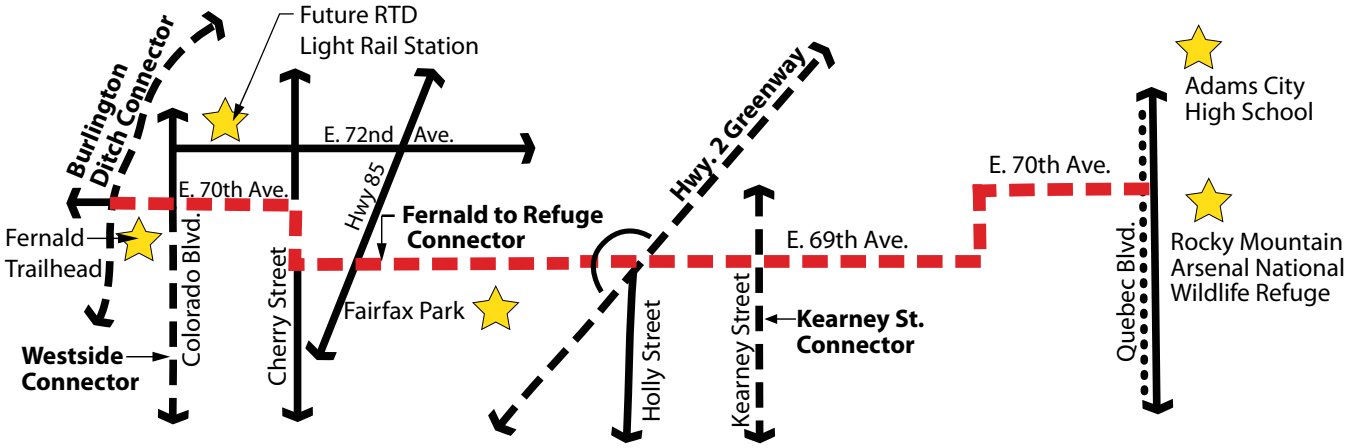
Improvement Type: On-Street share the road corridor for bikes.

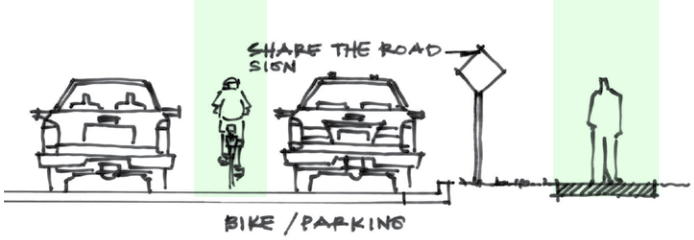
Description: This route follows low traffic volume/ low-speed existing streets from the Fernald Trailhead at 70th Avenue and Colorado to the Rocky Mountain Arsenal National Wildlife Refuge. It will also access the planned RTD 72nd Avenue Light Rail Station to be located at 72nd and Colorado Boulevard.

This Corridor Includes:

- **An enhanced crossing of Hwy. 2.**
- **A tunnel under the railroad crossing that currently is an impenetrable barrier.**
- **Wayfinding.**
- **Share-the-road signs.**
- **Sharrows and other minor improvements to create a safe, pleasant bicycling corridor.**
- **An improved pedestrian crossing of Hwy 85/Vasquez Boulevard.**

Benefit or Catalytic Attribute: Provides a major cross town link through the central portion of the *Historic City* connecting major regional trail systems at the Platte River and the Rocky Mountain Arsenal National Wildlife Refuge. Demonstrates a relatively low cost adaptation of an existing street system using signage and pavement painting. Also traverses a major barrier (Hwy. 2 and the railroad) connecting major residential areas and popular routes of pedestrian travel as evidenced by existing well-worn paths that dangerously cross the railroad tracks.





Conceptual Cross Section
Shared Use Travel With Parking

Example of Share the Road with Sharrows

Fernald Trailhead

70th Ave. at Colorado Blvd.

70th Ave. Looking East From Colorado Blvd.

69th Ave. Looking East Near Fairfax Park

70th Ave. and Poplar Street.

Existing Rocky Mountain Arsenal National Wildlife Refuge Perimeter Trail

9. CLEAR CREEK TO DERBY TO REFUGE CONNECTOR (CLEAR CREEK TRAIL TO QUEBEC PARKWAY)

Improvement Type: Paved shared-use path and on-street biking.

Description: This corridor generally follows the I-76 service road to Dahlia traversing the historic city along 77th and 76th Avenues to Quebec Parkway.

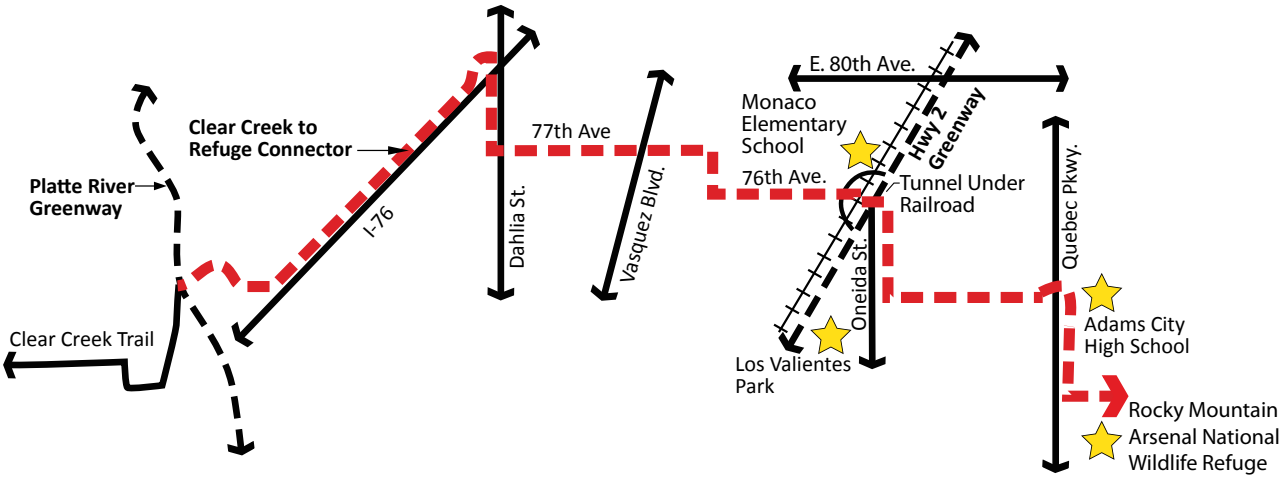
This Corridor Includes:

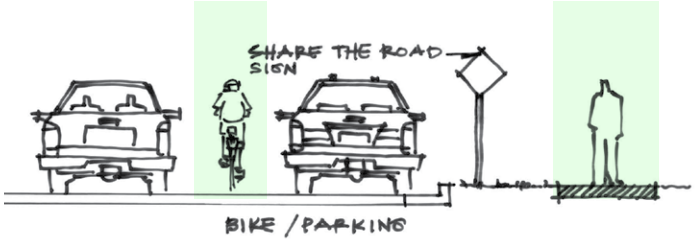
- **A paved shared use trail linking the Platte and Clear Creek trails at the Confluence and Engineer Lake Park and alongside the I-76 service road to Dahlia.**
- **A segment crossing I-76 using Dahlia viaduct. (Existing viaducts over I-76 and the Burlington Ditch will need upgrades—possibly using a painted bike lane or bicycle track with bike safety signage in the interim).**
- **Possible separate pedestrian spans which would provide better crossings of the highway and ditch along Dahlia Street.**
- **A segment that follows local low volume, low speed streets with share the road and wayfinding signage along 77th and 76th Avenues and 75th Place.**
- **A tunnel under railroad and improved pedestrian-friendly crossings of Hwy. 2 and Vazquez/Hwy. 85.**

Benefit or Catalytic Attribute: Provides access to both the Platte River Greenway and Clear Creek Trails and links to the future RTD Light Rail at 72nd and Colorado.

Example of Share the Road with Sharrows

Example of Buffered Bike Lane





Conceptual Cross Section
Shared Use Travel With Parking

Example of Shared Roadway with Sharrows

Platte River Greenway

Platte River Greenway

I-76 Frontage Road

Bike Safety Training at Monaco Elementary School

72nd Ave.Near Olive

Rocky Mountain Arsenal National Wildlife Refuge Perimeter Trail

10. "OLD" QUEBEC CONNECTOR (HWY. 2 TO 72ND AVE.)

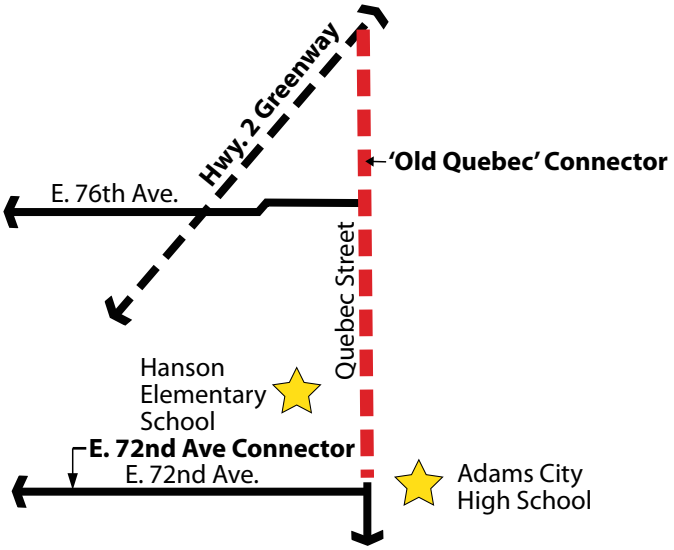
Improvement Type: "Living Street" (In tradition of the Dutch "Woonerfs" with activity in the street such as basketball, etc.)

Description: This corridor follows the "Old" Quebec Street between East 72nd Avenue to Highway 2.

This Corridor Includes:

- **Converting a very low traffic street into an *active travel* corridor and multi-use space. This could be accomplished using paint, signage, street furnishing and other improvements working with the neighborhood to develop a plan.**
- **A 10'-wide paved shared-use path between 72nd and 73rd along the east side of Old Ouebec connecting to the existing tunnel path for better connectivity to the high school.**

Benefit or Catalytic Attribute: Enhances opportunities for biking, walking, play and other activities along a very low traffic volume street. This corridor provides an easy-to-implement *active travel* link between the busy Hwy. 2 corridor and Quebec including connecting to Adams City High School. Could also provide a model for other potential "living streets" in Commerce City.



Quebec Street Looking North from 64th Ave.

Two-Way Buffered Bike Lane

Example of Two-Way Bike Lanes

11. HWY. 2 GREENWAY (60TH AVE. TO E-470

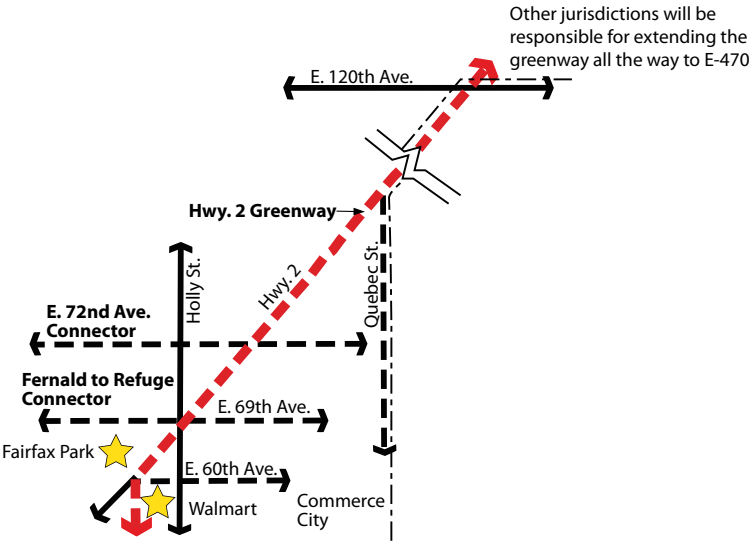
Improvement Type: A combination of shared-use side paths, landscaped parkways, and pedestrian crossings. Initially designating buffered bike lanes with paint striping could establish better bicycle (and pedestrian by buffering sidewalks from traffic) connectivity.

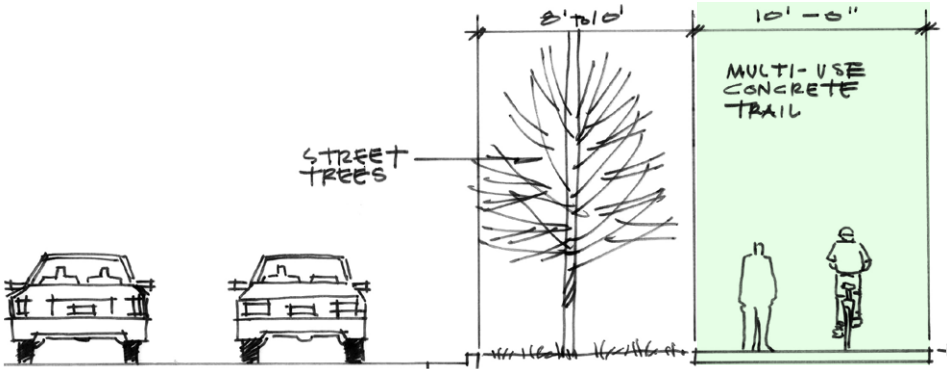
Description: This corridor follows the existing Highway 2 from approximately 60th Avenue to East 120th Avenue.

This Corridor Includes:

- **Converting Hwy. 2 to a three-lane arterial allowing for a shared use paved side path, sidewalk, parkway and other pedestrian and bike enhancements.**
- **An enhanced corridor with street trees and landscaping.**
- **Improved major pedestrian crossings for a safer/ more pleasant experience.**
- **New pedestrian underpasses beneath the railroad at key points with associated pedestrian crossings of Hwy. 2.**
- **Enhanced and extended landscaping to buffer the railroad along the length of the corridor.**

Benefit or Catalytic Attribute: This would become Commerce City's new *Main Street* demonstrating a major *Complete Street* and a primarily *active travel* link uniting the *Historic City* with the newer neighborhoods to the north and northeast.





Shared Use Side Path

Highway 2 at 76th Ave.

Highway 2 near 80th Ave.

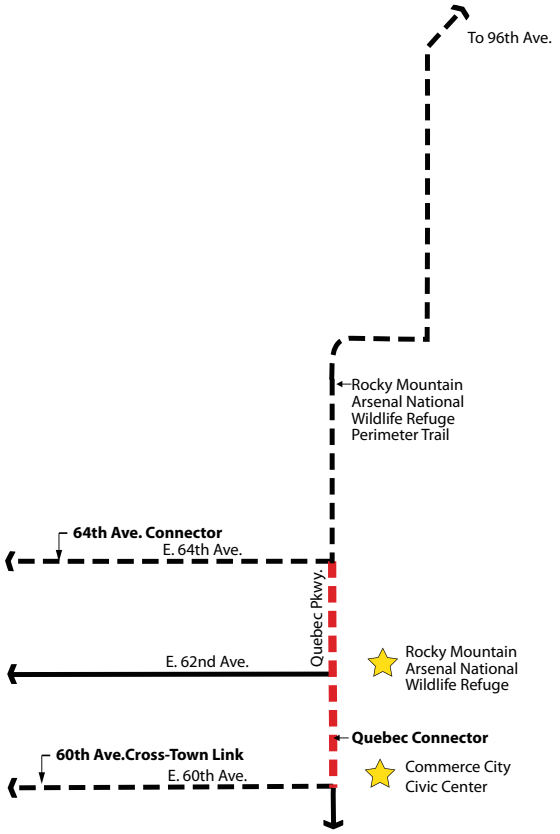
12. QUEBEC CONNECTOR (60TH TO 64TH AVE. AND UPGRADE REFUGE PERIMETER PATH FROM 64TH TO 96TH AVE.)

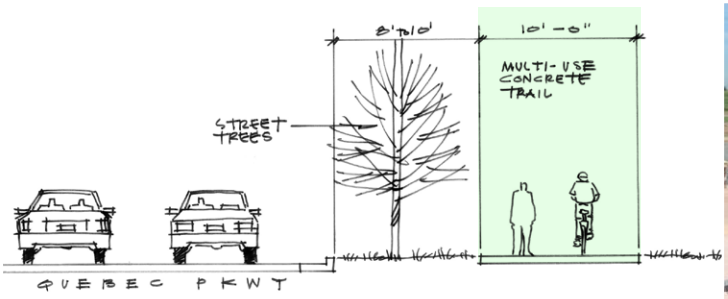
Improvement Type: Paved shared-use side path.

This Corridor Includes:

- **Closing a gap in the existing paved shared-use path along the east side of Quebec Parkway between 64th and 60th Avenues.**
- **Upgrading the asphalt millings trail to concrete along the northwest corner of the Rocky Mountain Arsenal National Wildlife Refuge (also adjacent to Hwy. 2) between 72nd Avenue and 96th Avenue.**

Benefit or Catalytic Attribute: These relatively short segments of new and upgraded trail will result in a continuous high quality shared-use pathway along the length of Quebec Parkway from 60th Avenue to Hwy. 2. This also provides better connectivity to the Prairie Gateway Trail. This will also link to the Central Parkway Boulevard Trail that connects to Stapleton forming a continuous high quality trail from the newly developing northern range neighborhoods to Stapleton.





10' Wide Concrete Shared Use Path

Prairie Gateway

Missing Trail Section North of Prairie Gateway

Rocky Mountain Arsenal National Wildlife Refuge Perimeter Trail

13. 88TH AVE. CROSS TOWN LINK (RTD LIGHT RAIL TO QUEBEC)

Improvement Type: Paved shared-use side path and *complete street.*

Description: Consists of *Complete Street* improvements along 88th Avenue between Highway 2/Quebec Boulevard and the RTD Light Rail Station West of the Platte River Greenway.

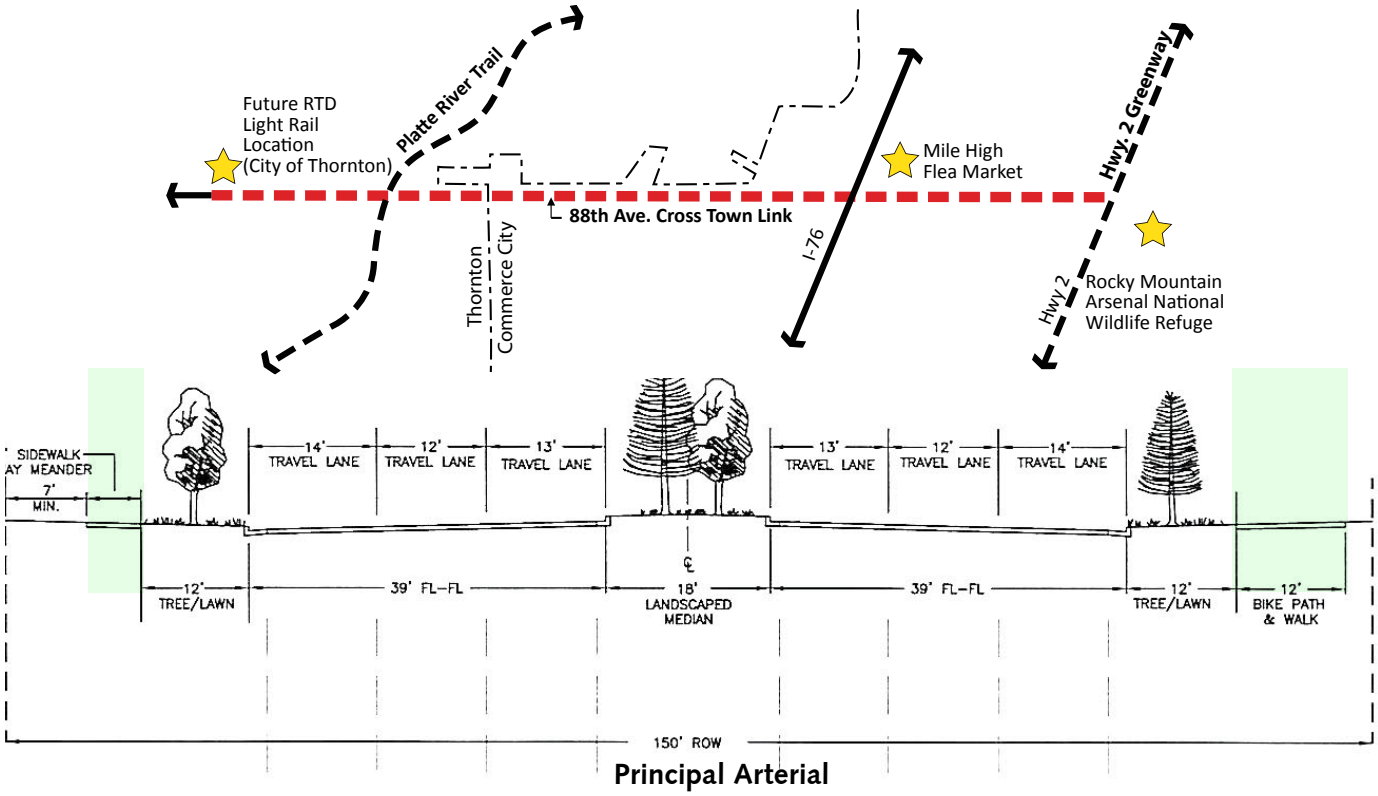
This Corridor Includes:

- **A paved shared-use side path.**
- **Side walk and pedestrian-friendly intersection treatments at all major crossings.**
- **Interim striping for bicycle use. (This may be appropriate subject to an engineering evaluation of the existing road in conjunction with City of Thornton. This is a longer term improvement when 88th Avenue is upgraded in the future.)**

Benefit or Catalytic Attribute: This will be an important community *active travel* connector linking major residential areas to the RTD Light Rail station. Will also be a major connector to the Platte River Greenway Trail and Adams County Open Space Parks (including Platte River Trailhead Park) along the river. Also connects to the Mile High Flea Market.

88th Ave. near Hwy 2 Looking West

88th Ave. near Hwy 76 Looking West



Principal Arterial

14. CENTRAL PARK BOULEVARD CONNECTOR (60TH AVENUE AT DICK'S SPORTING GOODS PARK TO NORTHFIELD, SAND CREEK TRAIL AND STAPLETON)

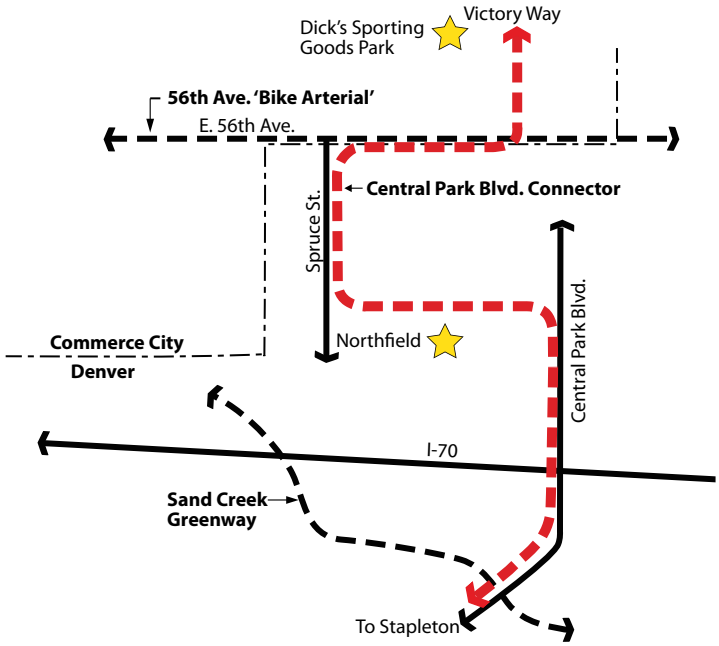
Improvement Type: Paved Off-Street Multi-Use Trail and Paved Shared Use Side Path.

Description: This route follows Spruce Street, (or other available north/south alignments) from Victory Way to link to the newly completed Central Park Boulevard crossing of I-70 and Sand Creek.

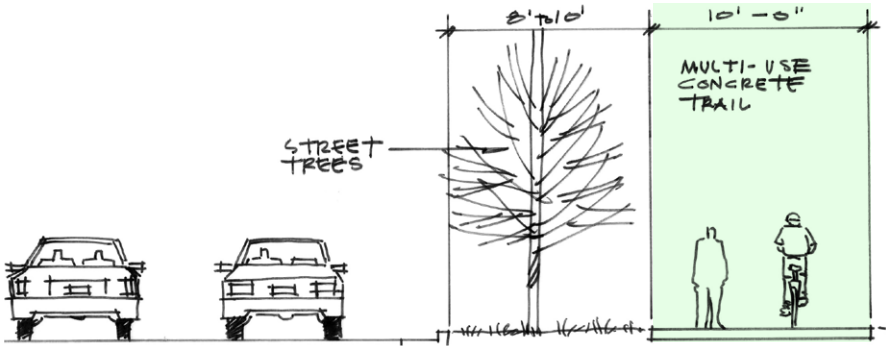
This Corridor Includes:

- **A proposed 10′ to 12′-wide concrete trail is recommended with associated landscaping.**

Benefit or Catalytic Attribute: Links major activity hubs and destinations at Victory Crossing, Dick's Sporting Goods Park, Northfield and Stapleton. This could be an attractive new major trail corridor accessing parks, trails greenways, employment centers and neighborhoods in both Commerce City and Denver. This trail would also provide a convenient, pleasant route to the Anschutz Medical Complex, a major regional employment and health center.



Note: This project extends beyond the City limits and will need to be coordinated with other jurisdictions.



Shared Use Side Path

Central Park Blvd. at 46th Ave.

56th Ave. and Spruce Street

15. SOUTHSIDE GREENWAY (DAHLIA TRAILHEAD TO QUEBEC AT 40TH AVENUE)

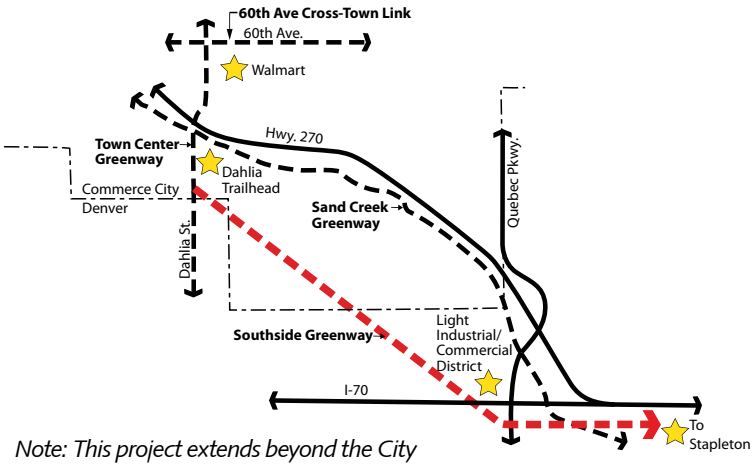
Improvement Type: Paved Off-Street Multi-Use Trail and Greenway.

Description: This corridor primarily follows an existing electrical utility and railroad corridor from Dahlia Street to Quebec Street (portions are in Denver).

This Corridor Includes:

- **Utilizing existing underpasses of I-70 and Quebec Street providing safe passage across two formidable barriers.**
- **A trail potentially following the existing Xcel utility corridor.**
- **A route along the northeast edge of a large vacant parcel that presently is an environmental remediation site. Here there might be potential for tree planting and other landscaping to make the corridor more attractive.**
- **A portion of the corridor adjacent to a locally operated railroad track and small railroad yard. There are numerous light industrial and commercial areas of employment proximate to the corridor.**

Benefit or Catalytic Attribute: This trail would provide a major direct link to a significant employment area south of Sand Creek. It would provide a major connection to the neighborhoods of northeast Denver and Stapleton as well as form a series of trail loop opportunities connecting to the Sand Creek Greenway, the proposed Town Center Greenway and the Central Park Boulevard trail system.



Note: This project extends beyond the City limits and will need to be coordinated with other jurisdictions.

Existing Railroad Spur Link

I-70 Underpass Near Quebec Street

Existing Utility Service Road

Vacant Parcel (Some Have Environmental Remedial Activities)

Nearby Places of Employment

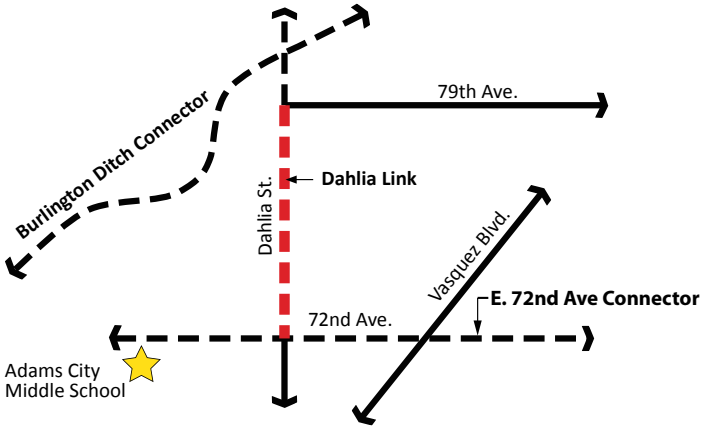
16. DAHLIA LINK (79TH TO 72ND)

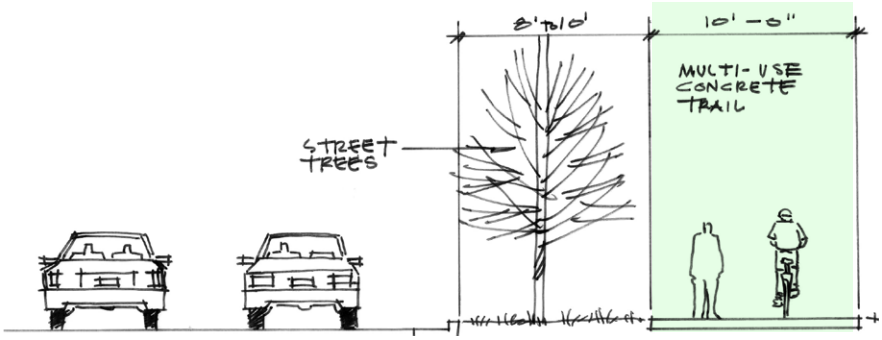
Improvement Type: Paved shared-use side path.

This Corridor Includes:

- **A 10'-wide paved side path adjacent to Dahlia between 79th and 72nd.**

Benefit or Catalytic Attribute: This closes a gap on the west side of the *Historic City* and will link proposed east/west corridors along 72nd and 79th. Accesses a number of employers in this area.





Shared -Use Side Path

Dahlia Street at 74th Ave.

Dahlia Street Near 77th Ave.

17. NORTHERN RANGE LOOP TRAIL (CHAMBERS TO PLATTE RIVER TRAIL AT SAND CREEK CONFLUENCE)

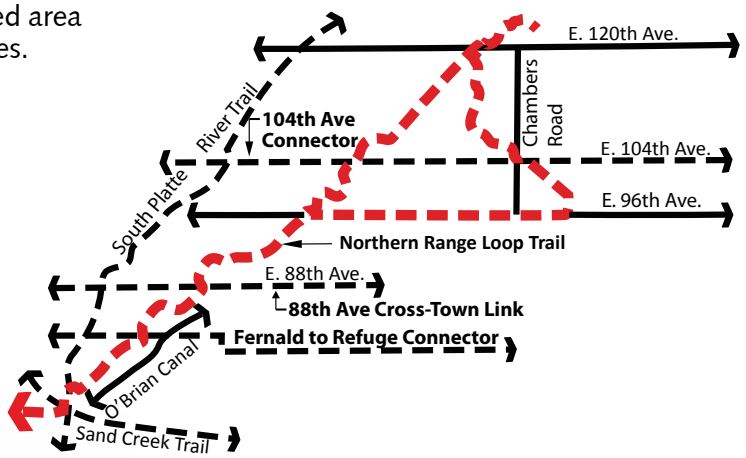
Improvement Type: Paved and crusher fine shared use trail and greenway.

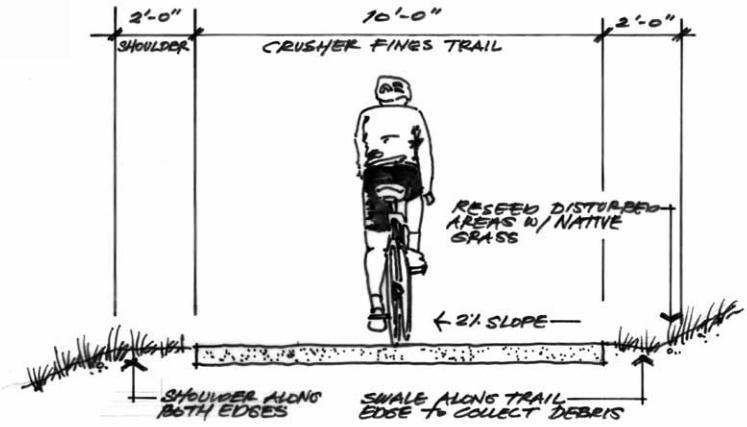
Description: This is a loop trail and linear greenway/ open space corridor that follows the O'Brian Ditch service road linking the existing Second Creek Greenway Trail near Chambers and 104th to the Rocky Mountain Arsenal National Wildlife Refuge, the Platte River and Sand Creek Trails. Segments are paved (10'-wide concrete) in the more developed area and crusher fine trail in the more remote reaches.

This Corridor Includes:

- Paved multi-used trail.
- Crusher fines trail.
- Pedestrian bridges.
- Street underpasses.
- Improved street crossings.

Benefit or Catalytic Attribute: This will be a major new greenway taking advantage of the existing irrigation ditch open space corridor and linking multiple neighborhoods and destinations with thousands of residents around the north and west periphery of Commerce City—also linking Northern Range and Historic sectors of the City.





Crusher Fines Trail Section

Example of Crusher Fines Trail

Existing Ditch Rider Road Along O'Brian Canal

Existing Ditch Rider Road Along O'Brian Canal

18. BELLE CREEK/HISTORIC CITY CONNECTOR (112TH TO 69TH)

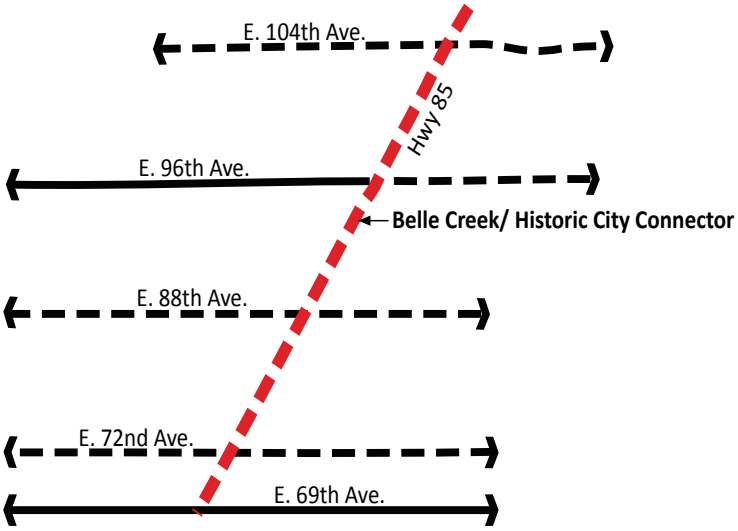
Improvement Type: Combination of 10'-wide paved shared use side path and on-street via Old Brighton Road.

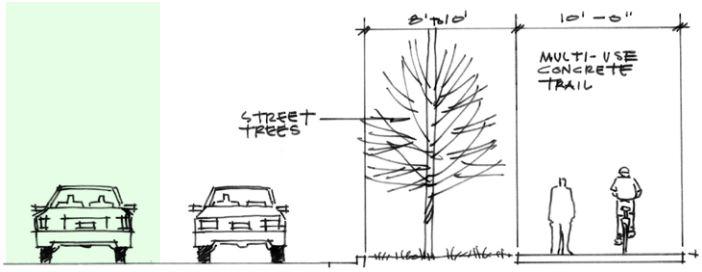
Description: Corridor runs primarily along the Hwy. 85/Vasquez corridor from 112th to the Historic City connecting the Belle Creek Town Center to the 88th Avenue corridor and to the trail networks that access the Historic City.

This Corridor Includes:

- **Segments that follow a drainage ditch near Belle Creek and along the highway service road.**
- **Segments using highway rights-of-way for a paved side path and existing low traffic low speed service roads.**
- **A better connection to Belle Creek at the existing park and drainage near 105th Avenue.**
- **An addition to the Belle Creek Connector.**
- **Improved crossings of Hwy 85 and the railroad tracks. These are best accomplished at 104th and 112th Avenues. (See 104th and 112th Avenue complete street recommendations below.)**

Benefit or Catalytic Attribute: This will be an important link giving Belle Creek residents access to the *Historic City* and other destinations along the western edge of Commerce City.





Shared -Use Side Path

Example of Shared Roadway with Sharrows

Highway 85 Near 104th Ave.

Old Brighton Frontage Road and 72nd Ave.

19. PEORIA LINK (120TH TO 96TH AVE.)

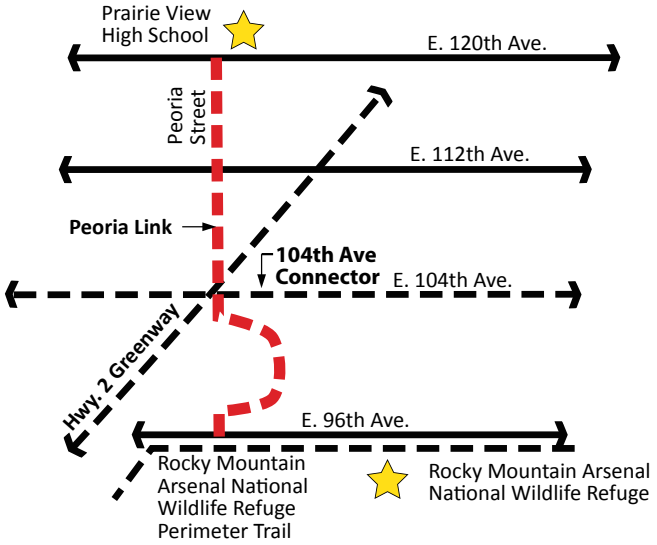
Improvement Type: Paved shared-use path and *Complete Street.*

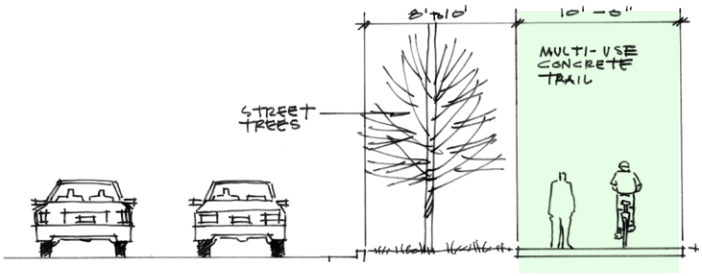
Description: A paved multi-use trail will follow the old Peoria Street right-of-way connecting to the Rocky Mountain Arsenal National Wildlife Refuge Perimeter Trail & First Creek Greenway between 104th & 96th Avenues.

This Corridor Includes:

- **Improvements from 104th to 120th Avenue. The trail will follow complete street with a shared-use sidepath, sidewalks and pedestrian-friendly crossings at major cross streets.**
- **A trail connecting to the future First Creek Trail and Greenway.**

Benefit or Catalytic Attribute: This will be a major north/south *active travel* corridor in the central portion of the newly developing Northern Range and will take advantage of the open space.





Shared -Use Side Path

Peoria Street Looking North

Peoria St. Corridor Looking South

20. 112TH AVE. CONNECTOR (PEORIA TO CHAMBERS)

Improvement Type: Paved shared-use side path and *complete street.*

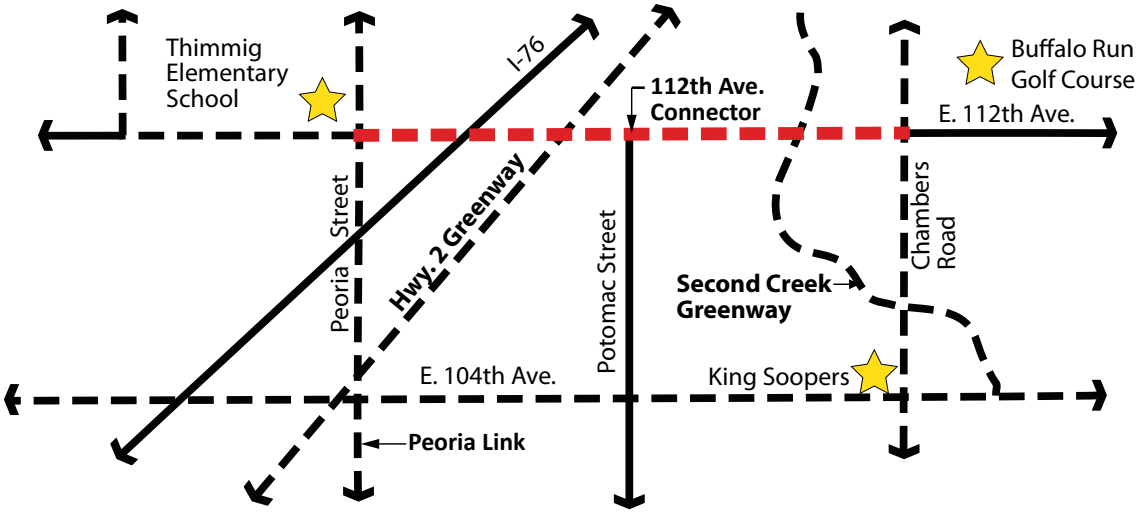
Description: Per Prairieways Action Plan and other adopted Commerce City plans and policies continues the *Complete Street* cross section along 112th through Commerce City.

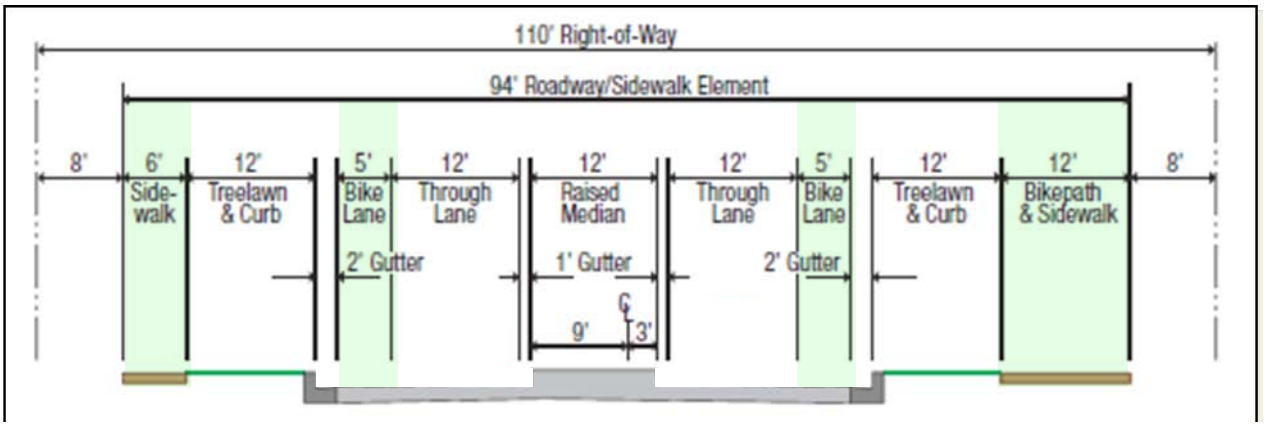
This Corridor Includes:

- **A shared-use side path.**
- **A Sidewalk.**
- **Pedestrian-friendly intersection treatments at all major street crossings.**
- **A longer term project as 112th Avenue is upgraded.**

Benefit or Catalytic Attribute: Provides a vital *active travel* link between developing communities in the Northern Range and helps tie these communities to the rest of the city-wide *active travel* grid.

112th Ave. West of Chambers Road





Multimodal Arterial Typical Cross Section

21. SECOND CREEK GREENWAY LINK (96TH AND BUCKLEY TO 56TH AND TOWER AT HIGH POINT)

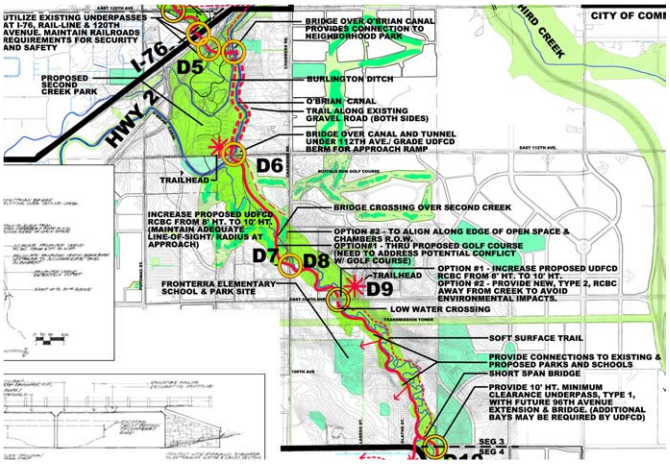
Improvement Type: Crusher fines trail and greenway.

Description: Continues the Second Creek Greenway with a trail and creekside greenway corridor to connect to the High Point development area.

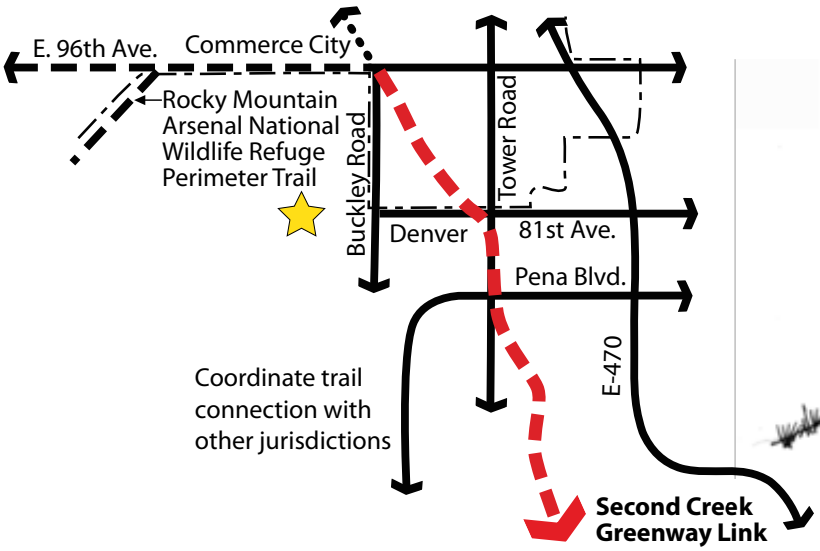
This Corridor Includes:

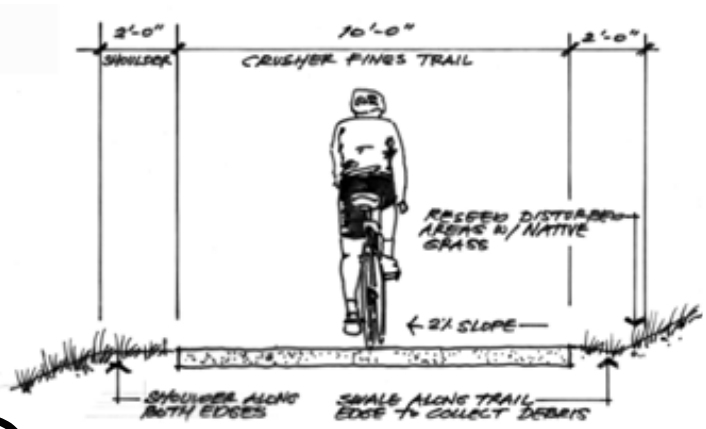
- **Underpasses or pedestrian overpasses at Pena, 56th and at Tower per the Second Creek Greenway Master Plan.**
- **Access to the future RTD transit corridor serving both DIA and Downtown Denver.**

Benefit or Catalytic Attribute: This will be an important recreational and commuter connection serving myriad users including employees who work in both the DIA and Downtown Denver hubs (via bike routes and transit).



Second Creek Greenway Master Plan





Crusher Fines Trail Section

Existing Second Creek Greenway near 104th Ave.

Existing Second Creek Greenway near 96th Ave.

22. 120TH AVE. CONNECTOR (PRAIRIEVIEW HIGH SCHOOL TO HWY 85)

Improvement Type: Paved shared-use side path and *complete street.*

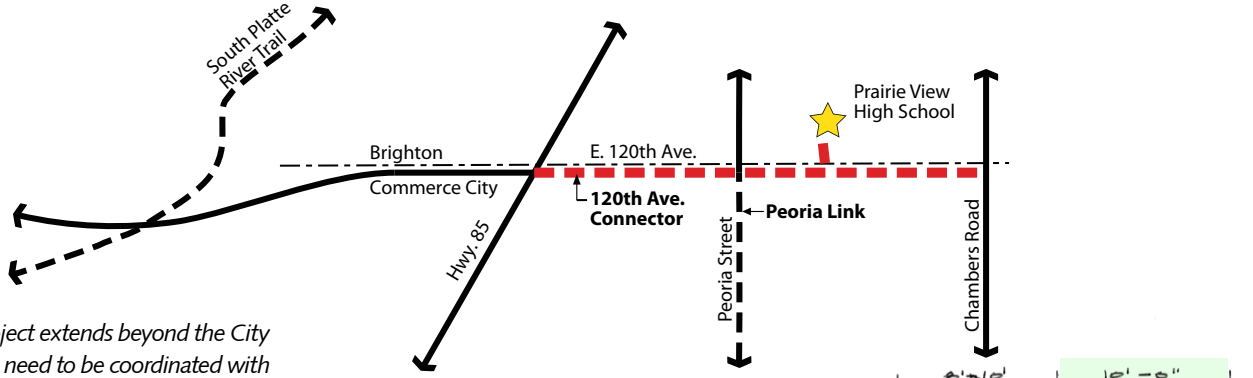
Description: This continues the *complete street* cross section per *The Prairieways Action Plan* and other adopted Commerce City plans and policies along 120th linking neighborhoods around Prairie View High School to the Platte River *Trail* and destinations in Thornton.

This Corridor Includes:

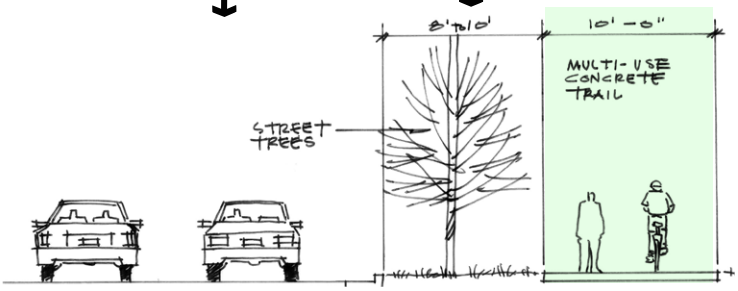
- **Existing segments of multi-use trail along 120th Avenue.**
- **A 10-wide shared-use side path on one side of the road and a sidewalk on the other.**
- **Tree medians buffer the path and walk from traffic.**
- **Pedestrian-friendly intersection treatments at all major street crossings.**
- **A connection (short term) between Oakland St. and the high school to complete a trail link to the River Run Subdivision.**
- **A walk on the south side of the street. This could be a crusher fines or asphalt side path along 120th Avenue.**

The remainder of the corridor would be a longer term project working in conjunction with Brighton and Thornton.

Benefit or Catalytic Attribute: Provides a key east-west *active travel* corridor along the northern edge of Commerce City (120th is also a principal arterial for the City of Brighton) linking to important destinations including the Platte Trail.



Note: This project extends beyond the City limits and will need to be coordinated with other jurisdictions.



Shared Use Side Path

120th Ave. at Oakland Street

Existing 10' Wide Side Path Ends at Entry to Prairie View High School

23. HAVANA LINK (HIGHWAY 85 TO 96TH AVE.)

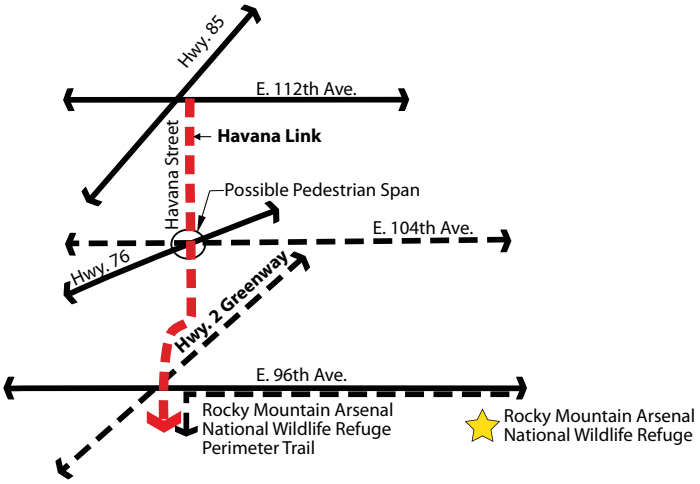
Improvement Type: Paved shared-use trail, pedestrian intersection crossing improvements and pedestrian bridge.

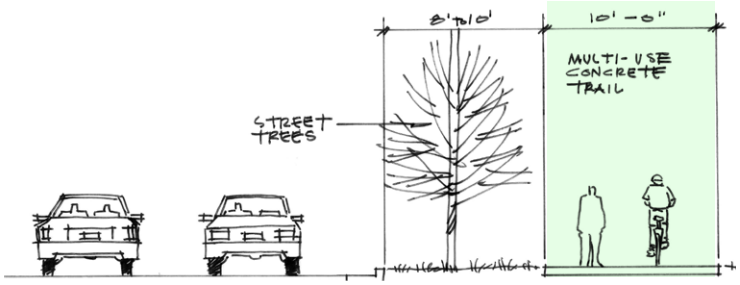
Description: This corridor follows Havana Street between 112th Avenue and Easth 96th Avenue linking the Bell Creek and River Run communities to the Rocky Mountain Arsenal National Wildlife Refuge Perimeter Trail.

This Corridor Includes:

- **A combination of paved shared-use side paths.**
- **Paved greenway trail.**
- ***Complete street* improvements along the Havana Street corridor.**
- **Includes pedestrian crossing of I-76.**
- **Pedestrian intersection crossings at key intersections including 96th, 104th and 112th.**
- **A portion of this corridor will follow and share the proposed O'Brian Ditch Trail north of 96th Avenue.**
- **Portions of this route may be longer term improvements as Havana is upgraded.**

Benefit or Catalytic Attribute: Provides a more direct and more pleasant connection linking to the Rocky Mountain Arsenal National Wildlife Refuge Perimeter Trail and the future Hwy. 2 Greenway. This would be a major connection from the newly developing Belle Creek and River Run communities to the city-wide *active travel* and trail network.





Shared Use Side Path

Havana St. North of 96th Ave.

Havana St. at First Creek Dog Park

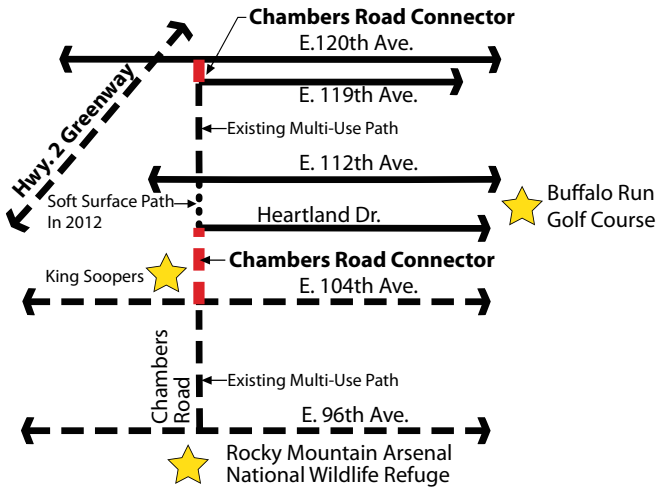
24. CHAMBERS ROAD CONNECTOR (96TH TO 121ST)

Improvement Type: Paved shared-use side path and *complete street*

Description: This continues the *complete street* cross section per Prairieways Action Plan and other adopted Commerce City plans and policies along Chambers Road from 96th to 120th .

This Corridor Includes:

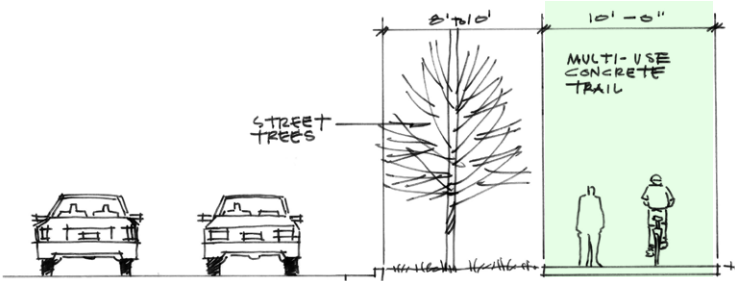
- **A 10'-wide shared-use side path on one side of road and a sidewalk on the other.**
- **Tree medians buffer the path and walk from traffic.**
- **Pedestrian-friendly intersection treatments at all major street crossings.**
- **Existing segments in place between 96th Avenue and 104th Avenue.**



Goal is to complete all the connections (complete gaps from 104th to Heartland Drive and from 120th Ave. to 119th Ave.) forming a continuous *complete street* along Chambers from 96th to 120th. This link can also be connected to the proposed Northern Range Loop Trail at 104th Avenue and 96th Avenue.

Benefit or Catalytic Attribute: Provides a key north south active travel corridor in the central part of The Northern Range development area. It will provide access to the King Soopers complex at 104th and Chambers and will connect a number of large communities including Reunion to key destinations including the Rocky Mountain Arsenal National Wildlife Refuge and the corridors to the Historic City and beyond. Also links to major cross town trails along 96th, 104th, 112th, and 120th.

Chambers Road Looking North from 104th Ave.



Shared Use Side Path

Shared Use Side Path Along Chambers Road at Heartland Street- View looking North

View looking South on Chambers Road - Missing Link Between 112th and 104th Ave.

25. 104TH AVE. CONNECTOR (PEORIA STREET TO COLORADO BOULEVARD)

Improvement Type: Paved shared-use side path and *complete street*

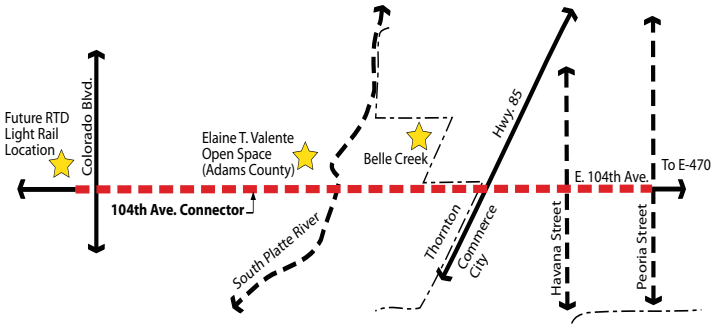
Description: This continues the *complete street* cross section per Prairieways Action Plan and other adopted Commerce City plans and policies along 104th through Commerce City and into Adams County.

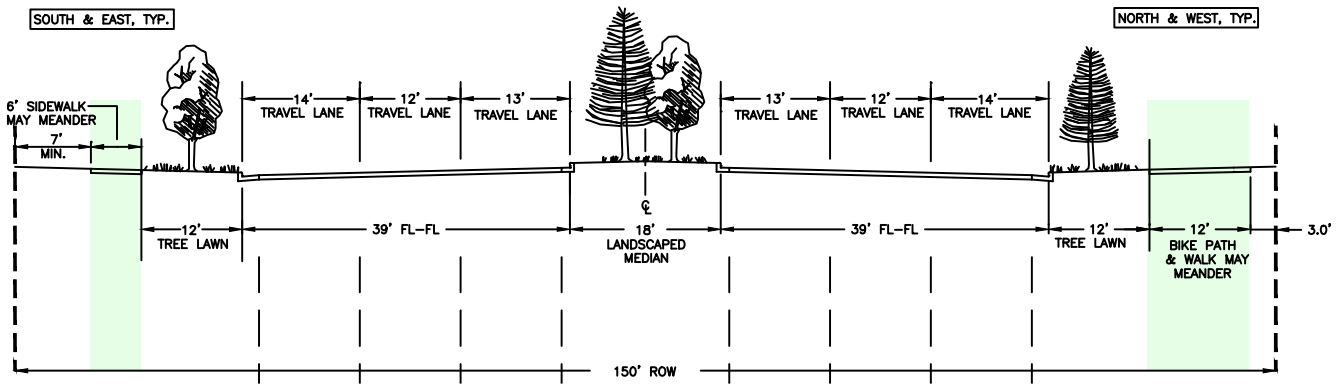
This Corridor Includes:

- **A 10-wide shared-use side path on one side road and a sidewalk on the other.**
- **Tree medians buffer the path and walk from traffic.**
- **Pedestrian-friendly intersection treatments at all major street crossings.**

While most of this corridor is outside the Commerce City limits it nonetheless connects Commerce City residents to key destinations. This should be pursued in cooperation with Adams County Open Space and the City of Thornton. It may be a longer term project in conjunction with upgrading 104th Avenue.

Benefit or Catalytic Attribute: This will be an important cross town link connecting the neighborhoods of the northern range to important destinations to the west including: Elaine T. Valente Open Space and the Platte River *Trail*, the proposed RTD Light Rail Station near Colorado Boulevard and to commercial/shopping areas in Thornton.





Principal Arterial Typical Cross Section

104th Ave. at Old Brighton Road Looking West

Existing 104th Ave. *Complete Street* at Reunion

26. WESTSIDE CONNECTOR (COLORADO BLVD. BRIGHTON BOULEVARD TO 72ND AVE.)

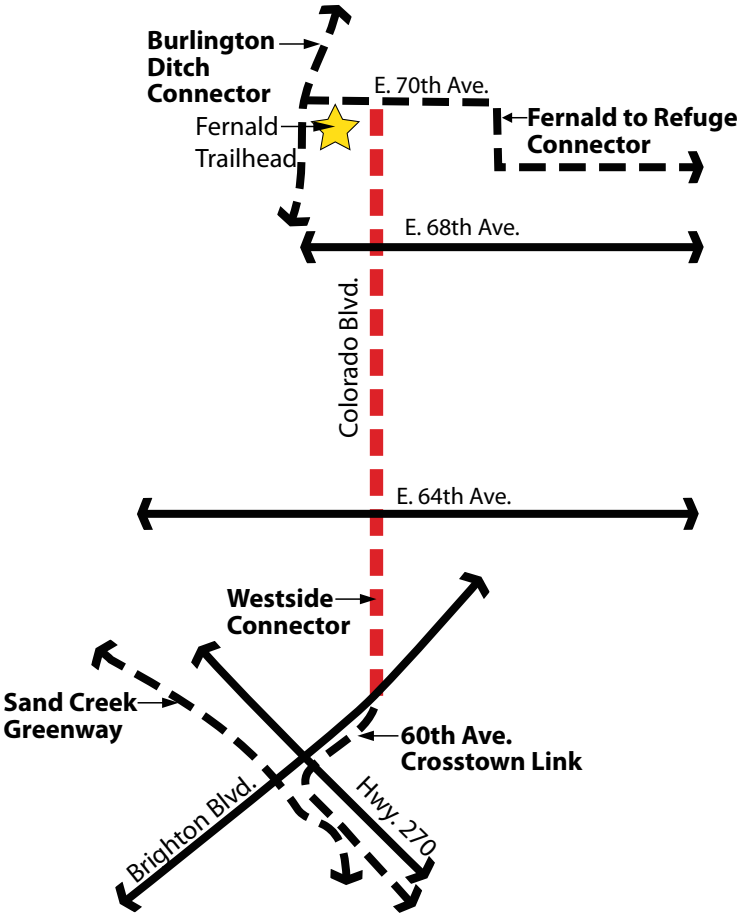
Improvement Type: Shared on-street biking corridor. (Possible future upgrade to a completed street with shared-use side path combined with complete street with a mix of on-street bike lanes, sidewalks, and off-street trails in places.)

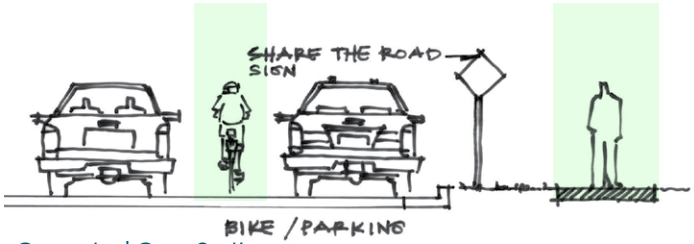
Description: Improvements include widening the travel lanes to accommodate 5'-wide bike lanes on either side along with appropriate painted bike lane delineators. This route provides a west side link from 60th and the Sand Creek Trail at Brighton Boulevard to the Fernald Trailhead at 70th Avenue.

The Corridor Includes:

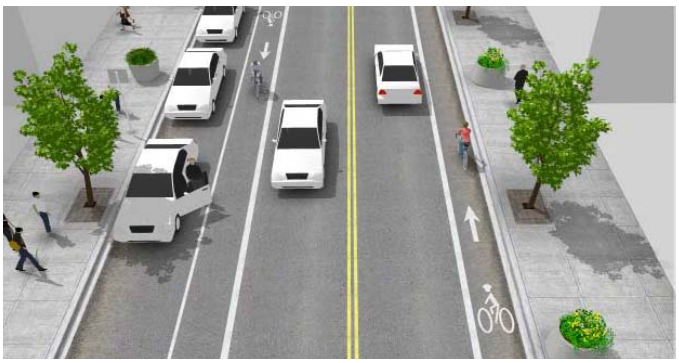
- **An Improvement of the 60th Avenue, Brighton Blvd., Colorado Blvd. intersection to better accommodate bicycles crossing from the Sand Creek Trail at 60th Avenue to a bike route along Colorado Blvd.**
- **Appropriate bike lane markings along Colorado Blvd., bicycle safety signage and intersection improvements to promote the safe flow of bike traffic along Colorado Blvd. though this area.**

Benefit or Catalytic Attribute: Forms a north/south spine linking significant employment destinations, residences and trails on the west side of town. Links the Sand Creek Trail and employment centers in this area to the Fernald Trailhead at 70th Avenue and future RTD light rail station at 72nd Ave.





Conceptual Cross Section
Shared Use Travel With Parking



Conventional Bike Lane without Parking

Example of a Bike Lane with Parking

CHAPTER FIVE:

IMPLEMENTATION

Implementation Strategy

Effective Leadership

Complete Projects

Community Engagement and Education

Long Term Plan Sustainability

Operations and Maintenance

Funding and Resources

W A L K . B I K E . F I T

Pedestrian Crossing at 72nd Ave. and Quebec Blvd.

IMPLEMENTATION STRATEGY

Fully implementing this plan involves a significant reshaping of Commerce City physically and changing long-ingrained attitudes and behaviors that span generations. While there is a clear and demonstrated community need for achieving the vision and goals of this document, there are significant challenges. Some of the recommendations can be accomplished relatively quickly and affordably, others will take more time.

Ultimately success of this plan will depend on several factors including creating an *active travel* network that is attractive and usable from a practical standpoint, affordable to implement, as well as inspiring and motivating people to use the system regularly.

There are also outside factors beyond local control such as fuel prices and employment patterns that could significantly change travel choices and behaviors. Implementing the plan will call for a realistic understanding of what can be accomplished now, what is catalytic to promote longer term transformation and what it will take to keep the vision alive and building over what may be a decade or two.

To meet the challenges and see timely results, the implementation strategy includes six elements:

1. **Effective Leadership**–Establish an effective enduring project leadership/oversight structure.
2. **Completion**–Prioritize and implement catalytic pilot projects.
3. **Community Engagement and Education**–Engage, educate and inspire residents, businesses and officials. Build awareness and safer practices on the part of motorists, cyclists and pedestrians.
4. **Long-Term Plan Sustainability**–Set a process in place that will grow the program over the long term.
5. **Operations and Maintenance**–Assure that *active travel* infrastructure is well maintained and managed over time.
6. **Funding and Resources**–Identify, secure and allocate funding and other resources to implement the plan.

EFFECTIVE LEADERSHIP

Over the past two decades Commerce City has been a leader in promoting state-of-the-art community planning and design. The desire for a more livable and healthy city with diverse neighborhoods, trails and greenways, *complete streets*, parks and other amenities has been evident in both policies and the way the newer parts of the city have developed. The goal here is to continue the trend.

In part, the success of the vision in this plan requires timely implementation of the components. Starting in 2012, and each year thereafter, new logical, usable and inspiring projects should be completed. In addition the city needs to continue to build upon its progressive polices for street design, community planning and development management. This calls for putting in place an effective and enduring organizational structure providing leadership and strong community engagement. It also calls for forging a cooperative effort among the stakeholders and parties to see all of the improvements through to completion. Skills in community advocacy, working with citizens and business and property owners, design, engineering, right-of-way acquisition, fundraising and overall coordination will be needed. Staff, consultants, political leaders and other champions for the project must be engaged in the process.

A key to this is having a designated *Commerce City Active Travel* entity and point person, if and when possible, charged with coordinating the various agencies– both within Commerce City as well as other key players including RTD, CDOT, Adams County, Tri-County Health, businesses, schools, and developers. This person should assure continuation and enhancement of supportive City policies and promote programs and events that engage and inspire the public.

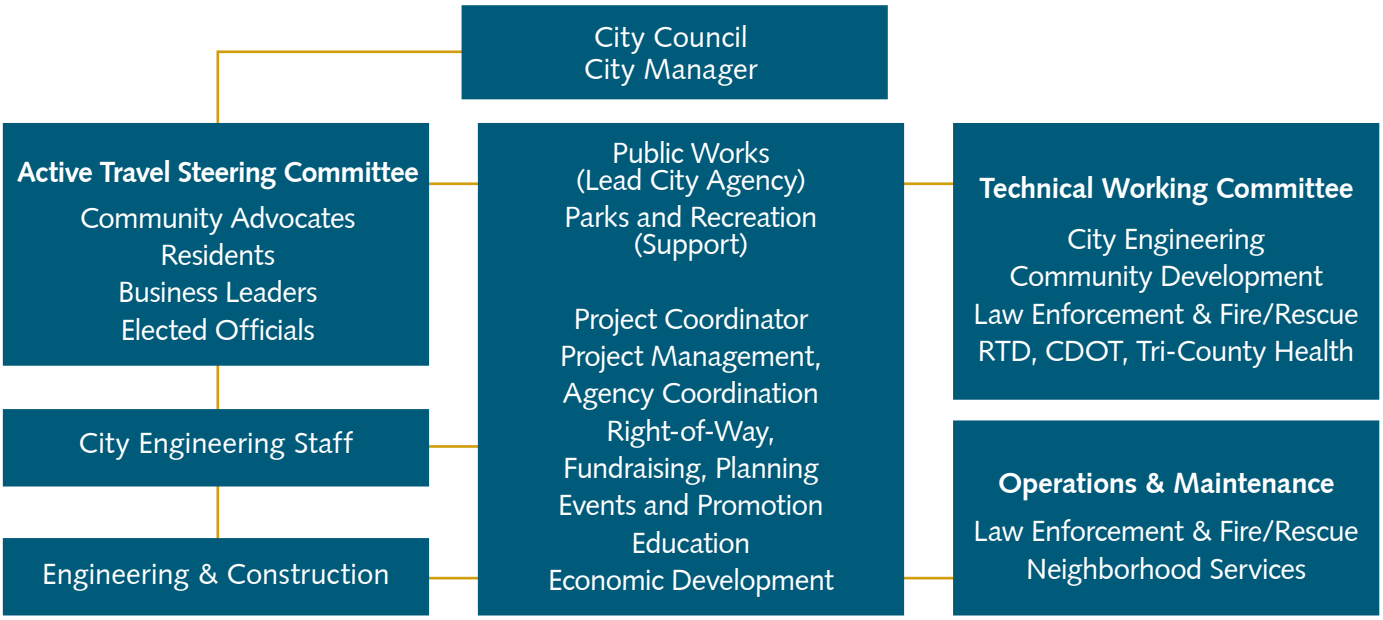
In addition, there should be an officially-designated multi-entity review process coordinated by the lead project staff that consists of key department decision-makers (*Engineering, Parks and Recreation, Community Development*), and associated agency representatives including CDOT, RTD, Tri-County Health and others. This group should be convened on a regular basis–especially at key project juncture points–to review plans, progress and policies. This group should also agree to regularly circulating all related plans (such as street improvements or subdivision plans) and draft policies for review and comment to assure consistency and compliance with the goals of the plan. This group can also be an invaluable resource for reviewing and trouble-shooting specific *Active Travel* projects, programs and events.

Finally, this plan recommends an officially-delegated Commerce City Active Travel Steering Committee. This group could be appointed and consist of community representatives, business leaders and elected officials. This group would be tasked with the near and long-term oversight and advocacy of plan implementation and realizing the active travel vision. The following table might best describe an optimal management structure and working relationships:

"RFID Walk and Bike Incentive Technoligy
On October 21,2011, Doss Elementary in Austin, Texas, kicked off their Boltage Program using Radio Frequency Identification (RFID) technology and sociology to influence a behavior change: more kids walking and biking to school. Boltage is a program where Kids get a RFID tag that attaches to their backpack, and the Zap reads their unique number when they go past it at the school. The Zap makes a cool beep and flashes a light (the little kids love that part). Then the Zap connects to the internet, and uploads its daily counts. Each kid has an account on our web site where they can see all their trips, and the school can run reports to support their incentive programs. Because the Zap is solar powered, no wiring is required in installation.

--From Texas Bikes Coalition and Boltage (www.boltage.org)"
~Scott T. Clein, P.E. Detroit, MI

Walk/Bike/Fit Commerce City Implementation and Oversight Organizational Framework



Technical Working Group Meeting

COMPLETE PROJECTS

Timely completion of a number of the key pilot projects—derived from those detailed in Chapter Four is essential to success. Work on these projects should begin as soon as practical and continue with new projects opened in a timely manner until the entire list of projects is completed and opened to the public. Of these, emphasis should be placed on projects that close key gaps in the city-wide trail and biking system, catalytic demonstration projects like the *60th Avenue Bike Boulevard* and projects that are relatively easy and low cost to complete such as those involving street paint and signage.

In pursuing and scheduling projects (See table below) the following criteria can be helpful:

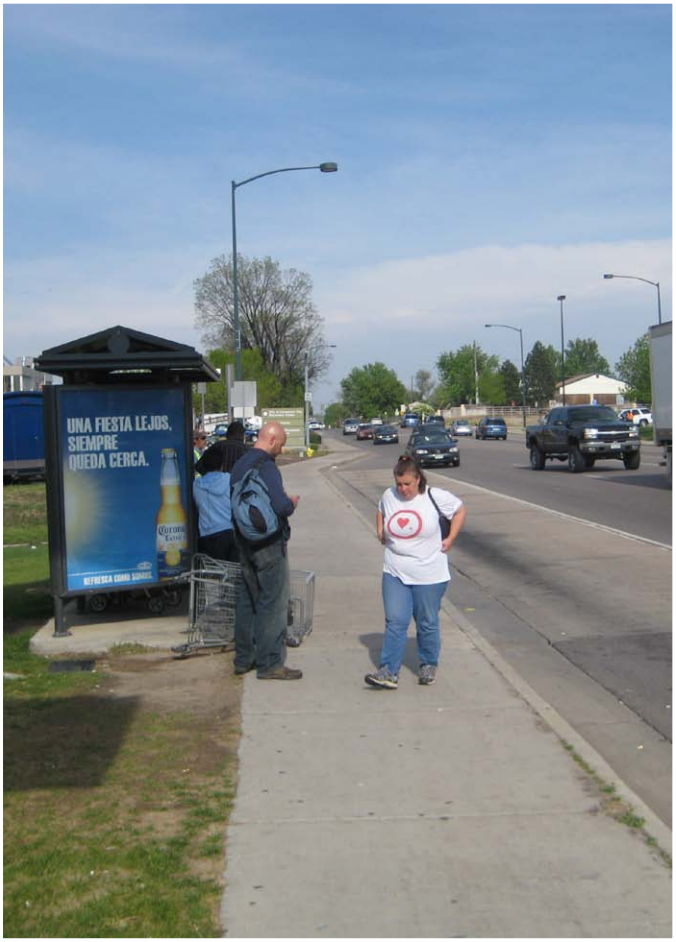
- An immediate opportunity where a logical, usable connection or solution can be made with current or readily available resources;
- Availability of rights-of-way and permitting;
- Availability of funding and/or grants to build and maintain improvements;
- Catalytic projects that demonstrate the value of *active travel*, build public support and help promote further community support and fundraising;
- Opportunity to include an improvement with a current private or public development project such as a highway project, access road or new subdivision;
- Projects or project segments that offer an exceptional experience and/or are highly visible to the public;
- *Projects that can be completed in the next 1-3 years.*

50% of children hit by cars near schools are hit by cars driven by parents of students.

-Center for Disease Control (CDC)

In conjunction with pursuing the pilot projects, efforts should move forward expeditiously to secure rights-of-way and permits from land owners and from *CDOT*, railroads or other entities where gaps need to be closed. In addition, pro-active and timely discussions should be held with *RTD* to pursue inter-modal coordination and cooperation engaging both the *Light Rail* system and the bus network.

In addition to scheduling and implementing new projects, the City should conduct a thorough field inventory of existing conditions including: streets, crossings, sidewalks and trails. The inventory should identify any needed repairs, incompatible fixtures (such as storm grates that run parallel to the direction of travel that could catch a bike tire); items that can be remedied with a *quick fix* such as adding striping to improve a pedestrian crossing; lowering speed limits; new signage or adjusting timing on a traffic light. This inventory should also look at code violations such as items being stored on, or cars parking on, sidewalks.



Bus Stop at 60th Ave. Near the Commerce City Recreation Center

COMMUNITY ENGAGEMENT AND EDUCATION

Success of this plan will be promoted by continued community engagement. Residents, bicycle advocates, trail recreationalists, schools, businesses, city officials and others all have a stake in the outcome. The following steps could help build support, and partnerships, promote awareness, and garner resources toward implementing the plan:

Work Closely With the Active Travel Steering Committee and the Community– The individuals and entities on the committee should be kept well abreast of progress on the various projects in a timely manner. Their input should be openly received and responded to. In addition, the *Project Coordinator* should keep a list of the key stakeholder contacts and regularly brief them. This could also include holding public update meetings at key junctures in the implementation process.

Staff and Consultants at Los Dias de los Ninos at Adams County School District 14 High School

Complete Catalytic Projects in a Timely Manner and Promote Them–Work to complete highly visible, highly usable, inspiring projects early on and celebrate their opening with ribbon cuttings, rides and other events.

Establish a Public Information and Outreach Program–This could include news events and articles–particularly around ribbon cuttings and ground breakings as well as announcements of project capital funding. In addition, the City would benefit by establishing and maintaining a *Walk/Bike/Fit* Commerce City Website that provides timely information about active travel, existing and proposed routes, planning and links to other useful information.

Build Broad Bicycle and Pedestrian Awareness–It would be helpful to initiate a pedestrian and bicyclist awareness program including safe and effective bicycling techniques. This should include both motorist and pedestrian and bicycle awareness training including programs in elementary schools, driver education as well as employee training at work places. Commerce City should collaborate with agencies and employers to train bus drivers, truck drivers and school bus drivers in bicycle and pedestrian awareness. Consider training programs and webinars on a city *active travel* Web site.
Proper Gear and Traffic Laws–Promote wearing helmets, cyclists obeying traffic laws and using lights and reflectors. Enforce all regulatory provisions including those for bicyclists and pedestrians.

Engage Businesses and Employer Partners–The *Project Coordinator* could pro-actively reach out to key business and employer leaders in and near Commerce City to engage these individuals and companies in promoting *active travel* through employer incentive programs, providing support facilities such as bike storage, showers and change rooms and other forms of participation such as financial support.

In addition, it would be helpful to work with employers and businesses to encourage both workers and patrons to make part of their regular trips on foot or bike with incentives or recognition. This might be done by tracking weight change and/or maintaining a healthy height-to-weight ratio for a period of time–possibly documented by having fitness stations in stores or community centers where people could receive discount coupons or a swipe card that documents progress.

Kids need safe routes to bike to school. In just one generation, the percentage of children who walk or bike to school has dropped 75% while the number overweight children has tripled.

~America Bikes National Center for Health Statistics.

As much as 20-30% of morning traffic is parents driving their kids to school.

~Transportation Authority of Marin

School Kids Learning to Ride Bikes at Monaco Elementary School

LONG-TERM PLAN SUSTAINABILITY

Work with Schools and Parent/Teacher Groups– to create services such as *a walking school bus* where parents assemble and walk with groups of students from homes, within a 15-25 minute walk to schools rather than riding a bus.

Work with RTD– to promote and enable more inter-modal travel that regularly includes biking or walking. This can be facilitated by continuing to improve facilities such as bus stops, bus routes, and park-n-ride facilities to make transit more convenient and more pleasant and accessible on foot or bike. Additional incentives in this area might include transit discounts and other incentives for people who arrive at transit stops by bike or on foot.

Hold Active Travel Special Events–The *Project Coordinator* should work with city leaders and agency staff to schedule events that promote *active travel*. These could include publicizing regular group ride events (such as *Cruise Denver* where riders meet one evening a week to cycle city streets) and street closure events-cyclovia-that are scheduled during low traffic times (i.e. Sunday afternoons) where streets are closed for walking and biking only. These have been shown to be highly successful with increased patronage of shops and restaurants, outdoor vendors and other benefits. Initially started in Bogota, Columbia–where the concept expanded throughout that city–a number of cities in North America have embraced the notion with events in Denver and other communities.

60th, 64th and 67th Avenues might be an ideal *cyclovia* venue for a pilot event. Initially, a demonstration *cyclovia* might be held and then expanded to monthly or even weekly.

Engage City Workers–Encourage city employees to bike or walk to work. Create and expand a bicycle-mounted police patrol and engage police in *active travel* whenever feasible.

Explore a Bike Sharing Program– A number of cities including Denver and Boulder have implemented bike sharing programs. The most effective ones appear to be the bike rental stations where a user can rent a bike by the hour or the day for a modest fee using a credit card. With a number of strategically placed rental stations this can be convenient for a range of bike related activities. There are several companies that provide services in this area including both logistics and actual bike rental services including B-Cycle and Alta Bike Share.

Because of the breadth of this plan's scope and the challenges of reshaping Commerce City's infrastructure as well as promoting new travel habits, this vision needs to be in the forefront for many years to come. The core leadership structure must also remain effectively in place. This can sometimes be difficult as years pass and elected officials and staff changes. Building on the City's existing plans and codes and as City resources permit there are a number of actions to help promote long term sustainability of the plan and the implementation process. These include:

- **Plan Adoption**–Adopt this plan as an element of the City's Comprehensive Plan, Transportation Plan and Parks and Recreation Plans.

- **Plan Review Requirement**–In compliance with City Council adoption, there should be on-going, conscientious review and cross check by City agencies for compatibility of any proposed public or private sector projects with this plan (along with the related elements of the transportation plan).

- **Develop a Scheduled Roster of Projects**–Schedule elements of this plan for completion each year through 2022 and beyond.

- **Consider Creating an Active Travel Committee**–This could be an appointed group that advocates and monitors progress on implementation of the plan. The group would make an active travel implementation report and update the City Council each year.

- **Urban Shaping Policies**–Per the vision of this plan, draft and adopt urban shaping land use policies that promote walkable/bikeable communities such as creating village centers and *complete streets* as a matter of public policy and land use code.

Bike Sharing

OPERATIONS AND MAINTENANCE

Sometimes overlooked, operations and maintenance is key to a successful *active travel* system. Upkeep is essential to assure the system is safe and pleasant to use. A number of elements should be considered in planning for effective operations and maintenance.

These include:

- Consider virtually every street (except freeways) in Commerce City as a corridor that a pedestrian or a bicyclist will use.
- Establish a system to count pedestrian and bicycle usage at key locations, use GPS to record all accidents, injuries, and crimes against pedestrians or bicyclists by location. Incorporate digital reporting into police and fire event logging.
- Initiate a bicycle and pedestrian citizen monitoring system where users can report observed hazards, gaps, crime problems and suggest improvements.
- This should include a reporting hotline and Web link allowing people to easily report comments, problems and suggestions. Post all reports on an active travel blog. Designate a city staff person to routinely monitor reports and recommend follow up actions.
- Prepare operations and maintenance guidelines for City crews and law enforcement personnel that address standards of upkeep and traffic law enforcement including streets, sidewalks, trails, pedestrian crossings,signage and other elements. Include a training program for both maintenance crews and the police to build awareness of the special needs associated with active travel. Training should include a guided bike and walking tour for workers and officers.
- Implement a surface management system that assures that street surfaces, including the area close to the curb (as close as one foot) are smooth, kept clear of debris, well drained and clear of snow and ice. Apply similar standards to sidewalks and crossings.
- Schedule sweeping streets and trails, including bike lanes on a regular basis frequent enough to assure these corridors are safe and pleasant to use.

Regularly monitor all signage and signals to be sure they are in good condition and optimally timed for active travel uses as appropriate.

- Keep bike lane and bikeway signage, pavement markings and striping in good condition.
- Assign city staff to routinely patrol streets, sidewalks and trails—on foot or bike-reporting on conditions.
- Plan for vegetation management and weed control in associated landscaped areas such as tree medians.
- Routinely inspect, maintain and repair street fixtures such as benches and shelters.
- Make timely remedial repairs to washouts, erosion, potholes, uneven sidewalks.
- Require that safe, practical, easy-to-use detours are provided for cyclists and pedestrians whenever construction projects or other activities affect a cycling or walking route.

Bicycle Safety

"…With more than 20 states and 200 jurisdictions in the United States adopting Complete Streets policies…the future of America's transportation infrastructure is poised to be radically different from the past….This is a singular occasion to dismantle outdated paradigms and demonstrate how proper engineering can protect public safety and spur economic development while improving overall quality of life. "

~Scott T. Clein, P.E. Detroit, MI

FUNDING AND RESOURCES

Although public funding sources, particularly at the federal level, have become tighter in recent years, there are several potential funding sources likely to be available over the next several years. These include:

- **Local Appropriations**–These funds come from the City's general fund and are a part of the Capital Improvement Projects budget. This local commitment is key to providing match money and helping leverage potential outside funding.

- **Adams County Open Space Program**–Adams County currently has a sales tax increment that funds open space and trail projects. According to the provisions of the open space program a substantial dollar amount is returned to the local jurisdictions, including Commerce City, in the form of grants and annual distributions. In 2010 Adams County awarded $17 Million to projects in addition to the local distributions.

  Currently this funding may be used for trails along with open space, parks and other benefits. Commerce City should work with the County Open Space program to explore potential grants–particularly where trails will link to county open space parks. The two entities should also explore other possible ways open space revenues could be applied to active travel solutions in Commerce City.

- **Create a Designated Fund**–There are numerous examples of special taxes, typically a sales tax increment perhaps dedicated to pedestrian and bicycle improvements, trails, parks and other similar community investments. These projects have been highly successful along the *Colorado Front Range* where a very small tax increment on sales can generate substantial funds that can be invested in infrastructure vital to the long-term health and economic wellbeing of the community. Tucson, AZ is a good example of a community that created a half-cent sales tax dedicated to active travel improvements. Given that Adams County already has an open space sales tax this may be difficult to pass in Commerce City though a small incremental tax might be acceptable.

- **Local Development**–As new development comes on line a number of communities have been successful in funding trails and greenway improvements through the sub-division process. Commerce City has been very successful working with developers to set aside open space corridors and build trails and parks in the *Northern Range* area. It should be noted that many developers also want these improvements because they recognize them as essential to the future marketability of their projects.

- **Great Outdoors Colorado and The Conservation Trust Fund (CTF)**–This program generates substantial funding each year both in terms of per capita annual distributions to jurisdictions and grant programs including the *State Trails Program* and other GOCO grant programs such as *Large Scale* and *Special Opportunity Grants*. The latter may be a strong potential funding source for several projects recommended in this plan. Note, however, that the Great Outdoors Colorado and CTF money may be a potential funding source for greenway connections, connections to parks, and similar open space and recreation-oriented improvements. Many of the improvements recommended in this plan will not qualify for GOCO or CTF monies.

- **The Rocky Mountain Greenway/Denver Metro Greenway Project**–As part of President Obama's Great Outdoors America Initiative, a system of uninterrupted trails between the Rocky Mountain Arsenal, Two Ponds (near Arvada) and Rocky Flats National Wildlife Refuges is envisioned. Initially the Obama Administration recommended $375,000 toward this effort. Other potential support may be available. See the report for details at http://americasgreatoutdoors.gov/files/2011/02/AGO-Report-Report-Only-2-7-11.pdf

- **Federal Funding**–Though the near-term and long-term future of these programs may be in doubt due to cutbacks, there are a number of potential federal programs that could become available. Recent successful programs include *Transportation Enhancement* monies; trail monies; *The Land and Water Conservation Fund; "ARRA Stimulus"*; health and fitness and *Community Development* programs.

It may be helpful to monitor federal web sites to identify programs. American Trails (www.americantrails.org) typically posts alerts about various programs. Possible time delays or more stringent grant terms and requirements and associated administrative costs should be weighed in considering certain federal programs.

- **Individual, Philanthropic and Corporate Giving**– There are several possible sources of private sector funding for trail projects. Programs and levels of sponsorship vary. These might include gifts, grants, bequests fundraising events and other forms of giving. It may be helpful to identify or create a non-profit "friends group" that might in the best position to seek and accept funds from private donors.

  Partnering with local employers, retailers and other businesses is another area that should be pursued. This could be very helpful in funding projects and creating incentive programs, especially those that benefit employees or customers engaging in active travel to get to or from work or shopping.

Pedestrain Crossing
Photo, www.pedbikeimages.org/Dan Burden

REFERENCES

Design and Planning References and Web Sites

National Association of City Transportation Officials. NACTO Urban Bikeway Design Guide
NACTO. Washington, DC. April 2011 (www.nacto.org)

Burden, Daniel and others. Street Design Guidelines for Healthy Neighborhoods. Local Government Commission's Center for Livable Communities. Sacramento, CA. 1996 (www.lgc.org/bookstore)

Isebrands, H. and Moule M. How-to-Develop a Pedestrian Safety Action Plan (Achieved Webinar Power Point Presentation). Pedestrian and Bicycle Information Center. 2011. (http://www.walkinginfo.org/training/pbic/collateral/06PSAP_EngineeringSolutions.pdf).

Pedestrian and Bicycle Information Center. Image Library (of solutions). 2011. (http://www.pedbikeimages.org/)

Zegeer, Sandt, Scully, Ronkin, Cynecki, Lagerwey. How to Develop a Pedestrian Safety Action Plan. Pedestrian and Bicycle Information Center. Chapel Hill, N.C. 2006. (http://safety.fhwa.dot.gov/ped_bike/ped_focus/docs/fhwasa0512.pdf .)

Walkable Communities, Inc. Marina Pedestrian and Bicycle Master Plan. Marina, CA. 2003
League of American Bicyclists and Alliance For Biking and Walking. Tools to Increase Biking and Walking: Bicycle and Pedestrian Advocacy Case Studies. Washington. 2010.

Gresham Smith and Partners. Complete Streets Design Guidelines. Knoxville Regional Transportation Planning Organization. Knoxville, TN. July 2009.

Clein, Scott, P.E.. The Road Not Taken: American Transportation Infrastructure in the 21st Century. ZweigWhiteRAI. Fayetteville, AR. June 2011 For more complete street information visit www.completestreets.org, www.completestreets.org/complete-streets-fundimentals/complete-streets-atlas, www.restreets.org

Walker, L, Tresider M, and Birk, M. Fundamentals of Bicycle Boulevard Planning and Design. Initiative for Bicycle and Pedestrian Innovation, Center for Transportation Studies Center for Urban Studies, Portland State University. Portland, Oregon. July 2009

American Association of State Highway and Transportation Officials (AASHTO). Guide to the Development of Bicycle Facilities. Washington, DC. 1999 (www.aashto.org)

U.S. Department of Transportation Federal Highway Administration. Manual of Uniform Traffic Control Devices (MUTCD), Washington, DC. 2009 (mutcd.fhwa.dot.gov/)

Brauer and Associates, LTD. Trail Planning Design and Development Guidelines. Minnesota Department of Natural Resources. St. Paul, MN. 2007.

Flink, C and Searns, R. Greenways: A Guide to Planning Design and Development, Island Press, Washington. 1993.

Flink, C. Searns, R. Olka, C. Trails for the 21st Century. Island Press. Washington, 2000.

Bicycle Boulevard Design Guidebook published by the Center for Transportation Studies, Portland State University.)

For guidelines for accessibility per the Americans with Disabilities Act visit www.access-board.gov.

For trails and greenway planning and design visit www.americantrails.org.

Visit also www.walkingbikeinfo.org and http://www.lgc.org/issues/communitydesign/street_design.html

Other References and Sources

Neumann, W. and Searns, R. and. Prairieways Action Plan: Guidelines for Parks Trails and Open Space. Commerce City Parks and Recreation. March, 2000.

Alta Planning and Design. Draft City of San Mateo Bicycle Master Plan.City of San Mateo, San Mateo, CA. January 2011.

Birk, Mia. Joyride: Pedaling Toward a Healthier Planet. Candence Press, Portland, OR. 2010.

Center for Community Health and Evaluation, Commerce City LiveWell Colorado Community Health Initiative CHI Cross-Site Evaluation Case Study. Seattle, WA. June, 2008.

Harnick, Peter. From Fitness Zones to the Medical Mile: How Urban Park Systems can Best Promote Health and Wellness. Trust for Public Land. Washington DC, VA. 2011.

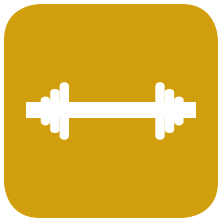
Tri-County Health Department/LiveWell Commerce City. Health Impact Assessment, Derby Redevelopment, Historic Commerce City, CO. Commerce City, CO. September, 2007

League of American Bicyclists. American Bicyclist-Bicycle Friendly Community: The Blueprint, League of American Bicyclists. Washington, DC. 2011

City of Commerce City. Master Plan for the Revitalization of the Derby Sub-Area. Commerce City. 2006

Felsberg, Holt, Ullevig and Clareon Associtates. City of Commerce City, C3 Vision Transportation Plan. Commerce City, CO. July, 2010

Safe Routes to School. Bicycle Colorado, Colorado Department of Transporation. Denver, CO. January 2012



W A L K . B I K E . F I T

APPENDIX A:

COST ESTIMATE

W A L K . B I K E . F I T

ROSTER OF PROJECTS MATRIX WITH RANGE OF COSTS

ROSTER OF PROJECTS	Early Action 1-5 yr	Long Term 5 yr +	Range of Estimated Cost			
1. 60th Ave. Cross-Town Link			$2,138,400	to	$2,673,000	Includes roadway modifications, walks, trails, underpass imp. & traffic calming
2. Town Center Greenway			$2,228,500	to	$2,785,625	Includes trail, sidepath, roadway modification, and intersection improvements
3. 72nd Ave. Connector			$11,550	to	$14,438	Includes wayfinding. Street improvements are not included in estimate.
4. 56th Ave. "Bike Arterial"			$103,900	to	$129,875	Includes on-street cycle track and intersection improvements
5. 64th Ave. Connector			$1,931,034	to	$2,413,793	Includes multi-use trail, bike lane, roadway mod., intersection improvements
6. 66th Place Connector			$33,460	to	$41,825	Includes share the road signage/ markings
7. Kearney Street Connector			$1,716,540	to	$2,145,675	Includes side path, sidewalk, cycle track, roadway modifications, intersection imp.
8. Fernald to Refuge Connector			$324,310	to	$405,388	Includes share the road signage/ markings and intersection improvements
9. Clear Creek to Derby to Refuge			$1,017,660	to	$1,272,075	Includes on street bike lane, roadway modifications, underpass improvements
10. "Old" Quebec Connector			$29,680	to	$37,100	Includes on-street cycle track
11. Hwy 2 Greenway			$11,411,330	to	$14,264,163	Includes bike lane, roadway modifications, intersection improvements.
12. Quebec Connector			$244,440	to	$305,550	Includes multi-use concrete trail
13. 88th Avenue Cross Town Link			$1,918,350	to	$2,397,938	Includes shared use side path, roadway modifications, intersection imp.
14. Central Park Boulevard Connector			$2,100	to	$2,625	This route is outside City Limits. Wayfinding only.
15. Southside Greenway			$460,250	to	$575,313	Concrete trail. Portions of route outside City Limits & not included in estimate.
16. Dahlia Link			$515,200	to	$644,000	Includes side path and intersection improvements.
17. Northern Range Loop Trail			$5,689,950	to	$7,112,438	Includes side path, crusher fines trail, pedestrian bridges and underpasses
18. Belle Creek/ Historic City Connector			$1,790,565	to	$2,238,206	Includes side path, share the road markings and intersection improvements
19. Peoria Link			$1,733,200	to	$2,166,500	Includes side path, intersection improvements
20. 112th Ave. Connector			$2,711,100	to	$3,388,875	Includes side path , underpass and intersection improvemnts.
21. Second Creek Greenway Link			$1,491,350	to	$1,864,188	Includes side path, crusher fines trail, pedestrian bridges and underpasses
22. 120th Avenue Connector			$1,254,050	to	$1,567,563	Includes side path. Portions are outside City Limits.
23. Havana Link			$2,222,850	to	$2,778,563	Includes side path, intersection improvements and pedestrian bridge.
24. Chambers Road Connector			$329,700	to	$412,125	Includes side path.
25. 104th Ave. Connector			$293,720	to	$367,150	Includes side path. Portions of route are outside City Limits.
26. Westside Connection			$1,490,048	to	$1,862,560	Includes side path, bike lane, share the road & roadway modifications

APPENDIX B:

WAYFINDING COMPONENTS

W A L K . B I K E . F I T

CONTENTS

A special acknowledgement to NACTO (www.nacto.org) for wayfinding guidance and applicable text in places.

W A L K . B I K E . F I T

1. WHAT IS WAYFINDING?

Wayfinding refers to a comprehensive system of signing and/or pavement markings, blazes, maps, and on-line systems (such as Google® Maps) that guides pedestrians and bicyclists to their destinations including along preferred routes of active travel. It also promotes higher community visibility of the active travel network.

~Adapted from NACTO Definition

Berkeley, CA

Chicago, IL

Oakland, CA

Important note—This section addresses Wayfinding and not regulatory or safety signage. These components are also important as part of a bicycle and pedestrian network and should be included as specified by City Engineers and in conformance with the MUTCD and other applicable standards.

D11-1

Wayfinding systems offer a number of important community benefits helping to promote active travel including:

- Familiarizes users with the bicycle/pedestrian network
- Identifies the best routes to destinations
- Overcomes a "barrier to entry" for infrequent users
- Signage that includes mileage and travel time to destinations may help minimize the tendency to overestimate the amount of time it takes to travel by bicycle or on foot
- Visually indicates to motorists that they are driving along a bicycle route and should use caution
- Passively "markets" the bicycle network by providing unique and consistent imagery throughout the jurisdiction
- Can indicate detours when routes are disrupted by construction or other reasons

A successful wayfinding system helps inform, guide, enable, promote and warn. The system should consider the "four D's":

- Destination
- Direction
- Distance (Travel Time)
- Difficulty

Wayfinding allows people to:

- Determine their location within a setting
- Determine their destination
- Develop a plan that will take people from their location to their destination

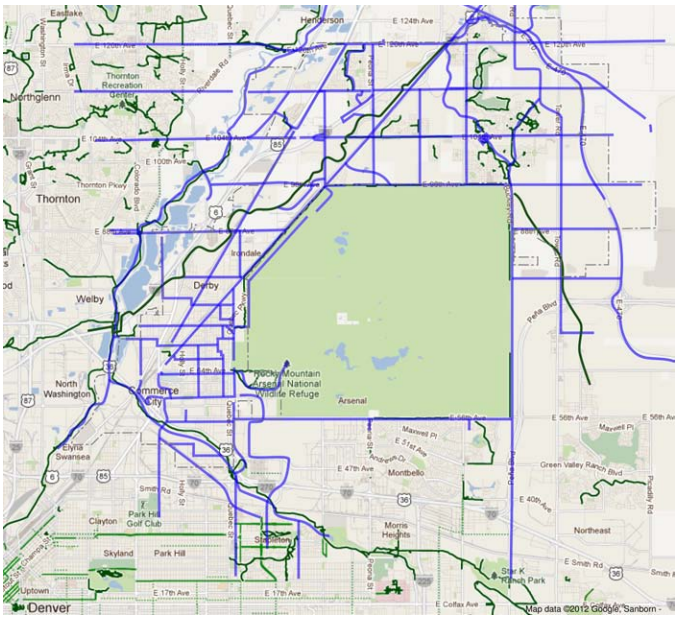
Primary wayfinding elements include:

- Paths/circulation (Take advantage of elements that define city—best routes (overcomes barriers), nodes, landmarks and districts.)
- Markers
- Nodes
- Zones/districts (Direct folks to large districts (Historic City), Then at district edge, directs to smaller sub-districts, shops, major landmarks, parks, etc. Inside the sub-district, directs to local, smaller destinations)
- "Peeling the onion"—provides a hierarchy of elements that direct users while avoiding excessive messages

~Taken in part from University of Buffalo, School of Architecture and Planning

Media—applicable to Commerce City— that convey wayfinding include:

- Signs
- Pavement Markings
- On-Line Digital Media Systems (Such as Google® Maps)
- Paper Maps
- Other non-verbal cues such as landscaping, art and landmarks



There are three typical types of signage and pavement markings as illustrated by the table below:

Type	Purpose	Info	Placement
1. Confirmation 	You're on the route. Makes Motorists Aware	Destinations/Distance-no arrows	Every 2-3 blocks and within 150' of a decision point (1/4 - 1/2 mile along a trail)
2. Turn Signs 	Indicates turn from one street or path to another	Destinations and arrows	Near side of intersections where route turn, ends or does not go through
3. Decision Signs 	Marks a junction of two or more routes/trails	Destination, arrows, distance, time	Near side of the intersection or along a route indicate a nearby destination

~ Per NACTO

In pursuit of a practical system that guides users but is not overwhelming in information content, a number of types of destinations were considered for the Commerce City Wayfinding system. These include (but are not necessarily limited to):

- Important community districts such as the Walmart commercial area; Derby; Victory Crossing; Reunion, etc.
- Parks, recreation centers, places to walk and exercise
- Local and regional commercial and shopping areas
- Public transit stops and stations
- Schools
- Civic/and community destinations such as government centers, post office, library, etc.
- Local and regional trails and greenways
- Key bikeways and other active travel routes

For optimal clarity and functionality there is a hierarchy of destinations based on relative importance to users throughout the area. These include:

- Primary Destinations—within a 5-mile-plus radius such as Walmart or Victory Crossing
- Secondary Destinations—within a 2-to-5 mile radius such as supermarkets
- Tertiary Destinations— within a 1-to 2-mile radius such as an elementary school or a local park

Example of Primary Destination

Example of Secondary Destination

Example of Tertiary Destination

2. MISSION AND APPROACH

The mission of the *Wayfinding Plan* is to design a system that functions optimally with a complex network of streets, multi-use trails, sidewalks, loops and other interconnections. The system should complement existing vehicular and pedestrian signage while addressing operational and user need to travel via bike, foot or wheelchair to destinations and plot recreational and fitness routes.

The approach to a Wayfinding system for Commerce City consists of the following steps:

- Identify an optimal/workable system based on successful examples and community input
- Design the wayfinding components including signage, wayside displays, and digital/paper mapping interface
- Create a conceptual installation plan for the overall system at build-out
- Identify and install demonstration projects including featured ("branded") routes and loops
- Expand the system as new corridors are improved
- Tweak and update the system as needed over time

3. STANDARDS & GUIDELINES

To be effective in promoting and enabling safer and more pleasant *active travel* in Commerce City a number of standards and guidelines are presented below. These are based on findings, lessons learned and examples from other communities, and from specialists in traffic planning, architecture, bicycle facility design, marketing and other related fields. An effective wayfinding system should include the following qualities:

- Command attention
- Is clear, positive, friendly and simple
- Is unambiguous and professional
- It gives directions and clearly marks junctions

To achieve these qualities and function effectively, the following guiding principles should shape the wayfinding system:

1. Consistent (or not in conflict with) with standards and legal requirements including the *Manual of Uniform Traffic Control Devices* (MUTCD) as well as state and local provisions

2. Enables and promotes *active travel* leading to routes and destinations (schools, shops, work, parks, etc.)

3. Users able to plan and enjoy trips knowing distance, travel time (at 10 mph for bikes, 3 mph for pedestrians), difficulty, accessibility, and other helpful info.—accurate and dependable

4. Easy to spot, read and follow for bikes, pedestrian and motorists of all ability levels—Can be read and interpreted quickly from a moving bicycle (10 mph per NACTO)

5. People can orient to their location and distances to destinations;

6. Seamless cross-reference (City Web site, maps, signs, phones, Google®, etc.)

7. Attractive displays and aesthetics—Consistent design themes, No sign clutter

8. Well-maintained and well-managed, including current updates and detours

9. Mechanism for user input and update (with data base to track and regularly update changes)

10. Distinct Commerce City and *Active Travel* "branding" and identity

11. Never allow confusion of motorist signs with pedestrian or bicycle signs

12. Affordable to install and maintain, durable, vandal resistant, easy to replace

4. INFORMATION MODES

The system recommended for Commerce City considers several ways that people get their information including:

- Standard route and destination markings — along key, core routes that support bicycle and pedestrian travel for day to day travel, commuting, exercise and other purposes

- Featured or "Branded" corridors—attractive routes that have special appeal to promote biking and walking such as those that link parks or access major recreational destinations such as the Platte River Greenway or the Rocky Mountain Arsenal National Wildlife Refuge

- Gateway "Waysides"—These can be installed at strategic locations. A posted map/information board may help visibility of a route and guide users. They typically provide route mapping, information about grade and topography where appropriate, location of points of interest and landmarks and other information.

  These can be placed at trailheads and high visibility gateways to popular and "branded" routes. They can also be placed along key routes especially where two routes intersect. Typically the gateway displays are larger and the en-route displays are smaller in size. Ideally these displays are integrated with on-line route mapping so the display board at any given location can be viewed by clicking an icon on the map

- Paper Maps—that can be carried in a pocket or displayed on a supermarket bulletin board;

- Web sources—using Google® and/or other similar (integrated with other modalities);

- Special Events - temporary marking or biking/walking and running courses

- Pavement Marking—In addition to signage pavement, markings can help facilitate wayfinding and they can be a standard component of bicycle routes. They can be used as follows: to help reinforce routes and directional signage; where signs are difficult to see (due to vegetation or parked cars); to help bicyclists navigate difficult turns and provide route reinforcement.


- On-Line and Paper Maps--In addition to, and in conjunction with, on-street signs and markers, digital and paper maps and wayfinding information forms an integral part of a comprehensive, user-accessible wayfinding system. Typically, these can be carried in a pocket or posted on a supermarket bulletin board. They should also be posted in bike shops, work places, community centers, etc. They should be simple to read. Digital and paper modes should be seamlessly integrated using similar symbols and graphic styles fitting with digital maps available at the City Web site and with commercial sources like Google*

*How to integrate information with Google Maps® Bike routes can be easily added to Google Maps®using 'Google Mapmaker®' (www.google.com/mapmaker). New trail routes are drawn directly in Google Mapmaker® by clicking to add points on the satellite map image. Routes can then be assigned specific names as well as various attributes according to the trail type. There is an attribute category for construction status, new routes can be identified as 'planned' until the construction process begins. The new routes can then be saved and will be available for the public to view and search after receiving Google's approval. Please note that a Google® account is required to access Google Mapmaker®.

Other Ways to Support Wayfinding

In addition to literal and verbal wayfinding systems, there are a number of more subtle, yet highly effective ways to orient and guide people making their way through the city. Some of these include:

- Landscape features such as streetscape motifs and tree medians that highlight a color or species
- Architectural and natural landmarks
- Topography
- Use of color and texture such as a special type of paving
- Artifacts placed at key locations such as sculpture or historic pieces such as a plow, or an old farm implement
- Identity markers such as logos strategically placed along a route

5. DETAIL CONSIDERATIONS

A number of details and specifications can help guide the design, layout and placement of wayfinding devices. These include:

Colors and Type Face

- Blue, red, green and brown work best—with some variations of these okay
- Contrast should be at least 60 percent between typeface and background (for color blindness/ limited vision
- No more than three or four colors and keep design clean and simple
- Typeface should be reflective and at least 3" (3.5" to 4" preferred) with simple and narrow styles, minimal flourish (Helvetica, Clearview and Garamond) and wide spaces between letters relative to height of letters

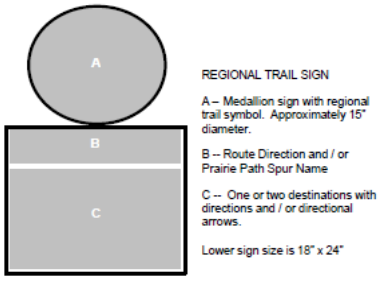
Size and Placement

- 40" Maximum width
- 12" Minimum setback from curb
- Consistent placement relative to street

- 7' Height or more
- With multiple signs top sign should have primary message
- Signs on "feeder" streets to routes
- Ask— "Should a sign be placed here?"

Logos and Destination Marking

- International symbols best
- Maximum of three unique symbols
- Logos should should not dominate the message
- Logos for districts okay but in use with a text message
- Maximum three or four destinations listed per sign
- Closest destination on top and drop away as each is reached

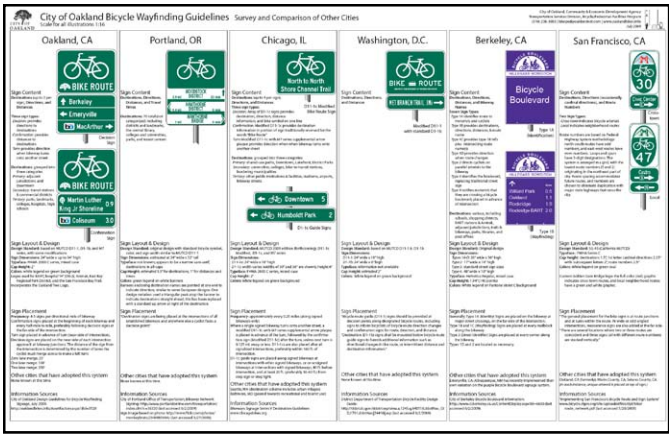


Style Considerations

- Size
- Symbols (Fed. Rec.)
- Color
- Shape
- Mountings
- Reflectivity
- Official Standards (MUTCD) and Local Vernacular

6. CASE STUDIES COMPARED

In developing the wayfinding plan a number of existing systems deployed around North America were investigated. This helps provide insight from a several years of practical experience and lessons learned.



Vancouver, BC

- Street name "blades" along bikeways replaced with blades that contain a bicycle logo. (Green and white bicycle symbol on a black street name sign and a special look/typeset.)
- Proposed overhead street name blades w/bicycle logo at all signalized intersections along the bikeways
- Route signs every 3rd block and decision points

Oakland, CA

- Oakland used a "Bicycle Route Number Marker" with a route number, bicycle symbol, and logo;
- Public noted that numbering not intuitive and difficult to see with limited wayfinding information;
- Rather than numbers, new approach emphasizes destinations signs two-three times as large—up to 3 destinations per sign (Overall, the system supports approximately 100 destinations.)

Old Markers New Markers

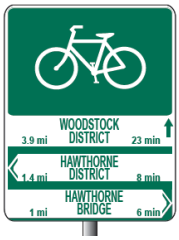
Berkeley, CA

Berkeley uses a violet color with 7 types:

1. Identifies route to motorists and cyclists
2. Destinations, directions, distances, & route name
3. Adds intersecting route name(s)
4. Provides direction when route changes
5. Directs cyclists on parallel arterials to the bikeway
6. Identifies the boulevard, replacing traditional street sign
7. Notifies motorists that they are crossing a bicycle boulevard--placed in advance of intersection

Portland, OR

- Provides destinations, directions, distances and travel times
- Total 70 destinations including districts, landmarks, central library, colleges, parks and transit centers



- Cross-town bike arterials and local neighborhood routes identified
- Routes based on Federal hwy system with odd numbers for N/S and even for E/W starting from the northeast corner of the city
- Single digit used for major routes to three digits for local loops and spurs

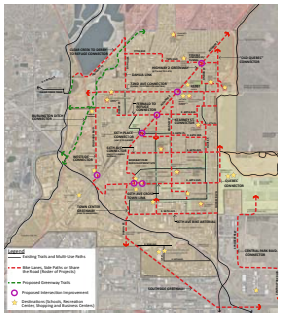
7. RECOMMENDED WAYFINDING ELEMENTS FOR COMMERCE CITY

Based on the background research, input from the Technical Working Group and the public and assessment by the consultant, a core wayfinding system has been recommended for Commerce City. The system includes four key components:

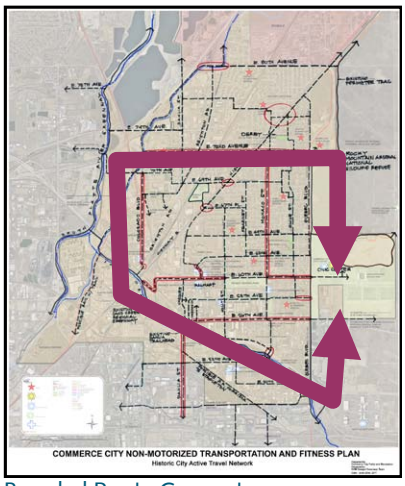
1. Key Active Travel Routes
2. Branded/Feature Routes
3. Community Walking Routes
4. Gateway and En-Route Wayside Displays

In each instance these should include integrated on-street (signage and pavement marking), on-line, and paper map elements. Note that the wayfinding system emphasizes core routes and not necessarily every route that supports biking or walking to reach a destination.

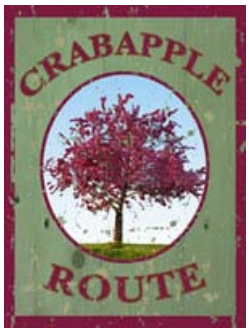
1. Key Active Travel Routes
This is the core active travel network consisting of on-street routes, inter-connected trails and other components such as key destinations and transit stops that will be used for both daily travel and recreational/ fitness purposes. The goal is to identify the key routes using route identification, directional signage, pavement markings and other elements to make these routes prominent and easy to follow (Please see "Recommended Graphic Elements" below.) Typically route markers or "blazes" are placed every one to three blocks and at "decision points" where the route changes direction or mode such as from on-street to off-street trail. The system also includes destination placards showing up to three prominent destinations in Commerce City or nearby that can be reached using the route. The system can also include "feeder" markings such as signs and blazes on adjoining streets that lead to the key active travel route.



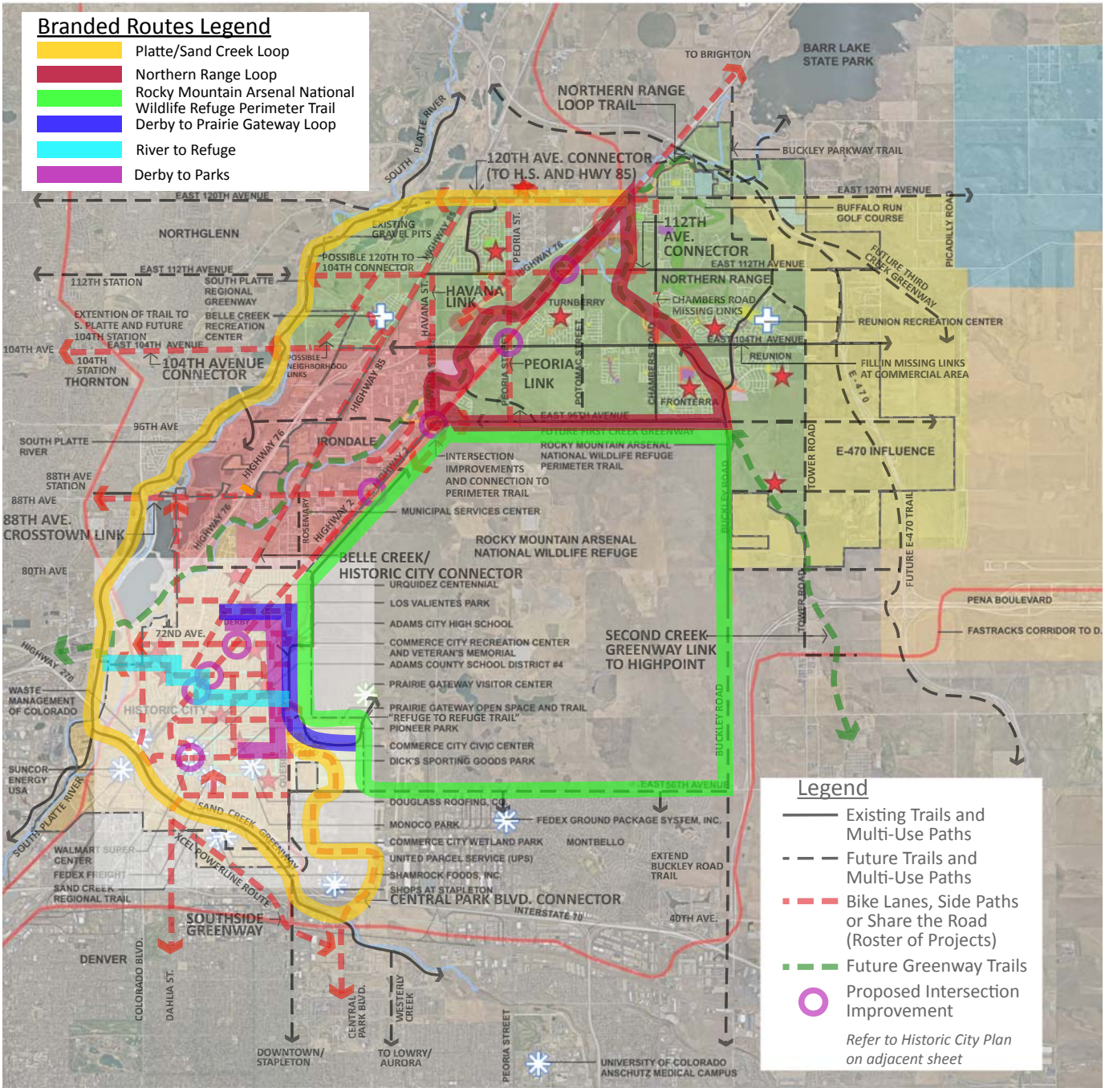
2. Branded/Feature Routes
These are specially designated routes and loops for walking and/or biking that offer interest, pleasant scenery and a physical work out. They help bring exposure to the system as well as promote and enable more physical activity by offering a clearly identified quality experience. In addition to "blazes", destination and directional components described above, branded routes have special colors and markings on the signs and have gateway and en-route wayside maps (see "Gateway and En-Route Wayside Displays on page 112" to help orient and guide users.)



Branded Route Concept



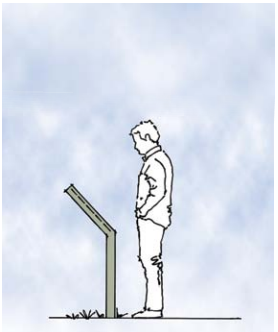
3. Community Walking Routes
In the public meetings a desire was expressed for easily accessible (don't have to drive there) safe and pleasant routes for walking. In addition, a desire for walkable routes to schools and other neighborhood destinations was expressed in the planning process. These routes can be marked by pedestrian-scale "blazes" or "medallions". (Please see "Suggested Graphic" below.) Some might be combined with the above "branded" routes and others might be individually by neighborhood groups or volunteers who best know their neighborhoods and where optimal routes can be identified.



Recommended Branded Routes

4. Gateway and En-route Wayside Displays
As described in the "Components" sections above these would be located at the key destination and entry points to the "branded routes" as depicted on the layout map below. Some locations include: Victory Crossing, the Walmart/Community Center area and the Fernald Trailhead. Where two branded routes intersect such as the "River to Refuge" and the "Derby to Parks" corridors, smaller en-route wayside displays would be provided. These would be positioned slightly away from the street to be read by a pedestrians and bicyclists without creating confusion or distraction to motorists. Each way side would also be tied to an online system so each specific wayside could be viewed by clicking an icon on an on-line map*

Gateway Wayside Concept



En-route Wayside Concept

*see note on page 107 on how to integrate information with Google Maps®)

8. SUGGESTED GRAPHICS

In thinking about wayfinding graphics it is important to bear in mind that there are several categories of wayfinding signs and markings (i.e. on-street bicycle route signs, on-street branded route signs or markings, off street trail wayfinding and pedestrian wayfinding). Depending on the application and circumstance there are, or may be, established standards and guidelines that are applicable. These standards include those delineated in the national Manual of Uniform Traffic Control Devices (MUTCD) along with possible state or local guidelines. Typically, any signage visible to motorists (and signage on bicycle trails) has specific graphic guidelines in accordance with the MUTCD.

Other signage or markings may or may not have less specific standards for layout and graphics. (Note also that the MUTCD includes a section on "Community Wayfinding" that offers some options and variations to guide certain forms of community-specific travel)

Note that any and all signage and markings are subject to review and approval by the City Engineer and , possibly the City Attorney. Note that this advisory applies to all graphics and recommendations in this report.

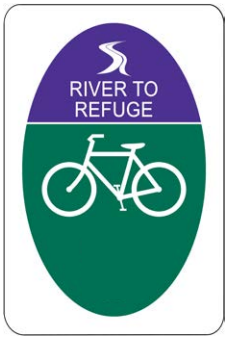
Following are concepts for the key graphic elements for the wayfinding system:

- **On-Street Bicycle Wayfinding Signs** (Note that these are in addition to the appropriate regulatory and safety signage such as "share the road" yellow diamonds as prescribed by the City Engineer.)-These signs are applied to all designated bicycle routes.

Oval Sign with Direction and Destination Information

Rectangular Sign with Directional and Destination Information

- **Branded Route Signage and Markings**-These are used along featured or "branded" corridors integrated into the on-street bicycle signage and with trail segments that may be part of a "branded" route.



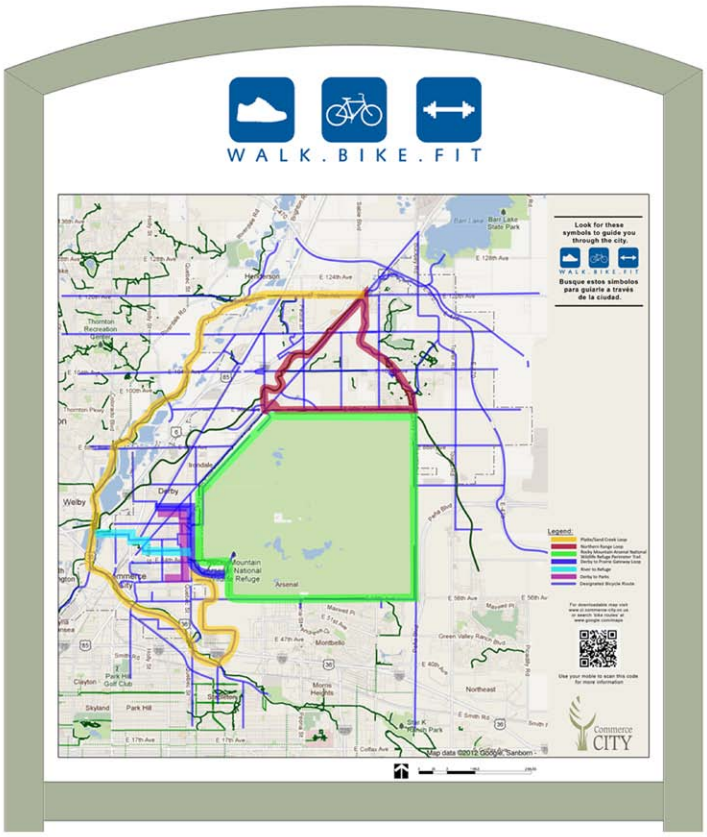
Oval Option

Rectangular Option

Trail Sign When Trail is Part of A Branded Route

- **Art for Gateway and En-route Wayside Display-** These must be placed so as not to be prominent to motorists or moving bicycle traffic but readable only by a stationary viewer.

En-Route Wayside

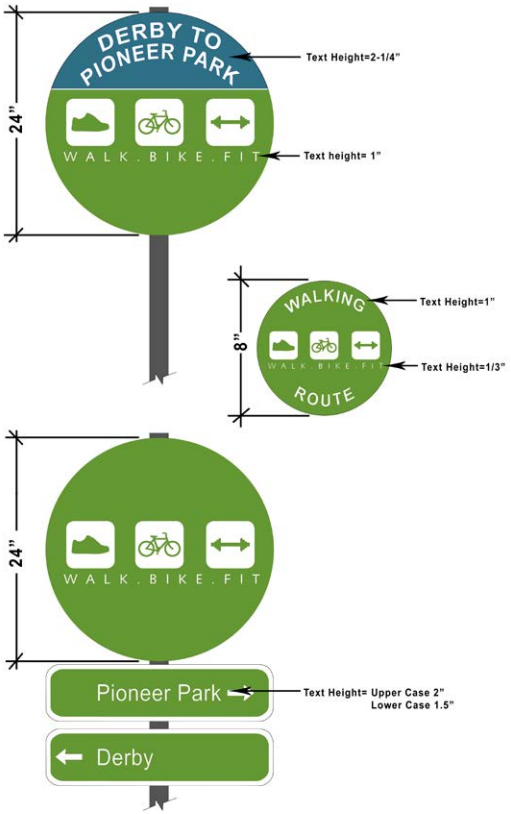


Gateway Wayside

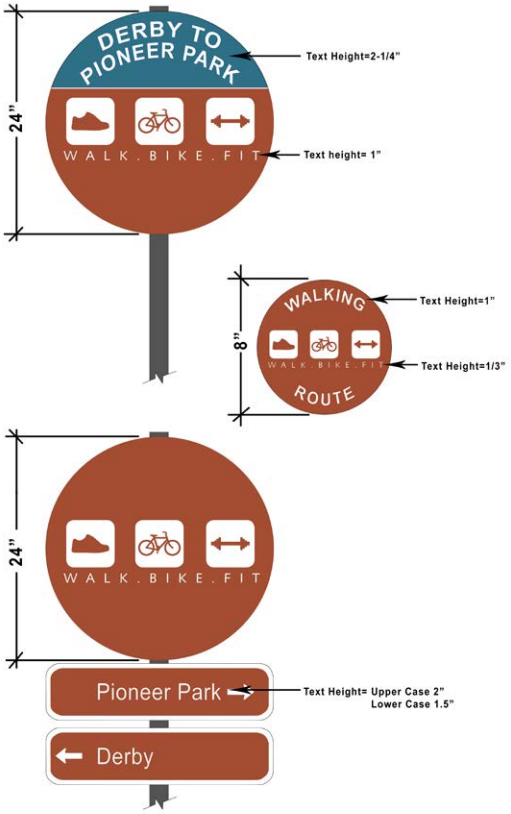
- **Pedestrian and Walking Route "Medallions"-** These are intended for walking routes only. They are smaller and placed, subject to City Engineer approval, in a manner that avoids any confusion or distraction to motorists. These may be 6" x 6" markers mounted to existing structures subject City Engineer approval.

Medallion Concepts

Circular Placard

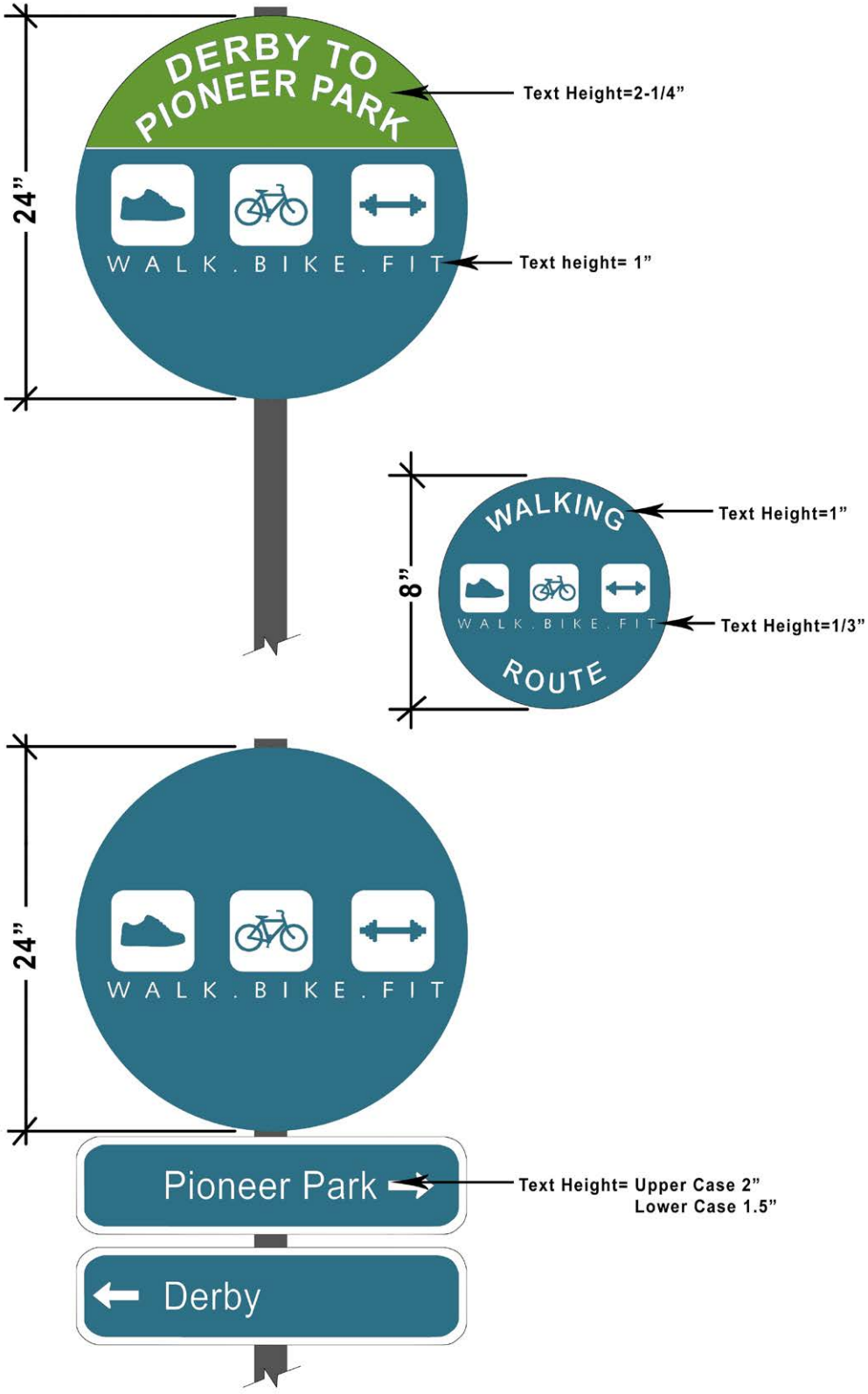


Circular Placard

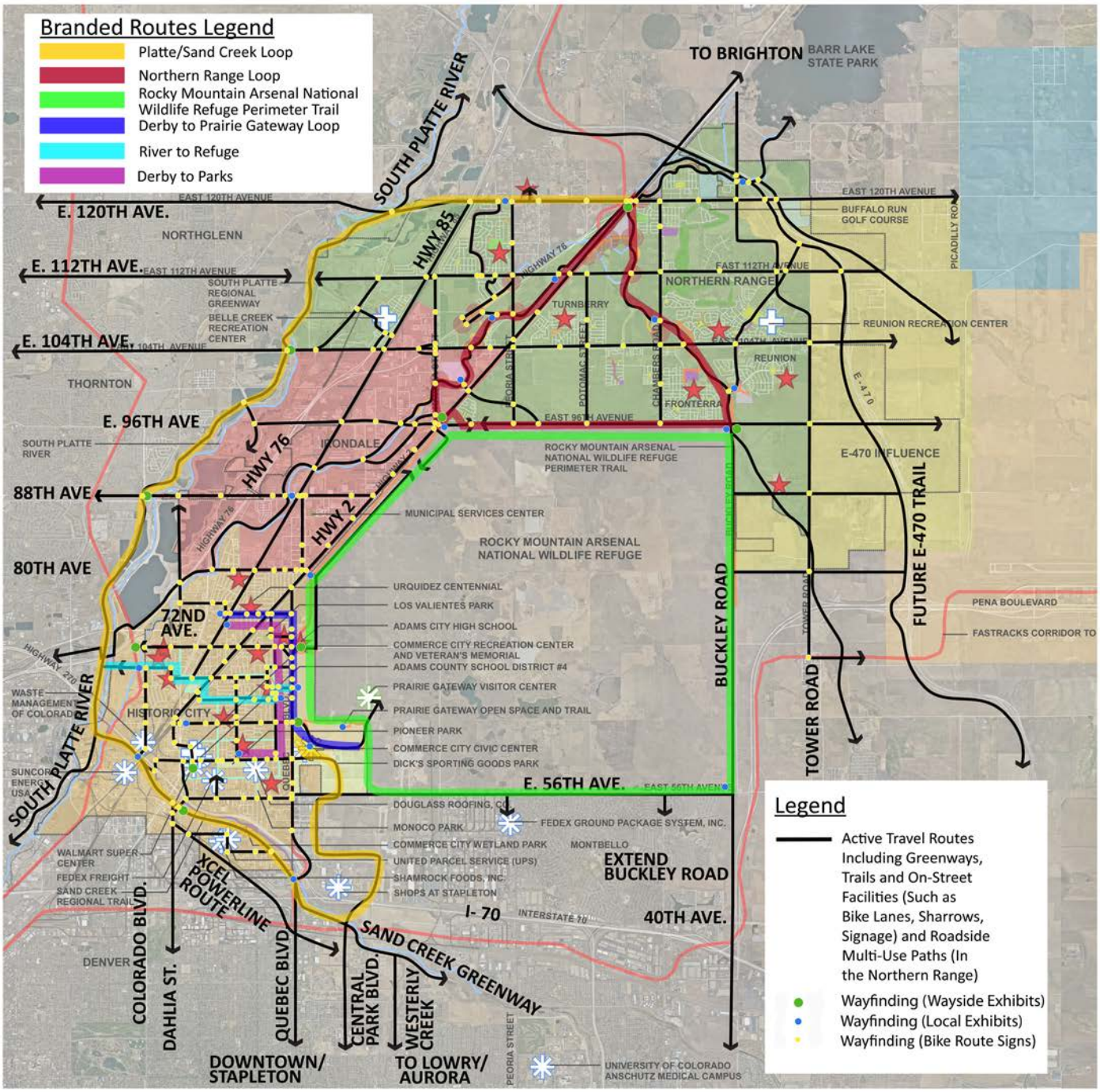


PREFERRED ALTERNATIVES

Circular Placard



CITY-WIDE WAYFINDING SYSTEM



9. O&M CONSIDERATIONS

Long term monitoring and upkeep of the wayfinding system will be important for functionality and an optimally safe and enjoyable user experience. Key maintenance considerations include:

- Use simple off-the-shelf materials and avoid exotic elements
- Use components that are basically similar to other signs and pavement markings that City can produce in its shops quickly and inexpensively
- Anticipate periodic replacement due to wear
- Place pavement markings in the center lane between wheel treads can minimize wear
- The City should maintain comprehensive inventories of the location and age of signs and markings
- There should be a protocol in place for immediately demarking safe and usable detours whenever a route is disrupted due to construction or other situation

10. NEXT STEPS AND PILOT PROJECTS

Following are the suggested next key steps in implementing the wayfinding system:

- Compile community input for system design
- Develop recommendations and approve final artwork
- Initiate pilot projects along key corridors
- Perfect and make ubiquitous throughout the city

11. ADDITIONAL INFORMATION SOURCES

The following information sources can be helpful in developing the wayfinding system:

Manual of Uniform Traffic Control Devices (See especially Part 9 that addresses bicycle facilities.)

http://mutcd.fhwa.dot.gov/

See also Part 2, Chapter 2 D, Section 2 D.50 that addresses "Community Wayfinding"

http://mutcd.fhwa.dot.gov/htm/2009/part2/part2d.htm

NACTO *Wayfinding Guidelines*
http://nacto.org/cities-for-cycling/design-guide/bikeway-signing-marking/bike-route-way-finding-signage-and-markings-system/

http://nacto.org/wp-content/uploads/2010/08/City-of-Oakland-Design-Guidelines-for-Bicycle-Wayfinding-Signage.pdf

W A L K . B I K E . F I T