DENVER MOVES: TRANSIT PLAN AND VISION

TRANSIT VISION
By providing a more convenient, reliable, and connected transit system in Denver that is competitive with driving, transit becomes a first choice of travel for more trips in Denver. Transit improvements also provide higher-quality service to existing transit riders, especially those who rely on transit as their primary mode of travel.

Transit Goals and Benefits

ENHANCE
Make transit more appealing by making it reliable and competitive with driving, increasing the frequency of transit service, enhancing the passenger experience, and increasing transit ridership.

SIMPLIFY
Make transit easier to use by improving legibility and rider information, investing in new technologies, and expanding educational transit programs.

CONNECT
Connect people and places to transit by strengthening regional and neighborhood connections, integrating with land use development patterns envisioned in Blueprint Denver, and enhancing multimodal access and first/final mile connections to and from transit.

THRIVE
Improve community health and access to opportunity by developing a more equitable and more affordable system for all, improving the environment, and promoting community health.

SUSTAIN
Support a transit system in Denver that will be successful over the long-term by pursuing sustainable funding sources, identifying resources (staffing, programs, policies, and more) to support the expanding system, and developing an approach to tracking progress.

Outreach Timeline

SUMMER 2016 | FALL 2016 | SPRING 2017 | SUMMER 2017 | WINTER 2017 | FALL 2017 | WINTER 2018

- Outreach Milestones Timeline
- Neighborhood Drop-In Workshops
- Transit Rider Outreach
- Major Transit Investment Corridor Pop-up Engagement and Online Survey
- Build your Own Transit System Interactive Survey
- Preliminary Recommendations Open Houses and Online Survey

DENVER MOVES Transit will help us achieve this change

Source: U.S Census American Community Survey, 2016 1-Year Estimate
Denver’s Big Moves and Strategies

- Provide Frequent Service
- Implement Reliable and High-Quality Transit
- Make the Most of our Investments
- Improve Access and Connections to Transit
- Build a Sense of Place

Definitions

**Regional Coordination Corridors**
The Regional Coordination Corridors identify where investments in improved transit service and infrastructure could be extended beyond the city limits.

**High-Capacity Transit Corridor**
High-capacity transit includes any form of public transit that has an exclusive right-of-way, a non-exclusive right-of-way, or a combination of both. High-capacity transit vehicles make fewer stops, travel at higher speeds, have more frequent service, and carry more people than local service transit. High-capacity transit can include light rail, rapid streetcar, commuter rail, and bus rapid transit.

**Medium-Capacity Transit**
A corridor where capital investments are made to serve rapid bus to full bus rapid transit. These corridors have improvements such as dedicated lanes, transit signal priority and/or bypass/queue jump lanes.

**Speed and Reliability Corridors**
Speed and reliability corridors include transit-priority signals, that make transit faster and more reliable in mixed traffic lanes. Speed and reliability corridors can include dedicated transit lanes at key locations.
PEDESTRIAN AND TRAILS VISION
The pedestrian network provides all users with a walkable environment that is safe and comfortable and treats everyone with dignity.

Denver Moves: Pedestrian & Trails Plan and Vision

INCREASE PEDESTRIAN COMMUTE TRIPS IN DENVER

2015 Existing Mode Share
- 73% Drive Alone
- 15% Other
- 6% Walk/Bike
- 6% Transit

2030 Mode Share Goal
- 50% Drive Alone
- 20% Walk/Bike
- 15% Other
- 15% Transit

Denver Moves Bike / Walk mode will help us achieve this change
Source: U.S Census American Community Survey, 2016 1-Year Estimate

Pedestrian & Trails Goals and Benefits

ACCESIBILITY
A pedestrian system with a complete network of well-maintained, ADA-compliant sidewalks, walkways and crossings for users of all abilities.

CONNECTIVITY
A complete, connected sidewalk network without gaps and with frequent pedestrian crossings across barriers. Average crossing spacing of arterials and major barriers including highways, rivers and railroads.

DESTINATION ACCESS
A complete pedestrian network with sidewalks and crossings that are up to standards and provide direct access to key destinations: transit, grocery stores, parks, schools, and health care centers.

EQUITY
A complete pedestrian network with sidewalks and crossings up to standards and without gaps within low-income areas.

HEALTH
A complete pedestrian network with sidewalks and crossings up to standards and without gaps within areas of health concern.

SAFETY
A safe network of pedestrian facilities that enables walking as a comfortable transportation mode and is designed to reduce or eliminate crashes involving pedestrians.

Outreach Timeline

2004
- Pedestrian Master Plan
- Task Force Created

2016
- Denver Moves: Pedestrian & Trails Master Plan
- Denver Moves: Pedestrian & Trails Gathered Input Through an Online Survey Amongst the Denveright Plans
- City Staff and Consultants Worked with Community Leaders to Identify Location and Events to Gather Public Input
- Task Force Members Completed Outreach to Underserved Communities
- Review Draft Plan Content to Ensure Community Supported Vision

SUMMER 2016
- Neighborhood Workshops

FALL 2016

WINTER 2016

SUMMER 2017

Denver Moves Bike / Walk mode will help us achieve this change
Source: U.S Census American Community Survey, 2016 1-Year Estimate
### Sidewalks Types

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Shared-use Sidewalk</strong></td>
<td>Shared-use sidewalks are wide sidewalks, 10- to 12-foot in width, and separated from the adjacent roadway by a buffer, 5- to 12-foot in width, and 2-foot buffer from obstructions.</td>
</tr>
<tr>
<td><strong>Detached Sufficient Width Sidewalk</strong></td>
<td>Detached sufficient width sidewalks are 5-foot or greater and separated from the adjacent roadway by a hardscape or landscape buffer or other streetscape elements.</td>
</tr>
<tr>
<td><strong>Attached Sufficient Width Sidewalk</strong></td>
<td>Attached sufficient width sidewalks are 5-foot or greater and not separated from the adjacent roadway. These are usually implemented in neighborhood settings, or where public right-of-way constraints exist, so that a detached sidewalk cannot be accommodated.</td>
</tr>
<tr>
<td><strong>Attached Deficient Width Sidewalk</strong></td>
<td>Attached deficient width sidewalks are 5-foot or less and not separated from the adjacent roadway and are not considered ADA compliant. These were typically installed in Denver in the 1950's and 1960's.</td>
</tr>
<tr>
<td><strong>Gaps</strong></td>
<td>Sidewalk gaps are sections of roadway that have no sidewalk on either side or are missing sidewalk on one side of the street. Sidewalk gaps often exist in places with slope issues, a lack of right-of-way outside of existing curbs, or in places that haven’t been required to have sidewalks in the past.</td>
</tr>
</tbody>
</table>

### Intersection Treatments

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Traffic Signals</strong></td>
<td>A set of automatically operated colored lights, typically, red, amber, and green for controlling vehicle or pedestrian movements at intersections and crosswalks. Many streets have pedestrian signals that direct pedestrians while crossing the street.</td>
</tr>
<tr>
<td><strong>Pedestrian Hybrid Beacon - Hawk</strong></td>
<td>A special type of hybrid beacon used to warn and control traffic at an unsignalized location to assist pedestrians in crossing a street or highway at a marked crosswalk.</td>
</tr>
<tr>
<td><strong>Rapid Rectangular Flashing Beacon (RRFB)</strong></td>
<td>Active warning beacons are user-actuated amber flashing lights that supplement warning signs at unsignalized intersections or mid-block crosswalks. They are typically actuated by a pedestrian push button and are used to alert drivers to yield where pedestrian have the right-of-way crossing a roadway.</td>
</tr>
<tr>
<td><strong>Curb Extension</strong></td>
<td>Curb extensions visually and physically narrow the roadway, creating safer and shorter crossings for pedestrians, and increase the overall visibility of pedestrians. They may be implemented on downtown, neighborhood, and residential streets, large and small.</td>
</tr>
<tr>
<td><strong>Signs and Markings</strong></td>
<td>Signs (regulatory, warning, and guide) and pavement markings are used for traffic control to provide a smooth orderly flow for people using the right-of-way. They convey important information about the right-of-way and road conditions for all users.</td>
</tr>
</tbody>
</table>

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BICYCLING IN DENVER

Denver Moves: Bicycling Plan and Vision

BICYCLING VISION
To build a connected, citywide bicycle network that is safe, comfortable and convenient for people of all age and ability levels.

Program Overview

PREVIOUS PLANS
• Earlier Efforts
• 1993 Bicycle Master Plan
• 2001 Bicycle Master Plan Update

2010
• Progress and Key Milestones
• Denver Bike Map
• City’s Bicycle Parking Program
• Denver Moves: Broadway Lincoln Corridor

2011
• Denver Moves: Making Bicycle and Multi-use Connections

2015
• Denver Detection Pilot Project
• Denver Moves: Enhanced Bikeway Study
• Neighborhood Bikeway Traffic Management

2016
• Year Review, Goals, Phasing, Map
• Parking Protected Bikeways

2017
• Stakeholder Working Group
• Organize, Promote and Facilitate a Mix of Non-Traditional Community Events and/or Traditional Public Meetings

PRESENT

INCREASE BICYCLE COMMUTE TRIPS IN DENVER

2015 Existing Mode Share
73% Drive Alone
15% Other
6% Walking/Biking
6% Transit

2030 Mode Share Goal
50% Drive Alone
15% Walking/Biking
15% Other
20% Transit

Denver Moves Bike / Walk mode will help us achieve this.
Source: U.S. Census American Community Survey, 2016 1-Year Estimate

Bicycling Goals and Benefits

INCREASE COMBINED WALK/BIKE MODE SHARE
2030 GOAL
15%

100% OF HOUSEHOLDS WITHIN 1/4 MILE OF A HIGH COMFORT BIKEWAY
2030 GOAL
100%

INCREASE MILES OF BIKEWAYS IMPLEMENTED
2019-23 GOAL
125 MILES OVER 5 YEARS

REDUCE TRAFFIC RELATED DEATHS AND SERIOUS INJURIES TO ZERO BY 2030
2030 GOAL
ZERO

CONNECT WITH US
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Neighborhood bikeways, also known as bicycle boulevards, are low-volume and low-speed streets that are modified to enhance bicycle safety and comfort through design treatments such as speed and/or volume reduction features, pavement markings, signage, and street crossing treatments. These treatments generally encourage through bicycle movements while discouraging through-trips by non-local motor vehicle traffic. In order to distinguish neighborhood bikeways from regular streets, unique and branded pavement markings and signage should be installed to inform and alert motor vehicle drivers that they are on a street that is likely to be used by bicyclists of all ages and abilities.

Short sections of neighborhood bikeways may be designed with a higher degree of protection from moving vehicles to manage localized conflict between the modes. When designing those sections, designers should follow the design principles outlined in Volume 1 of the Manual.

**Bicycle Facility Selection Chart**

- **Separated Bike Lane or Shared Use Path**: Volumes 0-1k, Speeds 0-15 mph.
- **Bike Lane (Buffer Preferred)**: Volumes 1-4k, Speeds 15-25 mph.
- **Neighborhood Bikeway**: Volumes 4-10k, Speeds 25-55 mph.

**Bikeway Facility Types**

- **TRAILS**: Trails are paved, off-street travel ways designed to serve nonmotorized travelers. Across the United States, bicyclists are typically the most common users of trails. However, in many places, trails are frequently used by pedestrians, in-line skaters, roller skaters, skateboarders, wheelchair users, and users of many other modes.

- **SHARED-USE SIDEWALK**: A shared use sidewalk is a bidirectional shared use path located immediately adjacent and parallel to a roadway. Shared use sidewalk can offer a high-quality experience for users of all ages and abilities as compared to on-street facilities in heavy traffic environments.

- **NEIGHBORHOOD BIKEWAY**: Streets designed to prioritize pedestrian and bicycle movement, and are routed on low-speed, low-traffic residential streets. The building blocks of neighborhood bikeways include unique pavement markings and signage to identify these corridors. Where speeds and traffic volumes exceed targets, measures can be installed to slow traffic and manage traffic volumes. Intersection improvements are also used to ensure high-comfort crossings of busier cross-streets.

- **PROTECTED BIKE LANES**: A protected bike lane is an exclusive bicycle facility that is physically separated from moving vehicle and/or parking lanes through the use of a vertical element like cast-in-place or precast curb, flex-post, or engineered rubber curb. It can also be used by micromobility users.

- **CONVENTIONAL AND BUFFERED BIKE LANES**: Conventional bike lanes (including buffered bike lanes) are defined as exclusive space for bicyclists and e-devices with pavement markings and signage that do not include vertical separation elements.

- **SHOULDER BIKE PATH**: Shoulder bike paths are low-speed streets that are modified to enhance bicycle safety and comfort through design treatments such as speed and/or volume reduction features, pavement markings, signage, and street crossing treatments. These treatments generally encourage through bicycle movements while discouraging through-trips by non-local motor vehicle traffic. In order to distinguish shoulder bike paths from regular streets, unique and branded pavement markings and signage should be installed to inform and alert motor vehicle drivers that they are on a street that is likely to be used by bicyclists of all ages and abilities.

- **HIGH COMFORT**: As both vehicular speed and volume increase, bicyclists need more separation from vehicles to increase overall comfort and safety.

- **MODERATE COMFORT**: This chart helps to consider the context of each street and determine what facility is appropriate.

- **LOW COMFORT**: This chart identifies bicycle facilities that improve comfort levels for bicyclists of all ages and ability levels at different roadway operating speeds and traffic volumes.

- **TRAFFIC VOLUMES**: Traffic volumes, which relate to how busy a street is, are mapped on the left side of the chart, and vehicle speeds are mapped on the bottom.
We need to make Denver’s streets safe for everyone – no matter where they live in the city, no matter their means, and no matter their choice to walk, bike, drive or take transit.

The Vision Zero Action Plan established a framework to reduce fatalities and serious injuries on our roadways to zero by 2030.

Denver’s vision is to reduce all traffic related serious injuries and deaths to zero by 2030

Traffic related deaths have steadily increased in recent years. The Vision Zero Action Plan was adopted in 2017 to reverse this trend.

Making Streets Safer Saves Lives

In the last decade, Denver saw rapid population growth. Over this same period, the increase in traffic related fatalities outpaced population growth. We are committed to reversing this trend.

The City and County of Denver’s goal is to increase the percentage of people walking and bicycling for commuting to 15 percent.

Research suggests that as more people walk and bike, streets get safer. A recent report assessing safety for US cities found that, “high bicycling cities generally show a much lower risk of fatality and severe crashes for all road users.”*

Implementing bikeways can help us reach out Vision Zero goals.