Goal 1: Improve Safety in the Corridor
- Provides separation for people walking and bicycling
- Provides separation between people walking and driving
- Improves visibility at intersections
- Predictable driving and cycling behavior
- Reduces pedestrian crossing distance

Goal 2: Make a More Livable Corridor
- Provides separation for people walking and bicycling
- Supports placemaking & neighborhood character
- Minimizes parking and loading zone impacts
- Encourages driving speeds at posted limit
- Supports economic vitality in the corridor

Goal 3: Improve Mobility for All
- Provides separation for people walking and bicycling
- Maintains travel time for people driving
- Predictable driving and cycling behavior
- Minimizes parking and loading zone impacts
- Feasible implementation/cost

Preliminary Concept Evaluation
- No Change (Existing)
- Option 1: Two-Way Cycle Track (Broadway)
- Option 2: Two-Way Cycle Track (Lincoln)
- Option 3: One-Way Cycle Tracks (Broadway & Lincoln)

Broadway Bikeway
One Year Evaluation
March 2018
Acknowledgments

Mayor Michael B. Hancock
City Council District 7 Representative Jolon Clark

Project Management Team
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Special Thanks
City and County of Denver Staff
Bike Denver
Walk Denver
Bicycle Colorado
Transit Alliance
South Broadway Merchants Association
Over 500 businesses, community members, and commuters who
provided feedback about the Bikeway Evaluation

Project Team
Fox Tuttle Hernandez Transportation Group
Two Hundred
OnSight
MIG, Inc.
Table of Contents

Chapter 1: Introducing the Broadway Bikeway . . . . . . . . . . . 2
  Broadway Bikeway Design Features . . . . . . . . . . . . . . . . . 3

Chapter 2: Evaluating the Bikeway . . . . . . . . . . . . . . . . . . . . 5

  Goal 1: Everyone arrives safely to their designation . . 10
    Crashes by Mode & Type . . . . . . . . . . . . . . . . . . . . . . . 10
    Public Perception of Safety . . . . . . . . . . . . . . . . . . . . . 10
    Bicycle Riding Location. . . . . . . . . . . . . . . . . . . . . . . . 13
    Signal Compliance . . . . . . . . . . . . . . . . . . . . . . . . . . . 14
    Speed Limit Compliance . . . . . . . . . . . . . . . . . . . . . . . 15
    Stop Compliance: Unsignalized Intersection. . . . . . . . . . . 16
    Stop Compliance: Driveway . . . . . . . . . . . . . . . . . . . . . 16
    Parking Compliance . . . . . . . . . . . . . . . . . . . . . . . . . . 17
    People Driving in the Transit Lane . . . . . . . . . . . . . . . . . 17

  Goal 2: Collaborate with the community & businesses 18
    Business Input . . . . . . . . . . . . . . . . . . . . . . . . . . . . 19
    Community Input . . . . . . . . . . . . . . . . . . . . . . . . . . . 20
    Commuter Input . . . . . . . . . . . . . . . . . . . . . . . . . . . . 21
    Retail Sales Tax . . . . . . . . . . . . . . . . . . . . . . . . . . . . 23
    Business/Community “Ownership” . . . . . . . . . . . . . . . . . 23
    Participation in Outreach Opportunities . . . . . . . . . . . . . 24

  Goal 3: Provide mobility options for everyone . . . . . . . . . . . 26
    Vehicle Travel Times . . . . . . . . . . . . . . . . . . . . . . . . . 26
    Vehicle Travel Volumes . . . . . . . . . . . . . . . . . . . . . . . . 27
    Parallel Corridor Traffic . . . . . . . . . . . . . . . . . . . . . . . 28
    Parking Space Utilization . . . . . . . . . . . . . . . . . . . . . . . 28
    Transit On-Time Arrival . . . . . . . . . . . . . . . . . . . . . . . . 29
    Transit Ridership . . . . . . . . . . . . . . . . . . . . . . . . . . . 29
    Summer/Winter Maintenance . . . . . . . . . . . . . . . . . . . . . 30
    Bicycle Volumes . . . . . . . . . . . . . . . . . . . . . . . . . . . . 31
    Bicycle Demographics . . . . . . . . . . . . . . . . . . . . . . . . 31
    Bike Parking Utilization . . . . . . . . . . . . . . . . . . . . . . . . 31
    Sidewalk Pedestrian Volumes . . . . . . . . . . . . . . . . . . . . . 32

Chapter 3: Planning for What’s Next . . . . . . . . . . . . . . . . . . 33
Denver is growing. This growth is putting increased pressure on Denver’s transportation system. The City and County of Denver (the City) has been setting policy direction to handle this change for over a decade, taking a multimodal approach of moving people. Broadway and Lincoln are changing as well.

“I think that protected bike lanes such as this are vital to making Denver a world-class city”. - Baker Neighborhood Resident

In line with its philosophy for mobility, City plans have identified the importance of, and made recommendations for, the Broadway/Lincoln corridor. Recommendations include the addition of a protected, two-way bikeway on Broadway, enhancement of the existing transit lane, pedestrian improvements, and cohesive parking management strategies.

During Phase 1 of the Broadway/Lincoln Corridor Study, a two-way, parking-protected bikeway was identified as one of the potential projects to improve safety in the corridor, make the corridor more livable, and improve mobility for all users. As a first step toward implementing recommendations, the City decided to install a temporary bikeway on a segment of the Broadway corridor for Phase II (Bikeway Evaluation). This enabled operational evaluation of a bikeway and other mobility changes before making major infrastructure investments along the larger corridor. The Bikeway Evaluation is the initial step of planned mobility projects in the corridor.

In August 2016, after six months of design and analysis, the City opened a two-way, parking-protected bikeway on a six-block segment of Broadway between Bayaud Avenue and Virginia Avenue. The City installed a long enough segment to collect meaningful data on operational impacts and utilized fiscally conservative methods, with no major capital improvements required. The implementation and observation of the Broadway bikeway is helping the project team and the public learn about the operation of a two-way bikeway along a one-way street and will inform the design of a potential future corridor-long facility.

Project Goals
- Everyone arrives safely to their destination
- Collaborate with the community and businesses
- Provide mobility options for everyone

Data Collection
- August 2016 through November 2017

Online Survey Responses
- 284 total responses
BROADWAY BIKEWAY DESIGN FEATURES

**BROADWAY BIKEWAY DESIGN FEATURES**

bollards were installed in the buffer. Many engineering design features were incorporated into the project to minimize conflicts between people riding bikes and people driving cars along Broadway. The design features were developed using guidance from the City’s Bikeway Design Guidelines and national design guidelines. The purpose of the Bikeway Evaluation was to study these features to understand how they affected Broadway and contributed to safe operations on the corridor. This includes parking space modifications to improve visibility at intersections and driveways.

**BICYCLE AND LEFT TURN SIGNALS**

New bike signals, as well as automobile left turn pockets and left turn signals, were installed at Bayaud Avenue, Cedar Avenue, Alameda Avenue, and Virginia Avenue. The left turn signals prohibit people in cars from turning left when people riding bikes and walking are permitted to cross at intersections. The bike signals provide a red signal for people riding bicycles when people in cars are turning left across the bikeway. The bike signals also provide signal indication for people riding northbound on Broadway.

**GREEN PAINT AT CONFLICT ZONES**

At driveways and intersections without a signal, green paint is used to signify an area where a higher degree of caution is necessary. It shows where motorists can cross the bikeway. Both bicyclists and motorists entering this area must exercise caution. Green has been approved by the U.S. Department of Transportation Federal Highway Administration for use in bikeways.
SIGNs

Signs stating “Left Turning Vehicles Yield to Bicycles” are installed at intersections without traffic signals. “Two-Way Bike Traffic” signs are posted at driveways to remind drivers to look both ways for bikes before entering the roadway.

PHYSICAL BARRIER

The parking lane along the bikeway provides a physical barrier between people driving cars and people riding bikes or walking on the east side of the street. Painted buffers and flex posts provide physical separation where parking is not permitted. The reconfiguration moved traveling automobiles 10 feet further away from the sidewalk, which creates a more comfortable sidewalk for walking and enjoying the restaurants and shops along Broadway.
Chapter 2. Evaluating the Bikeway

The implementation and observation of the Broadway bikeway helped the project team learn about the operation of a two-way bikeway along a one-way street and will inform the corridor-long multimodal design project that will kick-off in 2018. An interim 3 month data report was released in early 2017. This final report updates that information to complete a one-year evaluation of the project.

Before the installation of the bikeway, the project team worked with the City, stakeholders, and the general public to develop goals and identify evaluation criteria to be used to evaluate the success of the bikeway against those goals. As such, many avenues were provided for input.

COMMUNITY MEETINGS AND EVENTS

Prior to installing the bikeway, the City hosted pop-up meetings at Civic Center EATS downtown to alert commuters to the upcoming study on Broadway and at Illegal Pete’s in the Broadway corridor to inform the community. Bike Denver and Bicycle Colorado hosted six events in the corridor to encourage people to visit the study area and provide feedback about the bikeway. Walk Denver also hosted a walking tour to engage people in the study area.

BUSINESS MEETINGS

The City attended Broadway Merchants Association Meetings, walked the corridor and went door-to-door to meet with business owners 12 times of the first 3 months of the bikeway evaluation.

PROJECT WEBSITE

The project team hosted a website, DenverMovesBroadway.com, which shared information about the project, posted routine project updates, and hosted an online survey to gather input from the community, commuters, and businesses about their experience with the bikeway.

Through each of these avenues as well as emails and phone calls, the City continues to receive support for the project, ideas and suggestions for improving the bikeway facility, and requests for extending the project into Downtown. The City has also received and responded to emails expressing concerns about the bikeway, loss of parking and questions regarding signal operation. In addition, a few emails requested the removal of the bikeway and end of the project due to perceived congestion. Reasons cited for these comments focused largely on the perceived travel delay associated with waiting for the traffic signal to allow vehicles to turning left from Broadway.

“I love the new bike path! We are missing key North-South bike paths. I would love to see it extended up to Colfax and beyond”

- Survey Respondent
ONLINE SURVEY
An online survey was open from August 2016 to February 2017. During that time, 284 people responded to the survey.

“This is a great first step. We need a LOT more of this.”

- Survey Respondent

ONLINE COMMENTS
The online comment portal that was opened during the Broadway/Lincoln Corridor Study remained open throughout the Bikeway Evaluation.

EMAIL NOTICES
The City used the stakeholders contact list collected throughout the project to provide information and encourage input about the bikeway.

Based on the identified goals and evaluation criteria shown on the following page, the project team collected performance measure data on the bikeway and Broadway corridor. Two data collection reporting periods were identified. First, the City collected data for three months after the bikeway was installed. This data was used to understand the preliminary impacts of the bikeway. Data was collected in September, October, and November 2016. In December 2016, the City released a summary of selected three-month data that informed their decision to continue the study through 2017. This report provides additional detail about the impacts of the bikeway after it has been installed for one year.

“Please stop taking street lanes and turning them into bike lanes.”

- Survey Respondent
BROADWAY BIKEWAY GOALS AND EVALUATION

Goal 1: Everyone Arrives Safely to Their Destination

<table>
<thead>
<tr>
<th>Performance Measure</th>
<th>Before Data</th>
<th>6 Months After</th>
<th>15 Months After</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crashes by Mode &amp; Type</td>
<td>Completed: 2012-2014 DPD crash database</td>
<td>Total crashes reported</td>
<td>Crash analysis reported</td>
</tr>
<tr>
<td>Public Perception of Safety</td>
<td>Survey data</td>
<td>Survey results reported</td>
<td>Survey results reported</td>
</tr>
<tr>
<td>Speed Limit Compliance</td>
<td>Completed: 2015 average mean speed from DPW database</td>
<td>Not reported during this timeframe</td>
<td>Compliance results reported</td>
</tr>
<tr>
<td>Signal Compliance</td>
<td>Not Required</td>
<td>Not reported during this timeframe</td>
<td>Compliance results reported</td>
</tr>
<tr>
<td>Stop Compliance at Unsignalized Intersections</td>
<td>Not Required</td>
<td>Not reported during this timeframe</td>
<td>Compliance results reported</td>
</tr>
<tr>
<td>Stop Compliance at Driveways</td>
<td>Not Required</td>
<td>Not reported during this timeframe</td>
<td>Compliance results reported</td>
</tr>
<tr>
<td>Parking Compliance</td>
<td>Not Required</td>
<td>Not reported during this timeframe</td>
<td>Compliance results reported</td>
</tr>
<tr>
<td>People Driving in Transit Lane (3-6 PM)</td>
<td>Not Available</td>
<td>Compliance results reported</td>
<td>Compliance results reported</td>
</tr>
<tr>
<td>Bicycle Riding Location</td>
<td>Completed: September 2015</td>
<td>Riding location results reported</td>
<td>Riding location results reported</td>
</tr>
</tbody>
</table>

Goal 2: Collaborate with the Community and Businesses

<table>
<thead>
<tr>
<th>Performance Measure</th>
<th>Before Data</th>
<th>6 Months After</th>
<th>15 Months After</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business Input</td>
<td>Completed: July 2016</td>
<td>Survey results reported</td>
<td>Survey results reported</td>
</tr>
<tr>
<td>Retail Sales Tax</td>
<td>Completed: Q3 2015</td>
<td>Not reported during this timeframe</td>
<td>Sales tax results reported</td>
</tr>
<tr>
<td>Community Input</td>
<td>Completed: October 2015</td>
<td>Survey results reported</td>
<td>Survey results reported</td>
</tr>
<tr>
<td>Commuter Input</td>
<td>Completed: October 2015</td>
<td>Survey results reported</td>
<td>Survey results reported</td>
</tr>
<tr>
<td>Participation in Outreach Opportunities</td>
<td>Completed: October 2015</td>
<td>Participation results reported</td>
<td>Participation results reported</td>
</tr>
<tr>
<td>Business/Community Bikeway “Ownership”</td>
<td>Not Required</td>
<td>Not reported during this timeframe</td>
<td>Results reported</td>
</tr>
</tbody>
</table>

Goal 3: Provide Mobility Options for Everyone

<table>
<thead>
<tr>
<th>Performance Measure</th>
<th>Before Data</th>
<th>6 Months After</th>
<th>15 Months After</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vehicle Travel Times</td>
<td>Completed: September 2015</td>
<td>Travel times reported</td>
<td>Travel times reported</td>
</tr>
<tr>
<td>Vehicle Traffic Volumes</td>
<td>Completed: March/September 2015</td>
<td>Traffic volumes reported</td>
<td>Traffic volumes reported</td>
</tr>
<tr>
<td>Parallel Corridor Traffic</td>
<td>Completed: March/June 2016</td>
<td>Traffic volumes reported</td>
<td>Traffic volumes reported</td>
</tr>
<tr>
<td>Parking Space Utilization</td>
<td>Completed: March 2013</td>
<td>Parking results reported</td>
<td>Parking results reported</td>
</tr>
<tr>
<td>Transit On-Time Arrival</td>
<td>Completed: January 2015 Runboard</td>
<td>Not reported during this timeframe</td>
<td>Arrival results reported</td>
</tr>
<tr>
<td>Transit Ridership (Boardings/Alightings)</td>
<td>Completed: January 2015 Runboard</td>
<td>Not reported during this timeframe</td>
<td>Ridership results reported</td>
</tr>
<tr>
<td>Bicycle Volumes</td>
<td>Completed: September 2015</td>
<td>Bicycle volumes reported</td>
<td>Bicycle volumes reported</td>
</tr>
<tr>
<td>Bicyclist Demographic</td>
<td>Completed: September 2015</td>
<td>Bicyclist demographics reported</td>
<td>Bicyclist demographics reported</td>
</tr>
<tr>
<td>Bike Parking Utilization</td>
<td>Not Required</td>
<td>Not reported during this timeframe</td>
<td>Parking results reported</td>
</tr>
<tr>
<td>Sidewalk Pedestrian Volume</td>
<td>Not Available</td>
<td>Pedestrian volumes reported</td>
<td>Pedestrian volumes reported</td>
</tr>
<tr>
<td>Summer/Winter Maintenance</td>
<td>Not Required</td>
<td>Not reported during this timeframe</td>
<td>Results reported</td>
</tr>
</tbody>
</table>
BROADWAY BIKEWAY STUDY
Preliminary Data: August - November 2016

The City and County of Denver has been studying the two-way, parking-protected bikeway on Broadway between Bayaud and Virginia to evaluate performance based on the goals for the study. Based on the first three months of data, the City has made the decision to continue the bikeway study through 2017. The key data that supported the City’s decision include:

1. People feel safer in the study area
2. People are riding bikes in the bikeway
3. In general, people support the bikeway

Goal: Everyone arrives safely to their destination

"I feel safer" was the #1 survey response from people walking and biking in the study area.

Where are people riding bikes on Broadway?

People are now riding bikes in the bikeway rather than on the sidewalk or in travel lanes.

<table>
<thead>
<tr>
<th></th>
<th>Before</th>
<th>After</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sidewalk</td>
<td>58%</td>
<td>28%</td>
</tr>
<tr>
<td>Transit Lane</td>
<td>40%</td>
<td>13%</td>
</tr>
<tr>
<td>Travel Lane</td>
<td>2%</td>
<td>59%</td>
</tr>
</tbody>
</table>

Goal: Provide mobility options for everyone

The Broadway bikeway study has created a place for people on bikes.

Percent Lane Use

Before: 27% walk, 28% park, 1% drive, 24% transit, 21% park, 24% walk
After: 35% walk, 34% bike, 31% park, 31% drive, 30% transit, 30% walk

www.DenverMovesBroadway.com
Chapter 2: Evaluating the Bikeway

Goal: Collaborate with the community & businesses

What is your general reaction to the bikeway?

- I really like it, expand it to downtown: 62%
- I don’t really care: 22%
- I don’t like it, but with changes I could tolerate: 3%
- I really don’t like it, want Broadway the way it was: 23%
- I like it, but it needs some changes: 11%

243 people responded to the online Broadway bikeway survey

How do you travel Broadway?

- Drive: 39%
- Walk: 21%
- Bike: 19%
- Transit: 3%

The City is working with businesses to understand their bikeway concerns, particularly regarding parking. Several of the parking spaces that were removed have been reinstalled. The City is committed to monitoring parking and continuing work with the business community.

350 community members attended bikeway events

- Civic Center EATS pop-up
- Illegal Pete’s pop-up
- Bikes on Broadway Social
- Tour de Fat Broadway Pre-Ride
- Broadway Coffee Bean Ride
- Broadway Ice Cream Ride
- Bikes on Broadway Walking Tour
- Women Bike Colorado Movie Night

Next Steps: What to expect on Broadway in 2017

- The City is committed to routine snow removal in the bikeway throughout the 2016-2017 winter

The City will continue to collect data on the Broadway bikeway through 2017 to evaluate performance based on the goals. Next steps for the project include:

- February 2017 release of full three-month data summary
- December 2017 release of full one-year data summary
- 2017-2018 evaluate feasibility of full corridor implementation

Stay Involved...

As this study continues into 2017, visit the study area, support local businesses, take the online survey, share your thoughts online.

Denver Moves BROADWAY/LINCOLN CORRIDOR STUDY

www.DenverMovesBroadway.com

Preliminary data released in December 2016
Chapter 2: Evaluating the Bikeway

GOAL 1: EVERYONE ARRIVES SAFELY TO THEIR DESTINATION

Safety was the number one priority for the bikeway. Nine performance measures were used to understand the safety of the bikeway during the first year: crashes by mode and type, public perception of safety, speed limit compliance, signal compliance, stop compliance at an unsignalized intersection, stop compliance at a driveway, parking compliance, people driving in the transit lane, and bicycle riding location.

CRASHES BY MODE & TYPE

The project team reviewed reported crashes between January 2015 and November 2017 in the study area. Reported crashes are incidents where a Denver Police officer arrived on the scene and filled out a crash report. In 2015, there were a total of 117 reported crashes in the study area, three of these crashes involved bicycles on the west side of Broadway. Previous data reported 35 crashes along the bikeway study area in 2016, the recent database update concludes that there were 98 crashes. Of all crashes in 2016, 2 involved bicycles in the transit lane. In 2017, there have been 56 crashes from January 1st through November 30th. Of these crashes, one involved a bicyclist in the bikeway adjacent to the Alameda intersection. While there appears to be a decrease in overall crashes on this segment of Broadway, it should be noted that this is only preliminary data that indicates early results of the bikeway safety performance. (Data Source: https://www.denvergov.org/opendata/dataset/city-and-county-of-denver-traffic-accidents. This source is a dynamic data set that is updated each business day and does not include counter reports or incidents with damages less than $1000.)

PUBLIC PERCEPTION OF SAFETY

An online survey was open to collect feedback after the bikeway was installed. The online survey asked people about their experience after walking, bicycling, and driving through the study area. Respondents could select multiple responses. 284 people responded to the online survey, which closed in February 2017. Overall, the people who responded to the survey felt safer with the bikeway in place regardless of their mode choice.

PEOPLE WALKING IN THE STUDY AREA

“I felt safer” was the most selected responses from people walking in the study area.

PEOPLE CYCLING IN THE STUDY AREA

“I felt safer” was the most selected response from people bicycling in the study area.

PEOPLE DRIVING IN THE STUDY AREA

“It was comfortable being separate from bicycle traffic” was the most selected response from people driving in the study area. “I felt safer” was selected by 52 respondents about driving in the study area.

How was walking on Broadway?

![Graph showing responses to the question: How was walking on Broadway?]

Responses to the question: “How was walking on Broadway?”

<table>
<thead>
<tr>
<th>Response</th>
<th>Number of Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>I FELT SAFER WALKING</td>
<td>95</td>
</tr>
<tr>
<td>THERE WERE FEWER PEOPLE RIDING BIKES ON THE SIDEWALK</td>
<td>94</td>
</tr>
<tr>
<td>I DIDN'T REALLY NOTICE A DIFFERENCE</td>
<td>74</td>
</tr>
<tr>
<td>I DID NOT WALK THROUGH THE STUDY AREA</td>
<td>53</td>
</tr>
<tr>
<td>I FELT LESS SAFE WALKING</td>
<td>23</td>
</tr>
<tr>
<td>I WAS CONFUSED BY THE CHANGES</td>
<td>20</td>
</tr>
<tr>
<td>THERE WERE MORE PEOPLE RIDING BIKES ON THE SIDEWALK</td>
<td>11</td>
</tr>
</tbody>
</table>
How was biking on Broadway?

Responses to the question: “How was biking on Broadway?”

- I felt safer riding my bike: 147
- It was comfortable being separate from traffic: 139
- I knew where I was supposed to ride: 133
- The bike signals worked well: 87
- I did not ride a bike through the study area: 77
- Intersection/driveway crossings were clear: 60
- Connections in/out of bikeway were clear: 53
- Connections in/out of bikeway were confusing: 51
- Intersection/driveway crossings were confusing: 37
- The bike signals were confusing: 35
- I felt less safe riding my bike: 30
- People were parking in the bikeway: 29
- People were walking in the bikeway: 23
- I had to stop at too many signals: 20

Bicyclists on Broadway
Chapter 2: Evaluating the Bikeway

How was driving on Broadway?

- It was comfortable being separate from bicycle traffic (90 responses)
- Congestion did not change or was better (81 responses)
- Fewer people riding bikes in travel lanes (73 responses)
- Congestion was worse (71 responses)
- Intersections/driveways were confusing (63 responses)
- Parking along the bikeway was confusing (55 responses)
- Parking along the bikeway was easy (52 responses)
- I felt less safe driving (51 responses)
- I felt safer driving (45 responses)
- I did not drive a car in the study area (41 responses)
- Intersections/driveways were clear (41 responses)
- I had to stop at too many signals (41 responses)
- More people riding bikes in the travel lanes (8 responses)
BICYCLE RIDING LOCATION

Before the Broadway bikeway was installed, the project team observed where people were riding on Broadway. The majority (58%) rode on the sidewalk, some (40%) rode in the transit lanes, and a small number of people (2%) rode in the travel lanes. After the bikeway was installed for evaluation, the majority (57%) of people rode in the bikeway. There were fewer people riding bikes on the sidewalk (30%) and transit lane (12%); a very limited number people were observed riding in the general-purpose travel lanes (1%) after the bikeway was installed. People on bicycles chose the dedicated space when the option was available.

“Seems like there are still bikers using the sidewalk.”

“The only way to improve pedestrian/cyclist access to these businesses and increase safety is to implement this bike lane.’

- Survey Respondents

Bicycle Riding Location

<table>
<thead>
<tr>
<th></th>
<th>Sidewalk</th>
<th>Transit Lane</th>
<th>Travel Lane</th>
<th>Bikeway</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before</td>
<td>58%</td>
<td>40%</td>
<td>2%</td>
<td></td>
</tr>
<tr>
<td>Sept 2016</td>
<td>30%</td>
<td>13%</td>
<td>57%</td>
<td></td>
</tr>
<tr>
<td>Oct 2016</td>
<td>21%</td>
<td>13%</td>
<td>66%</td>
<td></td>
</tr>
<tr>
<td>Nov 2016</td>
<td>40%</td>
<td>15%</td>
<td>45%</td>
<td></td>
</tr>
<tr>
<td>May 2017</td>
<td>29%</td>
<td>7%</td>
<td>5%</td>
<td>59%</td>
</tr>
<tr>
<td>After Avg</td>
<td>30%</td>
<td>12%</td>
<td>1%</td>
<td>57%</td>
</tr>
</tbody>
</table>
SIGNAL COMPLIANCE

New left turn signals and bike signals were installed where the bikeway traveled through signalized intersections. Signal compliance was evaluated for people walking, bicycling, and driving through the intersection of Broadway and Cedar.

PEOPLE WALKING

People walking on Broadway and crossing Cedar complied with the walk signal just over half the time (54%). Compliance was highest during the PM peak (62%), most likely due to higher traffic volumes.

PEOPLE BICYCLING

People riding in the bikeway on Broadway and crossing Cedar complied with the bicycle signal approximately three quarters of the time (71%). Compliance was highest in November (78%), just after the bikeway installation, with lower compliance being observed in May 2017 (59%). The lower compliance is likely due to cyclist recognizing low traffic volumes and limited conflicts upon arrival to the intersection.

PEOPLE DRIVING

People driving on Broadway and turning left on Cedar complied with the left turn signal an average of 85% of the time. Compliance was lowest immediately following installation in September 2016 (78%), but quickly rose to 88% in October 2016 and remained at that level.
SPEED LIMIT COMPLIANCE

Speed compliance is studied to understand how safe the corridor can be for all users. Prior to the location of the bikeway being finalized, speed data was collected at Broadway and Center. Following the installation of the bikeway, vehicle speed data was collected at Broadway and Cedar in November 2016 and May 2017.

Vehicular speeds southbound on Broadway at Center in May 2015, before the bikeway was installed, averaged 36 miles per hour. At Broadway and Cedar in November 2016, following the bikeway installation, speeds averaged 33 miles per hour. In May 2017, speeds continued to average 33 miles per hour. Reductions in the average speed following the bikeway installation were due to a notable decrease in speed during the PM peak hour. While speeds were reduced in the Bikeway Evaluation area, end to end travel times have not been impacted.

The posted speed limit is 30 MPH.
STOP COMPLIANCE - UNSIGNALIZED INTERSECTION

After the Bikeway was installed, stop compliance for an unsignalized intersection was evaluated for people driving west on Maple and crossing the bikeway on the east side of Broadway. Compliance with the stop bar on Maple was approximately 12% throughout the evaluation. The majority of people driving on Maple stopped in the sidewalk/crosswalk (53%) before proceeding, with about 15% stopping in the bikeway and 21% rolling through the stop sign.

Stop Compliance : Unsignalized Intersection

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<tbody>
<tr>
<td>9%</td>
<td>15%</td>
<td>19%</td>
<td>17%</td>
<td>15%</td>
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<tr>
<td>53%</td>
<td>64%</td>
<td>50%</td>
<td>47%</td>
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<tr>
<td>10%</td>
<td>12%</td>
<td>11%</td>
<td>13%</td>
<td>11%</td>
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STOP COMPLIANCE - DRIVEWAY

After the Bikeway was installed, stop compliance for a driveway was evaluated for people driving out of a business parking lot and crossing the bikeway on the east side of Broadway. The driveway does not have a stop bar. People driving stopped in the crosswalk before proceeding approximately 36% of the time during the evaluation, with about 24% stopping in the bikeway and 38% rolling through to access Broadway. While collecting data at this location, no conflicts (collisions or near misses) were observed between people driving and people walking or riding bicycles.

Stop Compliance : Driveway

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<tbody>
<tr>
<td>41%</td>
<td>41%</td>
<td>35%</td>
<td>33%</td>
<td>38%</td>
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<tr>
<td>14%</td>
<td>24%</td>
<td>16%</td>
<td>41%</td>
<td>24%</td>
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<tr>
<td>40%</td>
<td>35%</td>
<td>45%</td>
<td>26%</td>
<td>36%</td>
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<td>5%</td>
<td>35%</td>
<td>4%</td>
<td>2%</td>
<td>2%</td>
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</table>
PARKING COMPLIANCE

Denver Public Works has been monitoring parking utilization along the Broadway Bikeway Evaluation project study area and have not observed passenger vehicles parked in the protected bike lane. However, there have been several large delivery vehicles that have unloaded cargo while parked within in the protected bike lane.

As the project evolves from study into design, additional efforts should be applied towards developing the buffer area in order to facilitate loading activities while restricting vehicle access into the bikeway.

PEOPLE DRIVING IN THE TRANSIT LANE

One of the southbound travel lanes on Broadway becomes as a transit and right-turn-only vehicle lane on weekdays from 3:00 PM to 6:00 PM. This is achieved with signs and flashing lights in the western-most curb lane. Buses operated by the Regional Transportation District (RTD) and any vehicle that was making a right turn can use this lane. Video data was collected to monitor through lane violations when the western-most curb lane is restricted to a transit and right-turn lane. The videos analyzed during the peak commute times from 4:35 PM to 5:35 PM show consistent numbers of vehicles using the transit and right-turn only lane during the Broadway Bikeway Evaluation. During this busy commute period when it may be expected that potential violations of the transit lane restrictions would occur, the total number of violations has stayed relatively constant during the PM peak hour. However, data analyzed in the shoulders of the peak hour did have instances of higher violations, with the highest discrepancies from 3-3:45pm when overall traffic volumes are lower.

In late August 2017, the City and RTD converted the western-most travel lane into 24-hour dedicated transit lane. They are currently evaluating the use of several different red paint applications to evaluate the influence on people driving in the transit lane. Data is being collected to understand any changes in the lane violations during the peak and off-peak hours.

Vehicles driving in the dedicated transit lane

<table>
<thead>
<tr>
<th>Month</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sept 2016</td>
<td>146</td>
</tr>
<tr>
<td>Oct 2016</td>
<td>103</td>
</tr>
<tr>
<td>Nov 2016</td>
<td>151</td>
</tr>
<tr>
<td>May 2017</td>
<td>149</td>
</tr>
</tbody>
</table>

Number of vehicles driving in the dedicated transit only lane on Broadway between 4:35 PM to 5:35 PM
GOAL 2: COLLABORATE WITH THE COMMUNITY & BUSINESSES

Overall, what is your general reaction to the bikeway?

284 Total Responses

5%  “I don’t like it, but with changes I could.”

27%  “I really like it, expand it to downtown.”

2%  “I don’t really care.”

9%  “I like it, but it needs some changes.”

Collaboration with the community and businesses in the corridor was critical to the development of the vision for the future of Broadway and Lincoln during Phase 1. The City continued the commitment to engage with the community and businesses during the Bikeway Evaluation. Part of understanding the success of the bikeway is understanding how people working, living, and traveling through the study area react to it. The City attended three Broadway Merchants Association Meetings and walked door-to-door to talk with business owners over twenty times. Additionally, they hosted two in-person pop-up meetings and maintained a website (www.DenverMovesBroadway.com) that included an online survey and online comment form to collect feedback throughout the study. 284 people responded to the online survey. Overall, the responses supported the bikeway. Most people (57%) “really like” the bikeway and want it expanded downtown. Just over a quarter of people (27%) “really don’t like” the bikeway and want Broadway reverted to the way it was. The remaining 16% of respondents wanted changes to the bikeway (14%) or did not really care (2%).

Who responded to the survey?

<table>
<thead>
<tr>
<th>Category</th>
<th>Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>DENVER RESIDENTS</td>
<td>125</td>
</tr>
<tr>
<td>BAKER NEIGHBORHOOD RESIDENTS</td>
<td>60</td>
</tr>
<tr>
<td>WEST WASH PARK NEIGHBORHOOD RESIDENTS</td>
<td>58</td>
</tr>
<tr>
<td>NON-DENVER RESIDENTS</td>
<td>41</td>
</tr>
<tr>
<td>BUSINESS OWNERS</td>
<td>22</td>
</tr>
<tr>
<td>NON-BUSINESS OWNERS</td>
<td>262</td>
</tr>
<tr>
<td>CORRIDOR COMMUTERS</td>
<td>143</td>
</tr>
<tr>
<td>NON-COMMUTERS</td>
<td>141</td>
</tr>
</tbody>
</table>
BUSINESS OWNER INPUT - 22 RESPONDENTS

22 business owners responded to the online survey. When asked about their general reaction to the bikeway, just under half of the business (45%) responded that they like the bikeway while half of the businesses (50%) did not like the bikeway. However, over half of those who did not like the bikeway could like it with changes (27% of responses).

BUSINESS INPUT

Business outreach related to the Bikeway Evaluation began in July 2016, when the project team went door to door between Ellsworth and Virginia to let each business know about the upcoming project and construction schedule. During the construction and immediately after opening the bikeway, the City started hearing concerns from some businesses along the bikeway. The issues were focused on parking and loading zone changes that accompanied the bikeway. The City met with businesses eight times between August 15 and October 31, 2016. During these meetings, the City listened to concerns, provided data from the first month of data collection, and worked closely with businesses to develop parking and loading zone changes that would not impact the integrity and safety of the new bikeway. On November 3, 2017, the City implemented the parking and loading zone changes along the bikeway.
Chapter 2: Evaluating the Bikeway

COMMUNITY INPUT - SURVEY RESULTS BY RESIDENCE

### Denver Residents

- **125 Responses**
- **69%** "I really like it, expand it to downtown."
- **17%** "I don't like it, but with changes I could."
- **5%** "I really don't like it, want Broadway the way it was."
- **1%** "I don't really care."

### Baker Neighborhood Residents

- **60 Responses**
- **23%** "I really like it, expand it to downtown."
- **4%** "I don't like it, but with changes I could."
- **10%** "I like it, but it needs some changes."
- **5%** "I don't like it, but with changes I could."

### West Washington Park Neighborhood Residents

- **58 Responses**
- **50%** "I really like it, expand it to downtown."
- **38%** "I really don't like it, want Broadway the way it was."
- **5%** "I don't like it, but with changes I could."
- **7%** "I like it, but it needs some changes."

### Outside of Denver Residents

- **41 Responses**
- **44%** "I really like it, expand it to downtown."
- **24%** "I don't like it, but with changes I could."
- **5%** "I don't really care."
- **20%** "I like it, but it needs some changes."

**COMMUNITY INPUT**

Two neighborhood associations, the Baker Historic Neighborhood Association (Baker) and West Washington Park Neighborhood Association (West Wash Park), as well as the general public provided input on the bikeway.

After Phase 1 of the Broadway/Lincoln Corridor Study, the Baker Historic Neighborhood Association submitted a letter to the City supporting the recommendations of the study. Baker Neighborhood support for the bikeway changes on Broadway continued through the Bikeway Evaluation. 60 Baker residents responded to the survey. Almost 65 percent of respondents like the bikeway; about 25 percent wanted Broadway returned to the way it was.

The West Washington Park Neighborhood Association expressed concerns about the bikeway. 58 West Wash Park residents responded to the survey. The respondents were split between liking and disliking the bikeway with 50% really disliking the project and wanting Broadway changed back. Many of the respondents who like the bikeway are eager to see the bikeway extended so they have a safe place to ride on Broadway. Concerns voiced by respondents who do not like the bikeway were related to changes to travel lanes on Broadway and concerns about increased congestion. Some were also frustrated that they had to wait to make a left turn adjacent to an “empty bike lane.”
COMMUTER INPUT - 143 RESPONDENTS

<table>
<thead>
<tr>
<th>COMMUTER INPUT</th>
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<tbody>
<tr>
<td><strong>143</strong> CORRIDOR COMMUTERS</td>
</tr>
<tr>
<td><strong>141</strong> NON-COMMUTERS</td>
</tr>
</tbody>
</table>

"I really don’t like it, want Broadway the way it was." 39%

"I don’t like it, but with changes I could." 7%

"I don’t really care." 1%

"I really like it, expand it to downtown." 44%

"I like it, but it needs some changes." 9%

COMMUTER INPUT

Broadway is used by many commuters in and out of Denver. 143 commuters responded to the survey; commuters are respondents who said they use Broadway to get to or from work, regardless of mode choice. Their responses were split regarding the bikeway. Just over half (53%) of the commuter respondents like the bikeway while just under half of the respondents (46%) dislike the bikeway.

41 people living outside of Denver responded to the survey. Respondents self-identified where they lived. Seven people were from a community northwest of Denver (Boulder, Broomfield, Niwot, Westminster); six were from communities west of Denver (Lakewood, Golden, Wheat Ridge); 27 people were from communities south of Denver (Castle Rock, Centennial, Colorado Springs, Englewood, Lakewood, Littleton, Lone Tree, Parker); and one was from out of state in Oakland, CA. Most of these respondents (64%) liked the bikeway.

125 Denver residents responded to the survey. The result is overwhelming support for the bikeway and expansion of the bikeway. Over 75% of Denver residents like the Broadway Bikeway.
“Wow! What a nice change for S. Broadway. This change continues the dramatic transformation of S. Broadway into a hip, local shopping center. I love walking down the street to window shop in the new retail stores and then to stop off for a tasty bite of food at the many new restaurants. As a local I see the new bike lane as a win-win for everyone in the area.” -Survey Respondent
RETAIL SALES TAX

Retail sales tax is considered an indicator of the economic vitality of an area. From 2010 through 2017, retail sales tax for the Broadway/Lincoln Corridor, from Colfax to I-25, has steadily increased from approximately $6 million to over $10 million over a seven year period. As transportation projects can have impacts to local economies, this evaluation project does not appear to have any impact on retail sales. The City and County of Denver will continue to monitor retail sales tax to assess any possible impacts due to changes to the Broadway/Lincoln corridor.

BUSINESS & COMMUNITY OWNERSHIP

During the installation of the bikeway and its evaluation, the City and County of Denver coordinated maintenance and parking revisions with the community and adjacent businesses.

While there was not initially a strong sense of ownership of the facility by the adjacent businesses, the city did receive updates of conditions and issues that allowed the project team to be responsive to concerns of local businesses.

The maintenance district for the S. Broadway corridor had indicated a significant reduction in trash and debris along the bikeway evaluation project.

Project team engages business along Broadway about the bikeway
PARTICIPATION IN OUTREACH OPPORTUNITIES

350 community members attended the eight bikeway events that took place during the study.

The events included:

- **Civic Center EATS pop-up**
  July 21, 2016

- **Illegal Pete’s pop-up**
  July 21, 2016

- **Bikes on Broadway Social**
  August 15, 2016

- **Tour de Fat Broadway Pre-Ride**
  September 10, 2016

- **Broadway Coffee Bean Ride**
  October 12, 2016

- **Broadway Ice Cream Ride**
  October 16, 2016

- **Bikes on Broadway Walking Tour**
  October 29, 2016

- **Women Bike Colorado Movie Night**
  November 1, 2016

Two pop-up community events were held before the bikeway was installed. The project team set up at Civic Center EATS in July 2016 to talk with downtown commuters about the coming changes to Broadway. The pop-up moved to Illegal Pete’s in the Broadway corridor to catch people visiting or living in the corridor. During these pop-up events, the project team talked with about 100 people regarding the Bikeway Evaluation.

“I rode the Broadway bike lanes for the first time today. Generally I think the protected lane is good. I like the bike specific signals and am still a little concerned that cars will not honor the yield signs. Naturally I would prefer a longer track. It should be easy to access these lanes from the Broadway Light rail station. In general this is vastly safer than what was in place before.”

- Survey Respondent

On August 15, 2016, the day the bikeway opened, BikeDenver and Bicycle Colorado hosted a “Bikes on Broadway” event at Illegal Pete’s. The event encouraged people to come out and try the bikeway, shared information about the bikeway and how to use it safely, and provided information about the scope of the study.

Throughout the study, BikeDenver, Bicycle Colorado, and WalkDenver hosted 5 additional events to engage people with the bikeway. Events included a Broadway Ride before the Tour de Fat, a morning coffee ride, an ice cream ride that encouraged families to attend, a walking tour of Broadway, and a Women Bike Colorado ride on Broadway before a movie night. Hundreds of people attended these events, rode the bikeway, and engaged in conversations about the Bikeway Evaluation.
Chapter 2: Evaluating the Bikeway

Various outreach opportunities
GOAL 3: PROVIDE MOBILITY OPTIONS FOR EVERYONE

The project team collected data about mobility impacts of the bikeway on all users of Broadway in the study area. This data helped the City assess the bikeway to determine if the mobility impacts are acceptable and if the project should continue. 11 performance measures were used to understand mobility changes during the evaluation: vehicle travel times, vehicle traffic volumes, parallel corridor traffic, parking space utilization, transit on-time arrival, transit ridership, bicycle volumes, bicyclist demographic, bike parking utilization, sidewalk pedestrian volume, and summer/winter maintenance.

VEHICLE TRAVEL TIMES

Vehicular travel time runs along Broadway from Colfax to I-25 were performed before and after installation of the bikeway. Data was collected during the evening peak between 4:15 and 6:00PM. The results of these trips show that the bikeway has had minimal impact on travel time from downtown to I-25 during evening rush hour. Before the installation, it took an average of 11 minutes and 50 seconds to drive the 2.5-mile stretch from Colfax Avenue downtown to Interstate 25. In the first three months after the bikeway was installed, the same distance took an average of 11 minutes and 59 seconds. When travel times from May are included, average travel time decreased to 11 minutes and 25 seconds.

![Travel time before and after bikeway](image1.png)

![Pedestrians crossing on Broadway](image2.png)
VEHICLE TRAFFIC VOLUMES

Average daily traffic volumes and evening peak hour traffic volumes were collected to see if traffic patterns changed after installing the bikeway. Engineer best practice considers daily variation in traffic of up to 10% acceptable or typical, particularly considering the potential for day of week or seasonal variability. Daily traffic counts on Broadway after the bikeway was installed decreased 5%. When diversion from Broadway would be most likely to occur, the PM peak hour saw an 3% reduction in traffic volumes.

Vehicle Traffic Volumes

<table>
<thead>
<tr>
<th>Traffic Volumes July 2015</th>
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<tbody>
<tr>
<td>Average Daily Traffic</td>
<td>32,833</td>
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<td></td>
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<tr>
<td>PM Peak Hour Traffic</td>
<td>2,805</td>
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<tr>
<th>Traffic Volumes November 2016</th>
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<tbody>
<tr>
<td>Average Daily Traffic</td>
<td>31,221</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PM Peak Hour Traffic</td>
<td>2,766</td>
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<tr>
<th>Traffic Volumes May 2017</th>
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<tbody>
<tr>
<td>Average Daily Traffic</td>
<td>31,195</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PM Peak Hour Traffic</td>
<td>2,732</td>
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The study also monitored how many automobiles use each general purpose travel lane along Broadway during the PM peak hour. This analysis does not include vehicles traveling in the transit lane. Before the bikeway was installed, utilization of the four general-purpose through lanes varied from 28% to 21% of traffic in each general purpose lane. Three months after the bikeway installation and conversion to three general purpose travel lanes, in November 2016, lane utilization varied from 31-35%. 9 months after the bikeway installation, in May 2017, lane utilization varied from 32-35%. The data indicates that the reduction of vehicular capacity along Broadway from removing one general purpose travel lane for the bikeway is being offset by more balanced utilization of the remaining lanes. Bus lane utilization data is being collected and monitored as part of the Broadway and Lincoln Transit Lane evaluation.

General Purpose Travel Lane Utilization

<table>
<thead>
<tr>
<th></th>
<th>Lane 1</th>
<th>Lane 2</th>
<th>Lane 3</th>
<th>Lane 4</th>
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<tbody>
<tr>
<td><strong>July 2015</strong></td>
<td>27%</td>
<td>28%</td>
<td>21%</td>
<td>24%</td>
</tr>
<tr>
<td><strong>November 2016</strong></td>
<td>35%</td>
<td>35%</td>
<td>34%</td>
<td>31%</td>
</tr>
<tr>
<td><strong>May 2017</strong></td>
<td>35%</td>
<td>35%</td>
<td>33%</td>
<td>32%</td>
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</table>
PARALLEL CORRIDOR TRAFFIC

Traffic data was collected along parallel corridors to address concerns about vehicles deviating from Broadway to avoid any potential traffic delays that may result from the implementation of the bikeway.

These counts were conducted in May 2016 in advance of the bikeway installation and September 2016, following opening the facility to the public. Data was collected at the following locations:

- S. Broadway north and south of Bayaud Ave
- Bayaud Ave, east and west of S. Broadway
- Bannock between Maple and Cedar
- Sherman between Maple and Cedar;
- S. Logan between Maple and Cedar;
- S. Washington Street Maple and Cedar;

Additional data was collected in May 2017 to understand any traffic diversion along the corridor. The data did not offer any indication of traffic diverting from the Broadway corridor on to a parallel street.

PARKING SPACE UTILIZATION

Throughout the PM peak period, on-street parking continues to be consistently utilized along the corridor. Parking use along the bikeway is highest along the east side of Broadway, between Cedar and Alameda, with a surplus of available parking south of Alameda along the west side of the corridor. During the course of the study, it has been noted that Rideshare providers, such as Uber and Lyft, have been parking in business driveways to drop off and pick up passengers.

As the project evolves from study into design, additional efforts should be applied to curbside management and exploring opportunities for loading zones to address both freight and passenger uses.

Parking & Businesses:

Upon opening the bikeway on August 15, 2016, businesses along this segment of Broadway insisted that the City reconsider design decisions and return additional parking on the corridor. Through careful consideration and analysis, the project team determined that it was possible to reduce the length of the left turn lanes at Cedar and Virginia and return two parking spaces to each location. In addition, a loading zone was added to Broadway, between Cedar and Alameda. South of Alameda, a loading zone on the west side of Broadway was removed and converted into two parking spaces. Based on comments gathered during meetings with businesses, the City also extended time limits for on-street parking south of Alameda from one hour to two hours. The changes to introduce additional parking and adjust loading zones were made in October 2016, increasing the total of on-street parking in the five-block segment from 72 to 79.

On Street parking utilization on Broadway
ON-TIME TRANSIT ARRIVALS

RTD routes 0 and 0L provide bus service along Broadway and Lincoln. Southbound service travels along Broadway. Transit arrival data was tracked during the spring of 2015, 2016, and 2017.

Route 0 provides weekday and weekend bus service. Between downtown and Broadway Station, 71% of route 0 trips arrived on time in 2015, 73% of trips arrived on time in 2016, and 77% of route 0 trips arrived on time in 2017.

Route 0L provides weekday service only. Limited routes are expected to have a higher rate of on time arrivals, because it makes fewer stops. In fact 78% of route 0L trips arrived on time in 2015, and in 2016 78% of trips arrived on time, 76% of route 0L trips arrive on time in 2017.

TRANSIT RIDERSHIP

On average, about 2,800 people board a southbound bus along the Broadway corridor and 2,400 people exit (alight) a bus along the Broadway corridor each day, whether on a route 0 or 0L. In recent years, transit ridership along the corridor has followed regional trends of decreasing ridership between 2015 and 2017. Though overall transit ridership in the corridor has decreased, boarding and exiting patterns at each stop have generally remained consistent.

In 2017, boarding patterns on the north end of the Broadway corridor were impacted due to stop closures related to construction at Civic Center Station. The bikeway does not seem to have had an impact on transit ridership.

Transit Boardings

Southbound boardings along Broadway; Routes 0 and 0L (limited)
SUMMER & WINTER MAINTENANCE

Throughout the evaluation of the Broadway Bikeway, regular maintenance was performed during the Summer and Winter months. The local maintenance district for the S. Broadway corridor has indicated a significant reduction in trash and debris along the bikeway during the evaluation project. Denver Public Works had pre-treated the bikeway with magnesium-chloride in advance of snowfall and provided snow plow snow removal service without issue.
BICYCLE VOLUMES

Bicycle volumes were observed before and after the bikeway installation. During the first three months of the study, bicycle volumes remained consistent. There was a slight increase in September and a seasonal decrease in November, but on average, the volumes have remained consistent. In May, volumes were back up to 2016 levels. This level of ridership is expected given limited length of the project and time of year.

Bikeway Only

Bicyclists Demographics

Before the bikeway was installed, approximately 10% of bicyclists riding in any location on Broadway were women and 90% were men. Immediately after the bikeway was installed, a higher percentage of women were observed riding bikes on Broadway. However, this trend did not sustain. In May, the percent of women riding in the bikeway was back down to 10%. During each observation, women made up a higher percentage of the riders using the bikeway, than when compared to women riding in the corridor.
**SIDEWALK PEDESTRIAN VOLUMES**

Broadway is a vibrant mixed-use district with dense commercial and residential land uses, making it a popular destination for people walking. Depending on the time of day, between 74 and 87 people cross Cedar each hour while walking on Broadway. The number of people walking decreased in November, likely due to seasonal change. The number of people walking in May was back up to around 60 people per hour. Pedestrian counts were not collected prior to installing the bikeway.

- **Sept 2016**: 261
- **Oct 2016**: 223
- **Nov 2016**: 96
- **May 2017**: 180

*Number of people walking on both sides of Broadway at Cedar*
Chapter 3.
Planning for What’s Next

CONCLUSION

The Bikeway Evaluation continues trending successfully toward achieving the stated goals. The data confirms that Broadway can continue to provide mobility for people driving, walking and taking transit, while creating a safer place for people to ride bicycles. Also, the average motor vehicle driving speeds, during peak periods, are closer to the posted speed limits in accord with the City’s Vision Zero objectives.

Reconfiguring Broadway to create a more complete street increased safety and predictability for all roadway users. There are still concerns from some businesses along Broadway about the availability of on-street parking and loading zones. The City has made adjustments to maximize parking and loading activities to the extent possible while considering the needs for safe operations. More opportunity for adjustments will be looked at during the next steps of the design process.

The City has committed to continuing the design process to extend the Broadway bikeway from Alameda Station to Downtown Denver. Construction documents will be developed between Alameda Station and the Cherry Creek Trail. This segment was awarded construction funding in the Denver General Obligation Bond that passed in November 2017.
Goal 1: Improve Safety in the Corridor
- Provides separation for people walking and bicycling
- Provides separation between people walking and driving
- Improves visibility at intersections
- Predictable driving and cycling behavior
- Reduces pedestrian crossing distance

Goal 2: Make a More Livable Corridor
- Provides separation for people walking and bicycling
- Supports placemaking & neighborhood character
- Minimizes parking and loading zone impacts
- Encourages driving speeds at posted limit
- Supports economic vitality in the corridor

Goal 3: Improve Mobility for All
- Provides separation for people walking and bicycling
- Maintains travel time for people driving
- Predictable driving and cycling behavior
- Minimizes parking and loading zone impacts
- Feasible implementation/cost

Preliminary Concept Evaluation
- No Change (Existing)
- Option 1: Two-Way Cycle Track (Broadway)
- Option 2: Two-Way Cycle Track (Lincoln)
- Option 3: One-Way Cycle Tracks (Broadway & Lincoln)

Yes Maybe No

BROADWAY/LINCOLN CORRIDOR STUDY

www.DenverMovesBroadway.com