September 2024

# CO 119 BRT Service Plan Reassessment:

# Service Recommendations

# Contents


# Project Background

# Project Scope

The purpose of this project is to re-examine proposed BRT service patterns and frequencies for the BOLT BRT project. The Planning and Environmental Linkages (PEL) was completed in 2018. Since completion of the PEL, there have been significant changes in market conditions, regional travel demand patterns, and RTD service levels, resulting in the need to re-examine proposed BRT service plans.

This project's desired outcome is to ensure the CO 119 BRT project best serves customers traveling in and out of Boulder and connects with Boulder's key ridership origins, destinations and markets. Work tasks completed as part of this project include:

- **Market Analysis**
  - A review pre-pandemic and current transit services in the corridor
  - Evaluation origin-destination travel patterns with location-based services (LBS) data
  - Review of pre- and post-pandemic transit ridership
- **Service Plan Alternatives**
  - Identify and confirm potential horizon year and opening year service plans
- **Travel Times:**
  - Estimate BRT station-to-station travel times
- **Service Evaluation:**
  - Complete a service evaluation including span of service and frequencies by time period, service requirements, vehicle fleet impacts, O&M costs, and transit supportive capital infrastructure considerations

Technical staff from RTD, City of Boulder, Boulder County, City of Longmont and University of Colorado Boulder collaborated on this study between late November 2023 and September 2024.

# Existing BOLT Service

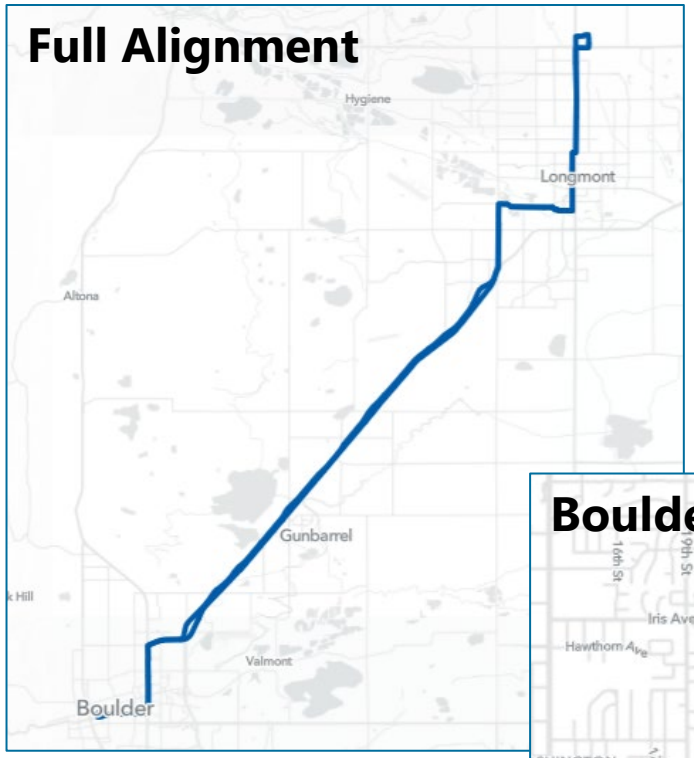
Presently, the BOLT operates between 23rd & Main in Longmont and Downtown Boulder Station. On weekends, service starts from 8th and Coffman in Longmont.

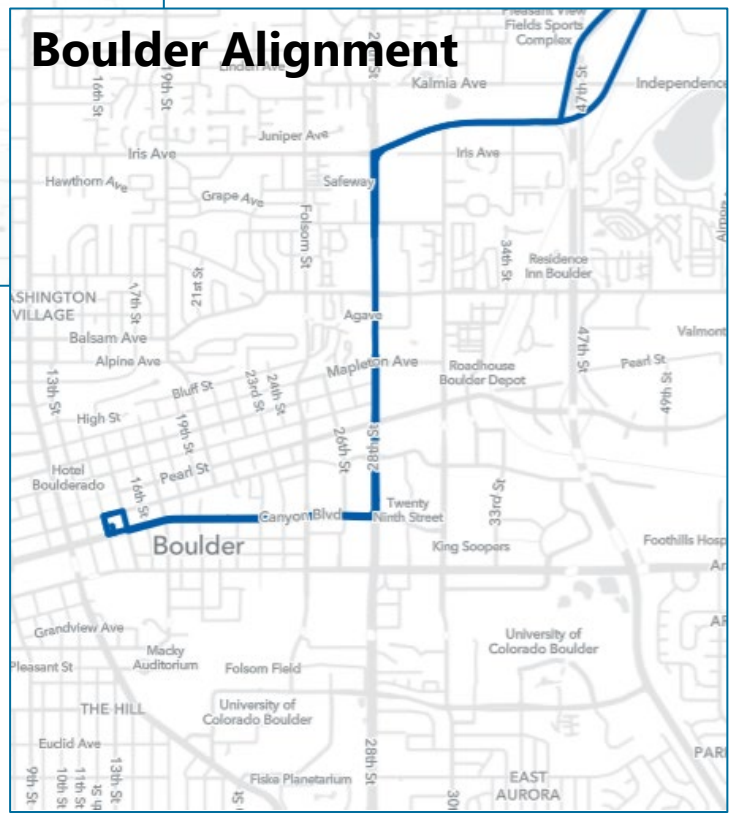
Current service frequencies are as follows:

- 30-minute frequencies on weekday peak periods
- 60-minute frequencies during weekday midday, evenings and on weekends

The BOLT currently requires 5 buses when operating at 30-minute service frequencies.

Prior to Covid, the BOLT operated more frequent service, with select trips serving Hover Street in Longmont. Select trips also served Boulder Station along Pearl Parkway. Route J also provided supplemental service in the peak periods with 4-5 peak direction trips in each peak period.



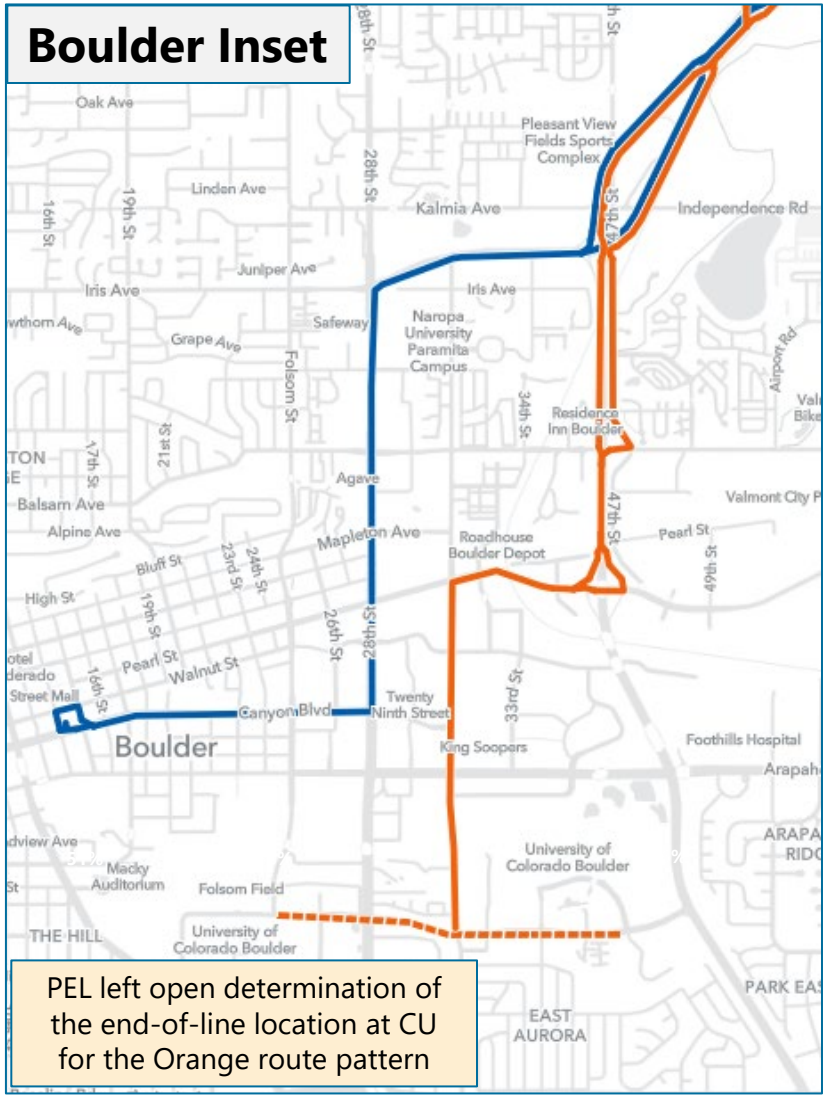



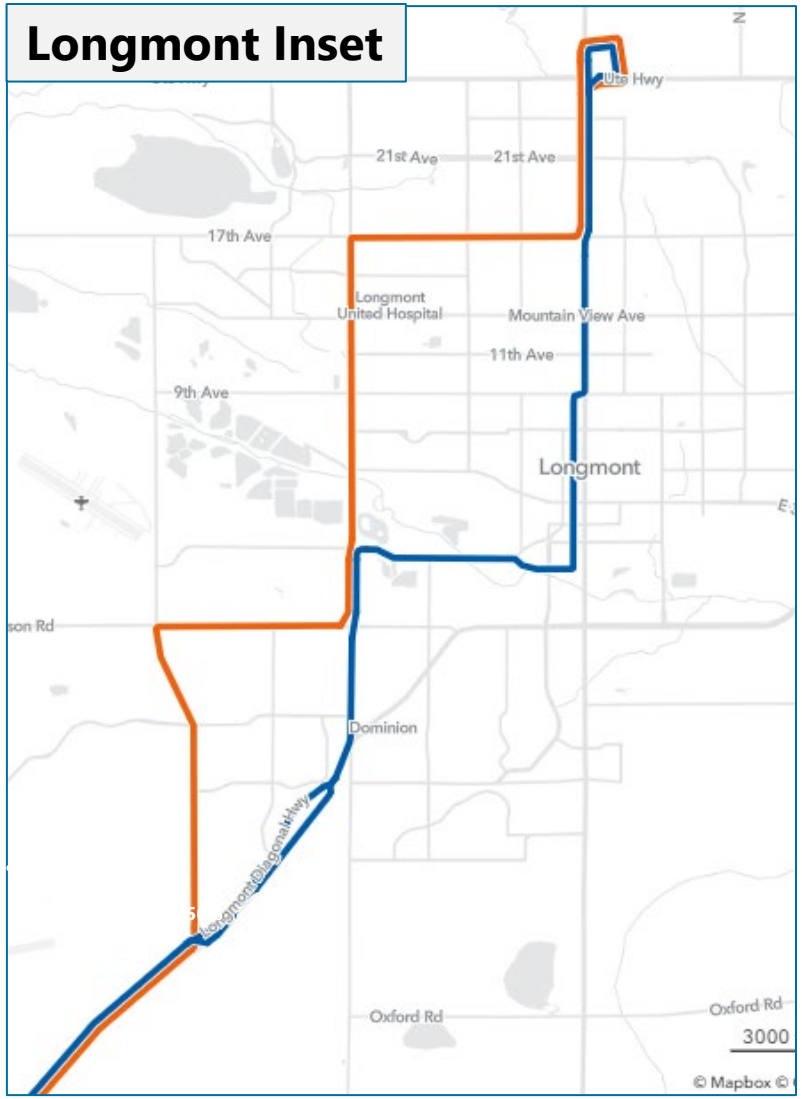
# Proposed PEL CO 119 Service

The Planning and Environmental Linkages study (PEL) was completed in 2019. Opening Year was proposed for 2026 with the following recommended service patterns and frequencies:

- Blue pattern operating at 15-minute frequencies all-day to downtown Boulder; and
- Orange pattern operating at 30-minute frequencies to the CU campus via 30th Street.

The PEL left a final Orange routing decision for a later date (main campus vs. East campus). RTD recommended CU East campus in Spring 2023 on the basis of operational feasibility and layover considerations.



# CO 119 BRT Service Reassessment Purpose and Need

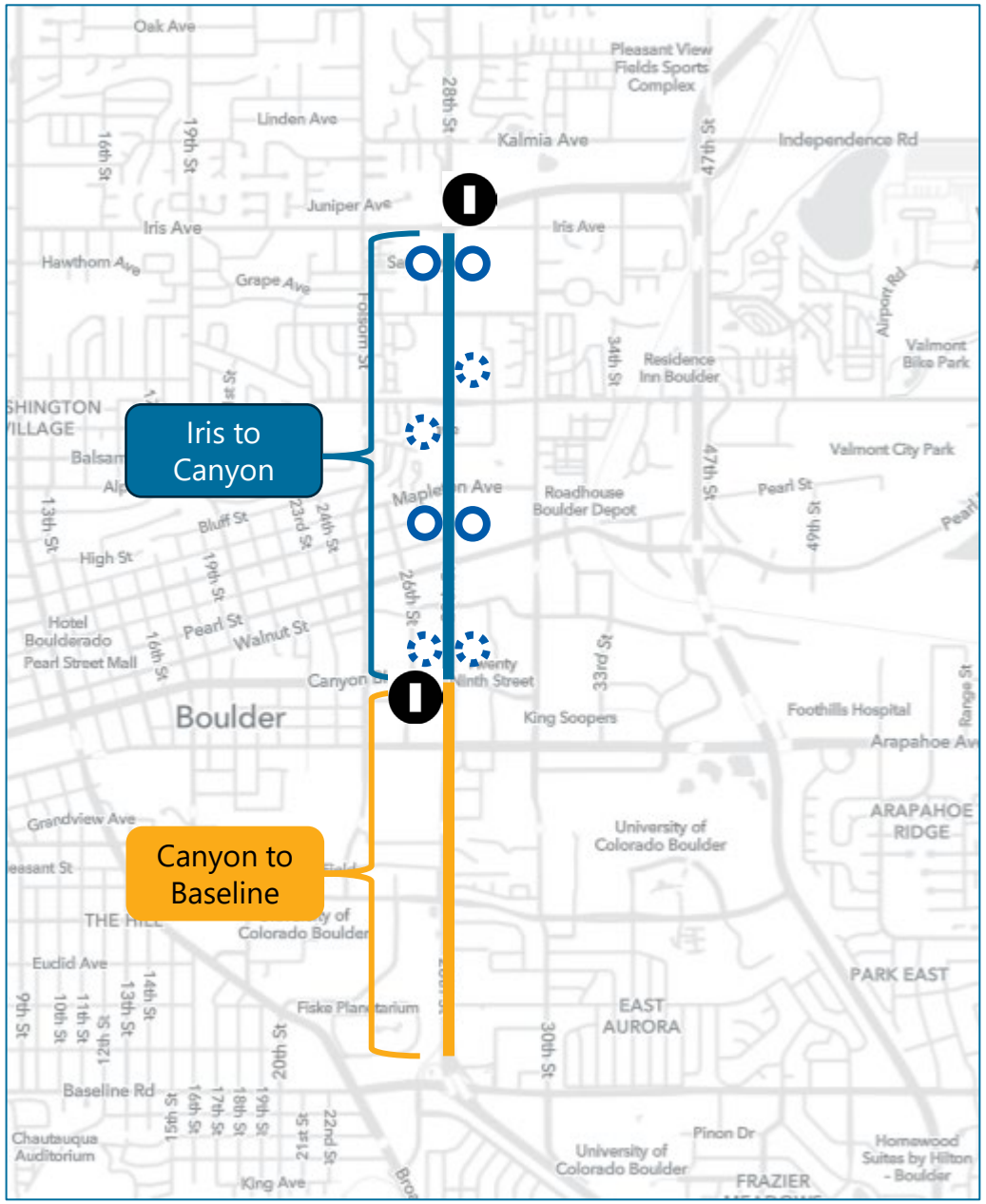
This service plan reassessment has been initiated by the City of Boulder and RTD in recognition that there are several reasons to revisit the PEL's Orange Line service proposal:

- Corridor travel patterns have changed significantly since pre-COVID conditions. RTD reduced service in this corridor in May 2020 in response to COVID and a System Optimization Plan (SOP) was completed by RTD in 2023. Transit service levels in this corridor are much different than what they were when the PEL was completed in 2019
- RTD service reductions have resulted in suspended and diminished planned regional service on 28th Street between Arapahoe Avenue and Baseline Avenue. The CO 119 BRT Orange route could be an opportunity to reestablish regional service along the 28th Street corridor
- There has been stakeholder and customer feedback regarding the potential routing of the Orange pattern via 30th and Colorado to CU East campus. This does not provide direct access to the larger Main campus, resulting in a need to transfer to CU's Buff Bus Stampede route to reach Main campus
- The City of Boulder has planned and advanced significant capital infrastructure and operational treatments along 28th Street to support regional transit. The city is also in the process of redesigning 30th Street to balance local multimodal travel patterns with bicycle and pedestrian features along this corridor

# City of Boulder 28th Street Transit Investments

The City of Boulder has been investing in transit improvements along the 28th Street Corridor. Existing and planned improvements between Iris and Canyon are as follows:

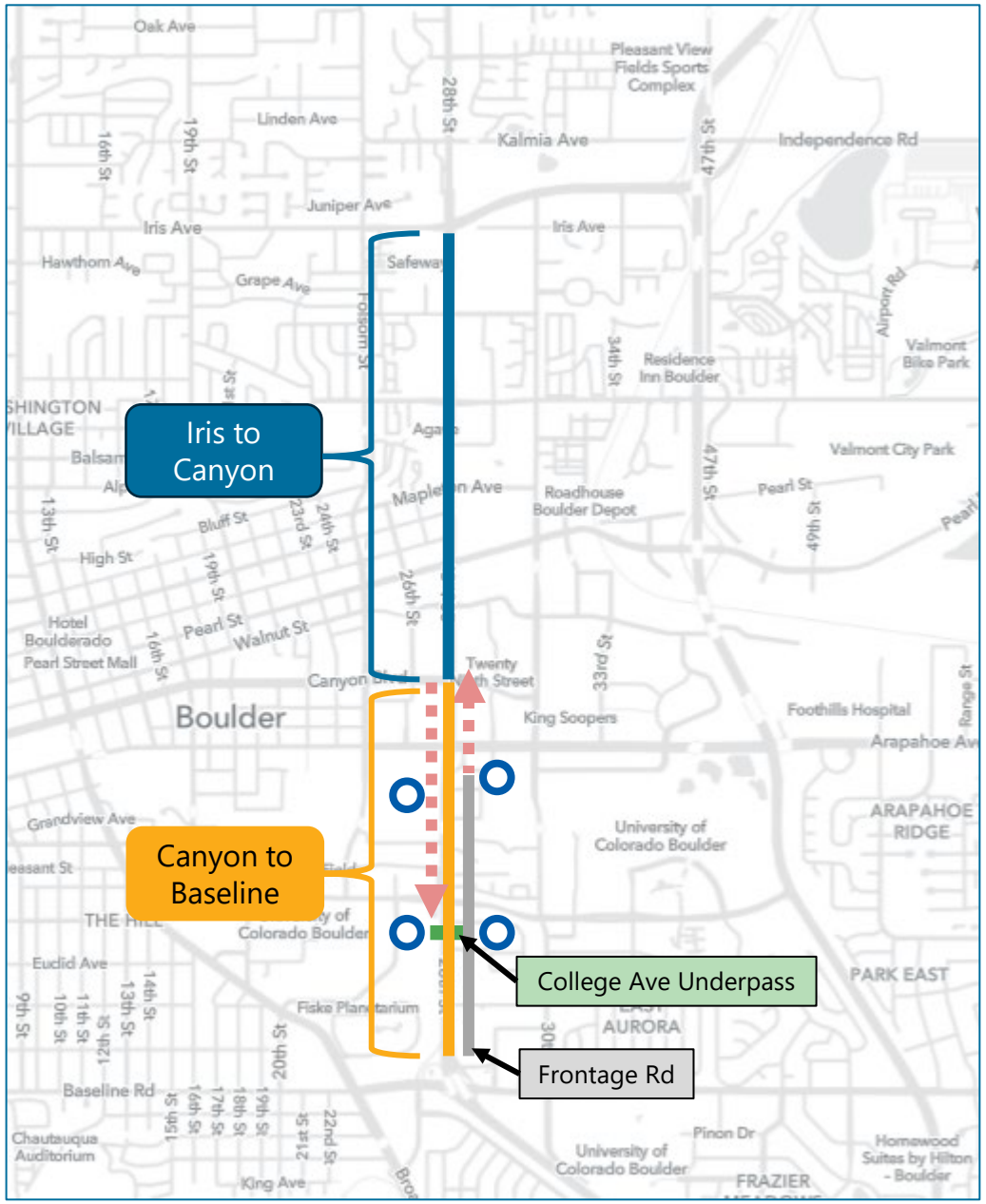
- Business Access Transit (BAT) lanes in each direction
- BRT stops to accommodate CO 119 service at:
  - Super Stops
    - South of Iris (in front of Safeway)
    - Spruce Street (1 block north of Pearl)
  - In-Lane Stops
    - North of Canyon
    - Valmont (farside in both directions)
- Bus-only signal phase
  - Westbound left at Iris & 28th (inbound)
  - Eastbound left at Canyon & 28th (outbound)



# City of Boulder 28th Street Transit Investments

Planned investments from Canyon Blvd. to Baseline Road are as follows: Canyon to Baseline

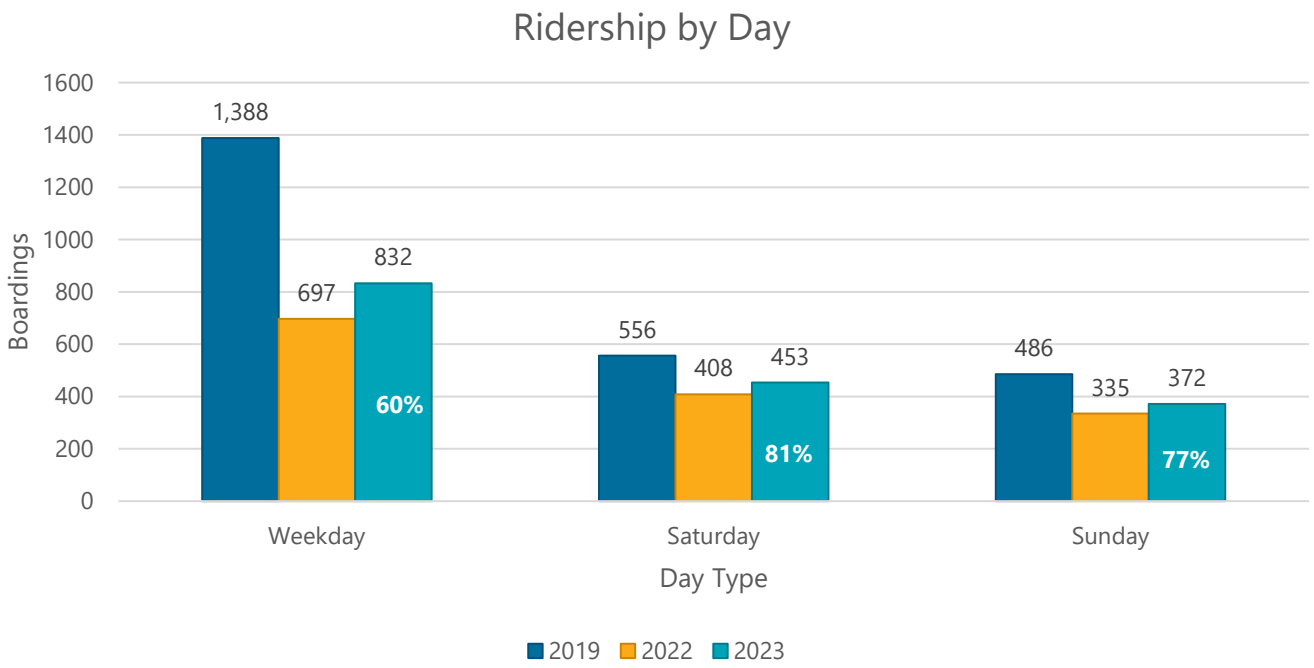
- Potential Business Access Transit (BAT) lanes
  - Southbound from Canyon through Colorado
  - Northbound from Frontage Rd through Canyon
- Frontage Road bypasses northbound 28th St queues approaching Colorado and Arapahoe
- Utilize existing in-lane FF4/AB2 stops to accommodate CO 119 service:
  - South of Arapahoe
  - South of Colorado




# Travel Market Conditions

# BOLT Daily Ridership

Weekday service levels, as shown in the table below, on the BOLT (daily trips) are 26% below pre-pandemic levels. Weekday ridership in 2023 was 40% below pre-pandemic levels. Ridership has rebounded some since 2022.

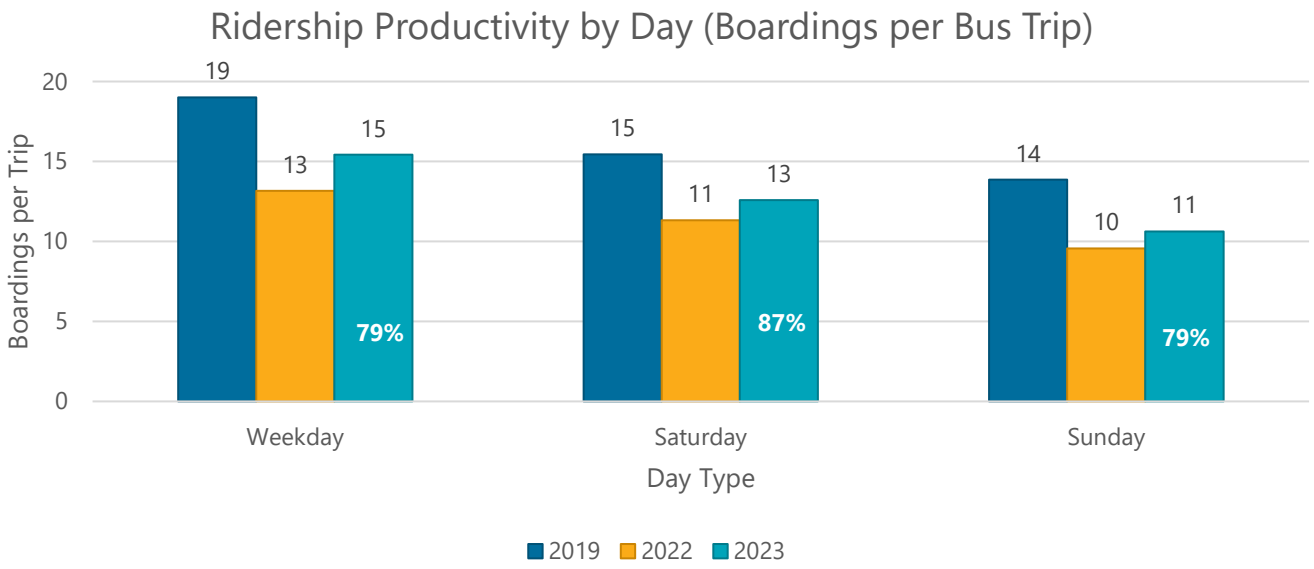



## Daily One-Way Bus Trips

| Time Period | Weekday Trips | Saturday Trips | Sunday Trips |
|---|---|---|---|
| Jan. 2019 | 73 | 36 | 35 |
| Jan. 2022 | 53 | 36 | 35 |
| May 2023 | 54 | 36 | 35 |
| 2019-2023 Change | -26% | 0% | 0% |

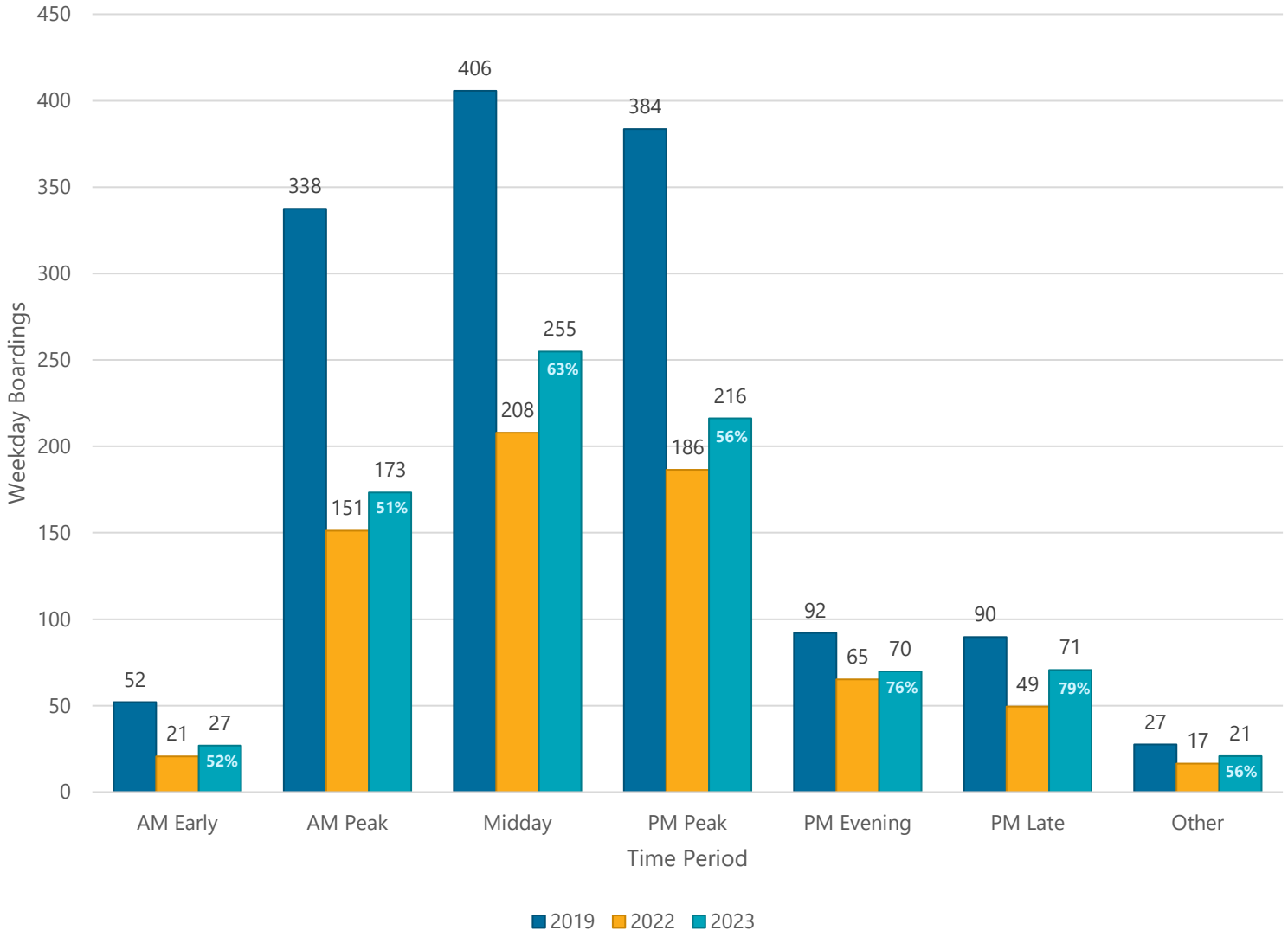
**August 2016 Ridership**

- Weekday = 1,500
- Saturday = 900
- Sunday = 600



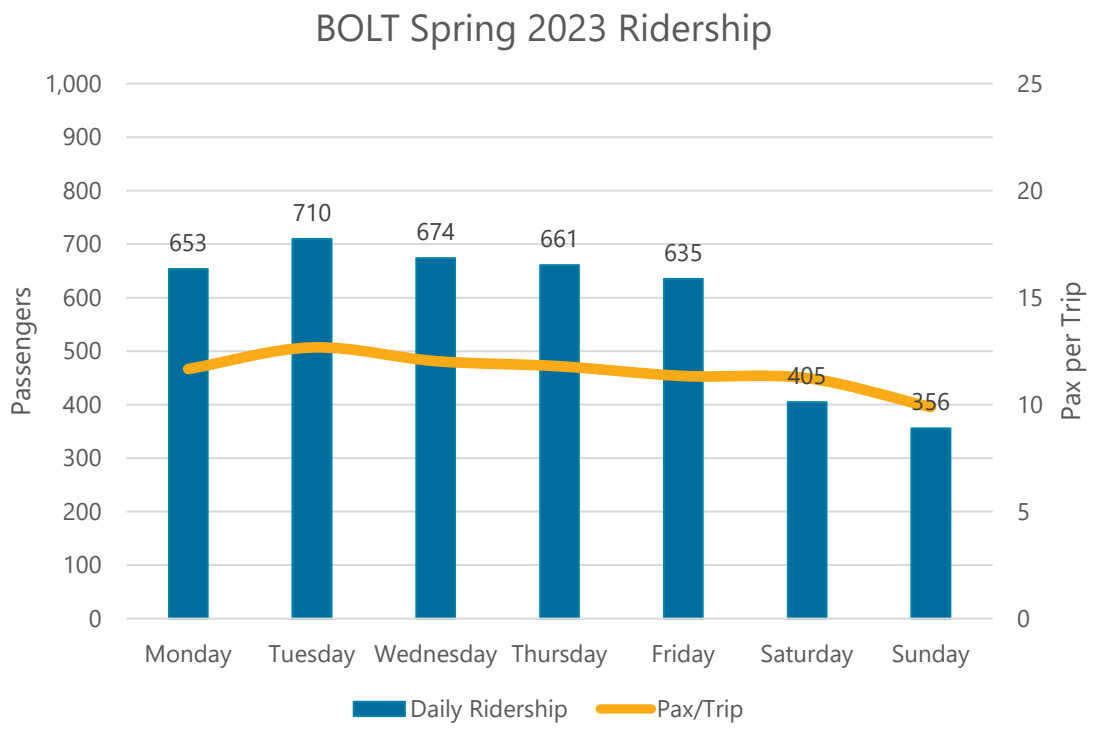
# BOLT Ridership by Time Period

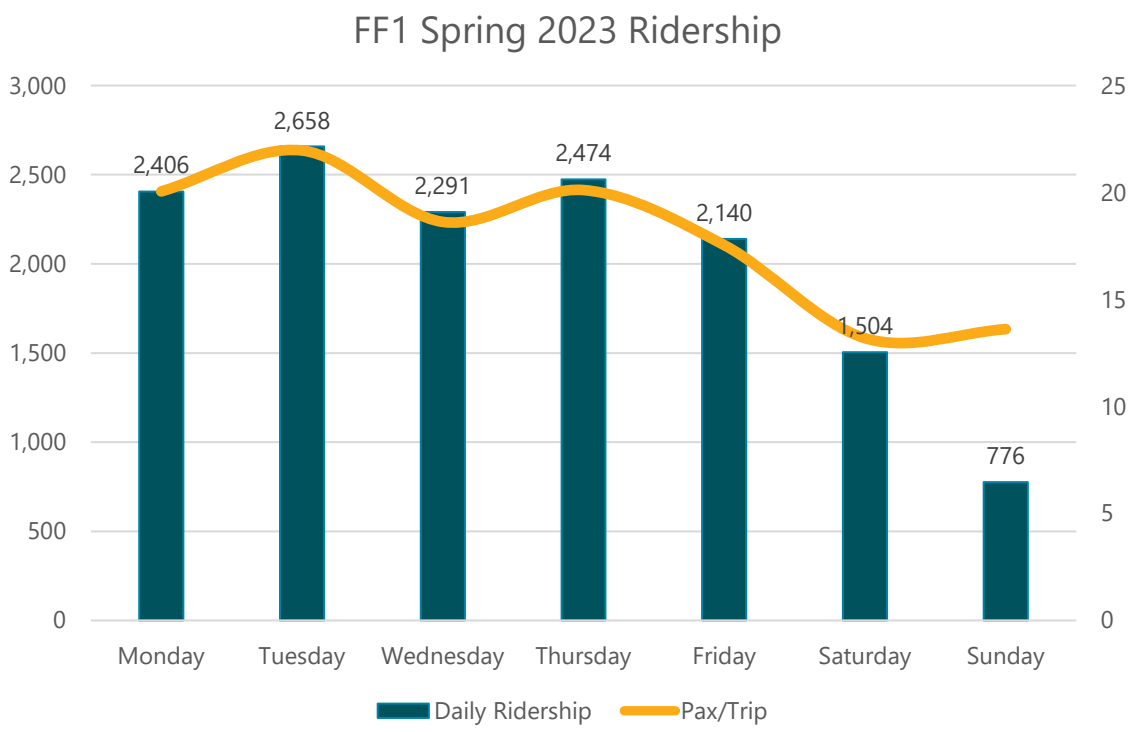
The adjacent graph presents weekday ridership broken down by time period for 2019, 2022 and 2023. BOLT ridership has dropped across all time periods. The percentage drop has been more severe in the peak periods.



# BOLT & FF1 Ridership by Day of Week

Across the U.S., transit agencies have reported that the pandemic has resulted in greater variation in commuter bus ridership by day of week due to hybrid office work (e.g., employees coming into the office 3 days a week). For the BOLT, ridership data indicates that there is not a significant variation in ridership by day of week, with Tuesday being the highest ridership day. As a comparison, Flatiron Flyer ridership (shown below) sees lower ridership on Wednesdays and Fridays.



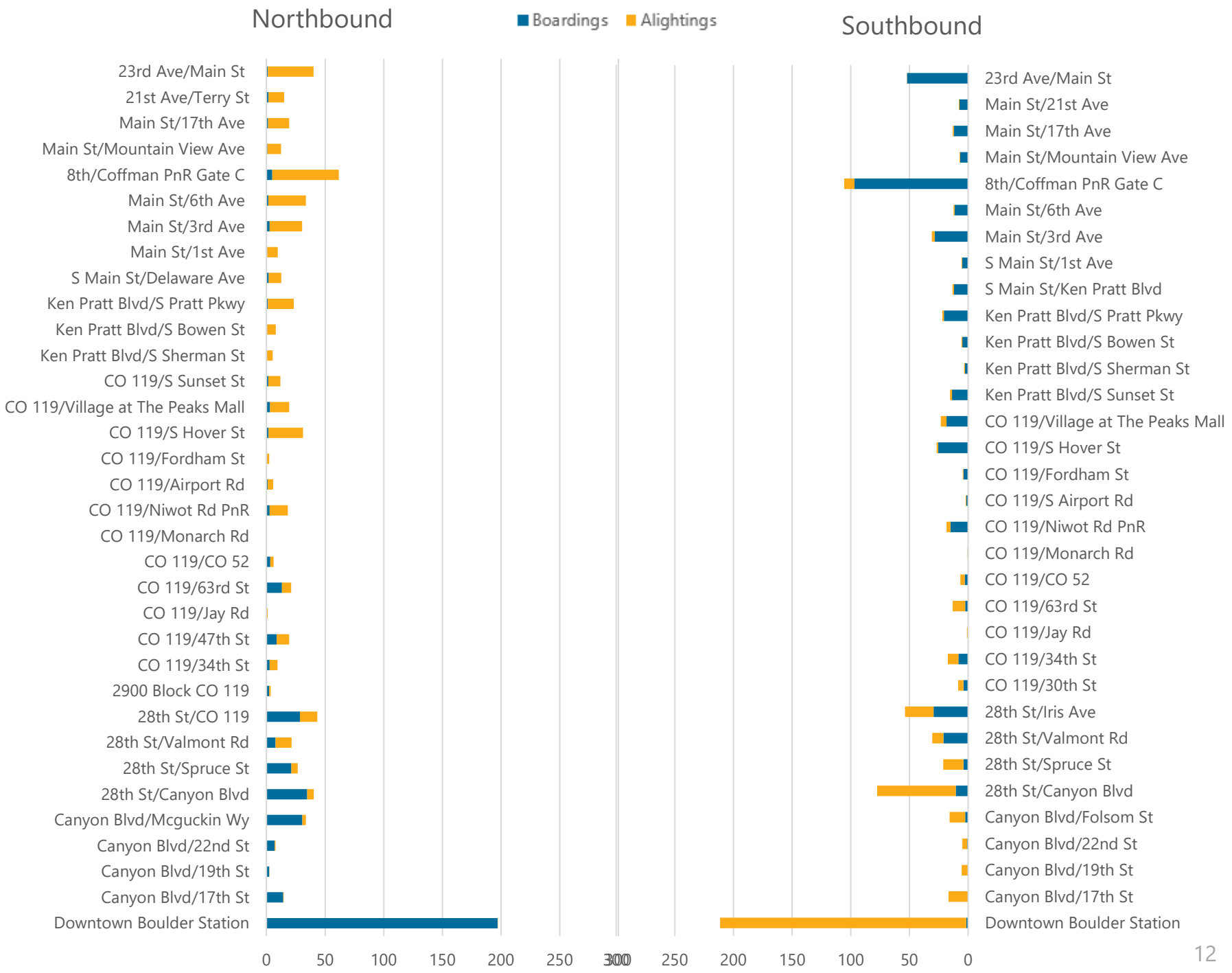




*Note: Ridership scale (Y axis) differs between graphs*

# BOLT 2023 Ridership by Stop

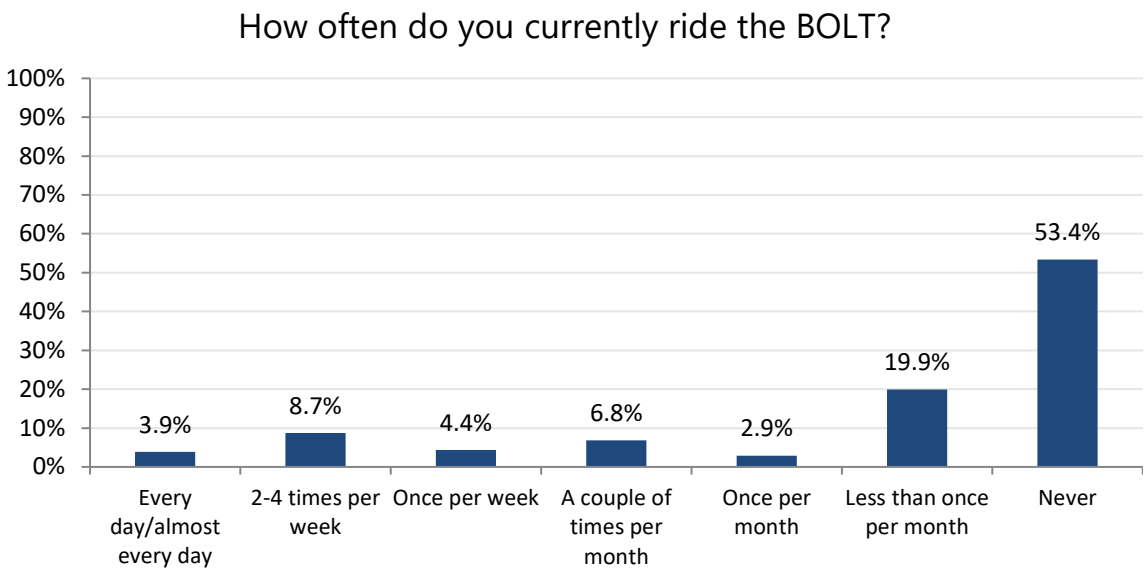
The adjacent graph presents boarding and alighting activity by stop. Nearly 60% of ridership occurs at the the six highest ridership stops:

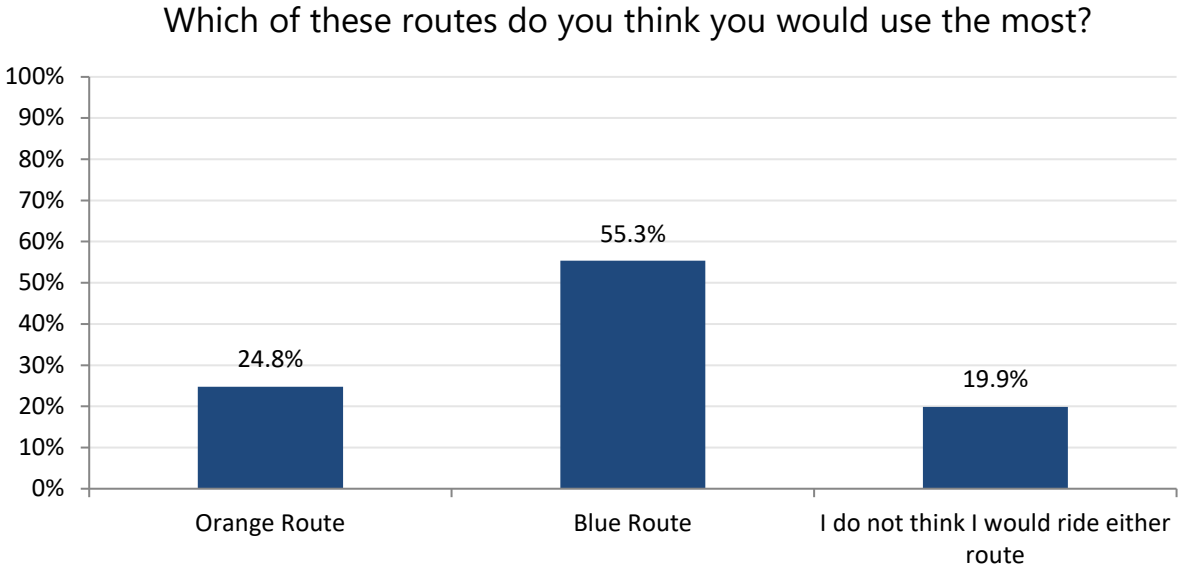
- 23rd and Main: 6%
- 8th/Coffman: 10%
- Main/3rd St.: 4%
- 28th St./CO 119: 6%
- 28th St./Canyon Blvd.: 7%
- Downtown Boulder Station: 25%



# CO 119 BRT Project: RTD Community Survey, 2023

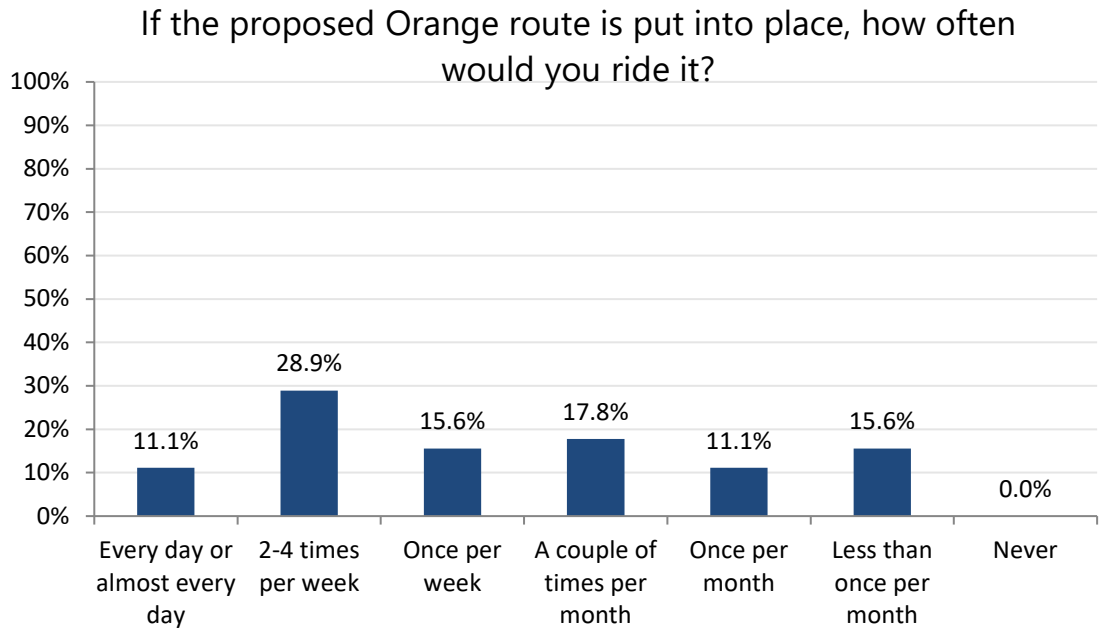
RTD conducted a survey in Spring/Summer 2023 to gather input regarding the proposed BRT service plan. There were 208 responses received. About 17% of respondents indicated they ride the BOLT frequently, with 53% indicating that they do not ride the BOLT. When asked about which proposed route they think they would use the most, the Blue route was favored over the Orange route by more than a 2-to-1 margin for those respondents that indicated they would likely use the BRT service.

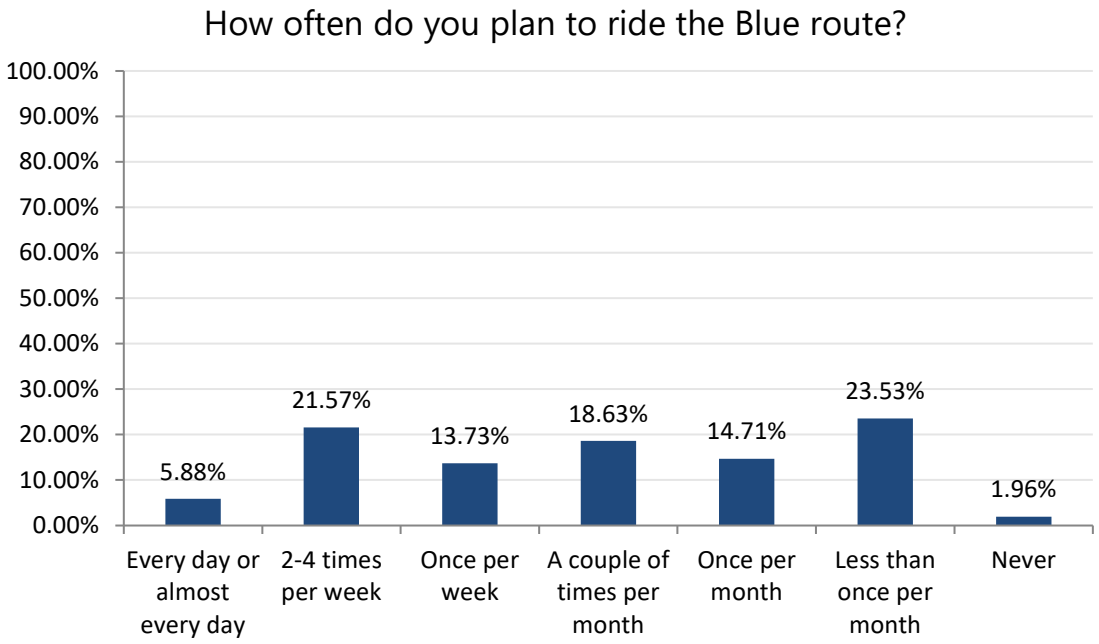


# CO 119 BRT Project: RTD Community Survey, 2023

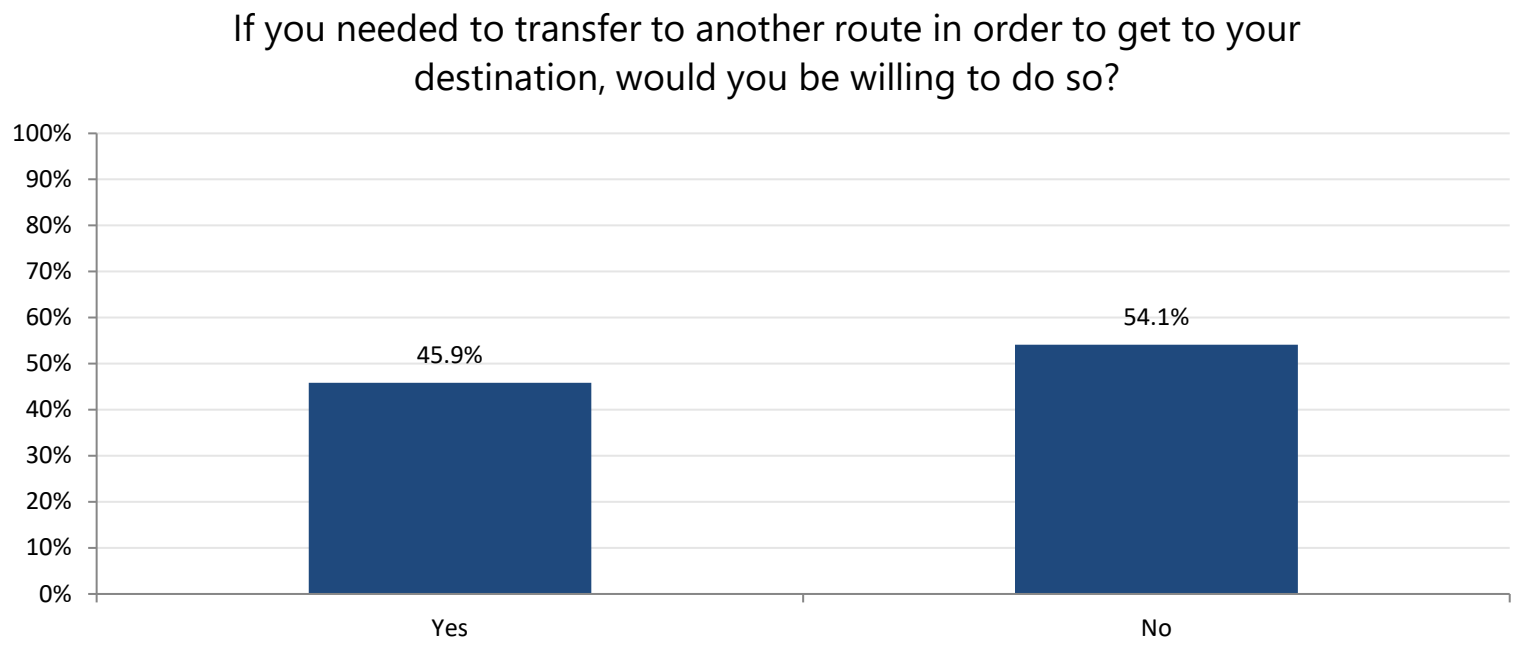
Respondents were asked how often they would ride the Orange or Blue routes. Nearly 56% of those that would ride the Orange route would ride at least once per week and 41% of those that would ride the Blue route would ride at least once per week.



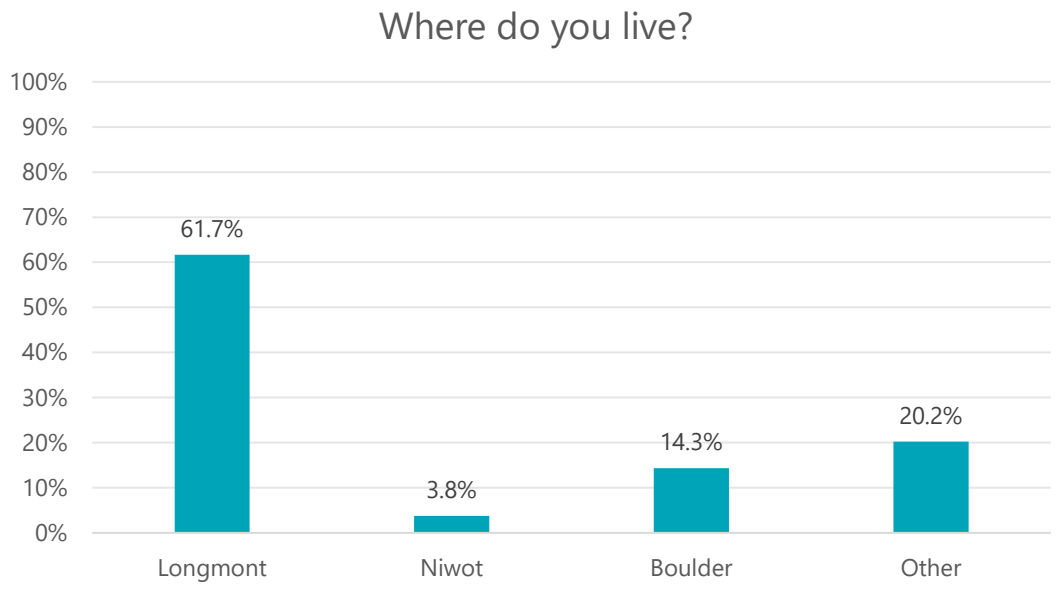
# CO 119 BRT Project: RTD Community Survey, 2023

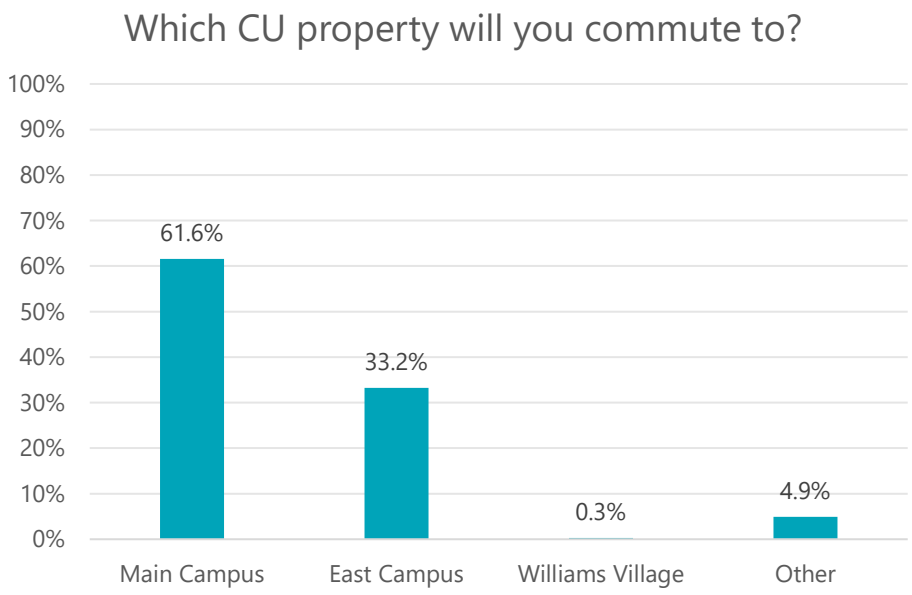
When asked if they needed to transfer to another route to complete their trip, just under 50% said they'd be willing to do so.



# CO 119 BRT Project: CU Boulder Campus Survey, 2022

This survey was also conducted in Spring/Summer 2022 to gather input regarding the proposed BRT service plan. There were 718 responses received. About 62% of respondents reported they live in Longmont. Over 60% reported they commute to CU's Main Campus, with one third reporting they commute to CU's East Campus.



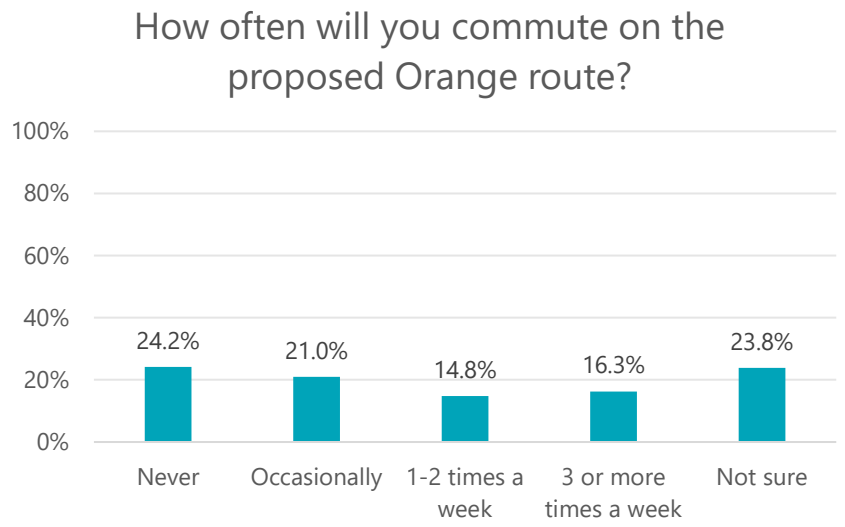



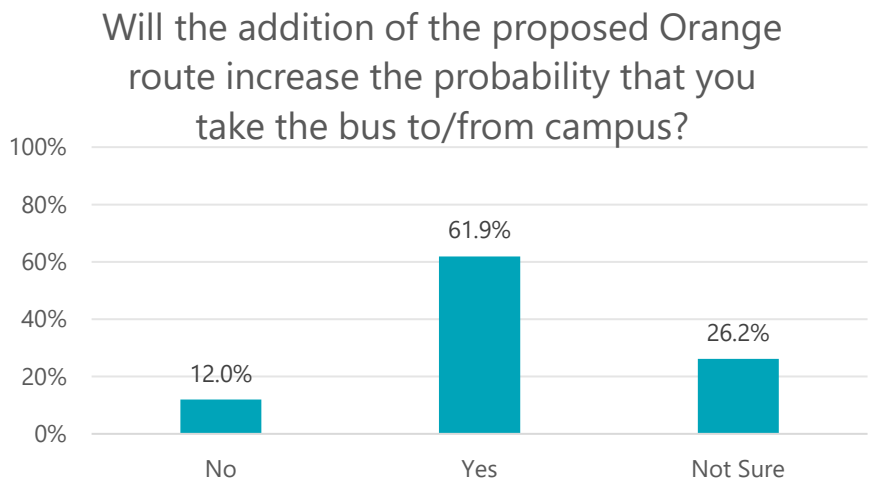
# CO 119 BRT Project: CU Boulder Campus Survey, 2022

When asked which stations (proposed) they would most likely use, top locations identified were:

- 30th & Colorado (Orange) – 20%
- 30th & Arapahoe (Orange) – 19%
- Discovery & SEEC Building (Orange) – 18%
- Downtown Boulder Station (Blue) – 14%
- 28th & Canyon (Blue) – 13%

One third indicated they would use the proposed Orange route at least once per week. About 62 percent indicated that adding the Orange route would increase the probability they would use the service to commute to and/or from CU Boulder's campus.



# City-to-City Travel Patterns

The on-line software Replica was used to determine general travel pattern characteristics in the CO 119 corridor. Travel pattern characteristics were analyzed at the U.S. Census traffic analysis zone (TAZ) level for both 2019 and 2023. Streetlight data, provided by the City of Boulder, was used to determine travel pattern variation by day of week.

Key findings from the Replica travel pattern analysis are noted in the adjacent tables and summarized below:

- Daily trip volumes between Longmont and Boulder have increased 13% since 2019
- A.M. peak volumes are heavily oriented towards Boulder
- Midday peak volumes are also oriented towards Boulder, but less pronounced
- P.M. peak volumes are oriented towards Longmont

**Daily Person Trip Volumes**

| Year | Thursday | Saturday |
|---|---|---|
| 2019 | 41,379 | 27,725 |
| 2023 | 46,743 | 31,491 |
| % Change | 13.0% | +13.6% |

**2023 Weekday Person Trip Volumes by Time Period**

| Year | Volume | % to Boulder | % to Longmont |
|---|---|---|---|
| A.M. Peak | 6,870 | 82% | 18% |
| Midday | 13,521 | 58% | 42% |
| P.M. Peak | 10,576 | 33% | 67% |

# City-to-City Travel Patterns

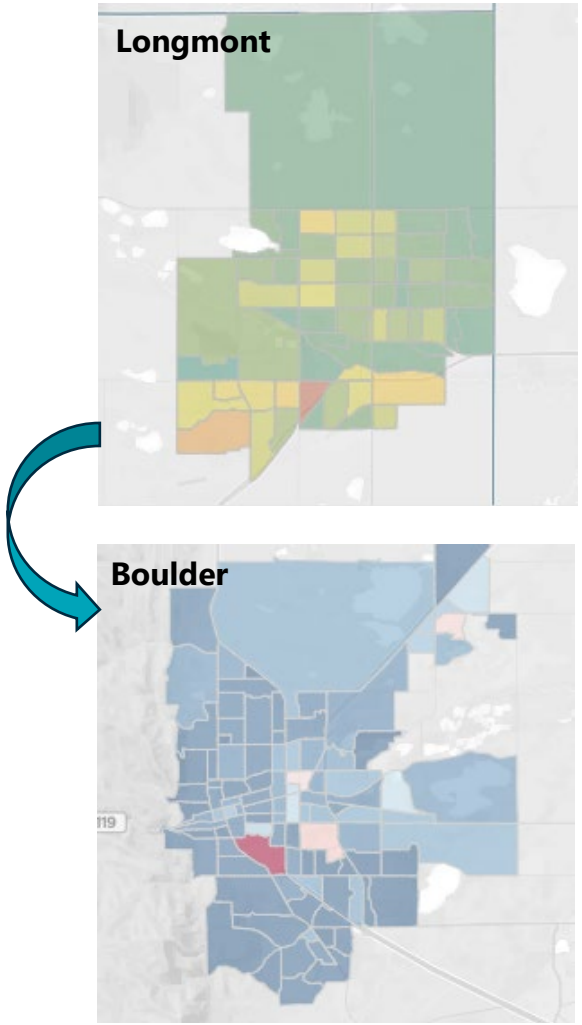
Trips originating in Longmont and destined to Boulder tend to be from all over the Longmont region, major trip destinations being:

- The CU campuses (Main and East)
- Downtown Boulder
- The 28th Street corridor
- Boulder Junction area
- Gunbarrel

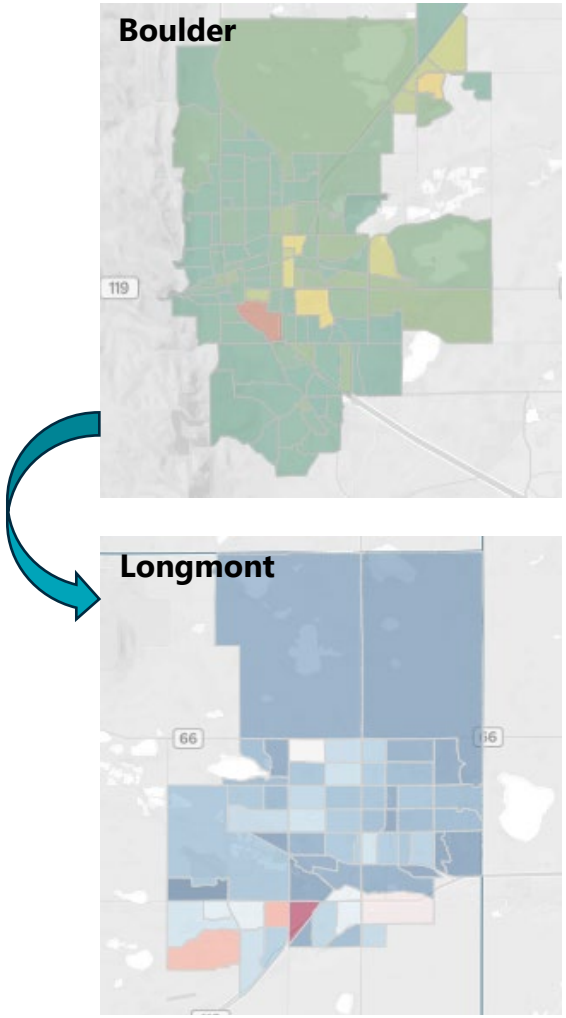
Trips originating in Boulder, destined to Longmont tend to be from the CU campus area and central Boulder, with major destinations being the southern portion of Longmont such as Village at the Peaks

Note that TAZ sizes are not equal, thus analysis does not reflect differences in trip densities

## Trips Originating in Longmont, Destined to Boulder



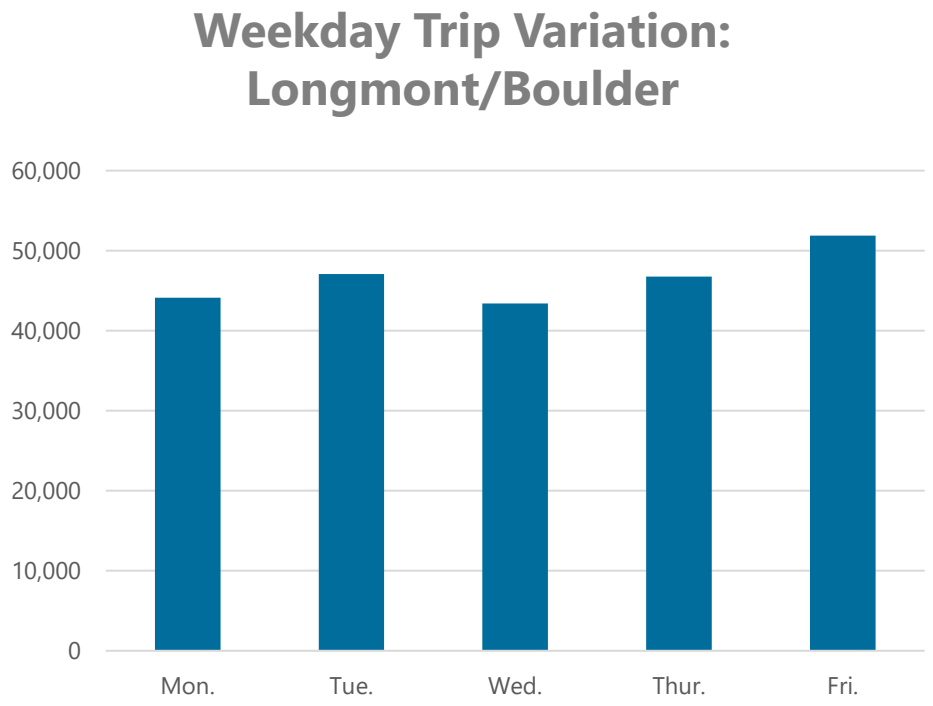

## Trips Originating in Boulder, Destined to Longmont

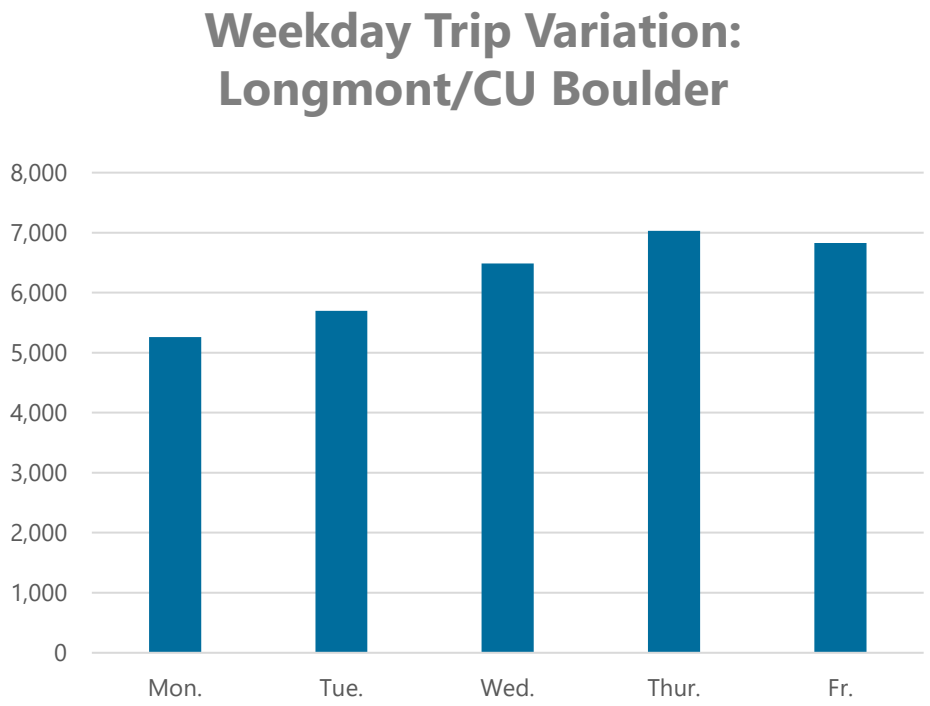


# Travel Pattern by Day of Week

Streetlight data was used to determine the extent of daily trip volume variation throughout the work week.

- City-to-City travel varies from -7% to +11 percent from Thursday travel
- Longmont-CU travel is highest on Thursdays, with Monday being 25% lower than Thursdays



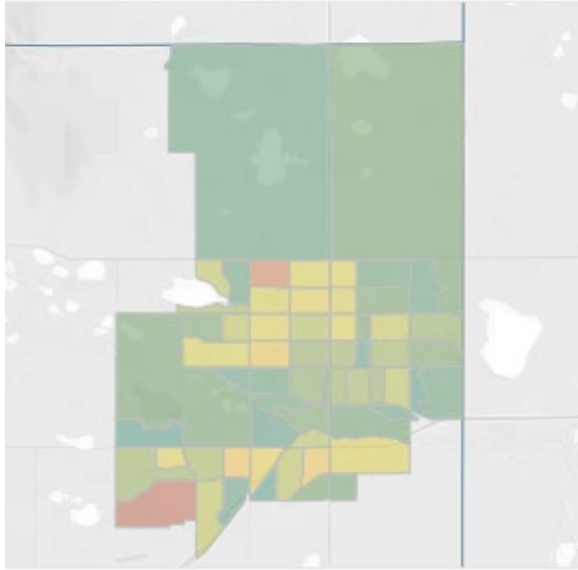



# Longmont-to-CU Travel Patterns

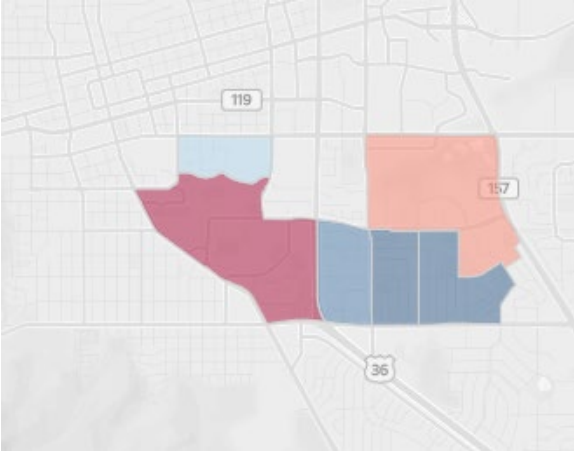
There are 3,515 trip origins in Longmont, traveling to Boulder's CU campus (with a similar amount making the reverse travel movement). Trips are coming from all over Longmont to CU, with no significant difference of trips coming from the Hover Street vs. the Main Street corridors. The trip distribution split between the two campuses are is as follows:

- The CU Main campus attracts 1,489 trip destinations
- The CU East campus attracts 1,108 trip destinations

**Trip Origin Locations in Longmont**



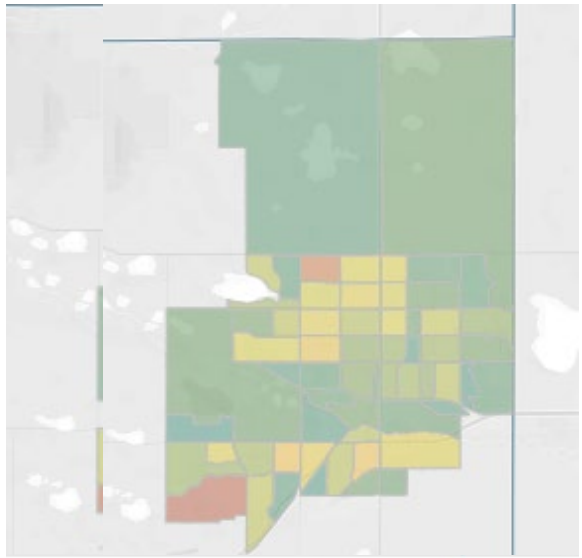
**Trip Destination Locations in CU campus area**



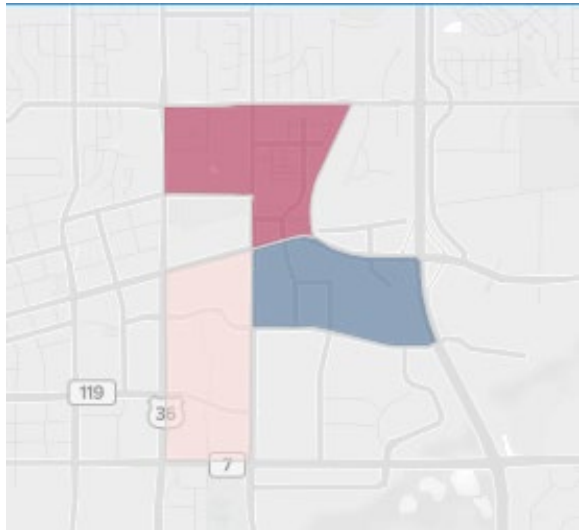
# Longmont-to-Downtown Boulder and Boulder Junction Travel Patterns

- There are 1,049 trip origins in Longmont, traveling to Boulder's downtown area (with a similar amount making the reverse travel movement)
- There are 1,524 trip origins in Longmont, traveling to the Boulder Junction area (with a similar amount making the reverse travel movement). The distribution of trips is shown in the adjacent maps.

**Trip Origin Locations in Longmont**



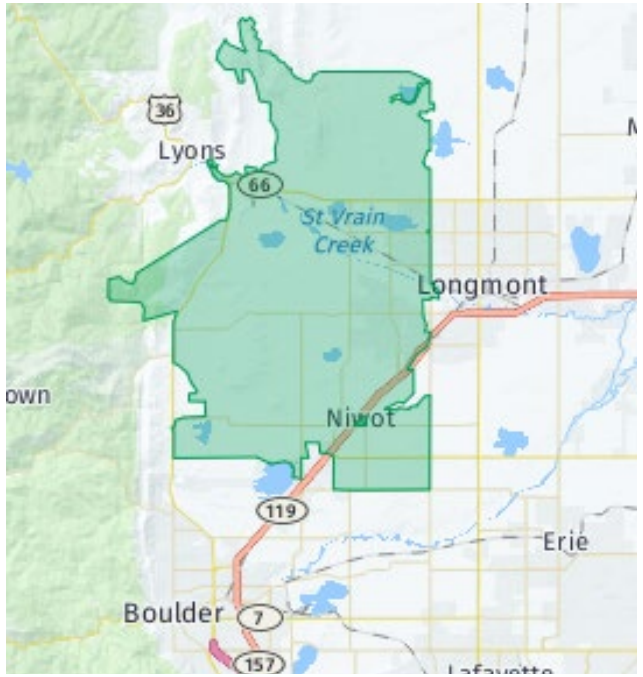
**Trip Destination Locations in Boulder Junction area**



# CU Staff Home Locations – Fall 2022 Counts

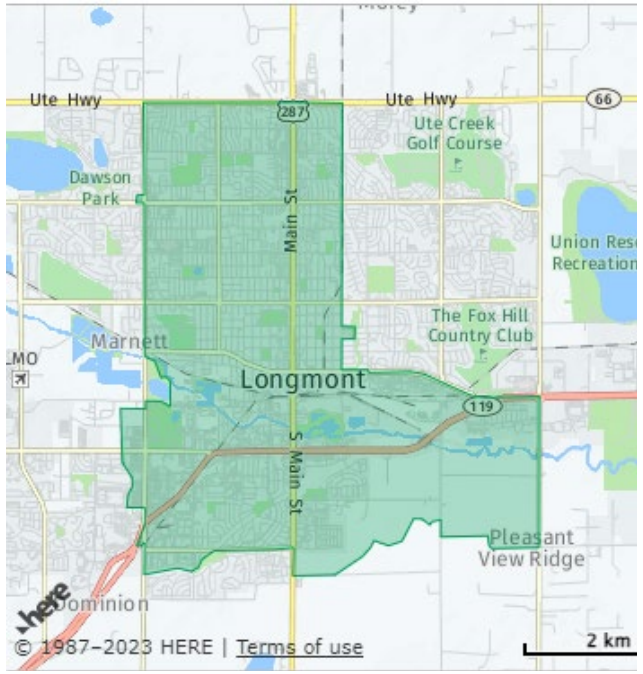
CU staff home locations were provided to the project team for use in this study. There are **1,258 staff** identified as residing in the three Longmont area zip codes. The distribution of staff among those three zip codes are shown below.

## Zip Code 80503



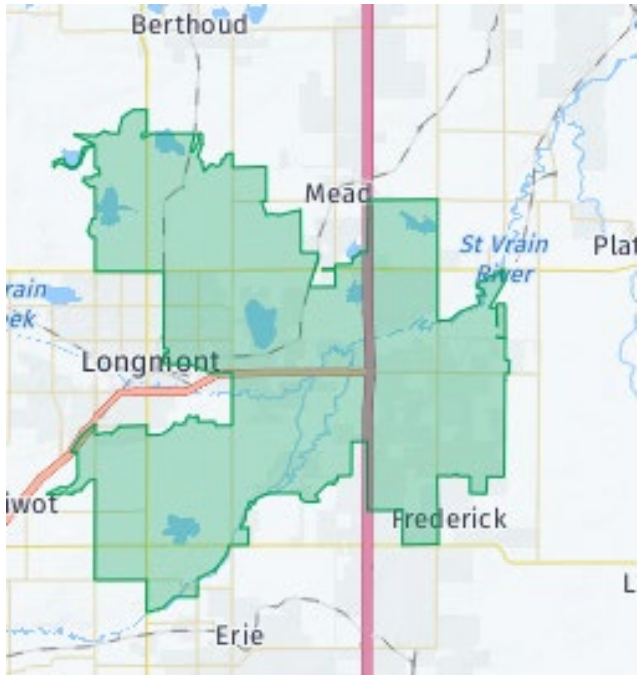

**405 Staff**

## Zip Code 80501




**494 Staff**

## Zip Code 80504



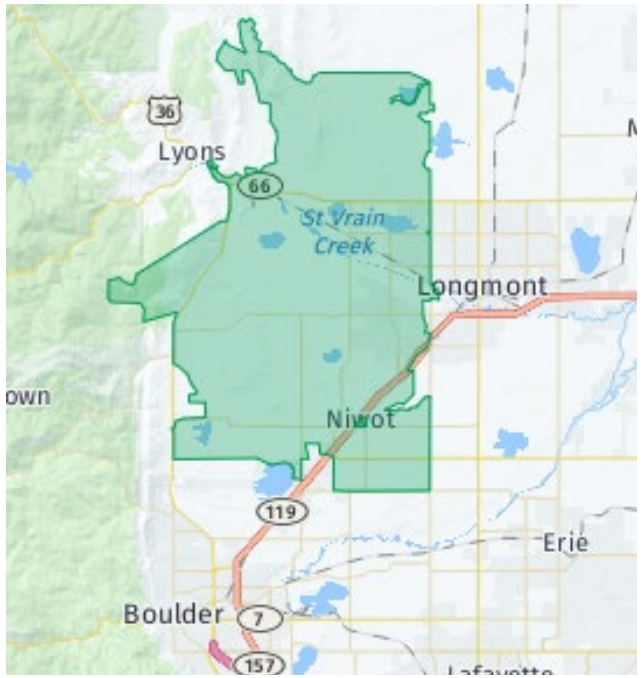

**359 Staff**

Source: University of Colorado Boulder: 11/17/2023 email from Clark Rider to Danny O'Connor

# CU Student Home Locations – Fall 2022 Counts

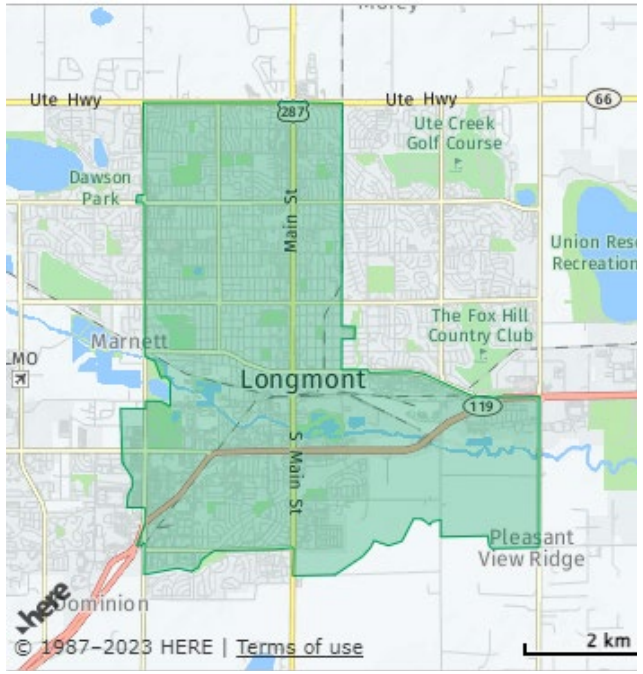
CU student home locations were also provided to the project team for use in this study. There are **646 students** identified as residing in Longmont area zip codes. The distribution of staff among those three zip codes are shown below.

## Zip Code 80503



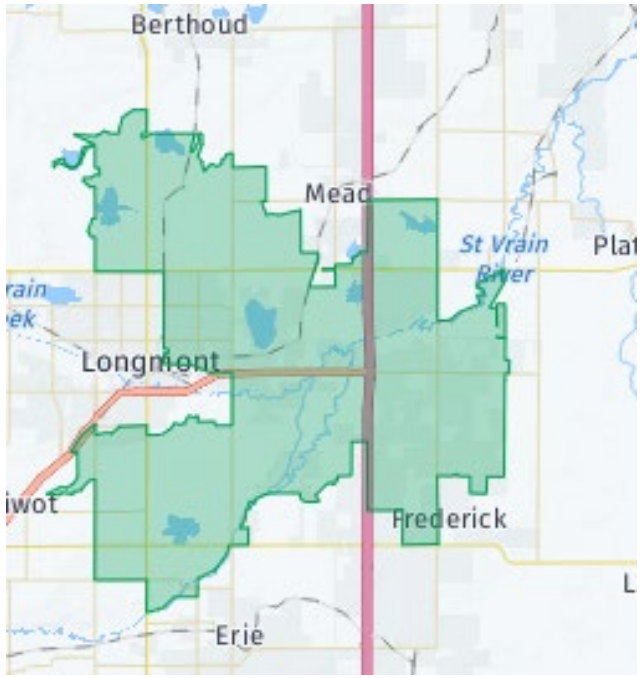

**233 Students**

## Zip Code 80501




**215 Students**

## Zip Code 80504




**198 Students**

Source: University of Colorado Boulder: 11/17/2023 email from Clark Rider to Danny O'Connor


# Travel Market Takeaways

# Key Findings

## Ridership

- Weekday ridership is 60% of where it was pre-pandemic, with greater losses during the peak periods
- Six stops account for almost 60% of all BOLT boarding and alighting activity

## Surveys

- The 2023 RTD community survey found preference for the Blue Route
- A 2022 CU Boulder staff and students survey found preference for the Orange Route

## Travel Patterns

- The estimated travel market between Longmont and Boulder is 46,000 daily trips
- CU Boulder is the largest trip attractor (about 15% of all Longmont-Boulder trips), with about a 55/45 split between Main/East Campus
- Other key destinations include downtown Boulder, Boulder Junction, the 28th Street corridor and Gunbarrel
- Trips from Longmont destined to Boulder are distributed throughout Longmont


# Project Workshop

# Project Workshop

A workshop with this project's Technical Working Group was held on January 24, 2024. A field trip was conducted to learn about the City's planned transit stop investments along the 28th Street corridor and to visit potential terminal locations for the proposed Orange route pattern. After the field trip, several potential alignment options were presented and discussed with the Technical Working Group. Project direction provided from this work session was as follows:

- The City of Boulder is investing in transit station and travel priority improvements along the 28th Street corridor. The City's plans for 30th Street are to make multimodal biking and walking enhancements. Future plans for CO 119 BRT should use 28th Street.
- City staff also expressed the importance of providing service to the Boulder Junction area. Analyses conducted as part of this project identified this location as a significant population and employment center.

# Project Workshop

- The planned stop at CU East is located off Discovery Drive, in front of the Sustainability, Energy and Environmental Community (SEEC) building. There are presently no bus facilities at this site. Construction of passenger facilities, a concrete bus pad and operator restroom facilities are needed.
- The Broadway/27th/Way and Baseline triangle was also reviewed as a potential end-of-line stop. There was consensus that this location in the South Boulder area provides an expanded market opportunity for CO 119 BRT. There are two potential terminal locations:
  - The first option for an end-of-line location is on 27th Way, adjacent to the existing Broadway/27th Way park-and-ride lot. The existing right turn lane on 27th Way can be shortened to accommodate a bus stop. A concrete bus pad and an operator restroom facility would need to be constructed.
  - The second option for an end-of-line location is on Baseline, just east of Broadway. There is an existing stop located just east of the Basemar Shopping Center entrance drive. It may be possible to extend the existing bus stop. Alternatively, a new stop for the BOLT could be constructed west of the shopping center entrance by shortening the shopping center's right turn lane. A concrete bus pad would need to be constructed. Operators could continue to use the restroom at Taco Bell.

**Potential stop on Baseline, east of Broadway**

**Potential stop on 27th Way, east of Broadway**


# Service Alternatives

# Service Alternatives

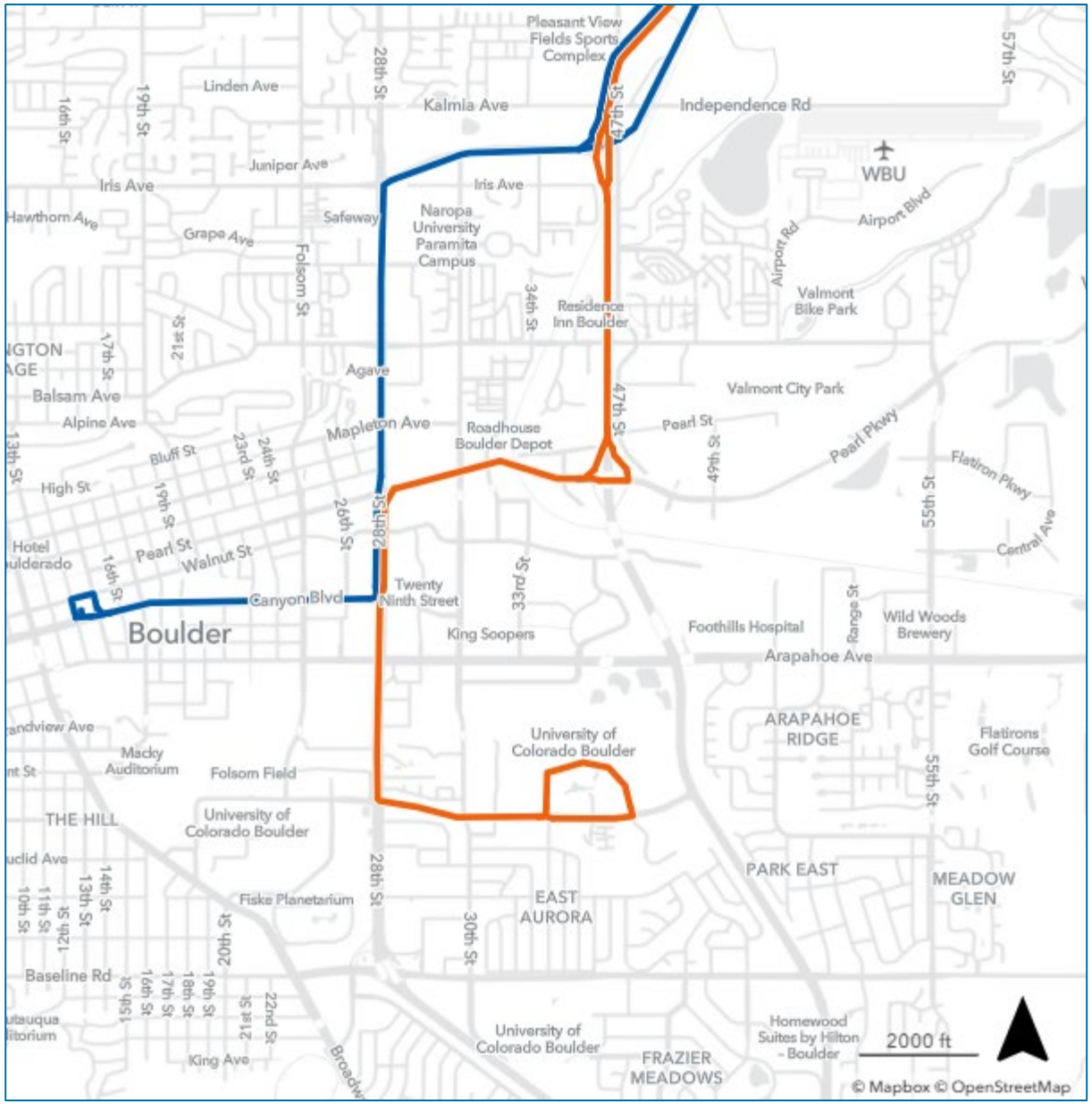
As a result of the January workshop, it was determined that the following alternatives should be advanced for further consideration. These are potential service scenarios to be implemented once funding and operators are in place for full implementation as envisioned in the PEL.

- **Option 1: Pearl Street to 28th Street to Colorado Avenue, with terminal at CU East**
  - This alternative maintains CU East as the end-of-line terminal but modifies the alignment to 28th Street instead of 30th Street.
- **Option 2: Pearl Street to 28th Street with terminal at 27th Way and Broadway or on Baseline Road**
  - This alternative relocates the terminal to the south Boulder area, opening up a potential new travel market for BOLT service. CU's Main campus is served through stops on 28th Street.
- **Option 3: Pearl Street to 28th Street to Canyon Blvd. to Folsom Street to Colorado Avenue, with terminal at CU East**
  - This alternative maintains CU East as the end-of-line terminal, but operates through CU's Main campus on the way to CU East
- **Option 4: Pearl Street to 28th Street to Canyon Blvd. to Folsom Street to Colorado Avenue, with terminal at 27th Way and CU East**
  - This alternative maintains CU East as the end-of-line terminal, but operates through CU's Main campus on the way to CU East
- **Option 5: Pearl Street to 28th Street to Canyon Blvd. to Broadway, with terminal at 27th Way and Broadway or on Baseline Road**
  - This alternative enhances CO 119 BRT service to downtown Boulder and the Downtown Boulder Station, while providing continuing service to the CU Main campus via Broadway.

# Option 1:
# CU East Terminal via 28th St.

Characteristics of this option are as follows:

- There are no changes to the Blue route pattern – this pattern's destination remains at the Downtown Bus Station (DBS).
- The Orange route pattern's terminal is at CU East campus, but via 28th Street instead of 30th Street
- CU East campus served by the on-site stop/terminal. Stops would be provided at Colorado Avenue and 28th Street for access to CU Main campus. Passengers can also transfer to the Stampede for travel further into the CU Main campus.



# Option 2: Baseline Terminal via 28th St.

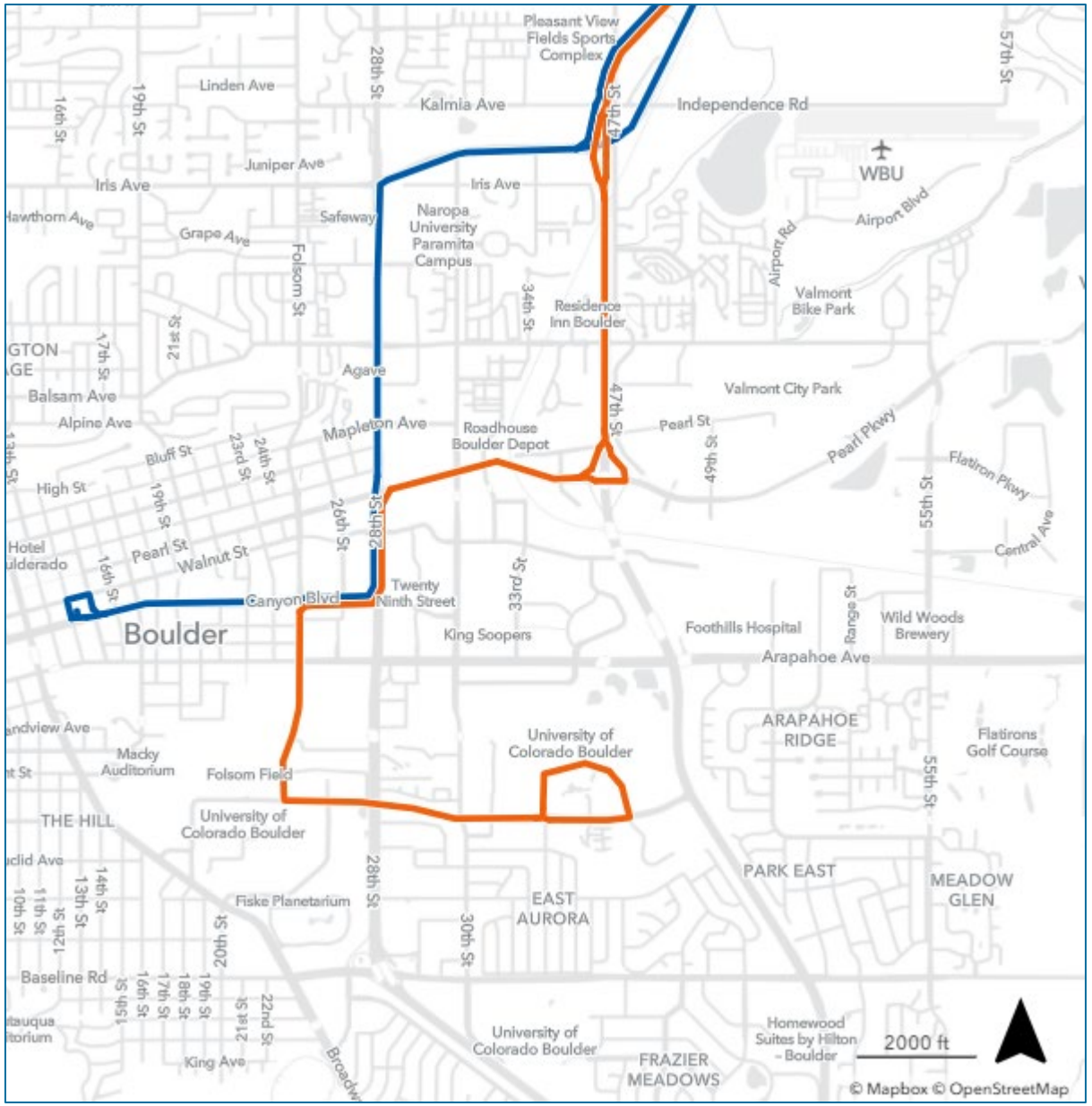
Characteristics of this option are as follows:

- There are no changes to the Blue route pattern – this pattern's destination remains at the Downtown Bus Station (DBS).
- The Orange route pattern's alignment is modified to operate to Baseline Road. The proposed terminal would be at either 27th Way and Broadway, or on Baseline, east of Broadway.
- The CU Main campus will be served with stops on 28th Street, just south of Colorado Avenue. Travel to the CU East campus will require a transfer to the Stampede route at Colorado & 28th St.

# Option 3: CU East Terminal via CU Main

Characteristics of this option are as follows:

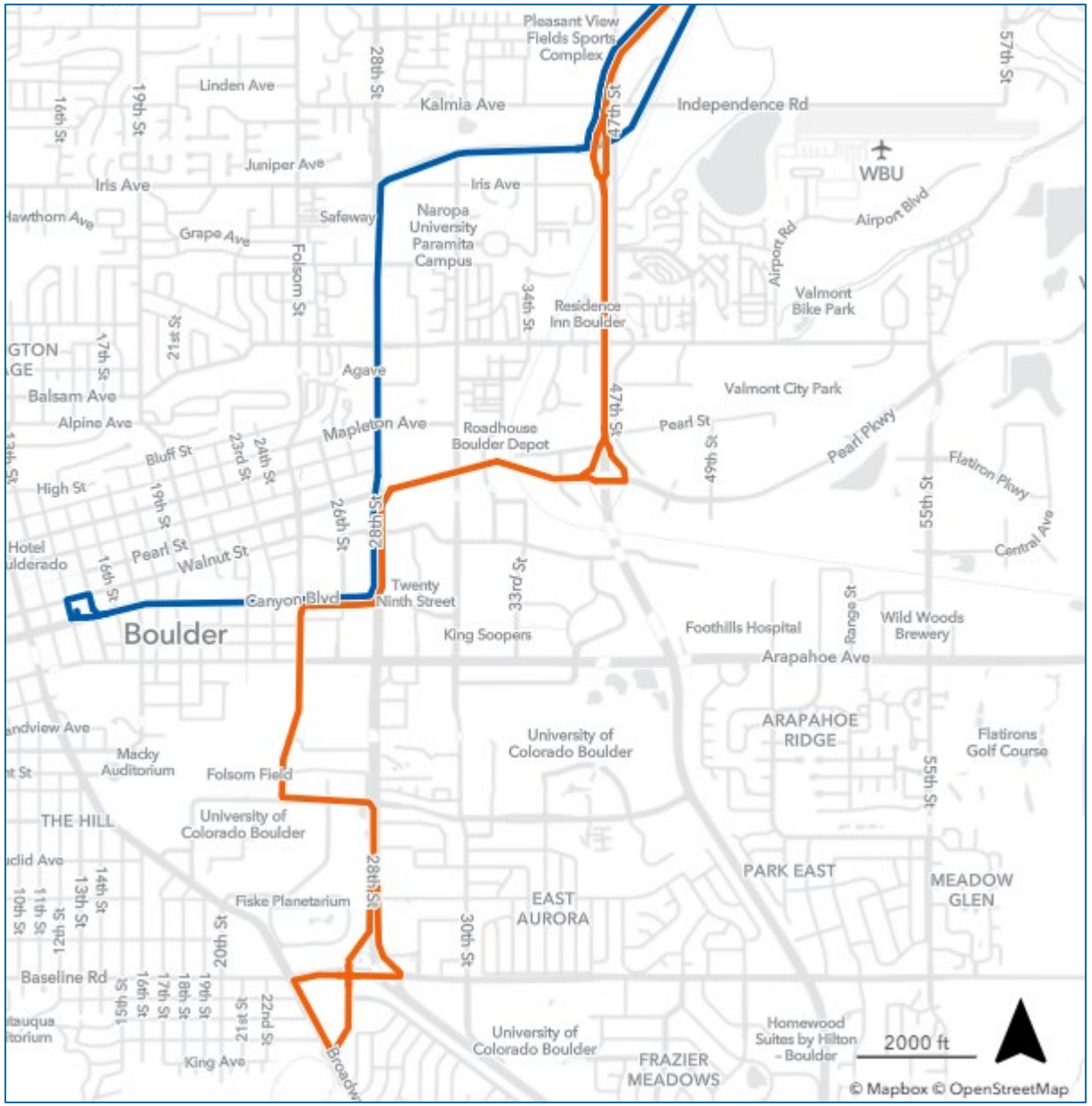
- There are no changes to the Blue route pattern – this pattern's destination remains at the Downtown Bus Station (DBS).
- The Orange route pattern's alignment is modified to operate to CU Main campus, following the Blue route pattern to Canyon Blvd. and Folsom St. The alignment then follows Folsom Street and Colorado Ave. to CU East.
- The CU Main campus will be served with stops at Folsom Street and Colorado Avenue. The CU East campus will be served by the proposed terminal stop.



# Option 4: Baseline Terminal via CU Main

Characteristics of this option are as follows:

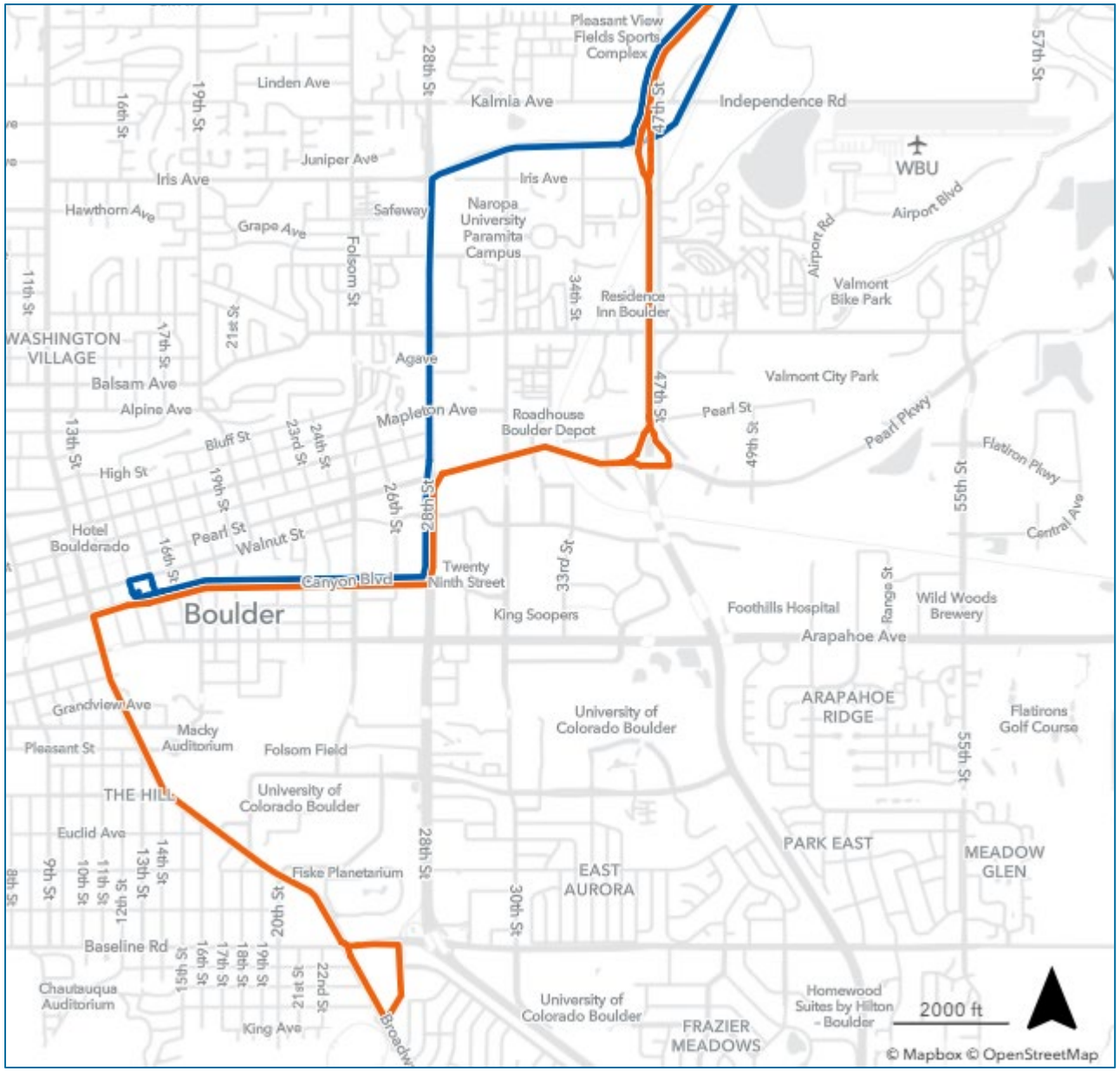
- There are no changes to the Blue route pattern – this pattern's destination remains at the Downtown Bus Station (DBS).
- The Orange route pattern's alignment is modified to operate to CU Main campus, following the Blue route pattern to Canyon Blvd. and Folsom St. The alignment then follows Folsom Street and Colorado Ave. to 28th Street. The proposed terminal would be at either 27th Way and Broadway, or on Baseline, east of Broadway.
- The CU Main campus will be served with stops at Folsom Street and Colorado Avenue. Travel to the CU East campus will require a transfer to the Stampede route at Colorado & 28th St.



# Option 5: Baseline Terminal via Broadway

Characteristics of this option are as follows:

- There are no changes to the Blue route pattern – this pattern's destination remains at the Downtown Bus Station (DBS).
- The Orange route pattern's alignment is modified to operate to follow 28th Street, Canyon blvd. and Broadway. The proposed terminal would be at either 27th Way and Broadway, or on Baseline, east of Broadway.
- The CU Main campus will be primarily served with the existing stop at Broadway and Euclid. Travel to the CU East campus will require a transfer to the Stampede route at this stop.



# Comparison of Service Option Characteristics

The PEL proposed 15-minute all-day weekday service on the Blue route pattern and 30-minute all-day weekday service on the Orange route pattern. Only the Blue route pattern would operate on weekday evenings and weekends. Proposed service levels from the PEL more than doubles BOLT service hours from existing (2024) conditions (less than double if prior Route J service hours are included).

The adjacent table presents peak vehicle requirements, annual revenue-hours and population / jobs access for each alternative.

| | PEL Align. | Option 1 | Option 2 | Option 3 | Option 4 | Option 5 |
|---|---|---|---|---|---|---|
| Peak Veh.** | 13 veh. | 13 veh.<br>+0 veh. | 14 veh.<br>+1 veh. | 14 veh.<br>+1 veh. | 14 veh.<br>+1 veh. | 15 veh.<br>+2 veh. |
| Rev. Hours** | 51,900 | 51,900<br>+0 | 53,800<br>+1,900 | 55,300<br>+3,400 | 55,300<br>+3,400 | 58,800<br>+6,900 |
| Population Access* | 16,200 | 17,400 | 17,500 | 19,100 | 19,300 | 20,100 |
| Jobs Access* | 21,200 | 20,600 | 20,600 | 21,400 | 21,300 | 21,300 |

*Population based on 2022 ACS 5-year estimates, Employment based on 2021 LEHD, All Jobs. Block Group demographics proportioned by National Address Database points within ¼ mile of Alternative's bus stops.

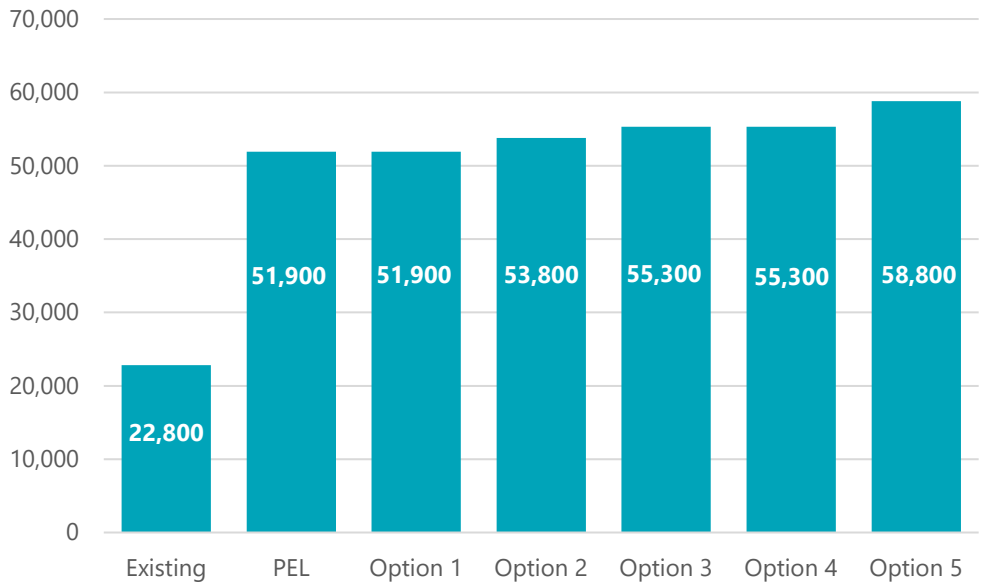
** Peak vehicles and revenue hours based on a service plan that assumes 15-minute weekday peak/midday and 60-minute evening/weekend service on the Blue Line and 30-minute weekday peak/midday service on the Orange line. Opening year service levels may differ based on funding and operator availability

# Comparison of Annual Revenue Hours

Annual revenue bus-hours were estimated with the following operating plan assumptions:

- Blue Pattern:
  - Weekday Peak and Midday – 15 min.
  - Weekday Eve. and Weekends – 30 min.
- Orange Pattern:
  - Weekday Peak and Midday – 30 min.

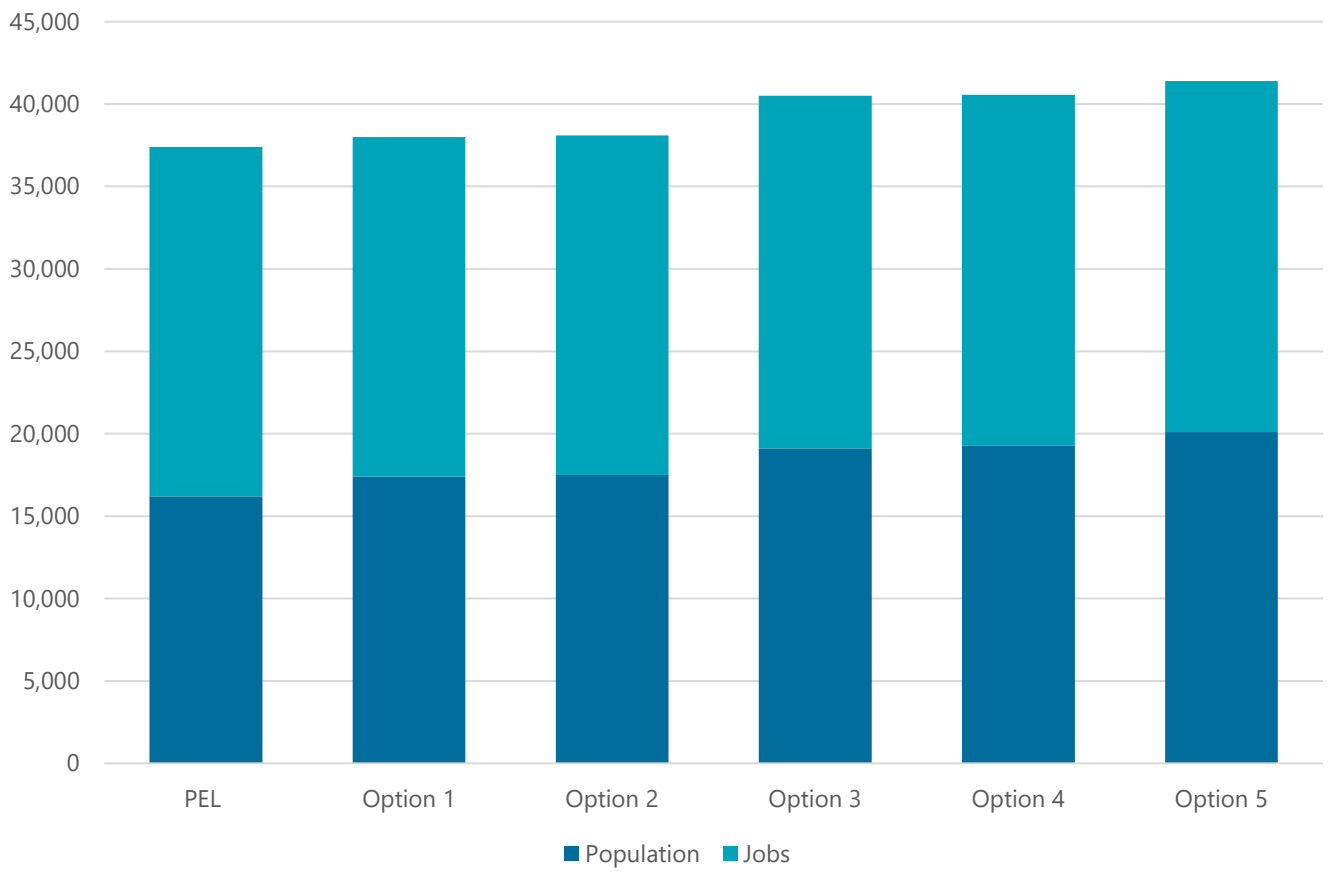
Option 1 maintains the PEL's service-hour projections. Service hours increase with each of the other service options. The appendix to this report provides operating plan tables for each service plan option.



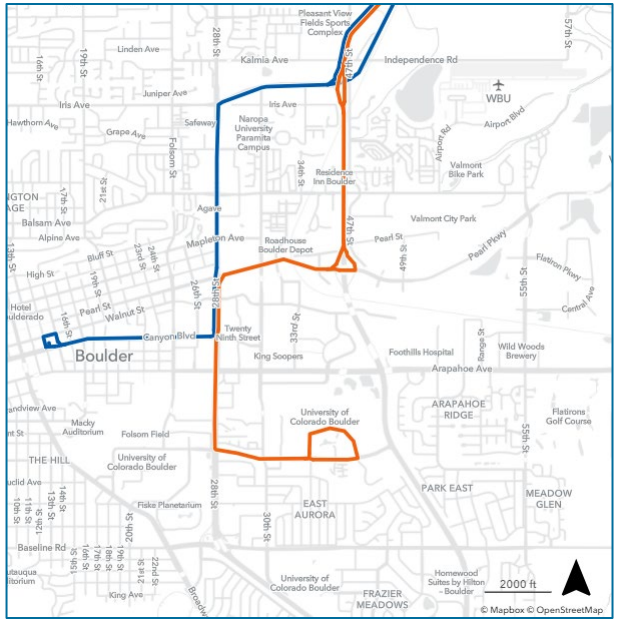
# Population and Jobs Access

Population and jobs access were estimated with data form the 2022 US Census American Community Survey and the 2021 US Census Longitudinal Employer Household Dynamics.

Options 1 and 2 provide similar population and jobs accessibility as the PEL alignment. Options 3, 4 and 5 provide similar job access, but option 5 provides a much higher population access.



# Option 1 Pros and Cons



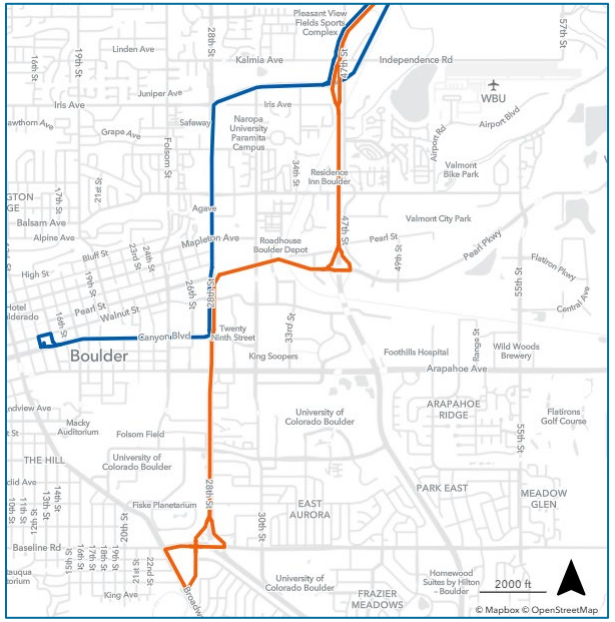

## Pros

- Provides most direct service for Longmont passengers traveling to CU East campus
- Utilizes the 28th Street corridor where there is existing and planned infrastructure such as BRT stops and lane treatments

## Cons

- Lacks a stop that directly serves CU Main campus
- Requires transfer to CU Buff Bus Stampede to reach CU Main campus
- CU East campus not fully developed at this time
- Requires terminal investments that are not yet in place such as passenger shelters, concrete bus pad and reinforced streets to accommodate CU East campus stop and layover. An operator restroom facility may also need to be arranged or constructed

# Option 2 Pros and Cons



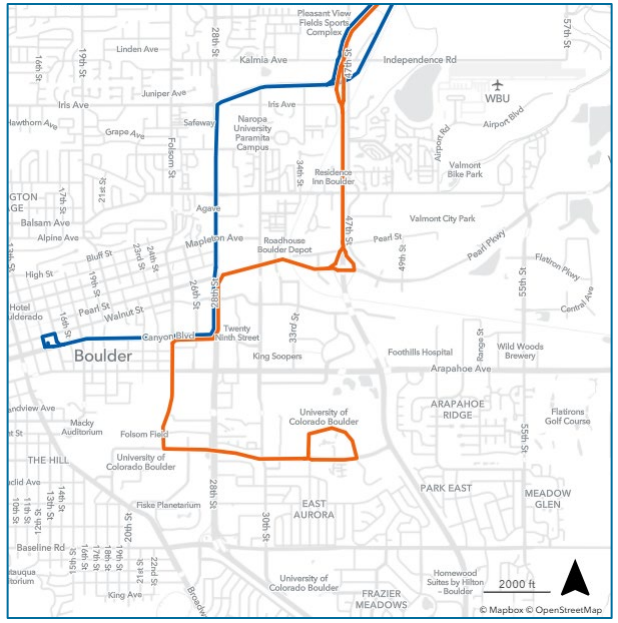

## Pros

- Utilizes the 28th Street corridor where there is existing and planned infrastructure such as BRT stops and lane treatments
- 28th Street alignment to Baseline is more direct and streamlined
- Access to CU Main campus is provided via 28th Street stops south of Colorado Avenue and on Baseline
- Extends the market reach of CO 119 service to the south edge of CU Main campus via Baseline and to an existing and strong transit market
- Adds CO 119 BRT connections to several routes that currently operate at Broadway and Baseline (FF1,FF2,FF5,AB1,GS,BOUND,DASH,SKIP,204,225)
- Includes a stop at RTD's 27th Way and Broadway Park-and-Ride to support northbound travel
- Existing stops and layover infrastructure at 27th Way/Baseline/Broadway can be expanded to accommodate CO 119 BRT services

## Cons

- Requires a transfer to CU Buff Bus Stampede to reach CU East campus
- May require additional investments at 27th Way or Baseline for end-of-line operations

# Option 3 Pros and Cons



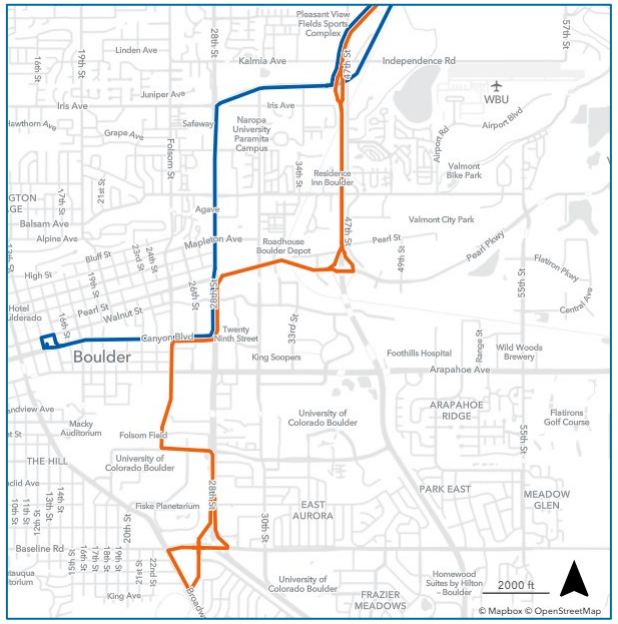

## Pros

- Provides stops on both CU Main and East campuses
- CU Main campus is served first with proposed routing, which presently has higher travel demand than CU East campus

## Cons

- Requires routing via Folsom Street; Folsom is a local street not designed to support regional transit
- Requires stop investments along Folsom Street and on Colorado Avenue between Folsom and 28th Street
- Slower travel times due to added turns and operations on Folsom Street
- Requires terminal investments that are not yet in place such as passenger shelters, concrete bus pad and reinforced streets to accommodate CU East campus stop and layover. An operator restroom facility may also need to be arranged or constructed

# Option 4 Pros and Cons




## Pros

- Provides stops on CU Main campus
- Extends the market reach of CO 119 service to the south edge of CU Main campus via Baseline and to an existing and strong transit market
- Adds CO 119 BRT connections to several routes that currently operate at Broadway and Baseline (FF1,FF2,FF5,AB1,GS,BOUND,DASH,SKIP,204,225)
- Includes a stop at RTD's 27th Way and Broadway Park-and-Ride to support northbound travel
- Existing stops and layover infrastructure at 27th Way/Baseline/Broadway can be expanded to accommodate CO 119 BRT services

## Cons

- Requires routing via Folsom Street; Folsom is a local street not designed to support regional transit
- Requires stop investments along Folsom Street and on Colorado Avenue between Folsom and 28th Street
- Slower travel times due to added turns and operating on Folsom Street
- May require additional investments at 27th Way or Baseline for end-of-line operations

# Option 5 Pros and Cons


## Pros

- Provides additional service to downtown Boulder and DBS, where connections can be made to numerous routes
- Potential interlining opportunities with FF1 and FF2
- Directly serves CU Main campus and uses existing BRT stops and infrastructure on Broadway
- Extends the market reach of CO 119 service to the south edge of CU Main campus via Baseline and to an existing and strong transit market
- Adds CO 119 BRT connections to several routes that currently operate at Broadway and Baseline (FF1,FF2,FF5,AB1,GS,BOUND,DASH,SKIP,204,225)
- Includes a stop at RTD's 27th Way and Broadway Park-and-Ride to support northbound travel
- Existing stops and layover infrastructure at 27th Way/Baseline/Broadway can be expanded to accommodate CO 119 BRT services

## Cons

- Requires a transfer on CU Buff Bus Stampede to reach CU East campus
- May require additional investments at 27th Way or Baseline for end-of-line operations
- Highest service hours and O&M costs of all options and beyond what is planned in the SOP

# Opening Year Service Plan

RTD's current financial condition and operator shortage limits its ability to fully implement CO 119 BRT service plan at this time. This was recognized at the time the PEL was completed and during RTD's System Optimization Plan (SOP) planning effort.

The adjacent table presents a comparison of existing and planned SOP service levels for the CO 119 BRT. The SOP's service hours represent an 45% increase over existing service.

**Comparison of Existing and SOP CO 119 BRT Service**

| Characteristic | Service Pattern | Existing | SOP |
|---|---|---|---|
| Weekday Freq. | Blue | 30 peak/ 60 midday | 15 peak, peak dir. only/30 30 midday |
| | Orange | n/a | 30 peak, peak dir. only |
| Weekend Freq. | Blue | 60 all-day | 30 daytime, 60 evening |
| | Orange | n/a | n/a |
| Peak Buses | | 5 buses | 8 buses |
| Ann. Revenue Hours | | 22,800 | 33,100 |

# Opening Year Service Plan

Each of the five service options presented in this report were modeled for opening year. The PEL and Options 1 through 4 all can operate at SOP-proposed service levels and stay within the SOP's budgeted 33,100 annual revenue bus-hours.

- Option 1 can operate within the SOP peak buses and annual revenue-hours without the need to interline the blue and orange patterns
- Options 2, 3 and 4 require interlining to remain within nine peak buses and SOP annual revenue bus-hours.
- Option 5 triggers the need for a tenth peak bus, thus triggering additional revenue bus-hours. Option 5 is estimated to require 34,800 revenue bus-hours, which is 1,700 more than identified in RTD's SOP.


# Service Plan Recommendations

# Service Plan Recommendations

After discussion of advantages and disadvantages of the alternative service plan options developed as part of this study, several members of this project's Technical Working Group members identified **Option 2** as the preferred service plan.

Near-term actions required prior to implementation of this revised Orange route pattern include:

- Determine specific capital improvement needs for new stops and upgrades to existing stops
- Finalize planned layover location and amenities at that location
- Coordination of traffic/operations, such as striping and transit signal prioritization

# Next Steps

As previously Option 2's estimated service requirements are within RTD's SOP limitation of 33,100 annual revenue-hours for CO 119 BRT service. The PEL, however, reflects eventual service growth to 51,900 annual revenue-hours. A critical next step is determining a phased service plan approach for getting from Opening Day (SOP) to full build-out service levels, as envisioned in the PEL. This service expansion could include further modifications to the Orange route service pattern to address future CU campus expansion plans. Potential considerations regarding BRT service on CU campus include:

- Currently, East campus has a high percentage of faculty and staff working remotely. CU expects on-site work will slowly return to pre-pandemic patterns which could influence transit demand to/from the East campus.
- The CU Campus Master Plan notes that East Campus with full build-out could see over 3 million square feet of academic, research, administration, housing, and student life/dining buildings with supporting parking structures. Housing projects 2,500 beds at full build-out. The timing of these campus development plans could further influence transit demand to/from the East campus.
- The 2020 CU Transportation Master Plan envisions a transit center at Colorado and Folsom which could serve as a potential transit hub or terminus for CO 119 BRT service in the future. Additional planning and funding is needed to develop this proposed transit center.

# Next Steps

The table below presents proposed service frequencies, bus requirements and annual bus-hours for phasing service CO 119 BRT service improvements to what was envisioned in the PEL with this study's Option 2 selected as the preferred Orange route alignment.

| Characteristic | Service Pattern | Existing | SOP | PEL |
|---|---|---|---|---|
| Weekday Freq. | Blue | 30 peak/ 60 midday | 15 peak, peak dir. only/30 30 midday | 15 daytime/ 60 evening |
| | Orange | n/a | 30 peak, peak dir. only | 30 all-day |
| Weekend Freq. | Blue | 60 all-day | 30 daytime, 60 evening | 30 daytime, 60 evening |
| | Orange | n/a | n/a | n/a |
| Peak Buses | | 5 buses | 8 buses | 14 buses |
| Ann. Revenue Hours | | 22,800 | 33,100 | 53,800 |


# Appendix A: Service Plan Tables

# Service Statistics Tables: Full Implementation

## Existing: Operating Statistics

| Route | Day | Span of Service | Hours of Service | | | | One-Way | | | Service Frequency | | | | Vehicles | | Annual Rev. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | AM | Mid | PM | Eve | Peak Time | Off Pk Time | Dist [mi.] | AM | Mid | PM | Eve | Peak | Total | Bus-Miles | In-Serv Hrs | Bus-Hrs |
| **n/a** | Wk | 5:30 am - 12:00 am | 4.5 | 4 | 5 | 5 | 60 | 60 | 18.3 | 30 | 60 | 30 | 60 | 5 | 6 | 261,500 | 14,300 | 19,000 |
| | Sat | 7:00 am - 12:00 am | 3.5 | 4 | 5 | 5 | 38 | 38 | 16.0 | 60 | 60 | 60 | 60 | | | 29,200 | 1,200 | 1,800 |
| | Sun | 6:00 am - 10:00 pm | 3.5 | 4 | 5 | 5 | 38 | 38 | 16.0 | 60 | 60 | 60 | 60 | | | 32,600 | 1,300 | 2,000 |
| | | | | | | | | | | | | | | **5** | **6** | **323,300** | **16,800** | **22,800** |

Weekend service from 8th & Coffman

## PEL Option: Operating Statistics

| Route | Day | Span of Service | Hours of Service | | | | One-Way | | | Service Frequency | | | | Vehicles | | Annual Rev. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | AM | Mid | PM | Eve | Peak Time | Off Pk Time | Dist [mi.] | AM | Mid | PM | Eve | Peak | Total | Bus-Miles | In-Serv Hrs | Bus-Hrs |
| **Blue** | Wk | 5:30 am - 12:00 am | 3.5 | 6 | 4 | 5 | 55 | 52 | 19.1 | 15 | 15 | 15 | 60 | 9 | 11 | 573,200 | 26,800 | 32,000 |
| | Sat | 6:00 am - 12:00 am | 3 | 6 | 4 | 5 | 50 | 50 | 19.1 | 60 | 30 | 30 | 60 | | | 55,500 | 2,400 | 2,900 |
| | Sun | 6:00 am - 10:00 pm | 3 | 6 | 4 | 5 | 50 | 50 | 19.1 | 60 | 30 | 30 | 60 | | | 61,900 | 2,700 | 3,200 |
| | | | | | | | | | | | | | | | | **690,600** | **31,900** | **38,100** |
| **Route** | **Day** | **Span of Service** | **Hours of Service** | | | | **One-Way** | | | **Service Frequency** | | | | **Vehicles** | | **Annual Rev.** | | |
| | | | **AM** | **Mid** | **PM** | **Eve** | **Peak Time** | **Off Pk Time** | **Dist [mi.]** | **AM** | **Mid** | **PM** | **Eve** | **Peak** | **Total** | **Bus-Miles** | **In-Serv Hrs** | **Bus-Hrs** |
| **Orange** | Wk | 5:30 am - 7:00 pm | 3.5 | 6 | 4 | 0 | 50 | 48 | 20.1 | 30 | 30 | 30 | 0 | 4 | 5 | 276,100 | 11,300 | 13,800 |
| | Sat | n/a | 0 | 0 | 0 | 0 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | | | 0 | 0 | 0 |
| | Sun | n/a | 0 | 0 | 0 | 0 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | | | 0 | 0 | 0 |
| | | | | | | | | | | | | | | | | **276,100** | **11,300** | **13,800** |
| | | | | | | | | | | | | | | **13** | **16** | **966,700** | **43,200** | **51,900** |

# Service Statistics Tables: Full Implementation

## Full Implementation Option 1: Operating Statistics

| Route | Day | Span of Service | Hours of Service AM | Mid | PM | Eve | One-Way Peak Time | Off Pk Time | Dist [mi.] | Service Frequency AM | Mid | PM | Eve | Vehicles Peak | Total | Annual Rev. Bus-Miles | In-Serv Hrs | Bus-Hrs |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Blue** | Wk | 5:30 am - 12:00 am | 3.5 | 6 | 4 | 5 | 55 | 52 | 19.1 | 15 | 15 | 15 | 60 | 9 | 11 | 573,200 | 26,800 | 32,000 |
| **to DBS** | Sat | 6:00 am - 12:00 am | 3 | 6 | 4 | 5 | 50 | 50 | 19.1 | 60 | 30 | 30 | 60 | | | 61,900 | 2,700 | 3,200 |
| | Sun | 6:00 am - 10:00 pm | 3 | 6 | 4 | 5 | 50 | 50 | 19.1 | 60 | 30 | 30 | 60 | | | 55,500 | 2,400 | 2,900 |
| | | | | | | | | | | | | | | | | **690,600** | **31,900** | **38,100** |
| **Route** | **Day** | **Span of Service** | **Hours of Service AM** | **Mid** | **PM** | **Eve** | **One-Way Peak Time** | **Off Pk Time** | **Dist [mi.]** | **Service Frequency AM** | **Mid** | **PM** | **Eve** | **Vehicles Peak** | **Total** | **Annual Rev. Bus-Miles** | **In-Serv Hrs** | **Bus-Hrs** |
| **Orange** | Wk | 5:30 am - 7:00 pm | 3.5 | 6 | 4 | 0 | 52 | 49 | 20.5 | 30 | 30 | 30 | 0 | 4 | 5 | 281,600 | 11,600 | 13,800 |
| **to CU East** | Sat | n/a | 0 | 0 | 0 | 0 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | | | 0 | 0 | 0 |
| | Sun | n/a | 0 | 0 | 0 | 0 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | | | 0 | 0 | 0 |
| | | | | | | | | | | | | | | | | **281,600** | **11,600** | **13,800** |
| | | | | | | | | | | | | | | 13 | 16 | 972,200 | 43,500 | 51,900 |

## Full Implementation Option 2 Operating Statistics

| Route | Day | Span of Service | Hours of Service AM | Mid | PM | Eve | One-Way Peak Time | Off Pk Time | Dist [mi.] | Service Frequency AM | Mid | PM | Eve | Vehicles Peak | Total | Annual Rev. Bus-Miles | In-Serv Hrs | Bus-Hrs |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Blue** | Wk | 5:30 am - 12:00 am | 3.5 | 6 | 4 | 5 | 55 | 52 | 19.1 | 15 | 15 | 15 | 60 | 9 | 11 | 573,200 | 26,800 | 32,000 |
| **to DBS** | Sat | 6:00 am - 12:00 am | 3 | 6 | 4 | 5 | 50 | 50 | 19.1 | 60 | 30 | 30 | 60 | | | 61,900 | 2,700 | 3,200 |
| | Sun | 6:00 am - 10:00 pm | 3 | 6 | 4 | 5 | 50 | 50 | 19.1 | 60 | 30 | 30 | 60 | | | 55,500 | 2,400 | 2,900 |
| | | | | | | | | | | | | | | | | **690,600** | **31,900** | **38,100** |
| **Route** | **Day** | **Span of Service** | **Hours of Service AM** | **Mid** | **PM** | **Eve** | **One-Way Peak Time** | **Off Pk Time** | **Dist [mi.]** | **Service Frequency AM** | **Mid** | **PM** | **Eve** | **Vehicles Peak** | **Total** | **Annual Rev. Bus-Miles** | **In-Serv Hrs** | **Bus-Hrs** |
| **Orange** | Wk | 5:30 am - 7:00 pm | 3.5 | 6 | 4 | 0 | 53 | 50 | 20.6 | 30 | 30 | 30 | 0 | 5 | 6 | 283,700 | 11,900 | 15,700 |
| **to Baseline** | Sat | n/a | 0 | 0 | 0 | 0 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | | | 0 | 0 | 0 |
| | Sun | n/a | 0 | 0 | 0 | 0 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | | | 0 | 0 | 0 |
| | | | | | | | | | | | | | | | | **283,700** | **11,900** | **15,700** |
| | | | | | | | | | | | | | | 14 | 17 | 974,300 | 43,800 | 53,800 |

Option 1: Orange Line goes to CU East via 28th Street
Option 2: Orange Line goes to Baseline Rd. via 28th Street

# Service Statistics Tables: Full Implementation

### Full Implementation Option 3: Operating Statistics

| Route | Day | Span of Service | Hours of Service AM | Mid | PM | Eve | One-Way Peak Time | Off Pk Time | Dist [mi.] | Service Frequency AM | Mid | PM | Eve | Vehicles Peak | Total | Annual Rev. Bus-Miles | In-Serv Hrs | Bus-Hrs |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Blue** | Wk | 5:30 am - 12:00 am | 3.5 | 6 | 4 | 5 | 55 | 52 | 19.1 | 15 | 15 | 15 | 60 | 9 | 11 | 573,200 | 26,800 | 32,000 |
| **to DBS** | Sat | 6:00 am - 12:00 am | 3 | 6 | 4 | 5 | 50 | 50 | 19.1 | 60 | 30 | 30 | 60 | | | 61,900 | 2,700 | 3,200 |
| | Sun | 6:00 am - 10:00 pm | 3 | 6 | 4 | 5 | 50 | 50 | 19.1 | 60 | 30 | 30 | 60 | | | 55,500 | 2,400 | 2,900 |
| | | | | | | | | | | | | | | | | **690,600** | **31,900** | **38,100** |
| **Route** | **Day** | **Span of Service** | **Hours of Service AM** | **Mid** | **PM** | **Eve** | **One-Way Peak Time** | **Off Pk Time** | **Dist [mi.]** | **Service Frequency AM** | **Mid** | **PM** | **Eve** | **Vehicles Peak** | **Total** | **Annual Rev. Bus-Miles** | **In-Serv Hrs** | **Bus-Hrs** |
| **Orange** | Wk | 5:30 am - 7:00 pm | 3.5 | 6 | 4 | 0 | 59 | 56 | 21.1 | 30 | 30 | 30 | 0 | 5 | 6 | 289,900 | 13,200 | 17,200 |
| **to CU East** | Sat | n/a | 0 | 0 | 0 | 0 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | | | 0 | 0 | 0 |
| | Sun | n/a | 0 | 0 | 0 | 0 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | | | 0 | 0 | 0 |
| | | | | | | | | | | | | | | | | **289,900** | **13,200** | **17,200** |
| | | | | | | | | | | | | | | 14 | 17 | 980,500 | 45,100 | 55,300 |

### Full Implementation Option 4: Operating Statistics

| Route | Day | Span of Service | Hours of Service AM | Mid | PM | Eve | One-Way Peak Time | Off Pk Time | Dist [mi.] | Service Frequency AM | Mid | PM | Eve | Vehicles Peak | Total | Annual Rev. Bus-Miles | In-Serv Hrs | Bus-Hrs |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Blue** | Wk | 5:30 am - 12:00 am | 3.5 | 6 | 4 | 5 | 55 | 52 | 19.1 | 15 | 15 | 15 | 60 | 9 | 11 | 573,200 | 26,800 | 32,000 |
| **to DBS** | Sat | 6:00 am - 12:00 am | 3 | 6 | 4 | 5 | 50 | 50 | 19.1 | 60 | 30 | 30 | 60 | | | 61,900 | 2,700 | 3,200 |
| | Sun | 6:00 am - 10:00 pm | 3 | 6 | 4 | 5 | 50 | 50 | 19.1 | 60 | 30 | 30 | 60 | | | 55,500 | 2,400 | 2,900 |
| | | | | | | | | | | | | | | | | **690,600** | **31,900** | **38,100** |
| **Route** | **Day** | **Span of Service** | **Hours of Service AM** | **Mid** | **PM** | **Eve** | **One-Way Peak Time** | **Off Pk Time** | **Dist [mi.]** | **Service Frequency AM** | **Mid** | **PM** | **Eve** | **Vehicles Peak** | **Total** | **Annual Rev. Bus-Miles** | **In-Serv Hrs** | **Bus-Hrs** |
| **Orange** | Wk | 5:30 am - 7:00 pm | 3.5 | 6 | 4 | 0 | 58 | 55 | 21.2 | 30 | 30 | 30 | 0 | 5 | 6 | 291,500 | 13,000 | 17,200 |
| **to Baseline** | Sat | n/a | 0 | 0 | 0 | 0 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | | | 0 | 0 | 0 |
| | Sun | n/a | 0 | 0 | 0 | 0 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | | | 0 | 0 | 0 |
| | | | | | | | | | | | | | | | | **291,500** | **13,000** | **17,200** |
| | | | | | | | | | | | | | | 14 | 17 | 982,100 | 44,900 | 55,300 |

Option 3: Orange Line goes to CU East via CU Main Campus
Option 4: Orange Line goes to Baseline Rd. via CU Main Campus

# Service Statistics Tables: Full Implementation

**Full Implementation Option 5: Operating Statistics**

| Route | Day | Span of Service | Hours of Service AM | Mid | PM | Eve | One-Way Peak Time | Off Pk Time | Dist [mi.] | Service Frequency AM | Mid | PM | Eve | Vehicles Peak | Total | Annual Rev. Bus-Miles | In-Serv Hrs | Bus-Hrs |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Blue** | Wk | 5:30 am - 12:00 am | 3.5 | 6 | 4 | 5 | 55 | 52 | 19.1 | 15 | 15 | 15 | 60 | 9 | 11 | 573,200 | 26,800 | 32,000 |
| **to DBS** | Sat | 6:00 am - 12:00 am | 3 | 6 | 4 | 5 | 50 | 50 | 19.1 | 60 | 30 | 30 | 60 | | | 61,900 | 2,700 | 3,200 |
| | Sun | 6:00 am - 10:00 pm | 3 | 6 | 4 | 5 | 50 | 50 | 19.1 | 60 | 30 | 30 | 60 | | | 55,500 | 2,400 | 2,900 |
| | | | | | | | | | | | | | | | | **690,600** | **31,900** | **38,100** |

| Route | Day | Span of Service | Hours of Service AM | Mid | PM | Eve | One-Way Peak Time | Off Pk Time | Dist [mi.] | Service Frequency AM | Mid | PM | Eve | Vehicles Peak | Total | Annual Rev. Bus-Miles | In-Serv Hrs | Bus-Hrs |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Orange** | Wk | 5:30 am - 7:00 pm | 3.5 | 6 | 4 | 0 | 70 | 67 | 21.8 | 30 | 30 | 30 | 0 | 6 | 8 | 300,200 | 15,800 | 20,700 |
| **to Baseline** | Sat | n/a | 0 | 0 | 0 | 0 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | | | 0 | 0 | 0 |
| | Sun | n/a | 0 | 0 | 0 | 0 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | | | 0 | 0 | 0 |
| | | | | | | | | | | | | | | | | **300,200** | **15,800** | **20,700** |
| | | | | | | | | | | | | | | 15 | 19 | 990,800 | 47,700 | 58,800 |

Option 5: Orange Line goes to Baseline Rd. via Downtown Boulder

# Service Statistics Tables: Opening Year

## Opening Year Operating Statistics: PEL

| Route | Day | Span of Service | Hours of Service AM | Mid | PM | Eve | One-Way Peak Time | Off Pk Time | Dist [mi.] | Service Frequency AM | Mid | PM | Eve | Vehicles Peak | Total | Annual Rev. Bus-Miles | In-Serv Hrs | Bus-Hrs |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Blue** | Wk | 5:30 am - 12:00 am | 3 | 6.5 | 3.5 | 5.5 | 55 | 52 | 19.1 | 30 | 30 | 30 | 60 | 5 | 6 | 306,000 | 14,300 | 17,700 |
| | Sat | 6:00 am - 12:00 am | 3 | 6 | 4 | 5 | 50 | 50 | 19.1 | 60 | 30 | 30 | 60 | | | 55,500 | 2,400 | 2,900 |
| | Sun | 6:00 am - 10:00 pm | 3 | 6 | 4 | 5 | 50 | 50 | 19.1 | 60 | 30 | 30 | 60 | | | 61,900 | 2,700 | 3,200 |
| | | | | | | | | | | | | | | | | **423,400** | **19,400** | **23,800** |
| **Suppl.** | Wk | Peak Periods Only | 3 | 0 | 3 | 0 | 55 | 0 | 19.1 | 30 | 0 | 30 | 0 | 4 | 5 | 77,700 | 3,700 | 4,100 |
| | | | | | | | | | | | | | | | | **77,700** | **3,700** | **4,100** |

| Route | Day | Span of Service | Hours of Service AM | Mid | PM | Eve | One-Way Peak Time | Off Pk Time | Dist [mi.] | Service Frequency AM | Mid | PM | Eve | Vehicles Peak | Total | Annual Rev. Bus-Miles | In-Serv Hrs | Bus-Hrs |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Orange to Baseline** | Wk | Peak Periods Only | 3 | 0 | 3 | 0 | 50 | 0 | 20.5 | 30 | 0 | 30 | 0 | 4 | 5 | 93,900 | 3,800 | 4,600 |
| | Sat | n/a | 0 | 0 | 0 | 0 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | | | 0 | 0 | 0 |
| | Sun | n/a | 0 | 0 | 0 | 0 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | | | 0 | 0 | 0 |
| | | | | | | | | | | | | | | | | **93,900** | **3,800** | **4,600** |
| | | | | | | | | | | | | | | | | 595,000 | 26,900 | 32,500 |

## Opening Year Operating Statistics: Option 1

| Route | Day | Span of Service | Hours of Service AM | Mid | PM | Eve | One-Way Peak Time | Off Pk Time | Dist [mi.] | Service Frequency AM | Mid | PM | Eve | Vehicles Peak | Total | Annual Rev. Bus-Miles | In-Serv Hrs | Bus-Hrs |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Blue** | Wk | 5:30 am - 12:00 am | 3 | 6.5 | 3.5 | 5.5 | 55 | 52 | 19.1 | 30 | 30 | 30 | 60 | 5 | 6 | 306,000 | 14,300 | 17,700 |
| | Sat | 6:00 am - 12:00 am | 3 | 6 | 4 | 5 | 50 | 50 | 19.1 | 60 | 30 | 30 | 60 | | | 55,500 | 2,400 | 2,900 |
| | Sun | 6:00 am - 10:00 pm | 3 | 6 | 4 | 5 | 50 | 50 | 19.1 | 60 | 30 | 30 | 60 | | | 61,900 | 2,700 | 3,200 |
| | | | | | | | | | | | | | | | | **423,400** | **19,400** | **23,800** |
| **Suppl.** | Wk | Peak Periods Only | 3 | 0 | 3 | 0 | 55 | 0 | 19.1 | 30 | 0 | 30 | 0 | 4 | 5 | 77,700 | 3,700 | 4,100 |
| | | | | | | | | | | | | | | | | **77,700** | **3,700** | **4,100** |

| Route | Day | Span of Service | Hours of Service AM | Mid | PM | Eve | One-Way Peak Time | Off Pk Time | Dist [mi.] | Service Frequency AM | Mid | PM | Eve | Vehicles Peak | Total | Annual Rev. Bus-Miles | In-Serv Hrs | Bus-Hrs |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Orange to Baseline** | Wk | Peak Periods Only | 3 | 0 | 3 | 0 | 52 | 0 | 20.5 | 30 | 0 | 30 | 0 | 4 | 5 | 93,900 | 4,000 | 4,600 |
| | Sat | n/a | 0 | 0 | 0 | 0 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | | | 0 | 0 | 0 |
| | Sun | n/a | 0 | 0 | 0 | 0 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | | | 0 | 0 | 0 |
| | | | | | | | | | | | | | | | | **93,900** | **4,000** | **4,600** |
| | | | | | | | | | | | | | | | | 595,000 | 27,100 | 32,500 |

PEL Statistics slightly less than SOP statistics due to minor adjustments to operating hour assumptions
Option 1: Orange Line goes to CU East via 28th Street

# Service Statistics Tables: Opening Year

## Opening Year Operating Statistics: Option 2

| Route | Day | Span of Service | Hours of Service AM | Mid | PM | Eve | One-Way Peak Time | Off Pk Time | Dist [mi.] | Service Frequency AM | Mid | PM | Eve | Vehicles Peak | Total | Annual Rev. Bus-Miles | In-Serv Hrs | Bus-Hrs |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Blue** | Wk | 5:30 am - 12:00 am | 3 | 6.5 | 3.5 | 5.5 | 55 | 52 | 19.1 | 30 | 30 | 30 | 60 | 4.5 | 6 | 306,000 | 14,300 | 16,900 |
| | Sat | 6:00 am - 12:00 am | 3 | 6 | 4 | 5 | 50 | 50 | 19.1 | 60 | 30 | 30 | 60 | | | 55,500 | 2,400 | 2,900 |
| | Sun | 6:00 am - 10:00 pm | 3 | 6 | 4 | 5 | 50 | 50 | 19.1 | 60 | 30 | 30 | 60 | | | 61,900 | 2,700 | 3,200 |
| | | | | | | | | | | | | | | | | **423,400** | **19,400** | **23,000** |
| **Suppl.** | Wk | Peak Periods Only | 3 | 0 | 3 | 0 | 55 | 0 | 19.1 | 30 | 0 | 30 | 0 | 4 | 5 | 77,700 | 3,700 | 4,100 |
| | | | | | | | | | | | | | | | | **77,700** | **3,700** | **4,100** |

| Route | Day | Span of Service | Hours of Service AM | Mid | PM | Eve | One-Way Peak Time | Off Pk Time | Dist [mi.] | Service Frequency AM | Mid | PM | Eve | Vehicles Peak | Total | Annual Rev. Bus-Miles | In-Serv Hrs | Bus-Hrs |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Orange to Baseline** | Wk | Peak Periods Only | 3 | 0 | 3 | 0 | 53 | 0 | 20.6 | 30 | 0 | 30 | 0 | 4.5 | 6 | 94,600 | 4,100 | 5,200 |
| | Sat | n/a | 0 | 0 | 0 | 0 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | | | 0 | 0 | 0 |
| | Sun | n/a | 0 | 0 | 0 | 0 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | | | 0 | 0 | 0 |
| | | | | | | | | | | | | | | | | **94,600** | **4,100** | **5,200** |
| | | | | | | | | | | | | | | | | **595,700** | **27,200** | **32,300** |

## Opening Year Operating Statistics: Option 3

| Route | Day | Span of Service | Hours of Service AM | Mid | PM | Eve | One-Way Peak Time | Off Pk Time | Dist [mi.] | Service Frequency AM | Mid | PM | Eve | Vehicles Peak | Total | Annual Rev. Bus-Miles | In-Serv Hrs | Bus-Hrs |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Blue** | Wk | 5:30 am - 12:00 am | 3 | 6.5 | 3.5 | 5.5 | 55 | 52 | 19.1 | 30 | 30 | 30 | 60 | 4.5 | 6 | 306,000 | 14,300 | 16,900 |
| | Sat | 6:00 am - 12:00 am | 3 | 6 | 4 | 5 | 50 | 50 | 19.1 | 60 | 30 | 30 | 60 | | | 55,500 | 2,400 | 2,900 |
| | Sun | 6:00 am - 10:00 pm | 3 | 6 | 4 | 5 | 50 | 50 | 19.1 | 60 | 30 | 30 | 60 | | | 61,900 | 2,700 | 3,200 |
| | | | | | | | | | | | | | | | | **423,400** | **19,400** | **23,000** |
| **Suppl.** | Wk | Peak Periods Only | 3 | 0 | 3 | 0 | 55 | 0 | 19.1 | 30 | 0 | 30 | 0 | 4 | 5 | 77,700 | 3,700 | 4,100 |
| | | | | | | | | | | | | | | | | **77,700** | **3,700** | **4,100** |

| Route | Day | Span of Service | Hours of Service AM | Mid | PM | Eve | One-Way Peak Time | Off Pk Time | Dist [mi.] | Service Frequency AM | Mid | PM | Eve | Vehicles Peak | Total | Annual Rev. Bus-Miles | In-Serv Hrs | Bus-Hrs |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Orange to Baseline** | Wk | Peak Periods Only | 3 | 0 | 3 | 0 | 59 | 0 | 21.1 | 30 | 0 | 30 | 0 | 4.5 | 6 | 96,600 | 4,500 | 5,200 |
| | Sat | n/a | 0 | 0 | 0 | 0 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | | | 0 | 0 | 0 |
| | Sun | n/a | 0 | 0 | 0 | 0 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | | | 0 | 0 | 0 |
| | | | | | | | | | | | | | | | | **96,600** | **4,500** | **5,200** |
| | | | | | | | | | | | | | | | | **597,700** | **27,600** | **32,300** |

Option 2: Orange Line goes to Baseline Rd. via 28th Street. Half buses shown to reflect interlining of Orange and Blue routes in Longmont.
Option 3: Orange Line goes to CU East via CU Main Campus. Half buses shown to reflect interlining of Orange and Blue routes in Longmont.

# Service Statistics Tables: Opening Year

## Opening Year Operating Statistics: Option 4

| Route | Day | Span of Service | Hours of Service AM | Mid | PM | Eve | One-Way Peak Time | Off Pk Time | Dist [mi.] | Service Frequency AM | Mid | PM | Eve | Vehicles Peak | Total | Annual Rev. Bus-Miles | In-Serv Hrs | Bus-Hrs |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Blue** | Wk | 5:30 am - 12:00 am | 3 | 6.5 | 3.5 | 5.5 | 55 | 52 | 19.1 | 30 | 30 | 30 | 60 | 4.5 | 6 | 306,000 | 14,300 | 16,900 |
| | Sat | 6:00 am - 12:00 am | 3 | 6 | 4 | 5 | 50 | 50 | 19.1 | 60 | 30 | 30 | 60 | | | 55,500 | 2,400 | 2,900 |
| | Sun | 6:00 am - 10:00 pm | 3 | 6 | 4 | 5 | 50 | 50 | 19.1 | 60 | 30 | 30 | 60 | | | 61,900 | 2,700 | 3,200 |
| | | | | | | | | | | | | | | | | **423,400** | **19,400** | **23,000** |
| **Suppl.** | Wk | Peak Periods Only | 3 | 0 | 3 | 0 | 55 | 0 | 19.1 | 30 | 0 | 30 | 0 | 4 | 5 | 77,700 | 3,700 | 4,100 |
| | | | | | | | | | | | | | | | | **77,700** | **3,700** | **4,100** |

| Route | Day | Span of Service | Hours of Service AM | Mid | PM | Eve | One-Way Peak Time | Off Pk Time | Dist [mi.] | Service Frequency AM | Mid | PM | Eve | Vehicles Peak | Total | Annual Rev. Bus-Miles | In-Serv Hrs | Bus-Hrs |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Orange to Baseline** | Wk | Peak Periods Only | 3 | 0 | 3 | 0 | 58 | 0 | 21.2 | 30 | 0 | 30 | 0 | 4.5 | 6 | 97,200 | 4,400 | 5,200 |
| | Sat | n/a | 0 | 0 | 0 | 0 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | | | 0 | 0 | 0 |
| | Sun | n/a | 0 | 0 | 0 | 0 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | | | 0 | 0 | 0 |
| | | | | | | | | | | | | | | | | **97,200** | **4,400** | **5,200** |
| | | | | | | | | | | | | | | | | **598,300** | **27,500** | **32,300** |

## Opening Year Operating Statistics: Option 5

| Route | Day | Span of Service | Hours of Service AM | Mid | PM | Eve | One-Way Peak Time | Off Pk Time | Dist [mi.] | Service Frequency AM | Mid | PM | Eve | Vehicles Peak | Total | Annual Rev. Bus-Miles | In-Serv Hrs | Bus-Hrs |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Blue** | Wk | 5:30 am - 12:00 am | 3 | 6.5 | 3.5 | 5.5 | 55 | 52 | 19.1 | 30 | 30 | 30 | 60 | 5 | 6 | 306,000 | 14,300 | 17,700 |
| | Sat | 6:00 am - 12:00 am | 3 | 6 | 4 | 5 | 50 | 50 | 19.1 | 60 | 30 | 30 | 60 | | | 55,500 | 2,400 | 2,900 |
| | Sun | 6:00 am - 10:00 pm | 3 | 6 | 4 | 5 | 50 | 50 | 19.1 | 60 | 30 | 30 | 60 | | | 61,900 | 2,700 | 3,200 |
| | | | | | | | | | | | | | | | | **423,400** | **19,400** | **23,800** |
| **Suppl.** | Wk | Peak Periods Only | 3 | 0 | 3 | 0 | 55 | 0 | 19.1 | 30 | 0 | 30 | 0 | 4 | 5 | 77,700 | 3,700 | 4,100 |
| | | | | | | | | | | | | | | | | **77,700** | **3,700** | **4,100** |

| Route | Day | Span of Service | Hours of Service AM | Mid | PM | Eve | One-Way Peak Time | Off Pk Time | Dist [mi.] | Service Frequency AM | Mid | PM | Eve | Vehicles Peak | Total | Annual Rev. Bus-Miles | In-Serv Hrs | Bus-Hrs |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Orange to Baseline** | Wk | Peak Periods Only | 3 | 0 | 3 | 0 | 70 | 0 | 21.8 | 30 | 0 | 30 | 0 | 6 | 8 | 100,100 | 5,400 | 6,900 |
| | Sat | n/a | 0 | 0 | 0 | 0 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | | | 0 | 0 | 0 |
| | Sun | n/a | 0 | 0 | 0 | 0 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | | | 0 | 0 | 0 |
| | | | | | | | | | | | | | | | | **100,100** | **5,400** | **6,900** |
| | | | | | | | | | | | | | | | | **601,200** | **28,500** | **34,800** |

Option 4: Orange Line goes to Baseline Rd. via CU Main Campus. Half buses shown to reflect interlining of Orange and Blue routes in Longmont.
Option 5: Orange Line goes to Baseline Rd. via Downtown Boulder.


# Appendix B: Travel Time Estimates

# Travel Time Estimates

**Peak Times: BOLT - Blue Route Pattern**

| Stop | Segment Dist. | Cumul. Dist. | Avg. Speed | Segment Time | Cumul. Time | Cumul. Time |
|---|---|---|---|---|---|---|
| Hwy 66/Walmart | | 0.00 | | | 0 | 0:00 |
| | 1.45 | | 15.0 | 6 | | |
| Main/17th | | 1.45 | | | 6 | 0:06 |
| | 0.50 | | 15.0 | 2 | | |
| Main/Mountainview | | 1.95 | | | 8 | 0:08 |
| | 0.70 | | 15.0 | 3 | | |
| 8th/Coffman | | 2.65 | | | 11 | 0:11 |
| | 0.95 | | 15.0 | 4 | | |
| 1st and Main | | 3.60 | | | 15 | 0:15 |
| | 2.00 | | 15.0 | 8 | | |
| Hover/Nelson | | 5.60 | | | 23 | 0:23 |
| | 0.40 | | 15.0 | 2 | | |
| Village at the Peaks | | 6.00 | | | 25 | 0:25 |
| | 0.30 | | 25.0 | 1 | | |
| SH 119/Hover | | 6.30 | | | 26 | 0:26 |
| | 3.85 | | 45.0 | 5 | | |
| SH 119/Niwot | | 10.15 | | | 31 | 0:31 |
| | 1.15 | | 45.0 | 2 | | |
| SH 119/SH 52 | | 11.30 | | | 33 | 0:33 |
| | 1.35 | | 45.0 | 2 | | |
| SH 119/63rd St. | | 12.65 | | | 35 | 0:35 |
| | 3.45 | | 45.0 | 5 | | |
| SH 119/47th | | 16.10 | | | 40 | 0:40 |
| | 0.65 | | 20.0 | 2 | | |
| 28th St./Iris | | 16.75 | | | 42 | 0:42 |
| | 0.50 | | 15.0 | 2 | | |
| 28th St./Valmont | | 17.25 | | | 44 | 0:44 |
| | 0.35 | | 15.0 | 1 | | |
| 28th/Spruce | | 17.60 | | | 45 | 0:45 |
| | 0.40 | | 12.5 | 2 | | |
| 28th/Canyon | | 18.00 | | | 47 | 0:47 |
| | 0.20 | | 10.0 | 1 | | |
| Canyon/Folsom | | 18.20 | | | 48 | 0:48 |
| | 0.45 | | 7.5 | 4 | | |
| Canyon/19th | | 18.65 | | | 52 | 0:52 |
| | 0.40 | | 7.5 | 3 | | |
| Boulder Station | | 19.05 | | | 55 | 0:55 |
| | | | | Avg. Speed | 20.8 | |

# Travel Time Estimates

**PEL Alignment**

**Peak Times: BOLT - Orange Route Pattern**

| Stop | Segment Dist. | Cumul. Dist. | Avg. Speed | Segment Time | Cumul. Time | Cumul. Time |
|---|---|---|---|---|---|---|
| Hwy 66/Walmart | | 0.00 | | | 0 | 0:00 |
| | 1.45 | | 15 | 6 | | |
| Main/17th | | 1.45 | | | 6 | 0:06 |
| | 2.10 | | 15 | 8 | | |
| Hover/Mountainview | | 3.55 | | | 14 | 0:14 |
| | 1.00 | | 17.5 | 3 | | |
| Hover/3rd | | 4.55 | | | 17 | 0:17 |
| | 1.00 | | 17.5 | 3 | | |
| Hover/Nelson | | 5.55 | | | 20 | 0:20 |
| | 1.25 | | 20 | 4 | | |
| Nelson/Airport | | 6.80 | | | 24 | 0:24 |
| | 1.05 | | 20 | 3 | | |
| Airport/Pike | | 7.85 | | | 27 | 0:27 |
| | 2.90 | | 45 | 4 | | |
| SH 119/Niwot | | 10.75 | | | 31 | 0:31 |
| | 1.15 | | 45 | 2 | | |
| SH 119/SH 52 | | 11.90 | | | 33 | 0:33 |
| | 1.35 | | 45 | 2 | | |
| SH 119/63rd St. | | 13.25 | | | 35 | 0:35 |
| | 3.45 | | 45 | 5 | | |
| SH 119/47th | | 16.70 | | | 40 | 0:40 |
| | 1.50 | | 45 | 2 | | |
| Boulder Junction | | 18.20 | | | 42 | 0:42 |
| | 0.70 | | 12.5 | 3 | | |
| 30th/Arapahoe | | 18.90 | | | 45 | 0:45 |
| | 0.50 | | 12.5 | 2 | | |
| Colorado/30th | | 19.40 | | | 47 | 0:47 |
| | 0.65 | | 15 | 3 | | |
| CU East | | 20.05 | | | 50 | 0:50 |
| | | | | Avg. Speed | 24.1 | |

**Option 1**

**Peak Times: BOLT - Orange Route Pattern**

| Stop | Segment Dist. | Cumul. Dist. | Avg. Speed | Segment Time | Cumul. Time | Cumul. Time |
|---|---|---|---|---|---|---|
| Hwy 66/Walmart | | 0.00 | | | 0 | 0:00 |
| | 1.45 | | 15 | 6 | | |
| Main/17th | | 1.45 | | | 6 | 0:06 |
| | 2.10 | | 15 | 8 | | |
| Hover/Mountainview | | 3.55 | | | 14 | 0:14 |
| | 1.00 | | 17.5 | 3 | | |
| Hover/3rd | | 4.55 | | | 17 | 0:17 |
| | 1.00 | | 17.5 | 3 | | |
| Hover/Nelson | | 5.55 | | | 20 | 0:20 |
| | 1.25 | | 20 | 4 | | |
| Nelson/Airport | | 6.80 | | | 24 | 0:24 |
| | 1.05 | | 20 | 3 | | |
| Airport/Pike | | 7.85 | | | 27 | 0:27 |
| | 2.90 | | 45 | 4 | | |
| SH 119/Niwot | | 10.75 | | | 31 | 0:31 |
| | 1.15 | | 45 | 2 | | |
| SH 119/SH 52 | | 11.90 | | | 33 | 0:33 |
| | 1.35 | | 45 | 2 | | |
| SH 119/63rd St. | | 13.25 | | | 35 | 0:35 |
| | 4.95 | | 45 | 7 | | |
| Boulder Junction | | 18.20 | | | 42 | 0:42 |
| | 0.65 | | 12.5 | 3 | | |
| 28th/Canyon | | 18.85 | | | 45 | 0:45 |
| | 0.65 | | 15 | 3 | | |
| Colorado/28th | | 19.50 | | | 48 | 0:48 |
| | 0.3 | | 15 | 1 | | |
| Colorado/30th | | 19.80 | | | 49 | 0:49 |
| | 0.65 | | 15 | 3 | | |
| CU East | | 20.45 | | | 52 | 0:52 |
| | | | | Avg. Speed | 23.6 | |

**Option 2**

**Peak Times: BOLT - Orange Route Pattern**

| Stop | Segment Dist. | Cumul. Dist. | Avg. Speed | Segment Time | Cumul. Time | Cumul. Time |
|---|---|---|---|---|---|---|
| Hwy 66/Walmart | | 0.00 | | | 0 | 0:00 |
| | 1.45 | | 15 | 6 | | |
| Main/17th | | 1.45 | | | 6 | 0:06 |
| | 2.10 | | 15 | 8 | | |
| Hover/Mountainview | | 3.55 | | | 14 | 0:14 |
| | 1.00 | | 17.5 | 3 | | |
| Hover/3rd | | 4.55 | | | 17 | 0:17 |
| | 1.00 | | 17.5 | 3 | | |
| Hover/Nelson | | 5.55 | | | 20 | 0:20 |
| | 1.25 | | 20 | 4 | | |
| Nelson/Airport | | 6.80 | | | 24 | 0:24 |
| | 1.05 | | 20 | 3 | | |
| Airport/Pike | | 7.85 | | | 27 | 0:27 |
| | 2.90 | | 45 | 4 | | |
| SH 119/Niwot | | 10.75 | | | 31 | 0:31 |
| | 1.15 | | 45 | 2 | | |
| SH 119/SH 52 | | 11.90 | | | 33 | 0:33 |
| | 1.35 | | 45 | 2 | | |
| SH 119/63rd St. | | 13.25 | | | 35 | 0:35 |
| | 4.95 | | 45 | 7 | | |
| Boulder Junction | | 18.20 | | | 42 | 0:42 |
| | 0.65 | | 12.5 | 3 | | |
| 28th/Canyon | | 18.85 | | | 45 | 0:45 |
| | 0.70 | | 15 | 3 | | |
| 28th/Colorado | | 19.55 | | | 48 | 0:48 |
| | 0.70 | | 15 | 3 | | |
| 27th Way/Broadway | | 20.25 | | | 51 | 0:51 |
| | 0.35 | | 10 | 2 | | |
| Baseline | | 20.60 | | | 53 | 0:53 |
| | | | | Avg. Speed | 23.3 | |

# Travel Time Estimates

**Option 3**

**Peak Times: BOLT - Orange Route Pattern**

| Stop | Segment Dist. | Cumul. Dist. | Avg. Speed | Segment Time | Cumul. Time | Cumul. Time |
|---|---|---|---|---|---|---|
| Hwy 66/Walmart | | 0.00 | | | 0 | 0:00 |
| | 1.45 | | 15 | 6 | | |
| Main/17th | | 1.45 | | | 6 | 0:06 |
| | 2.10 | | 15 | 8 | | |
| Hover/Mountainview | | 3.55 | | | 14 | 0:14 |
| | 1.00 | | 17.5 | 3 | | |
| Hover/3rd | | 4.55 | | | 17 | 0:17 |
| | 1.00 | | 17.5 | 3 | | |
| Hover/Nelson | | 5.55 | | | 20 | 0:20 |
| | 1.25 | | 20 | 4 | | |
| Nelson/Airport | | 6.80 | | | 24 | 0:24 |
| | 1.05 | | 20 | 3 | | |
| Airport/Pike | | 7.85 | | | 27 | 0:27 |
| | 2.90 | | 45 | 4 | | |
| SH 119/Niwot | | 10.75 | | | 31 | 0:31 |
| | 1.15 | | 45 | 2 | | |
| SH 119/SH 52 | | 11.90 | | | 33 | 0:33 |
| | 1.35 | | 45 | 2 | | |
| SH 119/63rd St. | | 13.25 | | | 35 | 0:35 |
| | 4.95 | | 45 | 7 | | |
| Boulder Junction | | 18.20 | | | 42 | 0:42 |
| | 0.65 | | 12.5 | 3 | | |
| 28th/Canyon | | 18.85 | | | 45 | 0:45 |
| | 0.45 | | 10 | 3 | | |
| Folsom/Arapahoe | | 19.30 | | | 48 | 0:48 |
| | 0.50 | | 10 | 3 | | |
| Colorado/Folsom | | 19.80 | | | 51 | 0:51 |
| | 0.30 | | 10 | 2 | | |
| Colorado/28th | | 20.10 | | | 53 | 0:53 |
| | 0.30 | | 10 | 2 | | |
| Colorado/30th | | 20.40 | | | 55 | 0:55 |
| | 0.65 | | 10 | 4 | | |
| CU East | | 21.05 | | | 59 | 0:59 |
| | | | | Avg. Speed | 21.4 | |

**Option 4**

**Peak Times: BOLT - Orange Route Pattern**

| Stop | Segment Dist. | Cumul. Dist. | Avg. Speed | Segment Time | Cumul. Time | Cumul. Time |
|---|---|---|---|---|---|---|
| Hwy 66/Walmart | | 0.00 | | | 0 | 0:00 |
| | 1.45 | | 15 | 6 | | |
| Main/17th | | 1.45 | | | 6 | 0:06 |
| | 2.10 | | 15 | 8 | | |
| Hover/Mountainview | | 3.55 | | | 14 | 0:14 |
| | 1.00 | | 17.5 | 3 | | |
| Hover/3rd | | 4.55 | | | 17 | 0:17 |
| | 1.00 | | 17.5 | 3 | | |
| Hover/Nelson | | 5.55 | | | 20 | 0:20 |
| | 1.25 | | 20 | 4 | | |
| Nelson/Airport | | 6.80 | | | 24 | 0:24 |
| | 1.05 | | 20 | 3 | | |
| Airport/Pike | | 7.85 | | | 27 | 0:27 |
| | 2.90 | | 45 | 4 | | |
| SH 119/Niwot | | 10.75 | | | 31 | 0:31 |
| | 1.15 | | 45 | 2 | | |
| SH 119/SH 52 | | 11.90 | | | 33 | 0:33 |
| | 1.35 | | 45 | 2 | | |
| SH 119/63rd St. | | 13.25 | | | 35 | 0:35 |
| | 4.95 | | 45 | 7 | | |
| Boulder Junction | | 18.20 | | | 42 | 0:42 |
| | 0.65 | | 12.5 | 3 | | |
| 28th/Canyon | | 18.85 | | | 45 | 0:45 |
| | 0.45 | | 10 | 3 | | |
| Folsom/Arapahoe | | 19.30 | | | 48 | 0:48 |
| | 0.50 | | 10 | 3 | | |
| Colorado/Folsom | | 19.80 | | | 51 | 0:51 |
| | 0.32 | | 10 | 2 | | |
| Colorado/28th | | 20.12 | | | 53 | 0:53 |
| | 0.70 | | 15 | 3 | | |
| 27th Way/Broadway | | 20.82 | | | 56 | 0:56 |
| | 0.35 | | 10 | 2 | | |
| Baseline | | 21.17 | | | 58 | 0:58 |
| | | | | Avg. Speed | 21.9 | |

**Option 5**

**Peak Times: BOLT - Orange Route Pattern**

| Stop | Segment Dist. | Cumul. Dist. | Avg. Speed | Segment Time | Cumul. Time | Cumul. Time |
|---|---|---|---|---|---|---|
| Hwy 66/Walmart | | 0.00 | | | 0 | 0:00 |
| | 1.45 | | 15 | 6 | | |
| Main/17th | | 1.45 | | | 6 | 0:06 |
| | 2.10 | | 15 | 8 | | |
| Hover/Mountainview | | 3.55 | | | 14 | 0:14 |
| | 1.00 | | 17.5 | 3 | | |
| Hover/3rd | | 4.55 | | | 17 | 0:17 |
| | 1.00 | | 17.5 | 3 | | |
| Hover/Nelson | | 5.55 | | | 20 | 0:20 |
| | 1.25 | | 20 | 4 | | |
| Nelson/Airport | | 6.80 | | | 24 | 0:24 |
| | 1.05 | | 20 | 3 | | |
| Airport/Pike | | 7.85 | | | 27 | 0:27 |
| | 2.90 | | 45 | 4 | | |
| SH 119/Niwot | | 10.75 | | | 31 | 0:31 |
| | 1.15 | | 45 | 2 | | |
| SH 119/SH 52 | | 11.90 | | | 33 | 0:33 |
| | 1.35 | | 45 | 2 | | |
| SH 119/63rd St. | | 13.25 | | | 35 | 0:35 |
| | 4.95 | | 45 | 7 | | |
| Boulder Junction | | 18.20 | | | 42 | 0:42 |
| | 0.65 | | 12.5 | 3 | | |
| 28th/Canyon | | 18.85 | | | 45 | 0:45 |
| | 0.20 | | 7.5 | 2 | | |
| Canyon/Folsom | | 19.05 | | | 47 | 0:47 |
| | 0.45 | | 7.5 | 4 | | |
| Canyon/19th | | 19.50 | | | 51 | 0:51 |
| | 0.35 | | 7.5 | 3 | | |
| Boulder Junction | | 19.85 | | | 54 | 0:54 |
| | 0.35 | | 7.5 | 3 | | |
| Broadway & Marine | | 20.20 | | | 57 | 0:57 |
| | 0.60 | | 7.5 | 5 | | |
| Broadway & Euclid | | 20.80 | | | 62 | 1:02 |
| | 0.65 | | 7.5 | 5 | | |
| Baseline | | 21.45 | | | 67 | 1:07 |
| | 0.35 | | 7.5 | 3 | | |
| 27th Way/Broadway | | 21.80 | | | 70 | 1:10 |
| | | | | Avg. Speed | 18.7 | |

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