



FIRST AND LAST MILE
STRATEGIC PLAN

STATION ANALYSIS:

US 36 and Table
Mesa Station



1 PROBLEM STATEMENT

US 36 and Table Mesa Station is located on a key transit corridor (US 36) which includes bus rapid transit between Boulder and Denver.

US 36 itself creates a physical barrier to accessing the station, although a pedestrian bridge does link the east and west sides. The annual average daily parking utilization in the Station structure is 68%.

The surrounding area is a mix of residential, employment and other land use types, and the station falls in the suburban-mixed typology. The population around the station generally includes wealthy, family-oriented communities. There is a relatively even mix of people walking and driving alone to access the station.

Recently, the Commuting Solutions TMA conducted a First and Final Mile Study for the US 36 transit corridor. Key recommendations included:

- Bike-n-Ride shelters
- Branded wayfinding
- Marketing the EcoPass program
- Increased carshare and taxi service
- B-cycle or Zagster bike share memberships
- Transit supportive land use policies
- First and Finale mile mobile app
- Real-time US 36 bus tracker
- Bikeshare services at each station
- Secure scooter parking

For more details, visit <https://commutingsolutions.org/regional-planning/us-36-first-and-final-mile-study/>



A pedestrian bridge over US 36



Boulder County provides secure bicycle parking

TYOLOGY: SUBURBAN RESIDENTIAL

OVERLAYS

This location doesn't meet any overlays.

STATION JURISDICTION

This station is located within the City of Boulder

**Walkshed coverage was calculated using a geographic information system (GIS) by running a half-mile network analysis originating at the station along the DRCOG 2016 Planimetrics Sidewalks Centerline layer. A 200 foot buffer was created around this routed network, and the area of this polygon was divided by a circle with a half-mile radius to reach a coverage percentage.*

STATION OVERVIEW

- The station is currently served by:
- Local Bus Routes: 206, 236, AB, DASH
 - Regional Bus Routes: FF1, FF2, FF4, FF5, FF6

TRANSIT RIDERSHIP

2017 Average Daily Weekday Bus Boardings & Alightings: 2,373

ACTIVE TRANSPORTATION

A half-mile walkshed was generated for this station. A half-mile (or 10 minute) walkshed depicts how far a person can walk or roll from a transit station entrance along existing sidewalks. At this station, walkshed coverage* of 40% highlights a poor network structure for walking, active transportation and micromobility.

TRANSPORTATION MANAGEMENT ASSOCIATION

Boulder Transportation Connections TMA and Commuting Solutions

PARKING

There are 824 RTD parking spaces at this location, with 68% average parking utilization.

2 STATION ASSESSMENT

STATION AREA CONTEXT

This section includes a description of the demographics and travel patterns of the surrounding station area. All data sources included within this section are universally available throughout the region. The aim of the demographic and travel pattern data is to provide insight into current travel demands, patterns and opportunities to improve first and last mile connectivity. Demographic and travel pattern data within this section includes:

- **Census Data (2015):** Data collected and analyzed from OnTheMap which includes LEHD (Longitudinal Employer-Household Dynamics) data, annually updated. Data for the year 2015 was most recent available at time of writing.
- **RTD On-Board Survey (2015):** The RTD On-Board Survey is an annual survey conducted on RTD services.
- **Tapestry Segmentation Data (2018):** Available by zip code, highlights the surrounding population's lifestyle choices, including openness to using technology and trying new modes of transportation. Tapestry data is owned by Esri.
- **Context Map:** Provides a snapshot of the situation of the station or service location with regards to the immediate surrounding area.

¹ For more information about OnTheMap and associated data sources, use this link: <https://onthemap.ces.census.gov/>

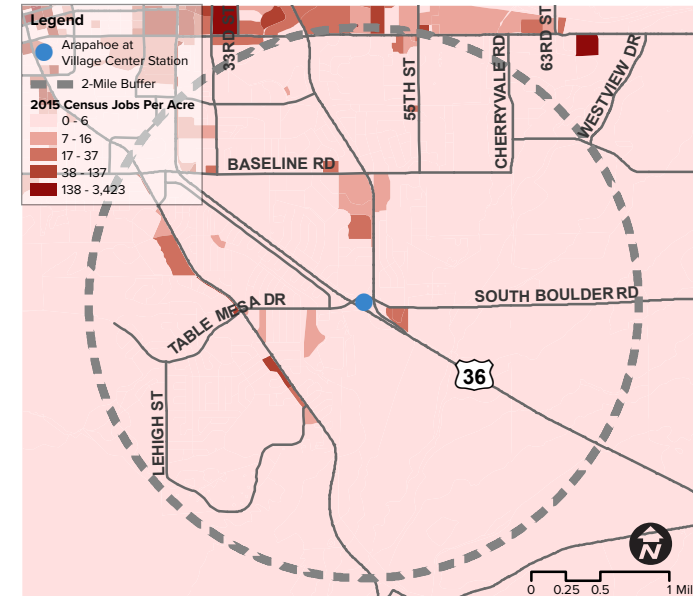
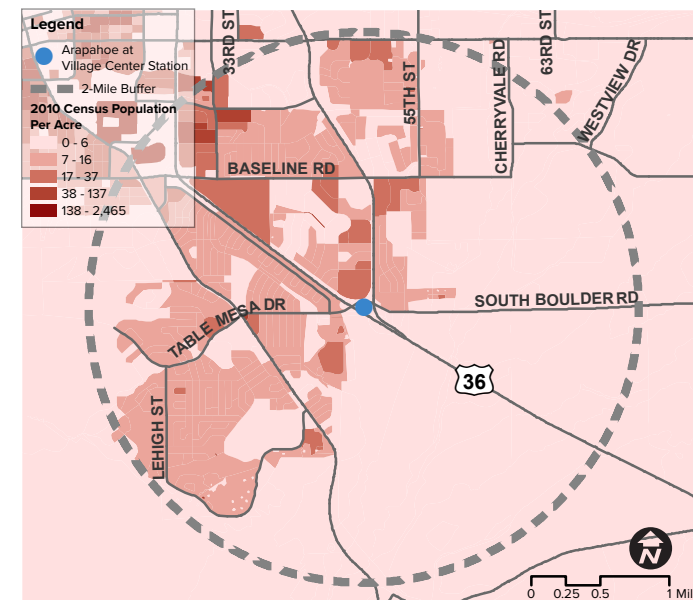
² For more information about Esri Tapestry data, use this link: <https://www.esri.com/en-us/arcgis/products/tapestry-segmentation/overview>

³ For more information about DRCOG's Focus Model, use this link: <https://drcog.org/services-and-resources/data-maps-and-modeling/travel-modeling/focus-travel-model>

CENSUS DATA (2015)

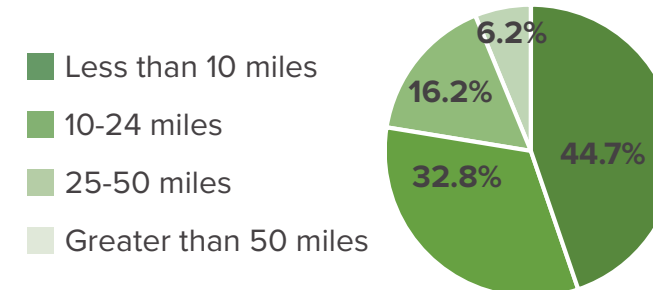
The maps below show the concentration of population and employment within a 2-mile buffer of the station.

As seen in the maps below, there is a medium density of population to the north and west of the station, and very little employment in the immediate vicinity of the station.



The LEHD data (processed using OnTheMap) also shows the distance traveled to work for employees whose job is located within a 1-mile radius of US 36 and Table Mesa Station.

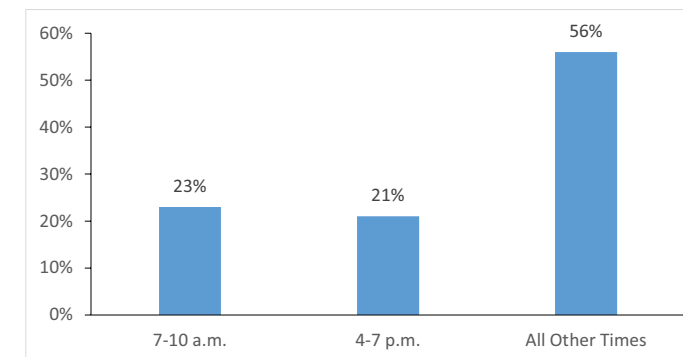
Distance Traveled to Work For Employees Working Within 1-Mile Radius of US 36 and Table Mesa Station



RTD ON-BOARD SURVEY DATA (2015)

According to the survey walking is the most commonly-reported mode of accessing the station for both arriving and departing trips. This is followed by driving alone, being dropped off or picked up, biking, and dropped off by a taxi or TNC. Compared to the RTD district-wide average for rail stations, US 36 and Table Mesa Station has a lower share of people walking and a higher share of people driving alone to and from the station.

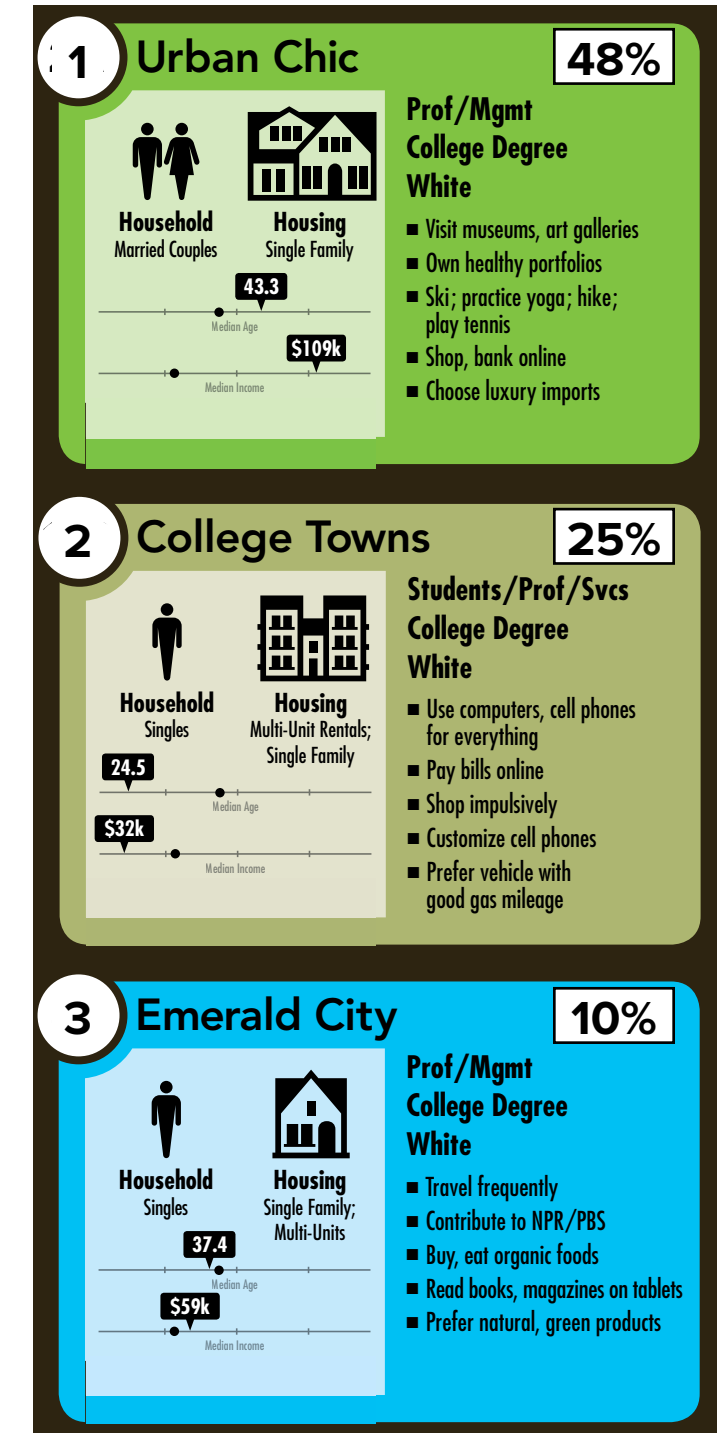
The off-peak hours accounted for the majority of boardings.



Passenger-reported boarding times. Source: RTD On-Board Survey

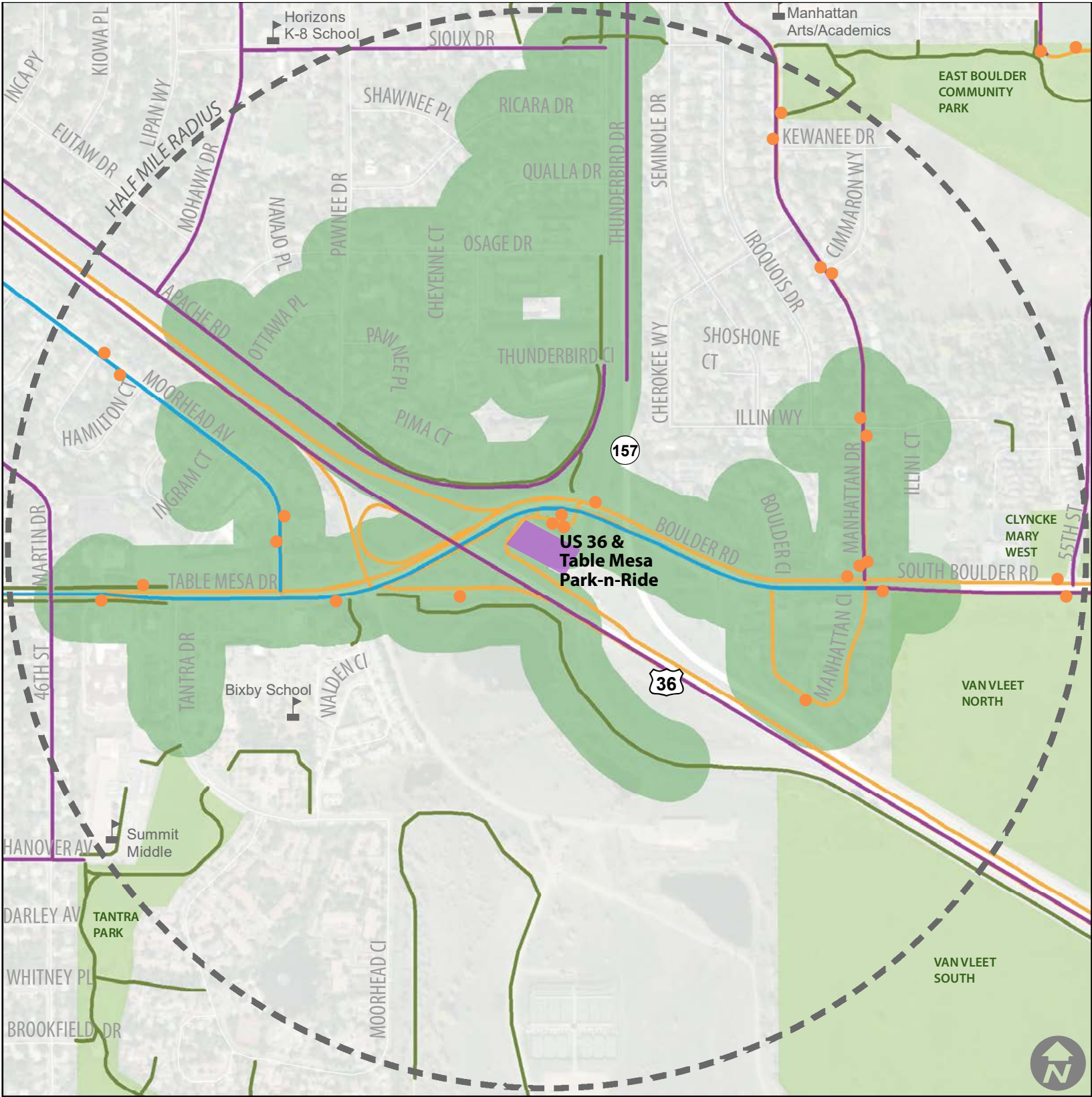
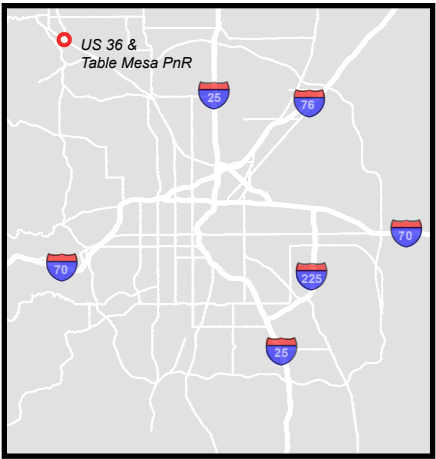
TAPESTRY (ESRI) DATA (2018)

Below are the three largest Tapestry Segments in the 80305 zip code around US 36 and Table Mesa Station:



CONTEXT MAP

This map shows the location of the Station with regards to surrounding land uses and transportation connections. The US 36 and Table Mesa Station is located off of US 36 on Table Mesa Dr/S Boulder Rd.



Bicycle Facilities

- Route/Shared Roadway (no dedicated facilities)
- On-Street Dedicated
- Off-Street

Pedestrian Facilities

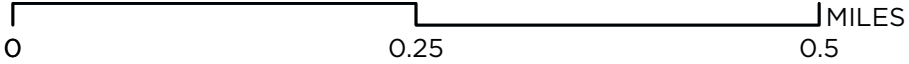
- 10-minute Walkshed

Transit

- Bus Stop
- Bus Route
- Park-n-Ride

Destinations

- School
- Park



ACTIVE TRANSPORTATION ANALYSIS

NORTH ROUTE

Opportunities: Wide sidewalks from the transit station along Boulder Rd create a reasonably comfortable environment for pedestrians. Crosswalk striping, signage, and pedestrian signals allow for the safe crossing of highway on- and off-ramps. Manhattan Dr, Crescent Dr, and Eisenhower Dr are all low-stress roads through residential neighborhoods that provide a comfortable route for bicyclists. Signage at key junctions facilitates navigation.

Challenges: Conventional bike lanes on South Boulder Rd do not provide bicyclists with separation from four lanes of traffic, which may be uncomfortable for some bicyclists. The intersection of South Boulder Rd and Manhattan Dr is somewhat confusing for east-bound bicyclists, as current wayfinding signage does not include the option to turn north onto Manhattan Dr, even though it is a designated bicycle route.

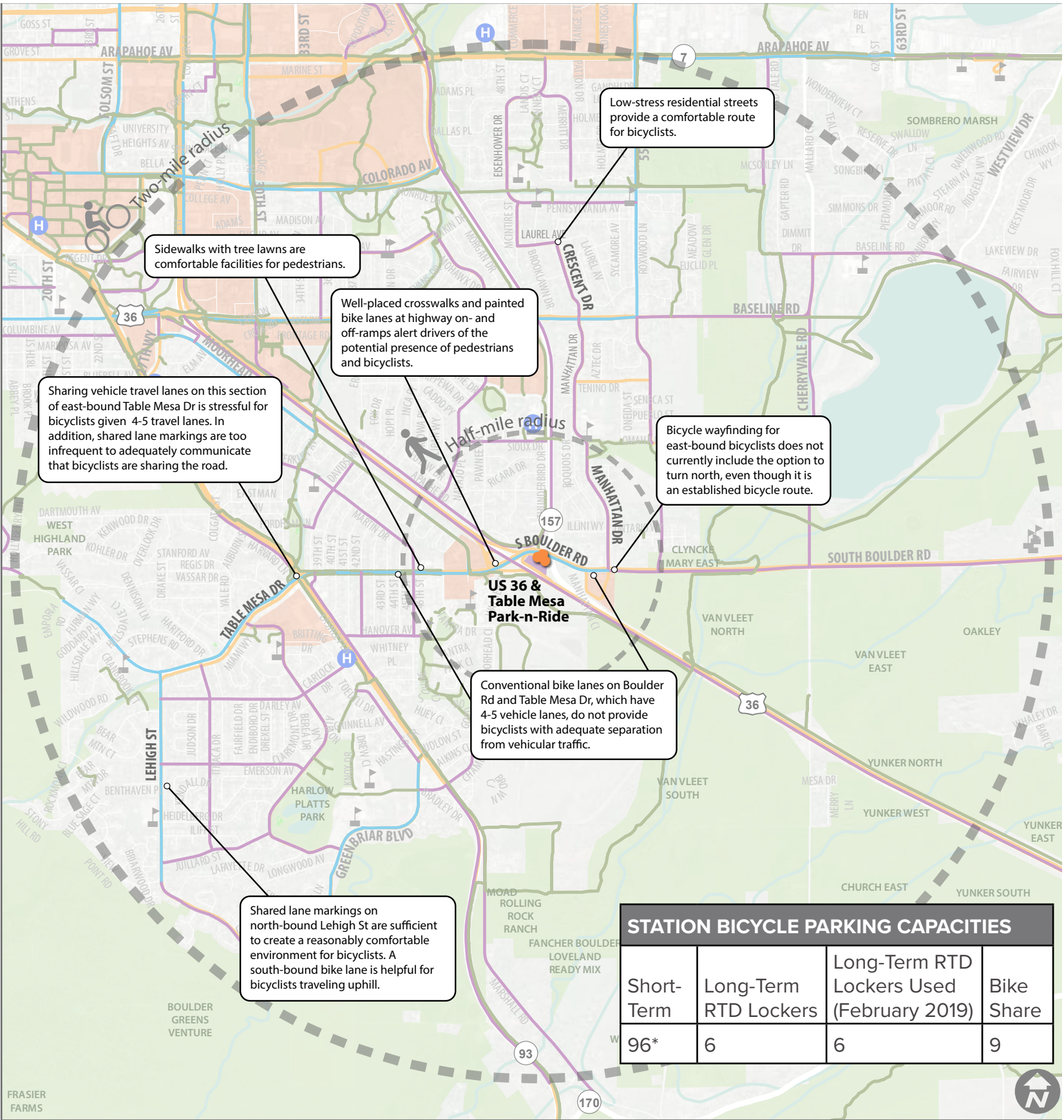
SOUTHWEST ROUTE

Opportunities: Similar to the north route, pedestrian facilities immediately to the west of the station provide a comfortable environment with wide detached sidewalks and well-designed bicycle and pedestrian crossings at the highway on- and off-ramps. North-bound Lehigh St has shared lane markings, which are sufficient for the relatively low-stress roadway. A bike lane on the south-bound side adds comfort for bicyclists traveling uphill.

Challenges: Conventional bike lanes on Table Mesa Dr do not buffer bicyclists from the four lanes of relatively fast-moving vehicular traffic. Traveling east, the bike lane on Table Mesa Dr only begins at Broadway; from Lehigh St to Broadway infrequent shared lane markings direct bicyclists to share the travel lane with vehicles, a less than comfortable situation for many bicyclists given four to five travel lanes.

GENERAL FINDINGS

- While both routes have generally adequate infrastructure for confident bicyclists, some sections do not provide sufficient comfort for less-confident bicyclists.
- Pedestrian facilities within the walkshed are generally very high-quality.



Level of Comfort Analysis	Bicycle Facilities	Transit Routes	Destinations
— Most Comfortable	— Route/Shared Rd (no dedicated facilities)	● Bus Stop	H Healthcare/Medical Facility
—	— On-Street Dedicated	— Bus Route	🏫 School
—	— Off-Street	— Park-n-Ride	🏠 Activity Generator
— Least Comfortable			🌳 Park

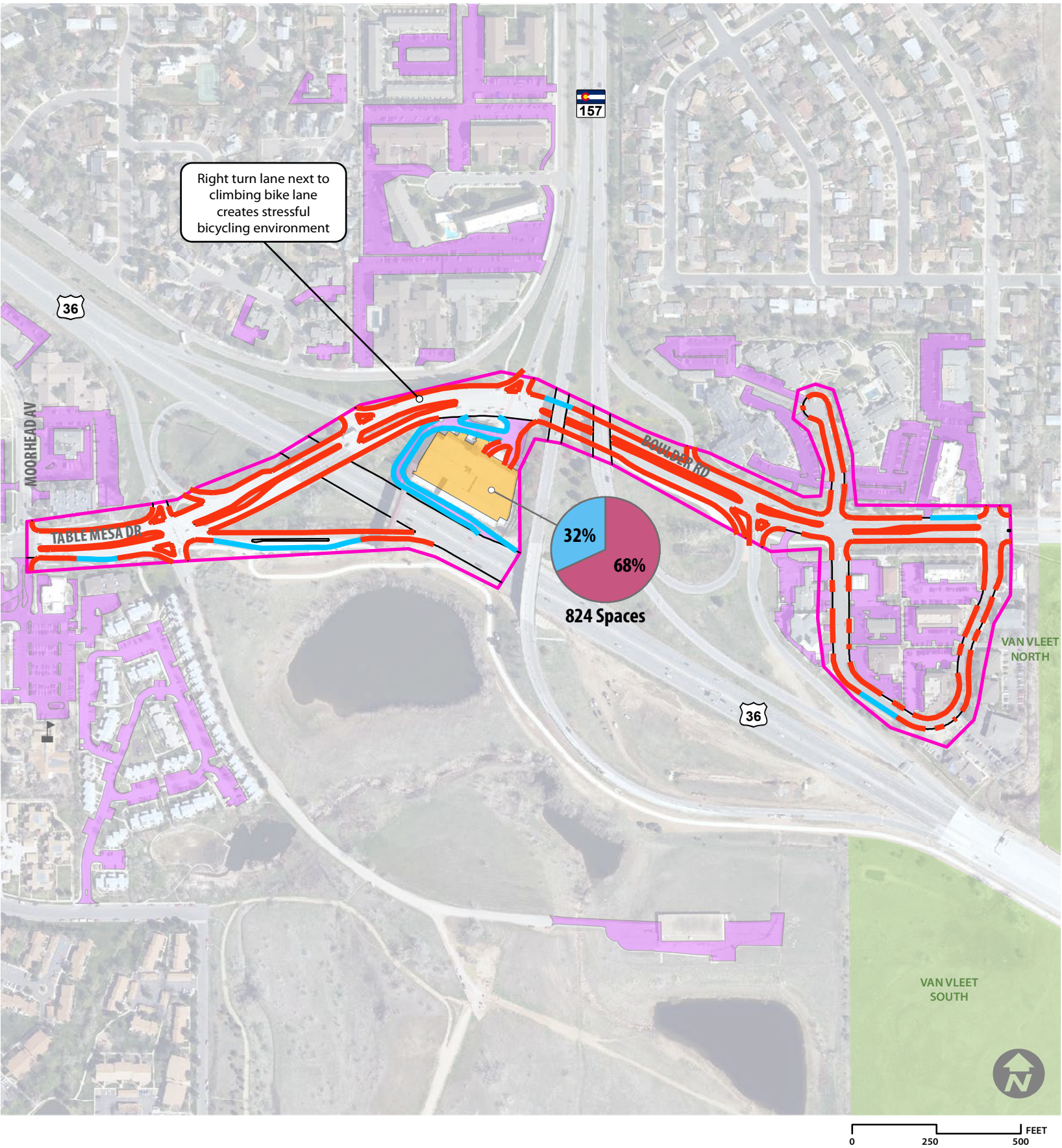
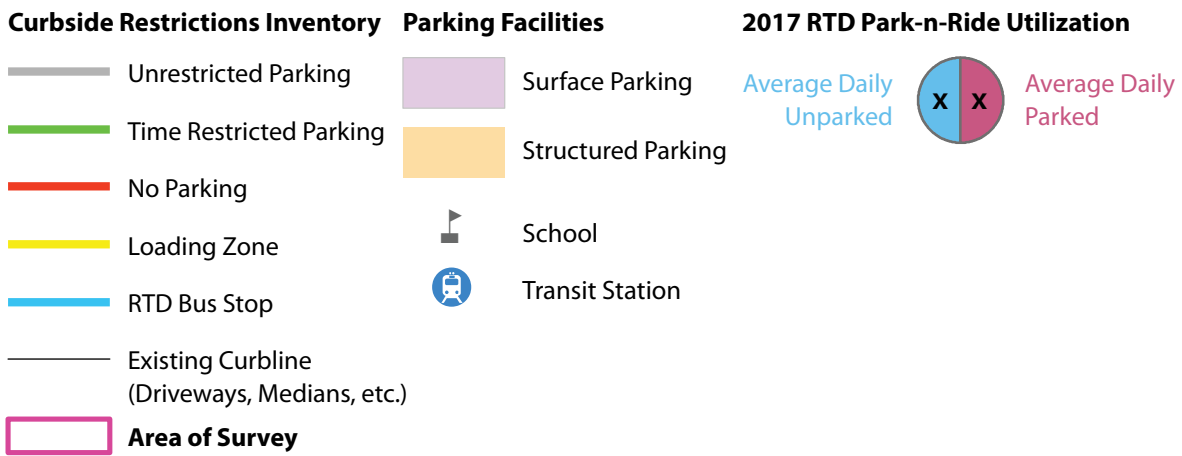
STATION BICYCLE PARKING CAPACITIES			
Short-Term	Long-Term RTD Lockers	Long-Term RTD Lockers Used (February 2019)	Bike Share
96*	6	6	9

*Includes bike parking capacities for the existing Bike-n-Ride shelter that is part of the Boulder County Bike-n-Ride Program.

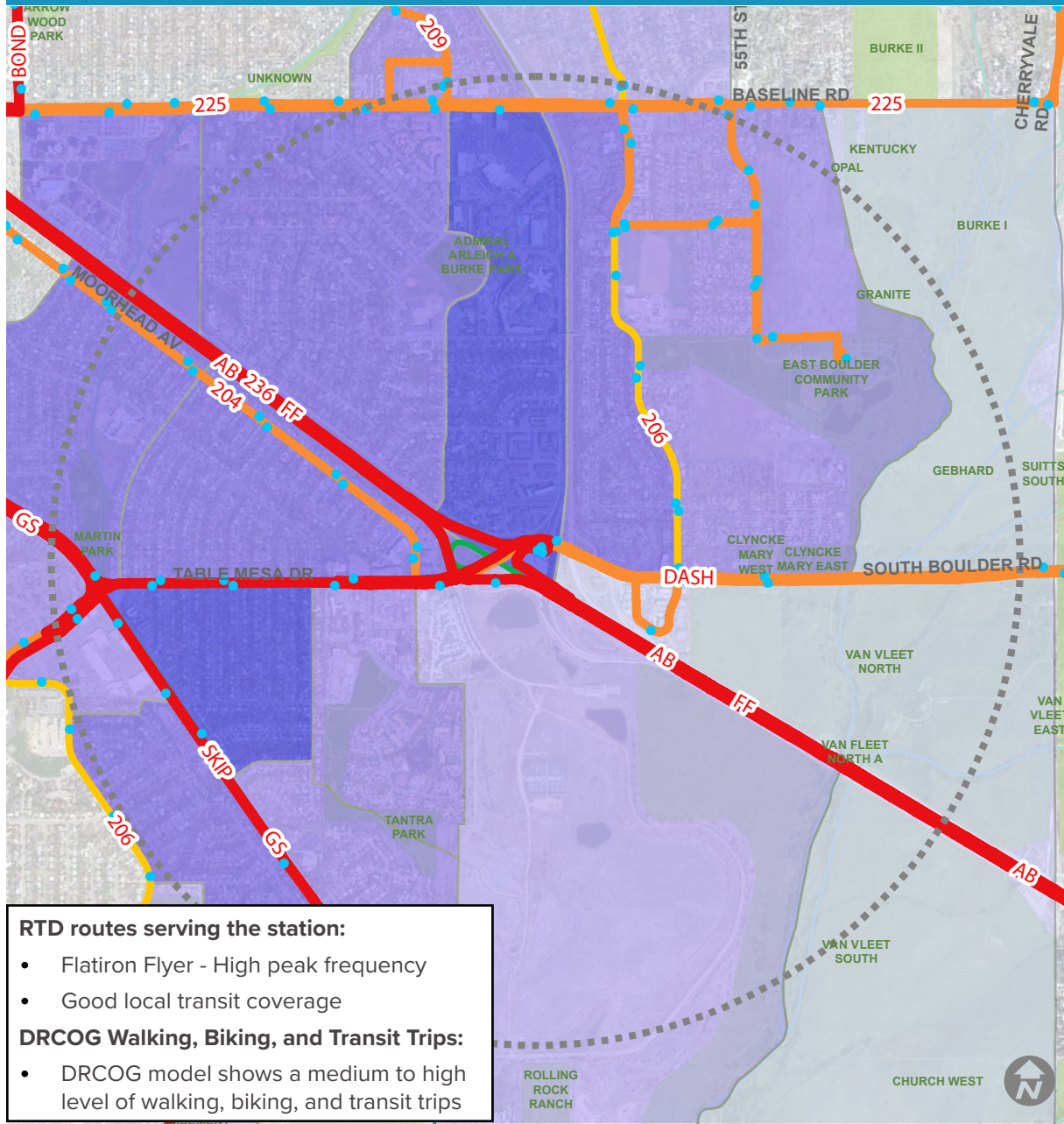
CURBSIDE MANAGEMENT AND PARKING ANALYSIS

Opportunities: There are ten Kiss-n-Ride, or short-term parking spaces right at the entrance to the Station. These could be reconfigured to include access for various types of passenger loading and unloading.

Challenges: There are not a lot of opportunities to reconfigure on-street curb space around the station, therefore most of the opportunities exist in reconfiguring the layout or access of the Station structure.



TRANSIT FREQUENCY AND EXISTING TRAVEL PATTERNS



RTD Transit Routes

Average maximum weekday wait time during peak periods (Spring 2018)

- Every 10 Minutes or Better
- Between Every 10 and 15 Minutes
- Between Every 15 and 30 Minutes
- Between Every 30 and 60 Minutes
- Every 60 Minutes or More

DRCOG FOCUS Model

Average weekday daily walk, bike and transit trips as a percentage of total trips

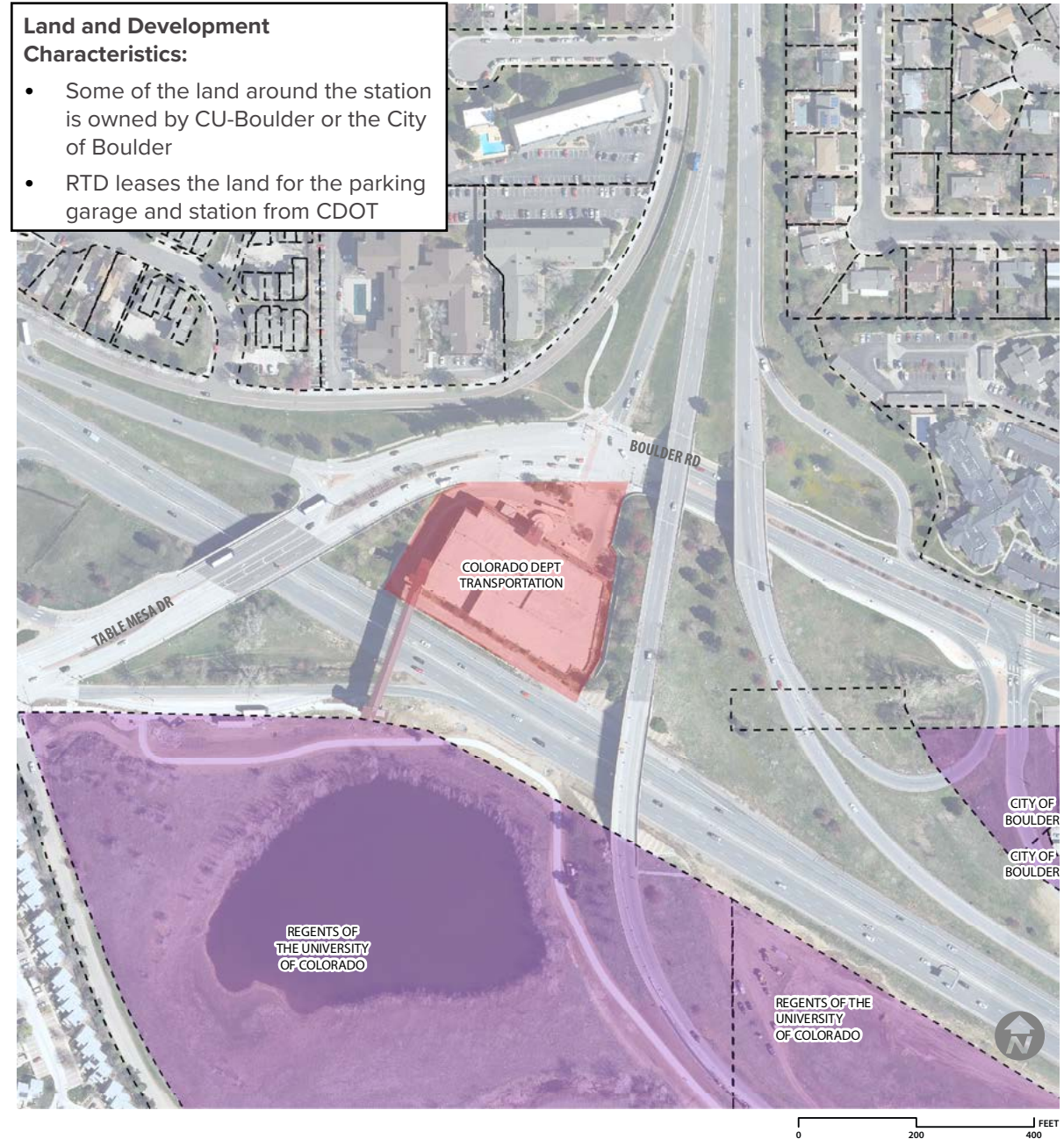
- 0.0% - 5.2%
- 5.3% - 9.0%
- 9.1% - 12.9%
- 13.0% - 17.0%
- 17.1% - 28.0%

- RTD Bus Stop
- Station 1-Mile Radius
- School
- Transit Station

LAND OWNERSHIP

Land and Development Characteristics:

- Some of the land around the station is owned by CU-Boulder or the City of Boulder
- RTD leases the land for the parking garage and station from CDOT



3 RECOMMENDATIONS

ACTIVE TRANSPORTATION RECOMMENDATIONS

NORTH ROUTE

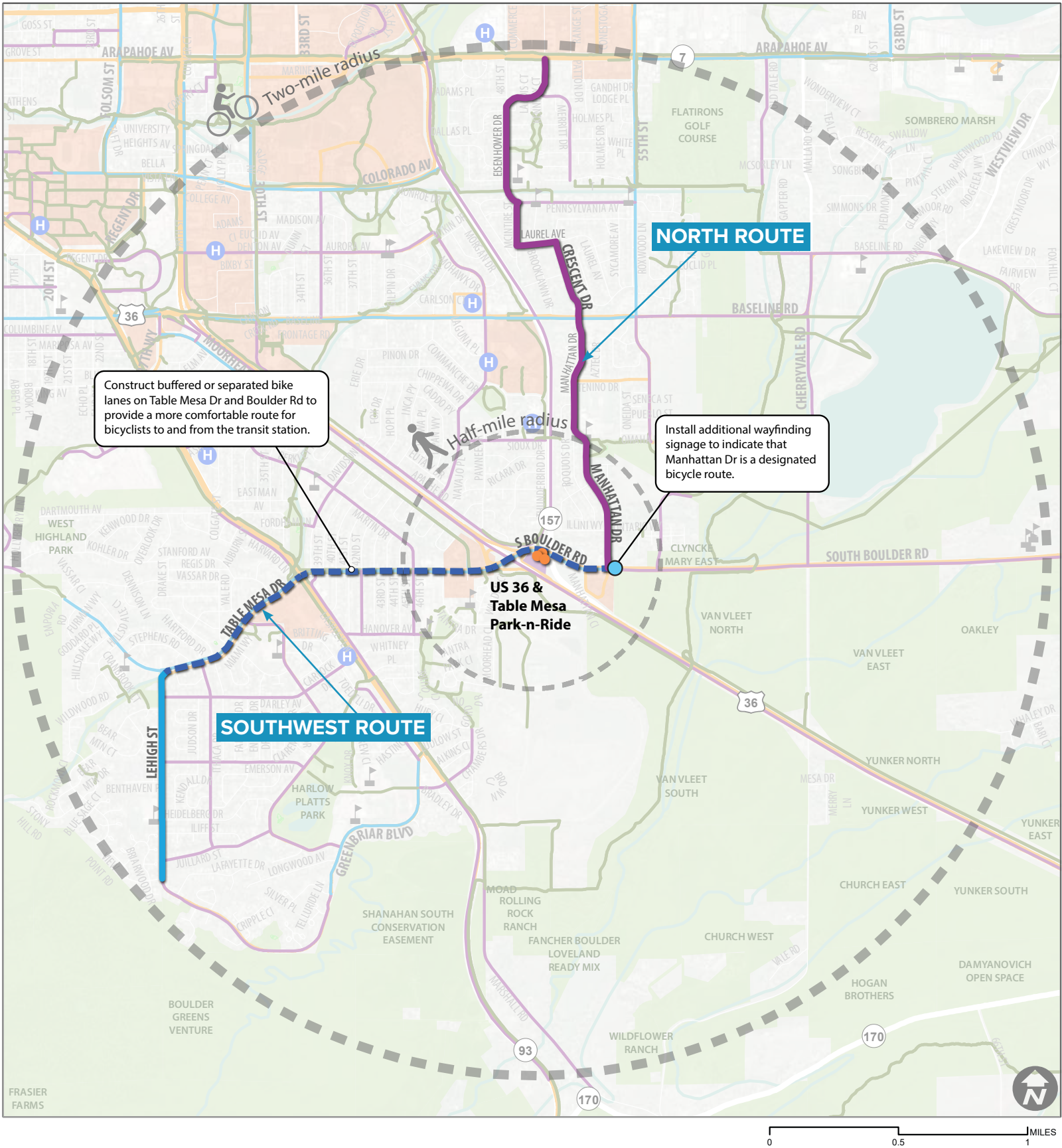
Given the four to five lanes on S Boulder Rd and the relatively high traffic volumes, installing buffered or separated bike lanes will provide a more comfortable route for bicyclists accessing the transit station from the east. Existing pedestrian infrastructure along the route is high-quality, allowing pedestrians to comfortably and safely reach the station.

SOUTHWEST ROUTE

Similar to the northeast route, replacing conventional bike lanes and shared lane markings with buffered or separated bike lanes on Table Mesa Dr and Boulder Rd will reduce stress for bicyclists accessing the station from the west.

STATION IMPROVEMENTS

None noted; existing Station amenities are satisfactory.



RECOMMENDATIONS FOR ASSESSED ROUTES

- Bicycle spot improvement
- Install buffered or separated bike lanes

EXISTING CONDITIONS

Bicycle Facilities

- Route/Shared Rd (no dedicated facilities)
- On-Street Dedicated
- Off-Street

Transit

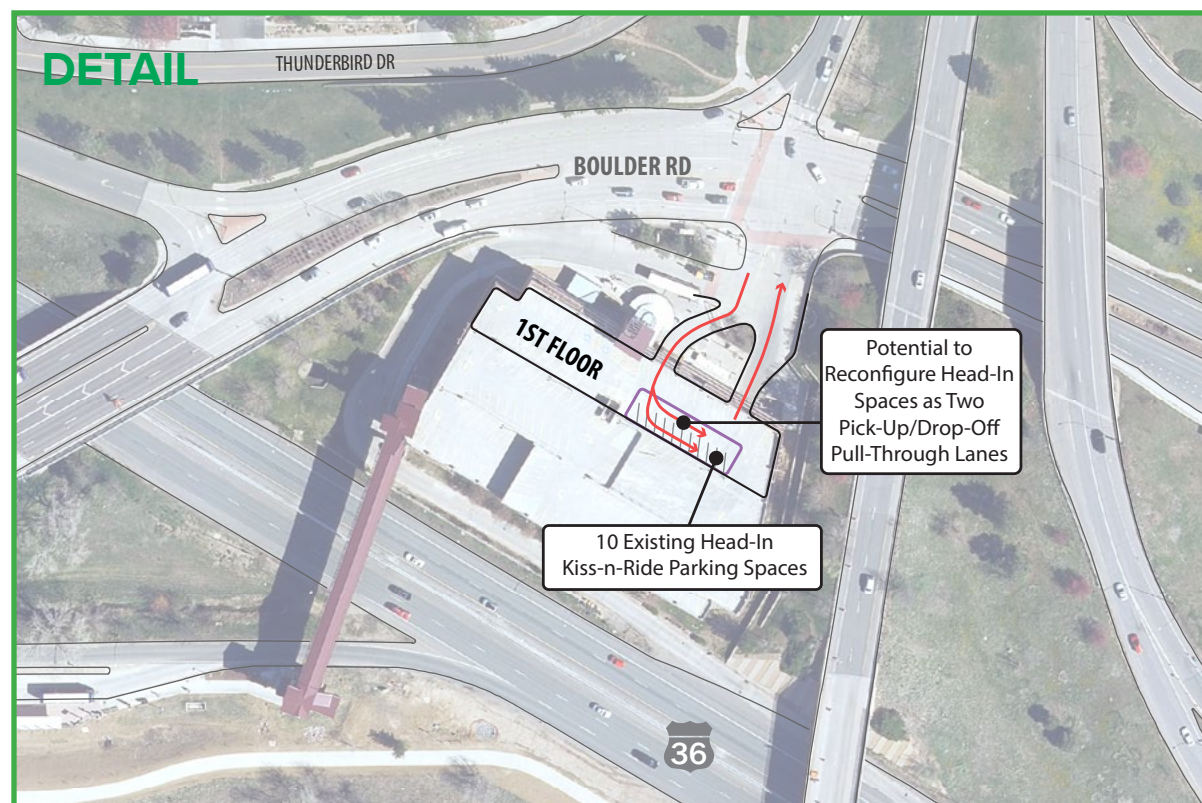
- Bus Stop
- Rail Station
- Bus Route
- Rail Route
- Park-n-Ride

Destinations

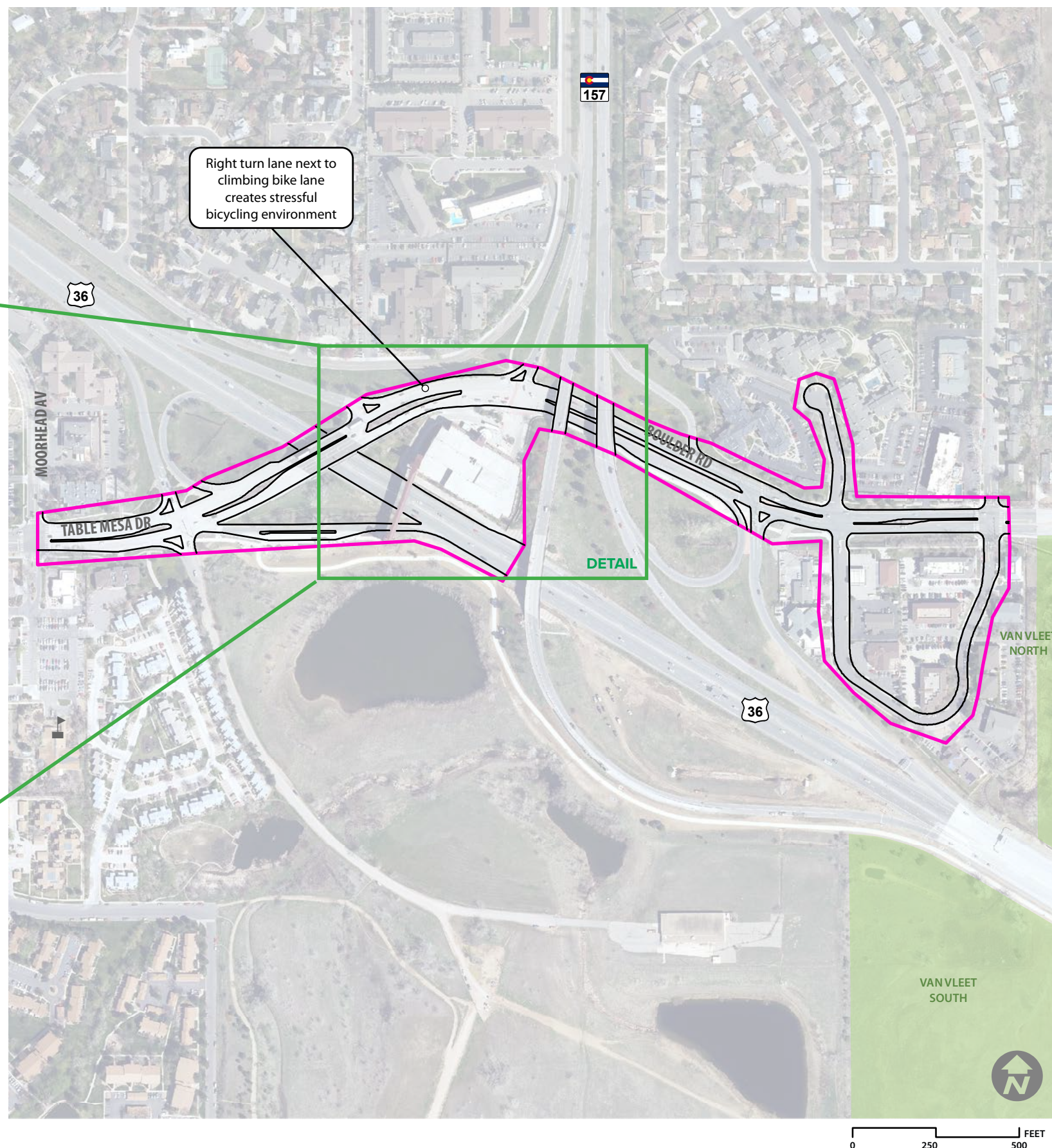
- Healthcare/Medical Facility
- School
- Activity Generator
- Park

CURBSIDE MANAGEMENT RECOMMENDATIONS

- Reconfiguring the 10 Kiss-n-Ride stalls inside the parking garage to two pick up and drop off through lanes could improve accessibility for TNC pick up and drop offs, and quicker Kiss-n-Ride drop offs.
- Other parking spaces should be identified to provide preferential parking to carpoolers, combined with the introduction of a dynamic carpooling program.
- The existing westbound climbing line on Boulder Rd/Table Mesa Dr is stressful for bicyclists due to the vehicle weaving conflicts created by the adjacent auxiliary lane. Removing the right turn slip lanes could provide a lower-stress connection.



View from parking garage to Table Mesa Drive



OVERALL RECOMMENDATIONS

FLM Toolkit Theme	Strategy	Rationale	Desired Outcomes	Priority	Implementing Agencies
First and Last Mile General Guidance	Improve bicycle and micro-mobility infrastructure: stripe bike lanes on 17th Ave	Bike lanes will provide dedicated space for bicyclists, but will also have a traffic calming effect by narrowing vehicle travel lanes.	Bicycling and using a micromobility device will become more comfortable.	High	City of Aurora
Programmatic	Promotion of RTD pass programs	Promote the low-income transit pass, provide an opportunity for people to try transit for free before committing to the pass.	Some existing or potential RTD customers in the area may not know about the new discount pass programs. A promotion program would help spread the word.	High	NETC
Transportation Demand Management	New resident / employee / student transportation kits	Provide welcome kits to new residents and new hires to educate them about transportation options available at their new residence or employment site. The kits should include transit schedules, bicycle maps, information on available subsidies and transportation programs, and, ideally, multiple free bus passes.	Research shows that when someone makes a major life change (e.g. moving house or changing employer) they are more open to changing travel behavior.	High	NETC, Employers, Property Owners
First and Last Mile General Guidance	Improve pedestrian infrastructure: widen sidewalks	Sidewalks that are less than five feet wide are not comfortable for pedestrians and do not adequately accommodate people using wheelchairs or pushing strollers.	Pedestrian access and comfort will improve.	Medium	City of Aurora
First and Last Mile General Guidance	Pedestrian-scale Lighting	Ensure that major walking routes to/from stations have adequate, pedestrian friendly lighting. This can be a significant barrier for people's sense of security, especially at night.	People may be more likely to take transit, if the walk to the stop is well-lit and feels safe.	Medium	City of Aurora, Xcel
New Infrastructure	Multimodal maps and wayfinding	People may be less likely to walk or bike to/from the station if they do not know how to access it.	People may be more likely to walk or bike to/from the station if the safest, most comfortable routes are clear and easy to follow.	Medium	City of Aurora
New infrastructure	Short-term bike parking	There are no existing bike racks at the bus stops.	More people will bike to the bus stops.	Medium	RTD, City of Aurora
Transportation Demand Management	Bicycle Education and Encouragement Programs	Host bike skills, safety or maintenance workshops for residents and employees close by the transit location. Hosting a workshop can help recruit on-site Bike Ambassadors who can teach the skills and tools required to foster a cycling culture.	People may want to cut their travel time accessing this station from the east or west. Teaching them bicycling skills allows them to shorten their access time to transit.	Medium	NETC
Programmatic	Commuter Expert or Commuter Buddy	Implement a program where expert commuters at an employer or residential location show people how to use transit and/or volunteer to ride with them the first time on their route.	This strategy increases transit use among potential riders who are unfamiliar or not sure how to navigate transit--in particular people with disabilities and the elderly	Low	Northeast Transportation Connections (NETC)
Programmatic	Commuter tax benefits	Employers have the ability to offer pre-tax commute benefits to employees. Section 1.132-9 of the IRS code allow employees to use up to \$260 per month in pre-tax money to pay for their parking, transit and vanpool fares (2018 limits). Ensure that these commute benefits are being fully implemented by employers near transit stops and stations.	Employees who have access to commute benefits are more likely to use transit, thereby increasing transit ridership in the station catchment area.	Low	NETC, Employers
Transportation Demand Management	Bicycle end-of-trip facilities and amenities	This strategy encompasses low-cost shared amenities offered by employers that encourage walking or biking for mid-day trips, even in inclement weather. They can include shared umbrellas, ponchos, bike lights, rain covers for bike seats and bags/ backpacks and other items that can be borrowed when needed. Bike pumps and simple repair tools are another example of shared amenities that promote and facilitate biking to transit.	Supporting employees to be able to take mid-day trips without a car can lead to them having a higher propensity to take transit to work.	Low	Employers, Property Owners
Transportation Demand Management	Encouragement of shared micromobility providers within the station area	The area already has a high existing walking, biking, and transit mode share so there should be a strong market for additional micromobility options.	Encouraging micromobility use may widen the catchment area of the station to people who currently feel it is too far to walk to the station,	Low	City of Aurora, NETC

CONCLUSION

This chart on this page provides a framework for prioritizing recommendations. This framework is called the “Big Easy” and is a simple method to help identify which recommendations may be the best to implement first. Those that require relatively less effort for relatively more impact may provide the best opportunities in the near-term. Recommendations that take relatively more effort for more impact, and those that take relatively less effort for less impact should be considered in the medium to long term.

The chart is intended to be a simple guide and each of the recommendations should be investigated in more thoroughly by the implementing agency before moving forward. Implementing agencies are identified next to each recommendation,

The chart shows the ‘quick wins’ (less effort/more impact) for the US 36 and Table Mesa station include:

- Implementing a multimodal wayfinding system to the station that provides information while also promoting transit.
- Encouraging shared micromobility providers to the station area to improve first and last mile access.
- New resident and employee transportation kits to provide travel information and transit incentives to people new to the area.
- Preferential parking for carpools and vanpools.
- Provide a dynamic carpool program to provide a flexible and sustainable transportation service to the transit location.
- Innovative Station management will allow RTD to try out new methods to manage the Station more efficiently.
- TNC, car or vanpool financial incentives to improve access for people who do not own cars but live too far away to walk or use active transportation.

IMPLEMENTING AGENCIES

This station is situated in the City of Boulder, as such it is suggested that the City should take the lead in developing new infrastructure and reuse of existing infrastructure to improve access to the station.

The station falls within the Commuting Solutions and Boulder Transportation Connections (BTC) TMA area, and therefore it is suggested that they take the lead on TDM recommendations with support from RTD. Additionally, RTD can implement some of the transportation service recommendations.

LESS IMPACT	Bicycling workshops and courses	
	Promotional events/fairs/challenges	
MORE IMPACT	Wayfinding and transit map	Install separated bicycle facilities on high traffic volume/speed roads
	Encouragement of shared micromobility providers in the area	Improve pedestrian infrastructure
	New resident and employee transportation kits	Variable message sign showing transit information
	Preferential parking for carpool and vanpools	
	Dynamic carpooling	
	Innovative Station management	
	TNC, car or vanpool incentives to transit	
LESS EFFORT		MORE EFFORT