

**CITY OF BOULDER
TRANSPORTATION ADVISORY BOARD
AGENDA ITEM**

MEETING DATE: April 14, 2014

AGENDA TITLE: Public Hearing and TAB consideration of a recommendation to City Council for April 29th City Council Study Session on the Transportation Master Plan Update.

PRESENTER/S:

Tracy Winfree, Director of Public Works for Transportation
Michael Gardner-Sweeney, Transportation Planning and Operations Coordinator
Kathleen Bracke, GO Boulder Manager
Randall Rutsch, Senior Transportation Planner
Chris Hagelin, Senior Transportation Planner
Marni Ratzel, Senior Transportation Planner
Micki Kaplan, Senior Transportation Planner

EXECUTIVE SUMMARY:

This memo shares the draft memorandum for the April 29, 2014 City Council Study Session on Transportation Master Plan Update. The study session materials have been prepared to highlight the work of the last six months in each of the TMP Focus Areas and the purpose of the Study Session is to receive feedback from council.

Staff requests that TAB:

- Provide comments on the draft memo and presentation for the April 29, 2014 Study Session

NEXT STEPS:

Work is continuing in all the Focus Areas of the TMP update with a focus on assembling the major building blocks needed for a draft update. In addition to preparing for the study session, staff is carrying out a variety of public outreach activities to bring the potential elements of the update to the community. These activities include a variety of presentations, a major open house in May, and renewed activity on social media including the Inspire Boulder web site.

The following is the anticipated schedule for board and council consideration of the TMP update:

Apr. 17, 2014 Initial briefing at Planning Board

Apr. 23, 2014	Joint Board Workshop on TMP update and the related projects of Climate Commitment and the Access Management and Parking Strategy
May 22(?)	Briefing at Planning Board
June 19, 2014	Planning Board recommendation on TMP update
July 15, 2014	Council consideration of TMP update

ATTACHMENTS:

A. Draft of April 29, 2014 City Council Study Session Memo

MEMORANDUM

TO: Members of City Council

FROM: Jane S. Brautigam, City Manager
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DATE: April 29, 2014

SUBJECT: **Study Session on the TMP Update Plan Including Complete Streets:
Transit Planning, Bike and Pedestrian Innovations, and Regional, TDM
and Funding Focus Areas**

I. EXECUTIVE SUMMARY

The City of Boulder's Transportation Master Plan (TMP) was created in 1989 and this is its fourth update. It is a mature plan reflecting more than 20 years of consistent policy direction and success. The TMP continues to evolve as a "living document" responding to the needs and issues of the community as reflected in the focus areas of the update. This update builds on the city's broader community vision of the Boulder Valley Comprehensive Plan (BVCP) and sustainability planning efforts and is closely integrated with city projects such as Climate Commitment, Civic Area Plan, Access Management and Parking Strategy (AMPS), Envision East Arapahoe/Sustainable Streets + Centers, North Boulder plan update, and Comprehensive Housing Strategy.

The TMP is always set within the broader context of the Boulder Valley Comprehensive Plan (BVCP) with the resulting transportation system expected to support the sustainability and quality of life goals set by the community. It also has a key role to play in helping to achieve the community's Climate Commitment goals and the work of this update is guided by council direction following the Policy Refinement phase in Sept., 2012. Council agreed that the city's transportation policy continues to produce positive results and has strong

community support and directed this update focus on the five Focus Areas listed below. A key finding from the Policy Review was the need to accelerate the rate of change in mode shift if the city is to meet the existing TMP objectives. The city's Climate Commitment goals suggest the need for additional mode shift and reduction in vehicle miles traveled.

This study session is intended to provide council with the major results of work in the following five areas and to share potential policy choices for achieving the transportation and broader community sustainability goals. These choices will form the major new building blocks of the updated TMP. This information builds on the City Council Information Packet from Feb. 18, 2014 which can be found on the Web at: <https://documents.bouldercolorado.gov/weblink8/0/doc/124743/Electronic.aspx>.

Highlights of the TMP Focus Area work efforts include:

- **Complete Streets-** Continuing to build on Boulder's tradition of high quality streets and multimodal connections, the TMP's Complete Streets focus area emphasizes the role of the transportation network to serve people using all forms of transportation, with the pedestrian as the primary mode. Complete streets provide opportunities for mobility as well as to contribute to place-making through quality urban design and compatibility with adjacent land use. This TMP update emphasizes transit system planning as well as bicycle and pedestrian innovations to further enhance Boulder's transportation system and support existing neighborhoods, the Downtown and University Hill districts, employment areas, schools/universities, and regionally significant corridors – as well as plan for future connections to emerging areas such as Boulder Junction, and transitioning areas such as the East Arapahoe corridor and University of Colorado (CU) East Campus.

With a bicycle system that is substantially complete and recognized as one of the best in the country, the bike innovations effort is focused on identifying the barriers that keep an estimated 60 percent of “interested but concerned” cyclists from using the system. This fine tuning of the bicycle network and supporting programs is designed to increase bicycling trips by women, older adults and families with children. A “living laboratory” approach includes bike and walk audits with community members and pilot projects to test innovative bicycle and pedestrian programs and facility treatments for their role in encouraging greater use. In the transit planning process, multiple transit scenarios were developed to illustrate different strategies in providing transit. These were evaluated relative to criteria reflecting the BVCP Sustainability Framework and designed to test different areas of emphasis and potential outcomes. This evaluation shows that significant increases in transit ridership are possible. The lessons learned from the scenario evaluations have been applied to two transit vision options presented in the Analysis section. These options reflect service and capital investment strategies ranging from a focus on enhanced high frequency service within Boulder to a stronger regional focus, with each maximizing a different set of evaluation factors. The final renewed vision for transit will likely be a combination of local and regional transit system improvements balanced to reflect the “best of the best” of

these options. The Complete Streets focus area also includes a partnership effort with University of Colorado (CU) to create a pedestrian and bicycle connections plan to support the emerging CU East Campus area and provide linkages with main campus and surrounding areas. The Complete Streets focus area will include suggested action items to advance work with the community along corridors such as East Arapahoe, 30th Street, Colorado Avenue, Canyon Boulevard, North Broadway, and others.

- **Regional Travel-** The Regional Focus area suggests that the city continue working with regional partners in the collaborative approach that has been successful in delivering multimodal improvements such as the Bus Rapid Transit and the regional bikeway system improvements on US 36. Regional efforts should focus on the Diagonal (SH119), Arapahoe (SH 7) and South Boulder Road corridors as productive corridors identified in the update and the Northwest Area Mobility Study (NAMS) and supported by the city's transit analysis as part of the TMP Update.
- **Transportation Demand Management-** The Community-wide Eco Pass Feasibility Study scenarios and analysis have been incorporated into the TMP update transit investment packages. The desired level of community-wide and/or county-wide Eco Pass program participation that will be reflected in the update is tied to the transit vision and is another significant building block of the plan. The TDM focus area is also supported in the AMPS work program, specifically in terms of best practices relative to potential refinements for the TDM Toolkit for new development projects and parking management strategies, including autos and bikes, to reinforce traditional TDM strategies.
- **Funding-** The Funding Focus area reaffirms the city's approach to transportation investment, emphasizing local and regional partnerships to leverage limited local dollars to support funding for on-going operations and maintenance as well as for future multimodal capital, service, and programmatic enhancements. This section also provides the results of the TMP capital project list review and suggests initial approaches to prioritizing the investment programs of the update. The financial plan incorporates the voter approved 0.15 sales tax increase until 2030 and recognizes the long-term interest of policy makers to transition to more user-based funding sources, such as VMT fees, over time. **Integrate with Sustainability Initiatives-** This new focus area emphasizes city-wide integration of projects and planning efforts under the city's Sustainability Framework of the BVCP. Collaborative and interdepartmental project management is occurring across the city-wide planning initiatives. Interdepartmental teams, including staff from the TMP update team, have developed the scope for the AMPS effort and the multi-departmental Travel Wise series of workshops have refined the transportation portion of the Climate Commitment. The Sustainable Streets + Centers effort has been rolled into the Arapahoe corridor planning project, which is now titled Envision East Arapahoe. This project will serve as the first corridor study with the new Sustainable Streets + Centers approach and is scheduled to be completed by December 2014 so that it can inform the update to the BVCP starting at the end of the year. The approach for the Envision East Arapahoe corridor plan will be used as a model for subsequent corridor plans along 30th Street and Colorado. Multiple

boards have participated in three joint Board workshops over the period of the TMP update discussing inter-related topics of transportation, parking, land use, urban design, and climate.

II. QUESTIONS FOR COUNCIL

1. Does council have any questions on the information and work efforts to date presented in each of the TMP focus areas?
 - i. Does Council have feedback regarding the Living Laboratory approach and Action Plan framework for the Bike and Walk Innovations element of the TMP update?
 - ii. Does Council have feedback regarding the transit scenario options discussed in the analysis section?
 - iii. Does Council have feedback regarding advancing next steps for analysis and coordination with Boulder County regarding the community-wide Eco Pass study?
 - iv. Does Council have feedback regarding the proposed refinements to the TMP measurable objectives and updated targets?

III. BACKGROUND

Transportation Master Plan (TMP)

The TMP is set within the broader context of the Boulder Valley Comprehensive Plan (BVCP), with transportation supporting the sustainability and quality of life goals set by the community. The Transportation Master Plan (TMP) was first adopted in 1989 as the city's long-range blueprint for travel and mobility throughout Boulder. The original plan contained the objective of achieving a 15 percent mode shift away from the Single-Occupancy Vehicle (SOV) by increasing travel options. This would be accomplished by funding improvements to all the modes, implementing a strong TDM program and establishing a metrics program to assess progress. In 2003, this objective was increased to reach a desired 25% SOV mode share, with the balance of 75% of trips made by walking, biking, and transit by 2025.

This update was initiated with a Policy Review based on the *2012 Transportation Report on Progress* (<https://www-static.bouldercolorado.gov/docs/transportation-report-on-progress-2012-1-201305291118.pdf>), a public phone transportation survey, employee survey, cross departmental interviews, Transportation Advisory Board (TAB) and the expert panel input.

Based on this review, staff recommended that the city's transportation policy continues to produce positive results and has strong community support but could benefit from refinement. The Policy Review phase results were presented to council in August and September 2012. City Council agreed with these results and directed that the work program be guided by the following:

- Maintain the existing four TMP Focus Areas with the following emphasis-

- *Complete Streets*, (formerly Multimodal Corridors): Rename, address transit system planning, explore bike and pedestrian innovations;
 - *Regional Travel*: continue the existing approach with a focus on US 36, the Northwest Area Mobility Study and other regional connections;
 - *Transportation Demand Management (TDM)*: explore community-wide Eco Pass and develop TDM packages for development review;
 - *Funding*: diversify transportation funding options and explore opportunities for additional funding to support on-going basic operations and maintenance needs as well as capital funding to achieve TMP goals.
- Add “Integrate with Sustainability Initiatives” as a new, fifth Focus Area. For example, this includes integrating TMP update activities with the city’s Sustainability Framework development, Civic Area Plan, Climate Commitment, Envision East Arapahoe/Sustainable Streets + Centers, Access Management and Parking Strategy, Comprehensive Housing Strategy, North Boulder plan update, and other city-wide planning initiatives.
 - Add three new measurable objectives of *Safety, Neighborhood Accessibility, and Vehicle Miles Traveled (VMT) Per Capita for residents and in-commuters.*

IV. ANALYSIS AND ISSUES

This section presents the work in each of the five Focus Areas and the issues identified for council consideration based on community input and staff analysis.

TMP FOCUS AREAS:

Complete Streets Focus Area

The Complete Streets Focus Area strives to accommodate all modes of transportation by including pedestrians, bikes, busses and cars as facilities are planned, designed and constructed with walking considered the primary model of travel for the Boulder community. This focus area aims to develop the complete modal systems needed to accommodate increased travel while moving a greater percentage of that travel away from single occupant vehicles (SOVs) by enhancing options for biking, walking, and transit. Complete Streets also recognizes the role that the multimodal transportation network provides to support land use, enhance urban design, and create place-making opportunities throughout the community. As noted by author and planner Victor Dover in his recent visit to Boulder, great streets are an important element of creating community and need to be “shaped, comfortable, connected, safe, and memorable.” The Complete Streets focus area of the TMP aims to achieve these transportation goals, as well as support broader community goals as identified in the city-wide Sustainability Framework.

Bicycle and Pedestrian Innovations

This element of the Complete Streets focus area seeks to broaden the safety and appeal of bicycling and walking in our community. An emphasis is on fine-tuning the existing system through targeted enhancements to support a broad range of cyclists and pedestrians including all ages and abilities. These engineering improvements coupled with strategies to encourage, educate, enforce and evaluate bicycling and walking are the Five E's that comprise a comprehensive approach to increasing walk and bike mode share.

What we've learned

With approximately 9 percent of resident commute trips made on foot and over 10 percent by bike, people in Boulder walk three times more than the national average and bike at 20 times the national average. While this is great progress, the share of walking and biking trips needs to increase even further to achieve the goals of the TMP and the city's new Climate Community goal of reducing greenhouse gas emissions to 80% below 1994 levels by 2050.

The core network of Boulder's biking and walking paths is virtually complete. Since 1990, the city has completed many major infrastructure projects with an emphasis on building a multi-modal transportation system providing options to everyone. Yet, there is still tremendous potential to increase the mode share of trips completed on foot or bike, especially in comparison to international cities.

Attract interested but concerned cyclists

With respect to bicyclists, studies in Portland have shown that 60% of bicyclists are "Interested but Concerned" riders – people that like riding a bike, but don't feel comfortable or confident sharing the roadway with motor vehicles. While Boulderites are more likely to ride a bike, the demographics of bike riders in Boulder are very similar to national data. According to the 2012 Boulder Travel Diary, there are twice as many men as women that commute by bike and half of all trips completed by women are made by SOV or to transport children versus just one-third by men. Therefore, a primary goal of this update is to increase trips by older adults, women and families with children. Throughout the listening and learning phase of the City's TMP update, staff also heard that more work is needed to create a bike culture in Boulder that goes beyond sport cycling.

Strengthen partnerships for walk friendly community design

Walking is the primary human travel option and the prioritized mode in the TMP. Throughout the listening and learning phase, the city learned that there is a desire to strengthen the coalition of community based organizations in support of walk friendly community design.

Boulder Walks Program

Last summer, the City began a Boulder Walks program to learn what makes a good pedestrian environment. The program has introduced *Walk Audits* as a new tool to assess the qualitative aspects of walking. Throughout the summer and early fall, staff from Transportation and Community Planning and Sustainability (CP+S) partnered to host Walk

Audits with community members. The Walk Audits have helped identify design elements that support a walk friendly community. In particular, the relationship between the transportation network, the land use it serves and the streetscape interface of the two are factors that influence walk friendliness.

The city also developed a Neighborhood Access Tool that characterizes the access that people have to walk to locations and businesses needed to meet daily needs. This tool illustrates aspects of the 20 minute neighborhood by displaying the walk shed for a given travel time around given attractors and can then aggregate these walk sheds to display the number of attractors available from a given location. The distance that one can cover in a given travel time is dependent on the quality of the pedestrian facilities available so information from the Walk Audits can be incorporated into the Neighborhood Access Tool. See **Attachment A** for example of Neighborhood Access Tool and Low Stress Bicycle Network map.

Bicycle Innovations “Living Lab” Projects

Installation of new bicycle treatment pilot projects began in Fall 2013. The City has installed four treatments including buffered bike lanes along Spruce Street from 15th to Folsom and along University Avenue from 9th Street to Broadway, back in angle parking from Broadway to 17th Street and a protected bike lane along Baseline Road from 30th to 35th Streets. In October, the first segment of the multi-way boulevard along the south side of Pearl Parkway also opened. This treatment and the planned shared roadway along Junction Place are being integrated into the Living Laboratory initiative and evaluation process. Additionally, the e-bike pilot demonstration project has begun and will be monitored through December 2014.

Projects installed as part of the living laboratory are anticipated to continue for approximately 12 to 18 months. Performance monitoring of the living laboratory bike innovation demonstration projects includes several qualitative and quantitative measurements. A before, during and after analysis is underway to evaluate the impacts of these pilot projects in addressing concern for safety and comfort for all users. Staff collected before data in early August and initial after data for the installed projects in early November. Data collection will continue throughout the duration of the pilot projects.

Community feedback on the pilot projects has been on-going since installation of treatments through Inspire Boulder and direct contact with city staff. Overall, the buffered bike lane treatments have been well received and cyclists support the buffering in the “door zone”. Most comments from cyclists on the protected bike lanes also express support. The lack of an aesthetic treatment of the protected bike lane has prompted a mixed response from community members. Some drivers have stated that the concrete blocks and flexible poles are distracting, camouflaged, and are impediments that require defensive driving. Cyclists also have expressed concern for the lack of opening in the barrier to facilitate left turning movements. A handful of community members have expressed concern for and displeasure with the back-in angle parking along University. Additional community outreach to seek feedback on all of the living laboratory projects will continue throughout 2014.

The TMP website is a living resource for community members to receive up-to-date information on the progress of Living Laboratory projects, as well as other TMP focus areas. Interactive information including videos, maps, and before and after photos of the Living Laboratory projects, can be viewed at www.BoulderTMP.net –Complete Streets link.

2014 Walk Bike Summit

On Feb. 6, 2014, the City hosted the 2014 Walk Bike Summit in collaboration with the Transportation Advisory Board (TAB) and the Bike Walk Steering Committee. The Summit brought together agencies, organizations and businesses/retailers in the active transport industry, community groups as well as select community focus group participants to envision and strategize how to increase walking and biking trips in the City of Boulder. A day-long event, the Summit featured several interactive group activities including a co-design session in the morning that produced drawings detailing elements important to community members in a walk and bike friendly community. Participants ventured out for a walk during lunch to guide a group discussion and reflections of personal experiences on the perception of the walking environment. The afternoon session focused on identifying and prioritizing strategies to achieve the shared vision for a walk and bike friendly community.

Participants choose the nine strategies below to discuss and develop further into a plan of action from idea to implementation. An outline of first steps, the partners that needed to be involved and a potential timeline for the completion was developed for each strategy. The strategies included a balance of the Five E's and demonstrate that the community is in support of taking an integrated planning approach to improving walking and biking in Boulder.

1. Create separated lanes for bikes, pedestrians, and vehicles. (Engineering)
2. Implement a “Road Diet” to repurpose vehicular space for pedestrian and bicycle travel. (Engineering)
3. Create smart phone tracking tool to collect travel data. (Evaluation)
4. Develop a “Low Stress Network” or “Easy Travel Network” for bikes and pedestrians. (Encouragement, Education, & Enforcement)
5. Implement a Community-wide Eco Pass in Boulder and Boulder County. (Encouragement)
6. Teach K-12 students about transportation options and safe travel behavior. (Education & Encouragement)
7. Offer incentive-based enforcement campaigns to reward good behavior and enforcing unsafe behavior. (Education & Encouragement & Enforcement)
8. Replace parking minimums with parking maximums & bicycle parking minimums. (Policy & Encouragement)

9. Support 20 Minute Neighborhoods, mixed-use development, and mixed income housing. (Policy)

The entire day's events of the Walk and Bike Summit were captured on a graphic recording. This graphic is included in **Attachment B**.

Bicycle and Pedestrian Innovations Next Steps

Developing a low-stress bicycle network

The City seeks to utilize the living laboratory approach to raise awareness and support for an integrated and connected low-stress network of protected bike lanes and other innovative bicycle treatments. An analysis is underway to evaluate the level of stress of the City's existing bicycle network. An objective is to identify low-stress connectivity as well as barriers and opportunities to fine tune the network and increase the percentage of our system that offers a low stress riding opportunity. Staff proposes to develop a programmatic approach to identify and prioritize improved bicycle facilities in support of a more complete low stress bicycle network. It is envisioned that the city would develop policies for Bicycle Facility Installation Guidelines and develop a "2.0 bicycle network" in support of a complete and connected low stress network. The Guidelines would be informed by the evaluation of the installed treatments and be similar to our City of Boulder Pedestrian Crossing Treatment Installation Guidelines. These will help develop the City's 2.0 bicycle network of planned improvements to attract a broader population of people as confident and comfortable cyclists.

Bike and Pedestrian Action Plan Development

Community input collected through the summit, walk audits and bike innovations is being combined with the analysis from the Neighborhood Access Tool and the Low Stress Bike Network analysis to produce recommendations for the update and the Bike Walk Action Plan. **Attachment C** outlines a proposed framework of the Bike Walk Action Plan to be integrated into the TMP update. It establishes immediate, near term and long-term action items, prioritized to achieve short and long-term mode share targets for bike and walk commute trips by residents and in-commuting employees. It is envisioned that some action items will be community led initiatives supported by the City and agency partners and proposes that these also be included in the action items detailed in the TMP update.

The proposed action plan and investment strategy approach for bicycling and walking supports the council direction to stay the course with respect to enhancements. To increase the percentage of low-stress route connectivity, fine-tuning the system will require capital improvements to provide better separation between cyclists and motor vehicle travel lanes. Options to retrofit existing bike lanes with buffered or protected bike lanes along arterial roadways will be explored as part of the analysis of developing a 2.0 network. Preliminary analysis and community members input supports better facilities along several corridors including 30th Street south of Arapahoe, N. Broadway north of Norwood, Colorado Avenue, East Arapahoe and Canyon Boulevard.

The Action Plan also will identify new initiatives and programs for education, encouragement, enforcement and evaluation. This investment supports the City in talking a leadership approach to guide community partnerships and strengthen Boulder’s bicycling and walking culture. Community input will continue to guide the prioritization and final recommendations for the Action Plan.

Bicycle and pedestrian mode share Targets

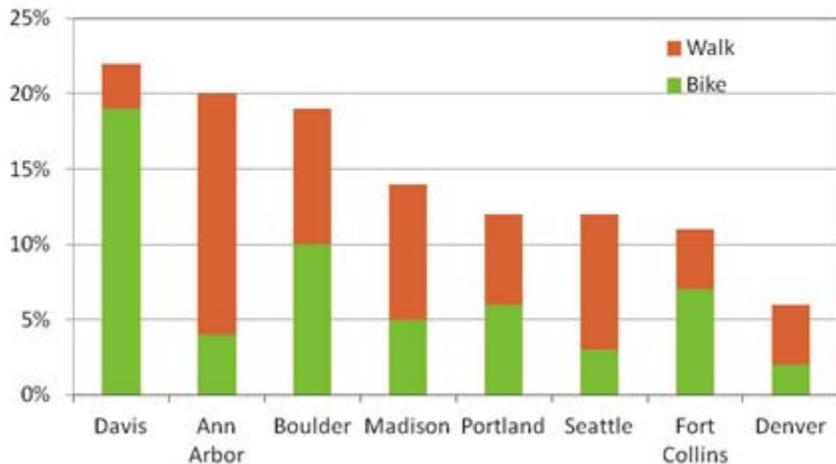
Public input throughout the TMP update has expressed a desire to set modal targets as benchmarks. Currently, one way the city of Boulder tracks the mode share of resident commute trips is using the American Community Survey (ACS), a National Census instrument. Several city surveys also gauge mode share trends of commute to work and all trips by mode. This information is fortified by on the ground bicycle counts monitoring use of the multiuse path and street system.

In respect to potential bicycle mode targets, the Transportation Division is considering a near-term target of achieving a 15 percent bicycle mode share for commute to work trips by Boulder residents. The League of American Bicyclists has established 15 percent bicycle mode share as the minimum threshold required to apply for the Diamond level Bicycle Friendly Community designation. This target also is identified as a likely tipping point that will realize a critical mass of community members completing trips by bike. Based on the potential approaches for a renewed transit vision identified in the TMP, staff is assessing the feasibility of reaching a 15 percent target by 2020 or 2025 and setting proposed additional targets for bicycling that include doubling the near term goal to 30 percent by 2035 and increasing trips another 10 percent to 40 percent of commute to work trips by 2050. Another objective is to achieve commensurate increases in multi-modal trips by in-commuters between now and 2050.

City staff is working to set a realistic 2020 target for resident walk trips to work. While peer communities have established a high bike or walk mode split, Boulder is unique in having achieved a balance between bicycle and pedestrian mode share. Given that travel to work distances are increasing, it is questionable whether future walk targets will keep pace with bike mode targets. The city is

Figure 1

**Work Mode Share
2008-2012 (5 yr avg.)
American Community Survey**



seeking guidance from peer city communities nationally and internationally in conjunction with considering a comparison analysis of neighborhood access and transit data to help identify walk targets for discussion and inclusion in the TMP update. These walk mode targets are being developed over the next few weeks and will be presented for review at the Joint Board Workshop on April 23rd and City Council discussion at the study session on April 29th. Staff is proposing that these updated bike and walk modal targets be incorporated into refined measurable objectives for the overall TMP update.

Transit Planning

WHY A RENEWED VISION FOR TRANSIT

Why a Renewed Vision for Transit?

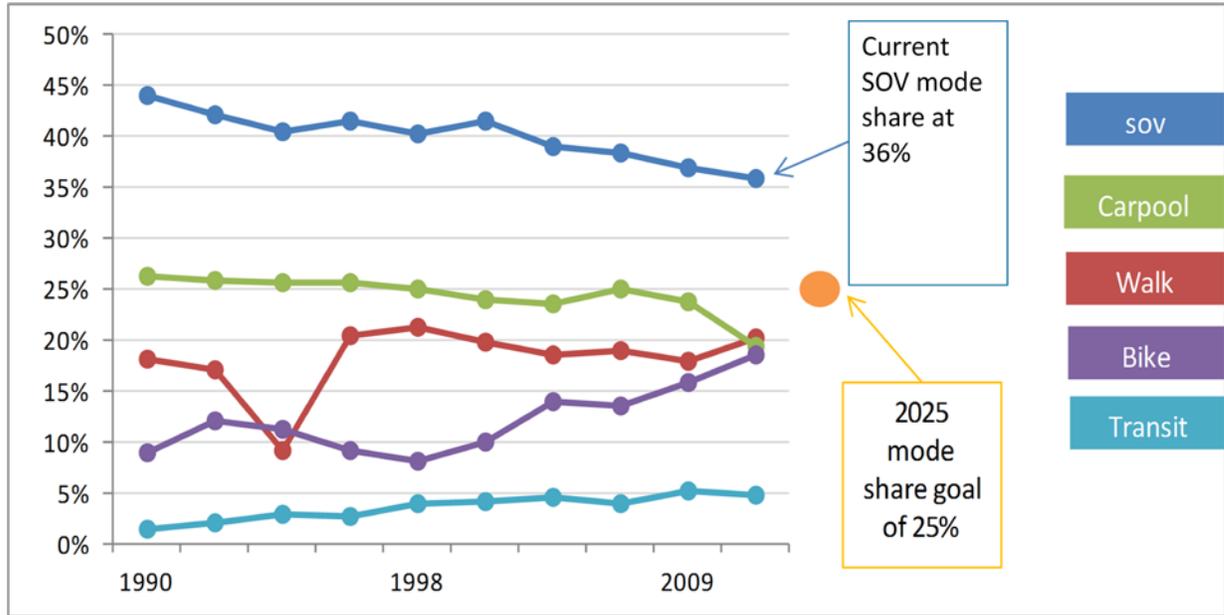
As described in the *Transit State of the System Report (SoS)*, the city has made significant progress in transit service since 1990 but that progress has stalled since about 2000. As noted at the start of the update process, the City is not on course to meet the TMP mode share goals. In particular, transit ridership is stagnant, likely due to the decline in transportation revenue and funding for local transit service in Boulder. Reflecting this, over the last decade RTD has cut service hours in Boulder by 20,500 hours, the equivalent of the DASH route. Sustainable funding for transit is needed as well as additional funding to address the 80% of Boulder in-commuters that still drive alone to work. Capturing this market is critical to meeting the community's sustainability, climate, and mode share goals. The transit analysis shows there are significant opportunities to improve access and connections to transit, to serve East Boulder infills and redevelops, and to design new transit service to fit with the launch of Boulder Junction, the expansion of CU East Campus and other areas of transition such as East Arapahoe.



The HOP bus – celebrating 20th years of service, the first Community Transit Network (CTN) route – is a community-scaled bus with large windows, unique branding, and perimeter seating to encourage community interaction. A Renewed Vision for Transit will build upon the success of the CTN. Image from the City of Boulder

As Figure 2 indicates, Boulder is not on course to meet TMP mode share and Climate Commitment goals. While much progress has been achieved over the years and transit use has more than tripled in the past 22 year period, growing from 1.6% in 1990 to 4.9% in 2012, transit has stagnated in recent years. One of the key outcomes of the renewed vision for transit will be to increase transit ridership for local and regional trips and to continue to build a convenient, attractive and effective transit network that enhances the multimodal transportation system.

Figure 2. City of Boulder Resident Mode Share Over Time



TRANSIT IN BOULDER TODAY

The City of Boulder plays an active role in ensuring its residents and workers have access to quality public transit. The city operates the HOP route under contract with VIA and “buys up” service hours from the Regional Transportation District (RTD) to increase service frequency on local routes. It is also very active in developing partnerships to enhance regional transit. As shown in the adjacent table, in FY 2012, the City spent \$1.7 million on transit. During the same year, RTD spent \$22 million on local transit operations in Boulder and an additional \$21 million on regional service connecting Boulder to regional communities. The City of Boulder has been successful in leveraging its transportation resources and has developed cost sharing agreements with the University of Colorado and RTD to help fund the HOP.

Cost Category	FY 2012 Budget
HOP	\$ 722,797
JUMP & BOUND Buy-Up	\$409,719
Paratransit	\$228,568
Overhead, Advertising, Misc. Capital Expenses	\$262,796
Personnel	\$96,000
Total	\$1,719,880

Source: City of Boulder

Thirty local and regional routes provide 32,000 daily transit trips into and from Boulder. As shown in the SoS Report, Boulder’s Community Transit Network (CTN) routes, including the HOP and the SKIP, are the most productive and cost effective routes operating in Boulder.

Without transit, Boulder residents and workers would drive approximately 250,000 more miles each day and create over 100 additional metric tons of greenhouse gas emissions. Analysis conducted during the TMP update shows benefits for “green dividend,” reflecting dollars that do not leave the community in fuel costs. Transit use by Boulder residents and workers retains approximately \$7 M annually that has the opportunity to be spent locally.

Transit Element: Progress to Date

Since early 2013, the City of Boulder has engaged the community, key stakeholders and agency partners to work towards developing a Renewed Vision for Transit. This stakeholder engagement is being documented in the Summary of Community Outreach, an initial version having been included in the Aug. 13, 2013 Study Session memo (<https://documents.bouldercolorado.gov/WebLink8/Browse.aspx?startid=19733&row=1&dbid=0>). The Renewed Vision will also inform a short-term service plan to guide service restructuring for the opening of Boulder Junction and US36 BRT and a fiscally constrained Action Plan to guide city investment in transit capital, programs, and service.

The following summarizes the key steps that have been completed.

State of the System Report

The *SOS Report* highlights the most important opportunities, challenges and barriers to advancing transit in Boulder. Opportunities identified in the *Report* include the proven productivity of the Community Transit Network (CTN), the stated desire of the community for more CTN service, and the potential to pair future redevelopment with the Transportation Demand Management (TDM) programs shown to be effective in supporting transit ridership, such as the Eco Pass programs and managed parking. In addition, the 2016 scheduled opening of the U.S. 36 Bus Rapid Transit (BRT) will bring a new level of service to the Downtown and Boulder Junction that can be leveraged by other improvements.

As identified in the *SoS Report*, the following are the major opportunities for increasing transit mode share:

- **Expanding Community Transit Network (CTN) Service**
Community and stakeholder outreach conducted for the transit element of the TMP suggests that maintaining and expanding the CTN is fundamental to reaching local mode share targets. Route performance enhancements along arterial roadways giving priority for transit, and transit service expansion along key local and regional corridors is important to advancing the CTN.
- **Enhancing Regional Transit Connections**
The community expressed a desire for new connections, improved frequency, and expanded service span at the regional level.
- **Leverage US 36 Bus Rapid Transit (BRT) Service**
The introduction of “fully-featured” US 36 BRT service will be an opportunity to generate momentum for extending BRT and transit lane enhancements into the city (e.g. on Broadway) and along other important regional corridors.
- **Provide Better Customer Information**

The community has expressed a desire for real-time arrival information to make traveling by transit more convenient and efficient.

- Prepare for Changing Demographics
Boulder needs to deliver a “golden menu” of options to meet the complex housing and transportation demands of its residents and workers, including the elderly, the disabled, young professionals, students, and families.

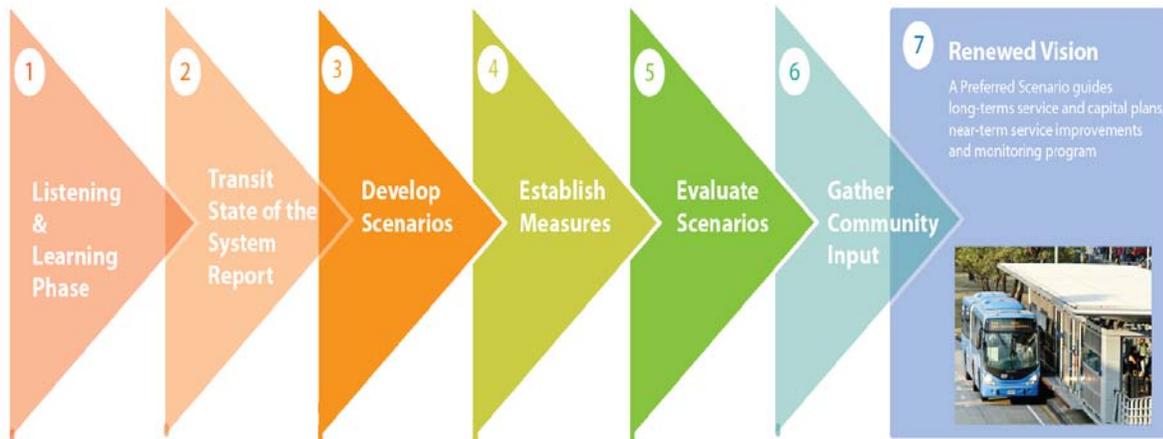
The *State of the System* Executive Summary is included as **Attachment D** and provides an overview of guiding issues that have helped shape the draft Renewed Vision for Transit.

The full report can be found at https://www-static.bouldercolorado.gov/docs/BOULDER_TMP-SOS_Final_Rept_COMP-1-201311011558.pdf.

Scenario Development and Evaluation

A core element of the TMP update transit planning was a transit scenario exercise. The transit scenarios were built on the first two steps of the transit planning process as shown in the figure below.

Figure 3



Scenario planning was used to help illuminate tradeoffs between different approaches to transit system development and gauge the appropriate level of transit investment in Boulder and on regional services connecting to Boulder. The TAC, the TAB, and an intra-divisional staff committee helped develop three 2035 transit scenarios and a comprehensive evaluation framework used to measure the performance of different levels and types of investment.

The Scenarios

These three 2035 transit investment scenarios were developed for evaluation, along with a 2035 baseline scenario. The scenarios were designed to provide different approaches and levels investment in the following areas:

- Markets served (e.g. focus on Boulder local market, focus on regional in-commute market)
- Level of service investment
- Service types (e.g. expansion of Community Transit Network high-frequency grid, addition of BRT, commuter express service, etc.)
- Level and type of capital investment (i.e. some scenarios had a heavy focus on bus rapid transit corridor investment)

The four scenarios for 2035 are briefly described as:

- **Baseline:** This scenario represents a “No Net New Service” position based on the assumption that any financial growth is consumed by increases in operating costs and that capital development is limited to currently funded projects such as the US 36 Corridor BRT. The primary intent of this scenario is to act as a point of comparison for Scenarios 1 through 3, which represent varying levels of growth and system investment.
- **Scenario 1: Local and Regional Enhanced Service.** This scenario emphasizes investment in operating resources to develop a CTN level of service on the most productive corridors in the City of Boulder and on regional connections to/from Boulder. Capital investments in transit corridors are limited in this scenario.
- **Scenario 2: Boulder Local CTN Buildout.** This scenario focuses on local Boulder service investment, making the buildout of the CTN network a top priority. CTN service is delivered on all corridors that are believed to have supportive land use attributes by 2035. Corridor capital investments are prioritized on corridors that best support CTN development by providing needed speed and reliability enhancements.
- **Scenario 3: Local and Regional Rapid Transit Network.** This scenario has a more modest level of investment in local and regional transit operations, although it provides a 63% increase over the Baseline scenario. Capital development for BRT and Enhanced Bus is emphasized in this scenario to improve travel time and reliability. This scenario reflects the regional BRT corridors being evaluated by RTD as part of the Northwest Area Mobility Study (NAMS) analysis.

Each of these scenarios is completely described in terms of service, capital improvements, cost and ridership down to the route segment and individual stop level. Additional details of these three scenarios are included in **Attachment E**.

The Evaluation Framework

There are a number of common measures for assessing transit performance; including ridership, productivity, cost effectiveness, travel time performance, and reliability. However, high quality transit can help to meet a number of other community goals. Ensuring that the TMP update Transit Element was consistent with Boulder’s Sustainability Framework, a scenario evaluation framework was created that:

1. Started with the Sustainability Framework, packaging its core principles into four evaluation accounts that are affected by transit: Community, Environment, Economy, and Efficiency.
2. Developed performance measures that were meaningful and measurable under each of these accounts.
3. Narrowed the list of measures to reduce overlap between data sources and ensure those remaining best informed the questions the community, stakeholders, TAC members, and TAB wanted answered.

Building off a number of technical tools, including a corridor-level ridership model developed to evaluate the number of passenger trips attracted by new service and capital investments, the three scenarios were evaluated against each performance measure. The following scenario evaluation summary shows that different investment approaches result in different benefits.

Transit Scenario Analysis Results

The scenarios themselves were not meant to represent system plans that could be fully implemented but rather illuminate possible futures and test key tradeoffs to help inform the development of the Renewed Vision for Transit. The analysis results answer these key tradeoff questions, among others:

- Which scenario results in the most cost effective investment from a ridership standpoint?
- Which scenario has the greatest impact on greenhouse gas reduction?
- Which scenario most effectively captures regional transit riders?
- Which scenario most effectively serves job access and transit dependent riders?

As evidenced by the key findings summarized in Tables 1 and 2 below, there is no one scenario that performs the “best.” Rather, the analysis highlights how local versus regional investments impact these key tradeoff questions differently. For example, local investment in transit (e.g. Scenario 2) is the most cost effective but does not perform the best from a transit dependent riders and job access standpoint. In comparison, regional investment (e.g. Scenarios 1 and 3) have the greatest impact on reducing greenhouse gas emissions, providing regional access to jobs, and capturing retained wealth in the local economy.

Table 1

	EFFICIENCY		
	SCENARIO 1	SCENARIO 2	SCENARIO 3
Ridership/Productivity	2nd	BEST	2nd
Travel Time	3rd	2nd	BEST
Cost Effectiveness	3rd	BEST	2nd
User Experience	3rd	2nd	BEST

	COMMUNITY		
	SCENARIO 1	SCENARIO 2	SCENARIO 3
Transit Accessibility	2nd	3rd	BEST
Transit Mobility	2nd	3rd	BEST
Housing & Transportation Costs	BEST	2nd	BEST
Active Transportation	2nd	BEST	2nd

	ECONOMY		
	SCENARIO 1	SCENARIO 2	SCENARIO 3
Neighborhood Accessibility	BEST	BEST	2nd
Access to Jobs	BEST	2nd	BEST
Green Dividend	BEST	3rd	2nd

	ENVIRONMENT		
	SCENARIO 1	SCENARIO 2	SCENARIO 3
Change in VMT	BEST	3rd	2nd
Mobile Source Emissions/ GhG Reduction	BEST	3rd	2nd
Net New Operating Cost per kg GhG Reduced	BEST	3rd	2nd

Table 2. Transit Scenario Analysis Results Key Findings

Efficiency	<ul style="list-style-type: none"> ▪ Scenario 2 (in-city CTN focused strategy) nets the most new riders at the lowest cost per ride ▪ Reducing travel time attracts regional ridership ▪ Regional investments are least cost effective but yield other benefits (i.e. travel time, GhG reduction, and other community benefits noted below) ▪ In Scenario 3, the Diagonal (119) has highest ridership potential of all regional BRT routes, and Arapahoe/SH7 and South Boulder are also strong routes ▪ Scenario 1 (local and regional investment) captures the most regional riders (total and net new riders)
Community	<ul style="list-style-type: none"> ▪ Scenarios with higher service investment outside of Boulder (i.e. Scenario 3) do a better job serving low to mid-income residents, access to jobs, and transit dependent populations ▪ Active transportation outcomes are better for in-city routes due to higher net new ridership and higher rates of walk and bicycle access to transit
Economy	<ul style="list-style-type: none"> ▪ Scenario 2 has highest access to retail and services within Boulder ▪ Scenarios that focus on regional investment (i.e. Scenarios 1 and 3) put CTN/frequent service within walking distance of the most jobs and the most low- to mid-wage jobs ▪ At a corridor level, BRT on the Diagonal/119 and Arapahoe/SH7 are among the best performers for GhG reduced and therefore capture the most “retained wealth” (“retained wealth” is derived from VMT reduction)
Environment	<ul style="list-style-type: none"> ▪ Scenario 2 maximizes reduction in GhG and VMT within the City of Boulder, but Scenario 1 (local and regional investment) has highest overall GhG and VMT reduction benefit ▪ Regional investments are a less cost effective on a per ride basis due to longer trip lengths, but provide greater GhG reduction benefits

The TAC was engaged in an exercise to review each evaluation measure in detail and indicate which were most important to them in shaping the Renewed Vision for transit.

The TAC was most interested in a vision that emphasized ridership and productivity, helped meet housing and transportation cost challenges, increased accessibility to services, amenities, and jobs and reduced vehicle miles traveled and greenhouse gas emissions.

The Executive Summary of the TMP Transit Scenario Analysis Results is provided as **Attachment F** and contains a detailed overview of scenario-level and corridor level findings. The full report is at: <https://www-static.bouldercolorado.gov/docs/draft-transit-analysis-report-1-201403211533.pdf>.

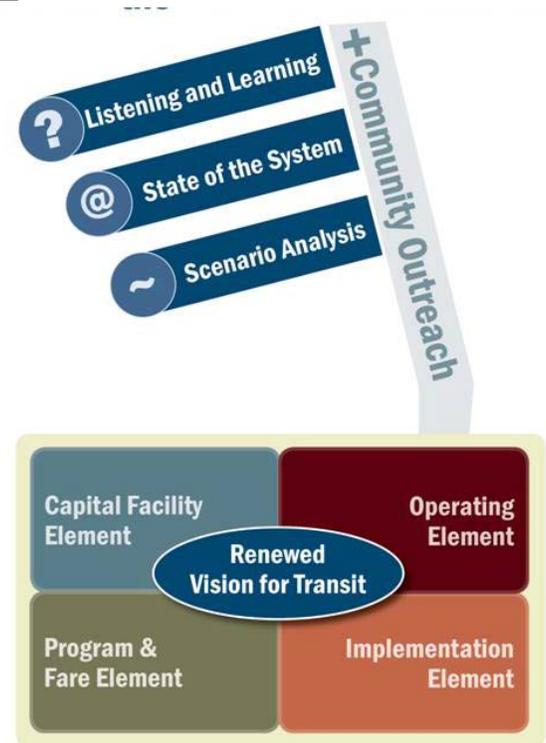
Developing The Renewed Vision: Vision Elements

The Renewed Vision for Transit has four key elements:

1. Transit Service/Operations Element
2. Transit Capital Element
3. Programmatic Element
4. Implementation Element

A draft of the first three elements was presented to the TAC in March 2014, These same elements are being reviewed by TAB and the community in April/May. The implementation element will be developed with fiscal guidance following this study session.

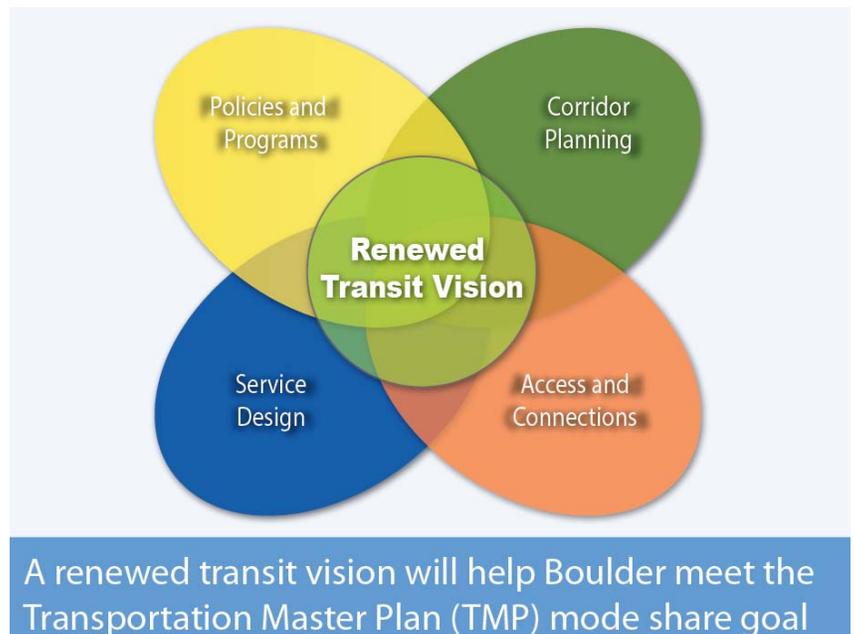
At this point in the TMP update process, elements of the Renewed Vision for Transit are not fiscally constrained but rather are based on our performance evaluation and community input. In May, the TMP team will begin development of a fiscally constrained action plan.



Path to the Renewed Vision for Transit

Service Element

Using information on transit performance under the three analyzed transit scenarios, the TMP transit team has begun to prioritize 2035 service investments for Boulder. This work is guided by input from the TAC, the Intra-division Staff Team, the TAB and community outreach input. In developing priorities, it became clear that there are two distinct investment approaches having strong support. Although the Renewed Vision must ultimately find a balance between the two, the team felt that these key options merited discussion and input from TAB and City Council.



The two options for discussion are:

- Emphasis on ridership, productivity, and neighborhood accessibility. It is clear that investments in Boulder CTN type services do the most to address these priorities. See **Attachment G** for an emphasis map and performance against key measures.
- Emphasis on greenhouse gas emissions reduction, address housing and transportation cost challenge for those most affected, and provide access to jobs, including low income jobs. Investment in high-frequency, fast regional services, e.g., BRT on the Diagonal (119) and Arapahoe, best support these outcomes. See **Attachment G** for an emphasis map and performance against key measures.

Following discussions with TAB, City Council, and the community in April/May, the “best” of both approaches will be carried forward in the draft Renewed Vision for Transit which will guide a fiscally constrained near-term plan for service changes to accommodate the opening of the Boulder Junction transit facilities, launch of US36 BRT, and development on the CU East Campus as well as provide longer term implementation strategies for consideration in the future action and vision investment plans.

Capital Element

The TMP update process has developed draft priorities for long-term transit capital investment, which include the following:

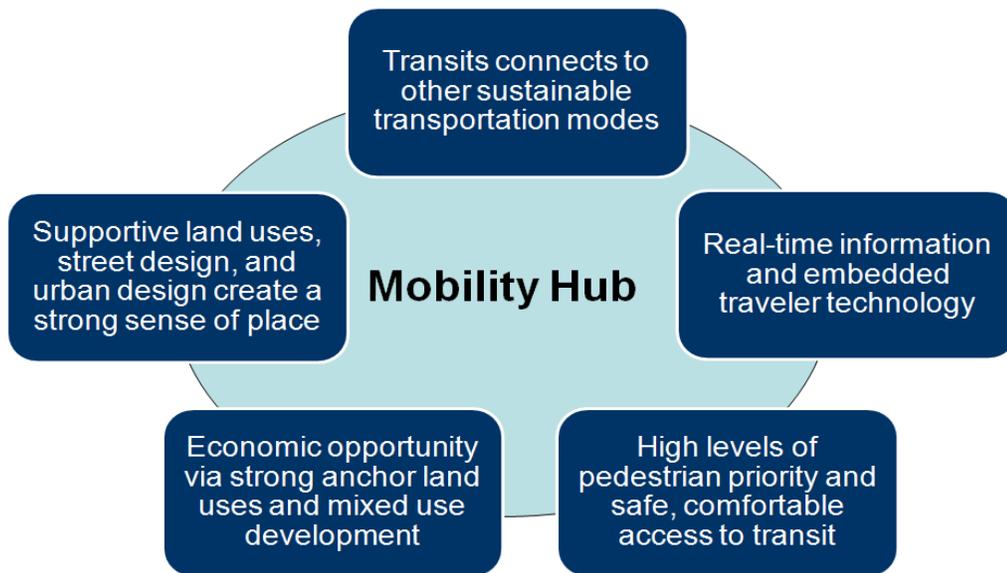
- **Bus Rapid Transit Corridor Improvements.** The Renewed Vision for Transit will identify places where demand is greatest for high frequency transit service. It will also identify where capital improvements to add transit capacity and increased speed and reliability would be most valuable. In coordination with RTD’s potential future regional BRT corridors being studied in the Northwest Area Mobility Study (NAMS) process, the finalization of the service element will result in recommendations for development of Boulder BRT facilities that work with the regional system and support local needs. Leading priorities for BRT investment include:
 - Longmont to Downtown via Hwy. 119, 28th, and Canyon
 - Table Mesa to Boulder Junction via U.S. 36 and 28th
 - Table Mesa to Downtown Transit Center via Broadway
 - Canyon providing connection between the 28th Street BRT corridor and the Downtown Transit Center
- **North Boulder Transit Center.** The North Boulder Sub-community Plan is being developed to examine development of this area, including implementation actions in land use, public facilities and transportation. An identified priority is the development of a transit center that could also act as a transportation hub and neighborhood amenity. A Colorado DOT site at the junction of Broadway and 28th Street has been identified as the logical site. The facility would include bus layover facilities, driver amenities, passenger waiting facilities, and full features of a

mobility hub. Park and ride capacity could be developed; however, we recommend examination of a mixed use development at this site to generate end-of-line demand that could support higher transit frequencies in the future.

- **Mobility Hubs.** There are a number of places in the Boulder transportation system that don't merit development of a full transit center but are, or will be, critical junctures for connecting people between modes and to vital, walkable neighborhoods and corridor land uses. Mobility hubs will support increased transit transfer activity and provide a point of connection for neighborhood residents to access the best quality local and regional transit.

The graphic below shows key concepts in developing successful mobility hubs that connect modes and people to transit-oriented land uses.

Figure 4



Mobility hubs are recommended at North Boulder, Iris and 28th, Arapahoe and 28th, Canyon and 28th, East Arapahoe, CU East Campus, Broadway/Euclid, and Table Mesa Drive and Broadway.

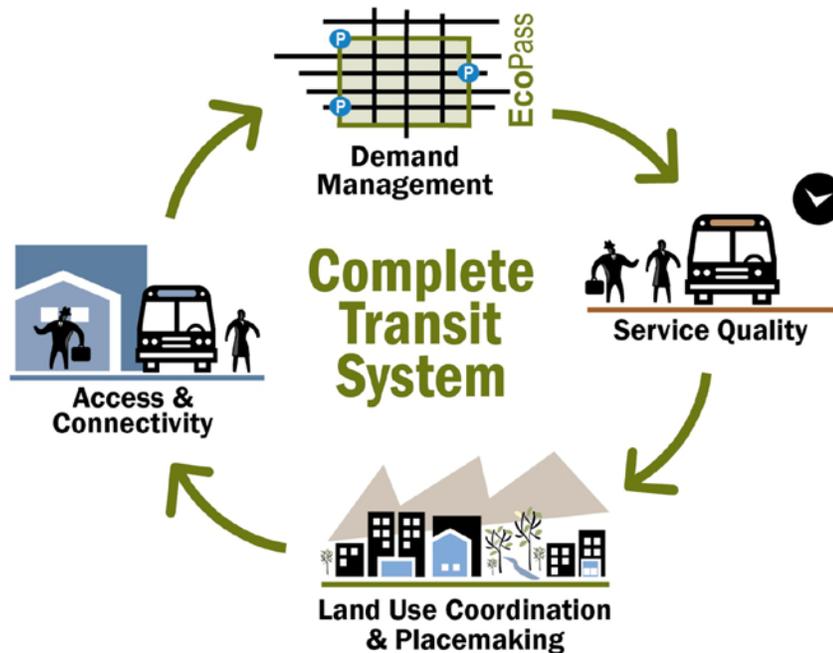
- **Williams Village – U.S. 36 BRT Connection.** The options include a concept to develop a U.S. 36 BRT station near Williams Village providing a grade-separated crossing to Williams Village and neighborhoods south of U.S. 36. This would require coordination with CU, including potential relocation of their shuttle stop and introduction of a new CTN route between Williams Village and Boulder Junction.

- **Stop Improvement Program.** Prioritized stop improvements based on level of usage and other special access needs.

Programmatic Element

Boulder residents and stakeholders know that a high-quality effective transit system requires more than just frequent service. To maximize transit’s mobility and access value and its value in attaining other community goals, there is a virtuous cycle at play. As represented in the following graphic, service must be complemented by supportive land use patterns and form, sidewalks and bike facilities that allow safe and comfortable access, and fare and informational programs that encourage transit use.

Figure 5



The programmatic element will recommend investments and policies to support all these areas. Two areas in particular are stressed in the plan:

- **Expansion of the Eco Pass program.** Boulder County, in coordination with the City, recently published a report detailing the costs of implementing a city- or county-wide Eco Pass program, including options for various distribution methods. (See: <http://www.bouldercounty.org/doc/transportation/ecopassfeasibilitystudy.pdf>). As part of the TMP update, the team tested how many additional riders could be attracted in 2035, using the same methods as the County report. A summary of these results is shown below:

	Employees & Residents	Residents Only	Employees Only
Net New Annual Trips (County)	5,380,500	5,023,500	2,371,500
Net New Annual Cost for Eco Pass (County)	\$9.4M	\$8.6M	\$4.0M
Net New Annual Trips (City)	3,213,000	2,295,000	1,836,000
Net New Annual Cost for Eco Pass (City)	\$5.1M	\$3.5M	\$2.9M

TMP analysis shows that Eco Pass expansion would attract new riders at a cost of \$1.50 to \$1.75 per net new trip (this does not including additional service costs where new bus capacity is needed). This is comparable to a cost of \$3.00 to \$5.00 per net new trip for the most cost effective service investments.

Eco Pass expansion represents one of the most cost effective means to increase ridership and accomplish other priority city goals, such as meeting the Climate Commitment targets and supporting local employers/access to jobs.

- Introduction of real-time information.** Real-time passenger information was the most requested transit improvement in the 2013 Design Your Transit System survey. Development of real-time information, both fixed displays at stops and applications for mobile devices and internet users, has been delayed by RTD software changes. GPS-based AVL software that can support real time information is now in place at RTD. As described in the *State of the System Report* best practices section, many transit agencies are now providing open-source access to AVL data, allowing private developers or universities to develop applications that support mobile phones and internet. For example, in Seattle the most favored mobile and internet application for accessing real time bus information was developed using open source information by the University of Washington.

RTD does not currently allow outside developers to access its information. Boulder, potentially working with other jurisdictional partners, should encourage RTD to allow open source use of its information. An open source platform could allow the City to work with local software developers or launch a competition to develop the preferred real-time information application.

The capital plan also provides recommendations for advanced passenger information displays at all transit centers and mobility hubs.

- Expansion of Access Districts.** In coordination with the Boulder Access Management and Parking Strategy (AMPS), the TMP update Transit Element supports future expansion of Access Districts where paid/managed parking is

complemented with a suite of TDM programs. Sensitivity analysis was conducted to gauge how paid/managed parking would influence transit ridership in 2035. This conceptual exercise assumed existing parking districts as well as future districts such as at Boulder Junction, CU East Campus, and longer term potential areas such as , North Boulder and along East Arapahoe.

The following table illustrates the potential net new travelers on transit if paid parking were implemented, assuming a parking rate that is comparable to current downtown parking rates.

Potential Access District	Net New Daily Weekday Riders (Low)	Net New Daily Weekday Riders (High)
Boulder Junction	700	840
CU East Campus	2,515	3,018
Broadway	908	1,089
Arapahoe	2,257	2,709
Total Net New Daily Weekday Riders	6,380	7,656
Total Annual Net New Daily Weekday Riders	1.6M	2.0M

Implementation Strategies

The implementation element of the TMP update Transit Element will be developed in May following input from the TAB and City Council in April. The implementation element will include:

- Funding plan
- Description of fiscally constrained scenarios
- Action plan describing Immediate, Near-Term, Mid-Term, and Long-Term priorities
- Strategies for continued partnership development to advance regional transit goals
- Service delivery options

Investment principles to guide local transit funding are attached and were reviewed by the TAC, Intra-division City Staff Team and the TAB. These will be used in shaping the TMP Transit Element Action Plan

CU East Campus Connections Project

The CU East Campus Connections Project (CUEC) is a joint University of Colorado and City of Boulder work effort, as part of the City’s TMP update to advance the “complete streets” focus area. The primary goal of this project is to integrate connections from the CU

and City Transportation Master Plans and identify new and important connections needed due to the expansion of CU's East Campus. As an area of significant change, this project is intended to coordinate planning for bicycle and pedestrian connections between the CU and the city.

Complete Streets Focus Area Next Steps

Information from the Living Laboratory, Walk Bike Summit, transit analysis, on-going community feedback, coordination with agency partners, and GIS tools will be incorporated into future corridor plans and street design strategies to enhance the city's Complete Streets and place making goals, leading to "Completer Streets" as presented by Victor Dover in his book "*Street Design*".

Suggested action items include future integrated corridor plans for East Arapahoe, 30th Street, Colorado Avenue, Canyon Boulevard, North Broadway, and other streets, including within the Downtown such as 13th Street, and potential new opportunities within the University Hill district.

Regional Travel Focus Area

The transit planning discussed above is an integral aspect of the Regional Focus Area of the TMP update as transit represents one of the primary options for long distance regional travel. The Regional Focus Area was added to the 2003 TMP based on an analysis of projected population and employment growth and recognizing that limited investment was planned for the regional corridors serving Boulder except for US 36. The on-going regional BRT and bicycle improvements on US 36 are in large part a result of a long term collaborative effort by corridor communities to bring planning efforts and funding resources to improvements on the corridor. Improvements on other regional corridors will only result from similar collaborative and long term efforts.

The approach to regional issues identified in the 2003 TMP was to:

“Create Effective Regional Partnerships that Produce Results

- Boulder is not in this alone. Regional partnerships with Boulder County, neighboring cities, RTD, and the Colorado Department of Transportation (CDOT) are the keys to providing solutions for regional travel into and out of Boulder.
- Form broad coalitions to support a package of improvements and the funding for improvements on the regional corridors.
- Develop regional consensus for multimodal improvements to regional corridors including, but not limited to, automobile, rail, bus, bicycle and pedestrian access.
- Improve regional transit connections through enhanced transit centers such as Boulder’s Transit Village and Broadway/Euclid Transit Center.
- Support a Boulder County transit vision and regional corridor improvements through the Boulder County Consortium of Cities Regional Transit Committee.
- Provide regional bicycle connections to other communities.”

Through consistent work over the last ten years, Boulder has had significant success in following this approach. The US 36 corridor is under construction and largely reflects the vision of the city to provide actively managed High Occupancy Toll (HOT) lanes with greatly enhanced travel times for transit and a continuous regional bike facility. In a similar collaborative approach and with support from the city, Boulder County has had significant success in providing high frequency transit connections between communities in the county. These efforts include the BOLT and DASH transit services and the community Eco Pass programs for Nederland and Lyons. The city and its regional partners have completed major improvements at the Broadway/Euclid intersection with funding from numerous partners and the Boulder Junction (Boulder Transit Village) transit facility called for in the 2003 TMP is under construction.

As Boulder has neither the financial resources nor the jurisdiction to make improvements on the other regional corridors, the city should continue focused work with regional partners to expand travel options on the other Boulder County regional corridors

connecting to the city. A significant asset to this effort is the recently adopted Boulder County Transportation Master Plan. The policy direction of this plan update is consistent with the city's TMP as it has a focus on sustainability, the reduction of VMT and providing travel options between the communities of Boulder County. The County has been very active in supporting additional transit services, providing Eco Passes to communities and in addressing first and final mile issues for transit riders.

Other regional partners that have become more aligned with the city's transportation policy are both the University of Colorado (CU) and the Boulder Valley School District (BVSD). The CU Master Plan for the Boulder campus envisions a pedestrian campus, the development of the East Campus area at densities comparable to the main campus and the development of a transit corridor between the main and East Campus areas along Colorado. CU has been an active partner supporting the improvement of the US 36 corridor. The city and CU cooperated on the East Campus connections work and expect to undertake corridor planning efforts on both Colorado, 30th and Arapahoe. BVSD is also increasingly interested in supporting and improving walk, bike and transit services to their facilities. City and BVSD staffs have held two workshops in the last half year to identify strategies and projects that the agencies can cooperate on and both BVSD and UC Boulder have been active partners in the transit planning TAC.

Based on the transit planning analysis of this update and the RTD NAMS work, the Diagonal (SH119) and Arapahoe (SH 7) have the highest potential for increasing transit ridership and should be the priorities for ongoing work in the Regional Focus Area. The work underway on the Envision East Arapahoe Planning Project is one step in this direction and could produce a land use pattern more supportive to high levels of transit use. In addition, improving regional bike connections to surrounding communities was one theme identified in the public outreach and improved facilities are likely needed to attract more of the "interested but concerned" cyclists that commute into Boulder. The bike stress level of analysis being conducted within the city will provide lessons that can be applied to these regional connections.

An additional area of regional work that crosses TMP Focus Areas is represented by the *US 36 First and Final Mile Study (US36 FFM)*. The "first and final mile" issue is characterized by difficult multi-modal access between transit stations and surrounding destinations such as residences, employment and shopping. These connections are made difficult by travel safety concerns, lack of bike facilities, long walk distances and transfers to other transit routes that add unreasonable travel time. The *US 36 First and Final Mile Study* identified suitable options to better connect RTD riders to and from the US 36 BRT stations and the surrounding activity centers utilizing such transportation demand management tactics as long-term bike parking and storage, electric bikes, shuttle circulators, station cars, scooters or golf carts, as well as bicycles. The study's priority was to increase the convenience of public transit and reduce Single Occupant Vehicle (SOV) travel. Similar efforts should accompany any efforts to improve transit service on the regional corridors identified in the NAMS study and the TMP update. An early action item of the US 36 FFM study is to install secure, covered long-term bike parking storage at park n Ride stations along the

corridor. The first installation at the Table Mesa Park and Ride is complete and is in operation.

Regional Next Steps

Staff will continue to be actively involved in both the US 36 improvement process and the RTD NAMS project. In addition, staff is involved with the DRCOG efforts to update the regional plans to 2040. Based on the limited opportunities for the city to take action alone on the regional corridors, the update should continue to reflect the current patient, collaborative approach of bringing planning focus and then funding to priority corridors. Based on findings from the NAMS and TMP update transit planning efforts, these efforts include regional arterial BRT service along the Diagonal (SH119), Arapahoe (SH 7), and South Boulder Road corridors. In addition, continued collaboration with CU Boulder, BVSD and Boulder County will advance our shared interests and goals. More information will be provided to the community, Boards, and City Council this summer regarding future steps for enhancing regional partnerships and projects as part of the TMP update process.

Transportation Demand Management (TDM) Focus Area

The TDM Focus Area was added as part of the 2003 TMP. The update's TDM Focus Area for this update includes the major activities described below.

Community-Wide Eco Pass

In a joint study with Boulder County, staff and consultants analyzed the feasibility of implementing a community-wide Eco Pass program. The study included three different scenarios for two specific geographic areas. The scenarios included providing Eco Passes to all residents, students and employees; residents only and employees only for the City of Boulder and Boulder County as a whole. The feasibility study estimated cost as well as the cost and service needs from induced demand. The study also explored opportunity and challenges of implementation and administration, possible finance mechanisms to pay for the program, and the potential benefits in regard to GHG emissions, VMT reduction and increased access to jobs and housing. The Community-wide Eco Pass Feasibility Study was released on February 25, 2014 following an extended review by RTD and is available on the city's site along with a Frequently Asked Questions page available at: www.BoulderTMP.net. The findings have been incorporated into the TMP update and specifically the various transit investment scenarios assessed. City and County staff have been presenting the findings of the feasibility study to key partners to gather feedback including, the University of Colorado, Boulder Valley School District, the Boulder Chamber of Commerce, Plan Boulder, and various departments within the city organization.

Next steps are dependent on direction staff receives from City Council, the position taken by the Boulder County Commissioners and the willingness of RTD to move forward with a new pass program. City and County staff have discussed the formation of an inter-agency working team to focus on potential implementation strategies for city-wide and/or county-wide Eco Pass program(s) if Council directs staff to move forward with designing an implementation and funding plan

TDM and Development Review

The TDM Toolkit is used by staff and Site Review applicants to plan and implement a set of policies, programs, facilities, and strategies to mitigate the impact of new development or redevelopment projects on our transportation system. An update to the TDM Toolkit was initiated in 2011 but was put on hold due to staff changes and changing priorities. With the Transportation Master Plan (TMP) Update and the Access Management and Parking Strategy (AMPS) underway, the process to modify the TDM Toolkit is returning to the 2014 work plan. The redesign of the TDM Toolkit and any possible policy changes related to integrating TDM into Site Review is fully integrated into both the TMP and the AMPS processes.

Conduct Best Practices Research

Staff and the consultant team are conducting best practices research to gather information in three subject areas: (1) opportunities to create sustainable funding sources for the

implementation of TDM; (2) current best practices for the integration of TDM requirements into the development review process; and (3) best practices for encouraging and/or requiring developers to include bike share and car share spaces at new developments. While these items are related and some research will overlap, a full understanding of the topics will require collecting research from multiple sources.

A major component of the research for this task is the collection of best practices information from communities that have implemented successful development-based TDM requirements. Communities that will be reviewed will ideally have established programs; be able to provide lessons learned; and have similar population, land use and development trends and community values as Boulder. In some situations, it may be appropriate to include communities that do not have the previously listed characteristics, but offer excellent examples of enforcement policies, dealing with transfers of ownership, maximizing developer participation in TDM, integrating transportation management associations into program delivery or other identified areas of interest. Items to be reviewed will include:

- The processes communities use to develop TDM plans
- What TDM and parking strategies they require
- What triggers TDM requirements, how TDM program funding is guaranteed
- Internal staffing costs
- Enforcement policies
- Incentives to encourage developer participation
- Processes for benefit estimation
- Inclusion of bike share and car share requirements
- Use and/or funding of transportation management associations to meet TDM requirements
- Zoning regulations and language
- Lessons learned

Numerous governments can be considered for inclusion in the best practices research. Some options include Fairfax County, Virginia, which has a strong program that requires TDM commitments that extend through the life of the development; Montgomery County, Maryland, which has developed a program in which TDM is required within five development districts and TDM programs are implemented through area transportation management associations that are funded through property fees; and San Francisco, which has established a program requiring the inclusion of car share spaces at new multi-family developments in combination with unbundled parking.

TDM Toolkit Modification and Design

Upon conclusion of the best practices research, staff and our consultant team will work to review and modify the existing TDM Toolkit. The effort includes review of current issues that limit the toolkit's effectiveness.

Information gathered in the best practices research will be used to identify new tools and strategies that can be used to improve the effectiveness of the toolkit as well as identification of innovative parking strategies, infrastructure improvements and TDM programs that can maximize the benefits associated with TDM in the City of Boulder. Additionally, this process will identify tools to estimate the impacts associated with TDM strategies and the costs and resource requirements associated with strategy implementation.

Using findings from the review and research, recommended changes to the toolkit will be proposed considering:

- What strategies should be included in packages and how are their impacts quantified
- How recommended strategies should vary based on available transportation services, infrastructure and land use
- How long developers should be required to implement and/or fund strategies
- Anticipated impacts of recommended strategies
- How developments should be categorized to assure that TDM strategies are applicable to them
- The level of support the city should provide to developers with program development and implementation
- The role local transportation management associations can play in the implementation of TDM programs
- How program benefits should be estimated and subsequently measured
- How to handle changes in property ownership
- How to enforce TDM requirements

Draft recommendations will be reviewed through the public outreach process with developers, the Transportation Advisory Board and Planning Board. Feedback obtained from that process will be used to update and improve the draft recommendations. Final recommendations will include cost estimates for the city and for new development projects along with estimates of the toolkit's impacts on vehicle trip generation and the community cost savings associated with anticipated vehicle trip reductions.

Within the TDM program, city staff is working with Boulder Transportation Connections (formerly Boulder East), Boulder's non-profit transportation management organization to implement a TDM Plan evaluation program that will measure the effectiveness of TDM plans currently in place for recent commercial and residential developments.

Staff will provide an update regarding the TDM Tool Kit analysis and draft recommendations to Boards in May and to City Council at the June 10th City Council Study Session regarding AMPS.

Parking

The Access Management and Parking Strategy (AMPS) is also focused on reviewing how parking management and TDM work together to meet the goals of the TMP and the city's

Sustainability Framework. AMPS has developed guiding principles and a framework of seven areas of focus, including: TDM, on & off street parking management, district management, enforcement & compliance, pricing strategies, code requirements, and technology & innovation to increase access and support the city's multi-modal transportation system within existing districts as well as community wide. More information regarding AMPS is available in **Attachment H** and will be presented to City Council at the June 10th City Council Study Session.

TDM Focus Area Next Steps

For the community-wide Eco Pass discussion, next steps include formation of the inter-agency working group to explore potential implementation strategies for both the city-wide and county-wide approach.

For the TDM Took Kit and parking, the project team is conducting best practices research and policy review in preparation for the more in-depth discussion with City Council at the June 10th Study Session.

Funding Focus Area

One of the primary outcomes of the TMP update process is refining the vision of the transportation system supporting the community's values and updating the investment program supporting that system. The investment policies of the current plan are:

“The city shall generally give priority to transportation investments as follows*:

- Highest priority - system operations, maintenance and travel safety;
- Next priority – operational efficiency improvements and enhancement of the transit, pedestrian and bicycle system;
- Next lowest priority - quality of life, such as sound walls and traffic mitigation; and
- Lowest priority - auto capacity additions (new lanes and interchanges).

** Note that within each priority level, all items are given equal weight.*

Investment in modal enhancements will be integrated between all modes, focused in the designated multimodal corridors and prioritized by the ranked multimodal corridor segments.

As the street network is the primary infrastructure for all modes, it will be managed and expanded to balance its use by all the modes. Roadway capacity will not be added at the expense of the non-auto modes.

The city's transportation system includes all the modes and the resources needed for the sustainable operation of the system. Any consideration of the share of system funding allocated to future growth will be based on this system.”

The Complete Streets investment program was added to the 2008 TMP to reflect the passage of FasTracks in 2004 and recognizing the large increases in construction cost of the mid-2000s and the impacts declining sales tax revenues. These changes reduced the real purchasing power of the Transportation Fund by approximately 38 percent, yet at the same time there was a need to respond to the coming regional transportation facilities promised by FasTracks. The Complete Streets investment program represents a strategic and focused set of improvements providing community connections to the FasTracks facilities at a reasonable cost.

Additional investment “Guiding Principles” were added as part of the Complete Streets Investment program to reflect the limitation of the current fiscal environment. These Principles include continuing TMP goals and policies and:

- Balance community mobility and regional FasTracks access -- The second priority in the TMP is “operational efficiency and enhancements of the transit, pedestrian and bicycle system.” Changes to the TMP project lists balance these general community mobility improvements with improving access to regional FasTracks transit services. Ideally, projects will do both.

- Be strategic in project selection -- Given limited resources, the TMP project lists will be fine-tuned to identify those projects which have maximum impact. The 2003 TMP called for completing all projects within key multimodal corridors. The new approach is to develop a leaner subset of projects. Investigate ways to incorporate innovation into project execution. Large projects, such as the final phase of improvements on 28th Street, will be streamlined.
- Stretch city dollars -- Follow through on existing grants and commitments. All projects in the CIP that have been awarded federal funding will be completed, as city dollars are highly leveraged on these important projects.
- Maximize outside funding -- The city of Boulder will proactively seek other funding from a wide variety of sources including: RTD general and FasTracks funding, CDOT and other state funding opportunities, Boulder County, Federal transportation funds and other federal earmarked funds, joint projects with CU, BVSD and other community partners.
- Leverage city dollars with private investment during development review -- Only implement if funding materializes: Some projects which require highly leveraged funding will not be constructed or implemented if partner funding does not materialize. Examples include:
 - 14th and Walnut Transit Station improvements (RTD, federal, COB)
 - Broadway at CU/Euclid Transit Station improvements (RTD, CU, federal, COB)
 - HOP Express – direct service between BTV and downtown (COB, RTD)
- Insure outside funding -- Some projects are slated to be funded by other agencies. The city will strongly advocate for full funding and execution of these projects. Examples include:
 - Fully functional BRT services with dedicated lanes on US 36 (CDOT)
 - Enhanced 204, 206 and 208 services (RTD)
 - TDM and outreach during construction (RTD, CDOT)

Additions:

- Secure long-term replacement funding mechanisms for transportation-related investments. Seek to maximize the linkage between these mechanisms and use of the system.

Multimodal Corridor Prioritization Criteria

Because available transportation funds are insufficient to fully fund all the corridors, improvements to the corridors need to be phased. The 10 multimodal corridors were divided and prioritized into 42 segments based on a number of transportation and land use characteristics. These 42 segments were prioritized based on the following criteria.

Table 3

#	Criteria	Weighting
1.	Corridor Congestion	2
2.	Safety Upgrade Need identified	2
3.	Multiple existing transit routes	2
4.	Key Regional Transit Route	2
5.	Includes Project in current CIP	1
6.	Consistent with TAB bicycle prioritization Priority corridor in Bike 2.0 system	2
7.	Contains current CTN transit service	1
8.	Priority for future transit expansion	2
9.	Includes missing sidewalk link	2
10.	Serves key civic activity centers (Downtown, CU, BRVC)	1
11.	Serves key development/redevelopment as identified in BVCP	1
12.	Connect to other multi-modal corridor	1
13.	Connect to Greenway corridors	1
14.	Serves major multimodal center (Downtown, CU/Euclid, Boulder Junction)	1
15.	Scoring -- 0 = low to none, 1= moderate, 2 = high	

Additional description of these principles and examples are included in the existing TMP. Staff believes that these investment policies are sound and recommends that they be retained in the update. Modifications can be made as needed to reflect the Sustainability Framework and the city’s priority based budgeting system as well as to incorporate the proposed transit investment guiding principles.

In addition, principles have been developed to guide the investment of the funds for transit service. These draft principles largely reflect existing practices of maintaining the Community Transit Network and transit service hours within Boulder. These guiding principles are contained in **Attachment J**

TMP Project List

One result of this update will be a revised list of projects and programs representing the community’s vision for transportation in Boulder. As an initial step in developing this investment program, staff has reviewed each enhancement project in the current TMP. This list includes over 800 individual projects including various types of bicycle facilities, pedestrian facilities and crossings, underpasses, transit investments and roadway projects. This effort is intended to verify completed projects, identify projects that should be removed from the plan and suggest project additions. Staff teams are reviewing projects in each quarter of the Boulder Valley based on their knowledge and experience of the area.

As a result of these efforts, staff has identified the following principles or strategies related to reviewing and revising the investment program:

1. In the area of East Arapahoe, there are a number of projects that were added to the TMP to reflect the East Arapahoe Connections Plan, which was programmed for adoption by council as the 2003 TMP was approved. This connections plan was

- ultimately not approved and this area is the subject of the new Envision East Arapahoe Planning Project, so a revised set of transportation investments should result from that project and be incorporated into the TMP.
2. The city has expanded its programmatic efforts and formalized the criteria for improved pedestrian crossings. Consequently, the proposed pedestrian crossing improvements of the TMP should be integrated into the ongoing program of evaluating and improving pedestrian crossings when warranted. Staff is considering the option of only showing those crossings that are warranted but not funded in the TMP.
 3. A number of the connections in the Boulder Valley Regional Center (BVRC) are part of the BVRC Connections plan prepared before the construction of the 29th Street development. A number of these connections are unlikely to ever be constructed and should be considered for removal from the TMP. This would also require amending the BVRC Connections Plan.
 4. As part of the pavement management system, the city has a fairly comprehensive inventory of the existing sidewalk system. This inventory allows the TMP to identify missing sidewalk segments and large sidewalk projects should be considered for inclusion in the plan, recognizing that there is an on-going programmatic effort to complete sidewalks in the city.
 5. Many projects in the plan are located on private property and would only occur as a result of redevelopment. The update should generally retain these projects but show that their costs would be part of redevelopment. This will reduce the city's expected costs for the investment programs of the update.
 6. Other city planning efforts have identified a number of corridors for additional studies that will likely result in modifications and additions to the TMP project lists. In addition to the East Arapahoe corridor, these include both north and south segments along 30th Street, Colorado connection between the main and east portions of the CU campus, and Canyon Boulevard in the area of the Civic Center Plan. Reflecting the living document intent of the TMP, projects coming out of these planning efforts should be amended into the plan using the existing amendment process.

A draft list of projects suggested for addition or deletion is included in **Attachment I** along with a map showing their location.

Funding Next Steps

Following significant community process and leadership from the TAB and City Council, the voters passed a 0.15 cent increase to sales and use tax to invest primarily in the operation and maintenance of the existing multimodal system, with limited capacity to improve the system. During the process, it became clear that there is interest from policy makers to eventually transition funding for Transportation to more user-fee based sources. The TMP update financial analysis includes the new 0.15 cent tax increase and will include a recommendation for continuing to explore future potential user fee based transportation funding mechanisms.

The emphasis on the Complete Streets Focus Area may suggest the need to modify or replace the process used for the existing investment programs. In particular, a significant change in the transit vision would suggest that connections be prioritized to support additional transit service. These revised investment programs will be based on a revised estimated of expected funding based on current revenue sources, including the new sales tax revenue from the 2013 recent transportation funding ballot measures.

Staff is also preparing for the upcoming Denver Regional Council of Governments (DRCOG) Transportation Improvement Projects (TIP) process. The DRCOG solicitation for projects is expected in late summer and staff is considering project eligibility and competitiveness in the TIP through the project review process. The city has a track record of success leveraging local dollars to invest in multimodal connections that align with community goals and values. Community outreach for the TIP process will be coordinated with the upcoming TMP Update public events.

Integration with Sustainability Initiatives Focus Area

This new focus area emphasizes on-going, city-wide integration of projects and planning efforts under the city's Sustainability Framework of the BVCP. As noted in earlier section, collaborative and interdepartmental project management is occurring across the city-wide planning initiatives.

Interdepartmental teams have developed the scope for the AMPS effort and two multi-departmental Travel Wise workshops were held to define the transportation portion of the Climate Commitment.

The Sustainable Streets and Centers effort has been rolled into the Arapahoe project, which is now titled *Envision East Arapahoe*, which has been identified as a high potential corridor for regional arterial BRT. The project will serve as the first corridor study and is scheduled to be completed by December 2014 so that it can inform the update to the BVCP starting at the end of the year.

TAB and Transportation staff also participated in a joint Board workshop in April 2014 as a follow up to the two joint board workshops in 2013 to discuss inter-connected topics of transportation, parking, land use, and urban design.

The integrated land use, urban design, and transportation planning approach reflect an on-going philosophy for all of the integrated planning projects throughout 2014 and beyond. For example, for the 2014 Envision East Arapahoe corridor plan will be used as a model for subsequent corridor plans such as along 30th Street, Colorado, and others. All of the work from the TMP update and other related plans will also be used to inform the upcoming update to the Boulder Valley Comprehensive Plan in late 2014/early 2015.

TMP Update Measurable Objectives

Since the 1996 TMP, the plan has contained a set of goals and objectives meant to be the measurable reflections of those goals.

Each of the existing six TMP objectives were discussed in the *Policy Review Report* presented to council in the Aug. 28, 2012 study session. In addition, three additional objectives were proposed based on progress in developing additional data sources and identified gaps in the existing objectives. These suggested additions were establishing objectives for safety, “20-minute neighborhood” accessibility, and vehicle miles traveled per capita for residents and in-commuters. Council agreed that the update process should retain the six existing objectives and that the three proposed objectives should be developed for this update.

Improvements to all of the objectives as well as developing approaches to the three new ones are part of this update and are discussed below for each objective. In all cases, factors that need to be considered in developing or changing how these objectives are measured is the availability of meaningful data, the effort needed to collect and process the data, and the continuity of the measures over time. While the city always tries to collect accurate and meaningful data, consistent measurement allows for the comparison of data over time to see change and trends. The most valuable aspect of any objective is to track change over time as a measure of progress toward the goals of the TMP and related city-wide goals, including new Travelwise area of the Climate Commitment.

Existing TMP Objectives

Continued progress toward no growth in long-term vehicle traffic

The initial Vehicle Miles Traveled (VMT) number for the Boulder Valley was produced by the Boulder Valley transportation model developed as part of the 1996 update process. The 1994 calibration year for the model was taken as the baseline for this objective with a modeled daily VMT of 2.44 million miles of travel for all vehicles in the Boulder Valley. As this estimate is only for the Boulder Valley, it includes only those portions of a longer regional trip that occurs within the valley. The Boulder Valley transportation model was rebuilt for the 2003 TMP with a 2001 base year, again based on the DRCOG regional model of the time. Due to the limited change shown in the modeling results, the expense involved and DRCOG’s change to an entirely new and untested model and modeling methodology, the current update process does not include rebuilding the Boulder Valley model.

While the most reliable estimate of Boulder Valley VMT comes from a transportation model, the city has a comprehensive program of annual vehicle counts used for VMT estimates. This program captures all vehicles coming into and out of the Boulder Valley as well as counts on arterials within the Valley. Since 1994, the city has prepared annual estimates of average daily VMT for the Boulder Valley using data from the vehicle count program. This process appears to produce an accurate estimate as the vehicle count estimate for 2001 was 2.73 million and VMT using the revised modeling result was 2.77 million VMT. While it would be desirable to verify the estimates again based on modeling, the cost to do so and the unknowns of the current DRCOG model out-weigh the potential

benefit. Consequently, staff recommends that we continue to use this established process to produce the Boulder Valley daily VMT estimate.

A new factor related to VMT estimates is the city's greenhouse gas (GHG) reduction goal and the need to produce a VMT estimate consistent with the International Council for Local Environmental Initiatives (ICLEI) methodology. This approach requires that the city account for half of the in and out-commute trips by non-residents employed in the Boulder Valley and by residents employed elsewhere. The transportation sector represents approximately 22 percent of the city's GHG emissions and initial consultant estimates show that in-commuters contribute 32 percent of these. A methodology for estimating external commuter VMT based on existing city data has been developed for use in the Climate Action inventory. A focus on reducing the single occupant vehicle (SOV) mode share of the external commuter is important to achieving both the TMP and Climate Commitment goals so reporting this number is included under the emissions objective.

Reduce single-occupant-vehicle travel to 25 percent of trips

Accommodating increased person travel while reducing Single Occupant Vehicle (SOV) travel to 1994 levels is accomplished by shifting existing and future trips into the non-SOV modes. The 1996 TMP established the 25 percent of all trips occurring in the SOV as the level needed to maintain traffic at 1994 levels. Consequently, this remains an important objective and is a shorthand way of reflecting the increase in non-SOV trips as well.

While the modal targets from the 1996 TMP have not been changed to date, several aspects of the current update suggest they should be reviewed and potentially adjusted. These are:

- To meet the city's transportation and GHG reduction goals, we need to increase utilization of the existing non-SOV modal systems. In promoting and encouraging use of these systems, the city can benefit from best practices across the world and from benchmarking our efforts to programs like the Bicycle Friendly Communities and Walkable Communities awards. The Living Lab portion of Bike/Walk innovations is part of the effort to encourage more use of the system. While the city is one of four Platinum Award recipients from the national League of American Bicyclists, the challenge of the new Diamond level designation provides the opportunity to learn from best practices to reach a 15 percent bike mode share by 2020. Experience around the world shows that a 15 percent bike mode share seems to be a tipping point in developing a bicycle oriented community.
- The city's GHG reduction goals will likely require additional reductions in SOV mode share, particularly for the long distance external commute trip. While reductions need to come from reducing SOV mode share, other city projects such as AMPS and Sustainable Streets and Centers will provide the basis for supportive land use changes that will reduce SOV travel and provide more neighborhood access to shorten trip lengths.
- A renewed vision for transit is a major focus of this TMP update and significant changes to the transit system would be designed to increase its mode share. Transit is one of the few options to the SOV for long distance travel. The planning horizon

for this TMP is being extended from 2025 to 2035 to be consistent with the existing DRCOG plan. This means that additional population and employment will be expected in the Boulder Valley with a higher number of person trips.

Staff proposes that the modal targets be reviewed and updated as needed once the major building blocks of this TMP update are determined. The SOV mode percent may need to be adjusted downward to maintain vehicle traffic at 1994 levels and further reduced to achieve the Climate Commitment goals. Highlighting modal shares for the other modes may be helpful for other areas such as GHG reduction and for benchmarking our efforts to the best practices of other communities.

Continued reduction in mobile source emissions of air pollutants

Air pollution has a variety of direct health effects and motor vehicles are significant sources of air pollution. Motor vehicles have been regulated by the Federal Clean Air Act since 1990 and since that time, the Environmental Protection Agency (EPA) has had the authority to set emission standards for different classes of motor vehicles. Largely due to this regulation, cars have become 90 percent cleaner with technological change being the biggest driver of emission reductions. This objective recognized that the city does not have a regulatory role in reducing vehicle emissions but that reductions in VMT also produce a direct reduction in pollution.

Mobile GHGs have not been a regulated pollutant, so the city's new Climate Commitment GHG reduction goal adds a new dimension to this objective.

Transportation and Climate Action

Transportation staff has been working closely as part of the larger city Climate Commitment initiative to quantify the greenhouse gas (GHG) emissions generated through the transportation sector and develop strategies that make a significant contribution to the new provisional goal of reducing GHG's by 80% below 1990 levels by 2050. A core objective of this effort has been to establish an ambitious but achievable objective for transportation GHG reduction, and the targets and timeframes for implementing these objectives.

As part of this effort, a multi-departmental team was formed that also invited a number of key transportation partners from the County and CU, as well as three consulting groups: Nelson Nygaard, Fox-Tuttle and the Southwest Energy Efficiency Program (SWEET), to assist in this analysis and strategy development process. The transportation working group identified four areas of analysis to inform the strategy development process and formed sub-groups tasked with developing analysis and options in each area. These four task areas included:

Quantify GHG Emissions from 7 Leading Transportation Sectors -- Review and refinement of existing transportation data to quantify the VMT and GHG emissions contributions of seven major subsets of the transportation sector. The seven sectors analyzed included:

- Boulder residents
- Non-resident employees
- Students
- Transit
- Freight
- Visitors
- Boulder Airport

Additional Transit Contributions -- Assess the GHG impact of transit service expansion and the reduction potential of transit fleet conversion to low/no-carbon vehicles

Energy Efficiency and Source Switching – Assess the GHG reduction contributions of Corporate Average Fuel Economy (CAFÉ) standard scenarios and the potential for fleet conversions to high efficiency or zero-carbon (electric vehicle) options.

Existing Travel Demand Management program expansion -- Evaluate the potential of existing and new policies, programs and services to provide additional GHG reductions through mode shift and reduction of single-occupant vehicle (SOV) use

Results

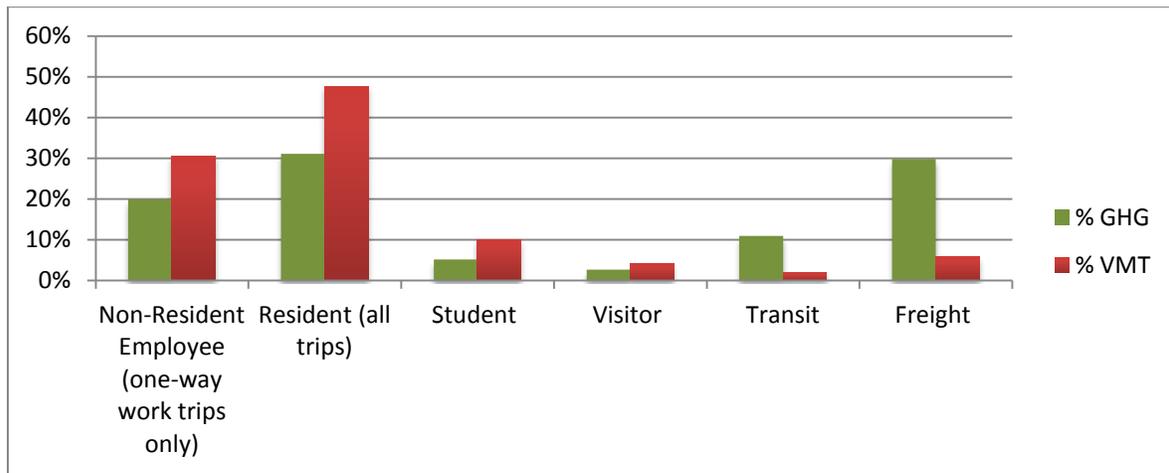
The revised analysis of the transportation sector contributions to total city-wide GHG emissions have been completed and reviewed and are included below. This analysis provides important insights regarding the levels of GHG emissions coming from particular subsectors. This can help inform more focused strategy development. This summary of emissions by sector is displayed in Table 4.

Table 4 – Annual VMT and GHG by Transportation Sector

<i>Transportation Sector</i>	<i>Annual Estimated VMT</i>	<i>% VMT</i>	<i>Annual Estimated GHG (MT)</i>	<i>% GHG</i>
Non-Resident Employee (work trips only)	192,796,800	31%	70,748	20%
Resident (all trips)	301,105,728	48%	110,493	31%
Student (all trips)	63,648,000	10%	18,339	5%
Visitor	25,550,000	4%	9,376	3%
Transit	12,111,283	2%	38,738	11%
Freight	36,500,000	6%	105,959	30%
Boulder Personal Aircraft			2,188	0.6%
TOTAL	631,711,811	100%	355,841	100%

An important finding in this analysis was the unique significance of the carbon intensity of the fuel type in determining the contribution of GHG emissions from each sector. This accounts for the differences between the VMT and the GHG and is particularly prominent for Transit and Freight which are both sectors that typically utilize engines burning diesel, a fuel with a higher carbon intensity than vehicles using gasoline. This relationship is demonstrated by the graphic in Figure 6.

Figure 6 – Comparison of VMT and GHG by Transportation Sector



The research and recommendations from the remaining three subgroups—transit analysis, existing program contribution analysis and energy source change analysis--are still being synthesized and will be disseminated for review and presented at the Joint Board workshop April 23rd. Future discussions with the community, Boards, and City Council will take place as we move forward with work on the TMP update and Climate Commitment.

No more than 20 percent of roadways congested (at Level of Service [LOS] F)

This objective recognizes that the roadway system is used by all modes and that safe and efficient functioning of the road system is then in everyone’s best interest. This objective is evaluated on the basis of counts and modeling for the city’s signalized intersections. There are currently 139 signalized intersections in the city and as the vast majority of congestion occurs at intersections, this is an accurate measure for the functioning of the roadway system for vehicles.

During the policy review discussion with Council, council members observed that the current measure does not incorporate the number of people impacted by congestion at those intersections operating at a congested Level of Service (LOS). The level of service analysis performed also calculates total intersection delay which accounts for the number of vehicles passing through the intersection which can be reported as part of this measure. Staff does not recommend replacing the current measure because it would break continuity

of this measure over time, but supplementing it with delay at signalized intersections would be a reasonable approach. The city also does a travel time study on six of the arterial corridors which measures travel time and delay during the peak periods. As the most accurately represents the experience of a motorist using one of these corridors, staff suggests reporting the results of this study under this objective. A second concern is that weighting by vehicle volume would accentuate the current weakness of this objective by focusing only on motor vehicles. Consequently, staff proposes that in addition we work to add a multimodal level of service (MMLOS) based on person trips to this objective. There are a number of new technological approaches to measuring use of the transportation system that the city is exploring. These have the potential to provide a much larger sample size and more accurate information on the performance of the transportation system. Once one of these approaches is proven, staff suggests this objective to be reframed to maintain transportation system performance from a more holistic, multimodal perspective.

Expand fiscally viable transportation alternatives for all Boulder residents and employees, including the elderly and those with disabilities

This objective recognizes the aging of the population and the increasing diversity of transportation needs. Close to a third of the population does not drive due to age or infirmity and transit access is a key aspect of mobility for this population. With bicycle and pedestrian systems that area largely complete, expanding access to transit and special transit services seem to be the best measure for this objective. This has been reported as city contributions to Via, the area's special transit provider, and the number of Eco Passes available to the community.

With one of the focuses of this update being a renewed vision for transit, an area of potential improvement for this object would be to report the percent of Boulder's population that has access to high quality transit service. A recent geographical information system (GIS) analysis of access to transit stops shows that 86 percent of Boulder's population is within a quarter mile of a transit stop. But this does not reflect the actual walk distance to the stop or the quality of the available transit service. Using the Neighborhood Access Tool and the service levels developed in the transit analysis, staff suggests adding a report of the portion of the population that has actual quarter mile access to high quality transit.

Increase transportation alternatives commensurate with the rate of employee growth.

This objective expresses the desire to expand transportation options in the employment areas of the city. This reflects the reality that many of city's employment centers are in the eastern part of the community and are auto focused in their development pattern. Redevelopment of this area and the completion of the modal systems in these areas is one of the challenges and opportunities in reaching the city's transportation and GHG goals.

The current measures in this objective are the least developed of the six existing objectives. Currently they have been reported as simply the change in transit service hours and miles of bike facilities relative to employment change. As with the objective above, using the Neighborhood Access Tool and the transit service levels, we can report the portion of

employees having access to high quality transit. And given the opportunity for redevelopment in the area to create a more pedestrian and transit supportive environment, there is the opportunity to track and report this change. Potential measures that can be mapped and reported would be:

- the change in intersection density to reflect the change to a finer, more pedestrian friendly grid;
- land use and zoning change to mixed use; and,
- areas with TDM programs and with managed parking.

These kinds of land use changes are goals of the Boulder Valley Comprehensive Plan.

New TMP Objectives

Safety

Safety has always been a priority under the TMP, with safety being the first investment priority of the plan. The *2012 Safe Streets Boulder Report* was the result of several years of staff work to adapt the city's comprehensive database of crashes to allow for a comprehensive city-wide review and analysis of pedestrian and cycling crashes. As staff maintains and updates this database, it is now practical to accurately analyze pedestrian and cycling crashes across the city and set an objective related to safety. As bike and pedestrian accidents involve a high rate of injury, staff believes a focus on these types of accidents is particularly important.

The federal government has recently established a goal of eliminating fatalities on the highway system. Reflecting this, the city's ultimate goal should be to strive toward zero for serious injury and fatal accidents. Staff recommends establishing an objective of: "Continuous improvement in safety for all modes of travel." Draft measures to track progress include total crashes, injury crashes, and fatal crashes by mode expressed as a rate to reflect usage and allow benchmarking to national, regional, and other cities.

Neighborhood Access

Over the last year, city staff has been working with a consultant to develop the GIS-based Neighborhood Access Tool. Based on a travel time budget, this tool develops a travel shed around each attractor based on the available facilities for the mode. Multiple travel sheds can then be overlaid to show the access to a set of attractors for each area of the city. The consultant has completed development of the access model, imported applicable city data into the access model and produced several models based on different sets of attractors. In addition to the city's transportation system, the current model included ten categories of destinations including schools, parks, public facilities, and social activity sites (coffee shops, etc.) that are weighted based on input from the staff team. Based on this model, XX percent of the city's residents live in an area with an Access score greater than XX. As the city refines the destinations and weights, this objective could suggest a portion of the city residents that should live in an accessible neighborhood. The city of Portland has

established a goal of having 90 percent of residents in a twenty minutes neighborhood by 2035.

The fully developed and functional model was imported to the city’s GIS system and has been explored and tested by city GIS staff. Development of the access model has been supported by a staff team including members from city Transportation, Parks and Recreation and Community Planning and Sustainability groups as well as from the Boulder County Health and Information Technology Departments. The staff team continues development and refinement of the model. The continued development of the model was significantly delayed by the flood and the need for city and county GIS resources to support flood recovery. However, the goal of this work remains an access model that can be continuously improved and enhanced as an analysis tool city and county staff. The model has the potential to improve access and investment decisions across the community.

Vehicle Miles Traveled Per Capita

As the number of million daily VMT has little meaning or personal relevance, there was general agreement at the Aug. 2013 study session that the TMP should track per capita VMT for both Boulder residents and commuting trips in and out of the city.

Staff has prepared initial estimates of per capita VMT based on our survey data. These are shown in the table below.

Table 5

VMT per capita (SOV+MOV)		Source of Calculations
Boulder Residents, all trips	11.16 miles	2012 Modal Shift Report
All commute trips	19.23 miles	2011 Boulder Valley Employee Survey
Boulder Residents, commute trips	6.0 miles	2012 Modal Shift Report
Non-resident employees, commute trips	28.7 miles	2011 Boulder Valley Employee Survey

While a per capita VMT number for different classes of travelers is helpful for tracking trends in these categories and for comparing individual behavior to these averages, it does not take into account the location in the community, the factors that support non-SOV use and the options available. An additional refinement of the objective would consider these factors to track per capita VMT by areas of the city or by development types. Through work in the TDM Toolkit and the Neighborhood Access tool in support of the Sustainable Streets and Centers project, it should be possible to develop per capita VMT data and expectations at a finer grain. This would encourage continuous improvement in all areas of the community toward the city’s transportation and Climate Commitment GHG reduction goal of 80 percent from 1990 levels by 2050.

V. PUBLIC PROCESS

The TMP update process has involved a broad cross section of the community through conventional activities as well as through a wide range of new tools and technologies. These include open houses, Web materials, video, and print media, and a comprehensive set of social media tools. Two advisory committees of stakeholders are also working in the transit and bike/pedestrian areas. Staff has also integrated outreach efforts with other planning initiatives ranging from Climate Commitment to the North Boulder Subcommunity Planning.

On December 9th, 2013 and Mar. 10, 2014, staff held a Community Open House prior to these Transportation Advisory Board meetings. These Open Houses provided information on the update process to date with information on all focus areas. The public was able to provide input on the transit scenarios and the proposed performance measures and evaluation criteria for the transit planning area. With respect to Bike and Walk Innovations, an initial map detailing existing Low-stress Bicycling Network Connectivity was presented, along with a summary of key themes and living Laboratory feedback to date, and the start of a walk bike action plan. Staff participated in the joint Board workshop on the Sustainable Streets and Centers and the East Arapahoe planning project on Dec. 19, 2013. While a summary of this workshop is being prepared, the discussion of the boards indicated a desire for continued dialogue between the boards and for a higher level approach to the sustainability challenges facing the city.

During the first quarter of 2014, the project team has presented the transit scenario evaluation and resulting transit options to the Transit TAC. The initial findings of the bicycle and pedestrian innovations process and innovations approach were presented to the Walk Bike Advisory Committee, the public and to the TAB. The purpose of this outreach has been to gather feedback on key tradeoffs and identify service, capital, and programmatic elements that the community supports. TMP update materials were also displayed prior to the recent lecture by Victor Dover on Mar. 26, 2014.

In addition to the other efforts, a major outreach effort was the Walk Bike Summit discussed earlier. The summit brought together almost 140 community members and staff for a full day workshop and was a major work effort for staff.

Staff has also been preparing the completion of the transit planning analysis and refinement of the Bike/Pedestrian action plan. A reinvigorated public outreach effort is underway through social media, including a series of new topics on the Inspire Boulder Web site and the new TMP update video that was shared with TAB at their February meeting and has been posted on the Web. The video can be found at <http://vimeo.com/65935689>. A major community event will be held in May with other city planning projects this spring. Staff has also been presenting the TMP update work to a number of community groups since the start of the year. Additional information on the public outreach for the TMP update can be found in the ongoing *Public Outreach Summary Report* at:

<https://documents.bouldercolorado.gov/WebLink8/Browse.aspx?startid=19733&row=1&bid=0>.

VI. COMMENTS FROM BOARDS (TBD AFTER 4/14& 4/23)

The Transportation Advisory Board (TAB)

Joint Board Workshop.....

VI. NEXT STEPS

Work is continuing in all the Focus Areas of the TMP update with a focus on assembling the major building blocks needed for a draft update.

Staff will be coming back to City Council with updated information, including capital project list and refined prioritization approach as well as financials, this summer. The financial information is updated with the new .15 percent funding for transportation and the assumption that we will continue to work on new funding sources that are more tied to use.

A variety of public outreach activities will bring the potential elements of the update to the community. These activities include a variety of presentations, a major open house in May and renewed activity on social media including the Inspire Boulder web site.

The following is the anticipated schedule for board and council consideration of the TMP update:

Apr. 17, 2014	Initial Briefing at Planning Board
Apr. 23, 2014	Joint Board Workshop on TMP update and the related projects of Climate Commitment and the Access Management and Parking Strategy
May 22, 2014	Briefing at Planning Board
June 19, 2014	Planning Board recommendation on TMP update
July 15, 2014	Council consideration of TMP update

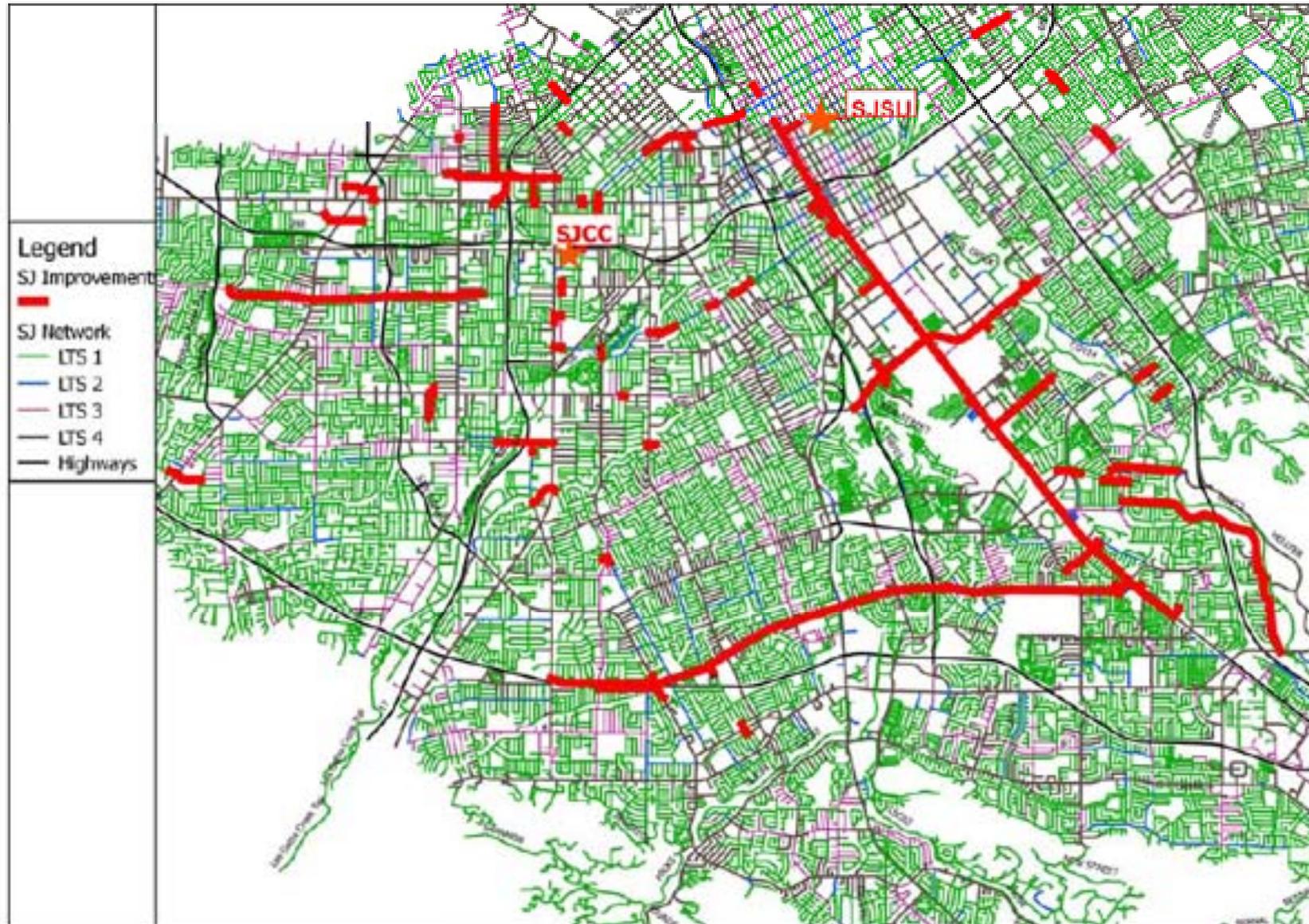
For more information and updates regarding the Transportation Master Plan update, please visit: www.bouldertmp.net.

ATTACHMENTS

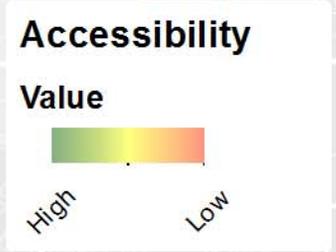
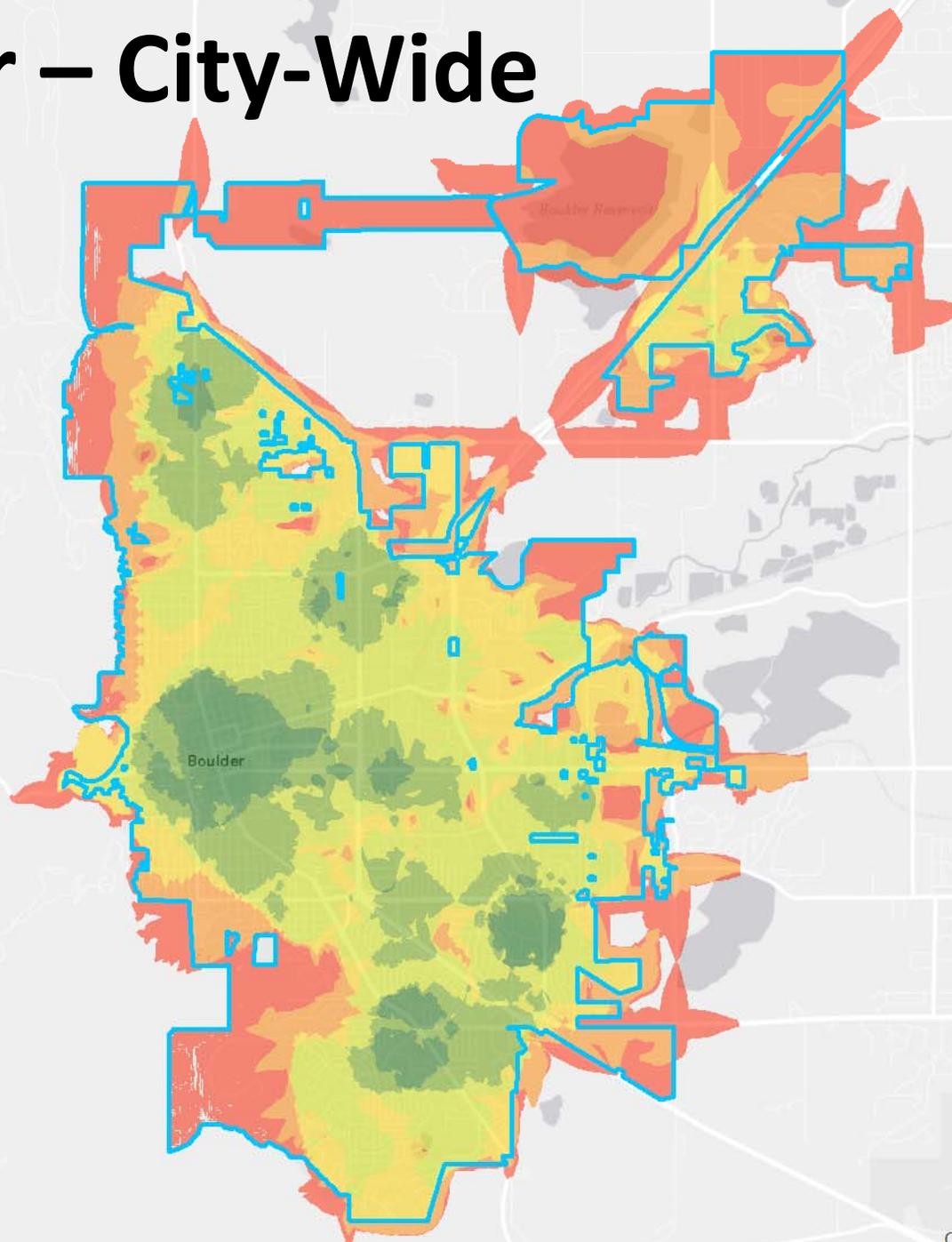
- A. Examples from the Neighborhood Access and Low Stress Bicycle Network Tools
- B. Walk and Bike Summit graphic recording
- C. Potential strategies for the Walk Bike Action Plan
- D. *State of the System* Executive Summary
- E. Three Transit Scenarios Illustrations
- F. Executive Summary of the TMP Transit Scenario Analysis Results
- G. Transit options emphasis map and performance against key measures
- H. Access Management and Parking Strategy Information
- I. Draft revised list of capital projects (Under review, to be added)

J. Draft Guiding principles: City of Boulder Transit Funds

Bike Low Stress Network



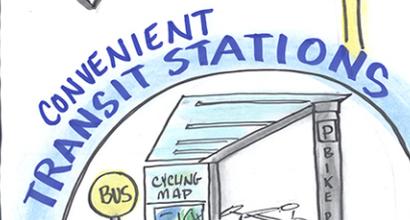
Boulder – City-Wide



BOULDER WALK BIKE SUMMIT

2014
FEB. 6TH

OUR CITY IN MOTION



20MINUTE COMMUNITY

HAVE FUN AT SCHOOL!

OBLIVIOUS PEDESTRIAN THROUGHWAYS

LET'S START CALLING THE CAR THE ALTERNATIVE

WELL IT UNDER PASSES

WALKING IS ENTERTAINING & ENERGIZING!

BETTER COVERED BIKE PARKING

- STOP
- PARK
- SHOP

LOCKS PROVIDED!

MIX USE DEVELOPMENT

LARGE AWNINGS FOR PROTECTION

PATHWAYS BECOMING DESTINATIONS

SLOWER BIKES KEEP RIGHT

PHYSICALLY SEPARATED BIKERS, WALKERS, AND CARS

POLICE ON BIKES

EASY TRAVEL NETWORK

SHARE THE PATH

CAR SHARE

BUSES CARRY TRAILERS

BUSES CARRY MORE BIKES

EDUCATE DRIVERS ABOUT CYCLISTS

LOWER BUS FARE

- ✓ COMFORTABLE
- ✓ SAFE
- ✓ FREQUENT
- ✓ REAL TIME INFO

BETTER REGIONAL TRAIL CONNECTIONS

OUTSIDE COUNTIES

FREE TROLLEY

UNBUNDLED PARKING

WALK

BIKE

BIKE LANES ON ALL STREETS

ON STREET EDUCATION TEAMS

REAL TIME TRAVEL TRACKING

ROUTE FINDER SIGNS

IN HIGH VALUE LOCATIONS

COMMUNITY CYCLES

RTD 360cc E-bike

BIKE COUNTER
4,000 BIKES TODAY

Bike Walk Action Plan **draft**

IMMEDIATE ACTION ITEMS: 2014 AND CONCURANT WITH PLAN ADOPTION

Action Item	Description	Focus	Responsibility	Funding sources	Funding estimate
Living Laboratory	Continue on-going analysis of pilot projects as well as identify additional treatments and programs to test bicycle facilities to see if they are appropriate for Boulder.	Engineering	GO Boulder, Transportation Operations and Engineering staff	Transportation Operations Innovations	\$ TBD
Boulder Walks Program	Continue to conduct walk audits to assess the built environment and guide future consideration of pedestrian policy changes city-wide. Introduce a neighborhood focus and work with community associations and groups to develop neighborhood-based walking map(s) highlighting points of interest and historic significance.	Evaluation, Education	GO Boulder, CP&S, Historic Preservation	Pedestrian Planning	\$ TBD
Multi-use path Etiquette campaign	Develop a public outreach and educational campaign to raise awareness about proper etiquette on Boulder's multi-use path system.	Education	GO Boulder, Communications	Bike and Pedestrian Planning	\$ TBD
Crosswalk Safety Week(s) project		Education, Enforcement	GO Boulder, Communications, BPD, CU-Boulder Police	Bike and Pedestrian Planning, Safe Routes to School	\$ TBD
City-led Walk & Bike events	Issue a Request for Proposals (RFP) for a professional services contract with organization(s) to plan, host and evaluate educational/encouragement events that will create a utilitarian cycling and walk friendly community with an aim on attracting interested but concerned cyclists. Include Walk & Bike Month and Winter Bike to Work Day events, Bike Skills 101 workshops as examples of city-led events to be accomplished.	Education Encouragement	GO Boulder, Communications, Finance, CAO, CMO	Bike and Pedestrian Planning	\$ TBD
2.0 Bicycle Network Plan	Conduct low-stress connectivity analysis to complete analysis of existing system, identify deficiencies and develop scenarios to support a more complete, integrated and connected low stress network.	Evaluation, Engineering	GO Boulder, Transportation Operations and Engineering, Information Resources	Bike Planning	\$ TBD

Bike Walk Action Plan **draft**

IMMEDIATE ACTION ITEMS: 2014 AND CONCURANT WITH PLAN ADOPTION

Action Item	Description	Focus	Responsibility	Funding sources	Funding estimate
Bicycle Parking Requirements Update	Amend bike parking requirements for new development to be calculated based on land use and square footage (commercial) or units/bedrooms (residential) and that a ratio of short-term bike parking and long-term bike parking be required	Policy Engineering	GO Boulder, Transportation Operations and Engineering, Communications	Bike Planning,	\$ TBD
Bicycle Byways	Brand local bike corridors to raise awareness of a low-stress system of bike routes using lower cost, high-impact, distinctive directional and wayfinding signs and marking treatments. Additional bicycle and pedestrian amenities including public art will be explored, to make these bike byways fun, inviting and to create a sense of place. Initial Bicycle Byway corridors identified include 29 th Street, 28 th Street Frontage Road, 13 th Street.	Engineering	GO Boulder, Transportation Operations and Engineering, Communications	Bike Planning, Capital Bond Initiative	\$ TBD
Traffic Safety Engineer FTE	Hire a new full-time equivalent (FTE) to coordinate data collection, analysis, and reports to identify and prioritize counter measure strategies and improve safety and reduce collisions, including those involving bicyclists and pedestrians	Personnel, Engineering, Safety	Transportation Operations and Engineering, GO Boulder	Transportation Operations	\$ TBD
TOTAL					

NEAR TERM ACTION ITEMS: 2015 AND 2016

Action Item	Description	Focus	Responsibility	Funding sources	Funding estimate
Bicycle Facility Installation Guidelines	Develop guidelines to provide a set of criteria, procedures, and policies that guide the installation of bicycle facilities within the City of Boulder.	Engineering, Policy	GO Boulder, Transportation Operations and Engineering staff	Transportation Operations Innovations, Bike Planning	\$ TBD
Walk & Bike event sponsorship program	Establish guidelines and criteria to sponsor community-based events that promote walking and bicycling. Award one large sponsorship contribution (up to \$10K) and five small sponsorship contributions (up to \$5K)	Education Encouragement	GO Boulder, Communications, Finance, CAO, CMO	Bike and Pedestrian Planning	\$ TBD

Bike Walk Action Plan *draft*

NEAR TERM ACTION ITEMS: 2015 AND 2016

Action Item	Description	Focus	Responsibility	Funding sources	Funding estimate
Corridor Studies	Support corridor studies along 30th Street, East Arapahoe Avenue, Colorado Avenue and Canyon Boulevard to evaluate and prioritize options for improved bicycle and pedestrian treatments	Evaluation, Engineering	GO Boulder, CP+S, Transportation Operations and Engineering staff		\$ TBD
Bicycle corrals	Establish threshold criteria for a minimum number of bike parking spaces per commercial block. Develop process for considering requests to convert on-street parking space(s) to bike parking corrals Utilize downtown business improvement district and/or University Hill as geographic focus areas to develop criteria and process	Policy Engineering	GO Boulder, Transportation Operations, Community Planning & Sustainability, Downtown and University Hill Management District – Parking Services,	Bike and Pedestrian Planning, DUHMD-PS, Transportation Operations Innovations	\$ TBD
New GO Boulder FTEs	<ul style="list-style-type: none"> A Transportation Planner I or II to assist in initiating, managing and coordinating transportation planning and implementation of bike, walk and transit modes of travel options. A Community Outreach Specialist to provide programmatic support and outreach coordination for the GO Boulder team, including grant writing to secure state, federal and other funding in support of transportation programs and capital projects. 	Personnel			\$ TBD
TOTAL					\$ TBD

LONG TERM ACTION ITEMS: 2017 AND BEYOND

Action Item	Description	Focus	Responsibility	Funding sources	Funding estimate
	•				\$ TBD
	•				\$ TBD
TOTAL					\$ TBD



City Of Boulder
Transportation Master Plan Update:
Renewed Vision For Transit
EXECUTIVE SUMMARY

Final State Of The System Report
September 2013





F2002

ecoliner

Zero Emissions Electric Vehicle



Foothill Transit





EXECUTIVE

SUMMARY

IN THIS CHAPTER

- Why transit, why now?
- What's included in the State of the System Report
- How is the community involved?
- What are the key findings?



EXECUTIVE SUMMARY

Why Transit, Why Now?

Boulder's first Transportation Master Plan (TMP) was adopted in 1989, setting a new course for a community that relies less on the single-occupant vehicle (SOV). Over time, this vision, built on specific policies and goals to reduce SOV travel and manage congestion and mobile source emissions, has been implemented through a strategic program of capital projects and programs designed to change the way Boulder residents, employees, and visitors travel. The result has been the evolution of a complete transportation system that provides safe and healthy travel choices for the community. The TMP remains a strong and valid policy foundation. Over the years, the city continues to make good progress in achieving TMP goals.

However, the city is not on course to meet its TMP transportation goals. Declining transportation revenue, decreased transit service hours, and a growing number of workers commuting¹ to Boulder have heightened the need for a renewed TMP. While Boulder has made remarkable progress encouraging residents to walk, bike, and ride transit, there is still work to be done to meet the City's transportation goals:

- Continued progress toward no growth in long-term vehicle traffic
- Reduce single-occupant-vehicle travel to 25 percent of trips
- Continued reduction in mobile source emissions of air pollutants
- No more than 20 percent of roadways congested at Level of Service F
- Expand fiscally viable transportation alternatives for all Boulder residents and employees, including the elderly and those with disabilities
- Increase transportation alternatives commensurate with the rate of employee growth
- Improve safety
- Enhance neighborhood accessibility
- Reduce vehicle miles traveled (VMT) per capita for residents and in-commuters

The City's work to achieve these transportation and sustainability goals is met with numerous challenges and opportunities. Key among those identified through outreach to the Boulder community and stakeholders are:

- **Changing Demographics:** People are living longer and the Baby Boomers want to age in place; Gen Xers and Millennials tend to want to live in connected urban environments, yet in Boulder the high cost of housing causes many to choose to live outside of the city. The TMP must address the transportation and

housing demands of these diverse generations and of Boulder's most vulnerable populations.

- **Emerging Technology and the New Live-Work City:** Technology such as smart phones and high speed mobile wireless internet are enabling people to work anywhere anytime at coffee shops and en route on transit. Providing a transit system that responds to the need for frequent travel (frequency), connectedness (on-board wi-fi), spontaneity (real-time information), and creativity and communication (bus and facility design) are improvements desired by Boulder's younger, working-age residents.
- **The Housing Challenge:** Boulder's high quality of life and natural beauty have affected housing prices. Some people who work or attend school in Boulder are living outside the city.

Why a Renewed Vision for Transit?

- The City is not on course to meet City TMP mode share goals.
- Transit ridership is stagnant.
- Transportation revenue and funding for local transit service in Boulder is declining.
- 80% of Boulder in-commuters drive alone to work; serving this market is essential.
- Over the last decade, RTD has cut service hours in Boulder by 20,500 service hours – the equivalent of the DASH route.
- Boulder continues to see redevelopment; this is anticipated to continue in areas east of 28th Street. Designing transit service to meet the impending needs of East Boulder and improving access and connections to transit is essential to meet community sustainability, climate, and mode share goals.



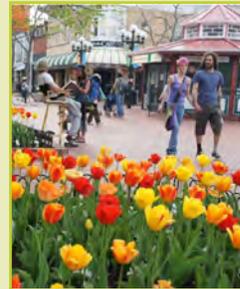
The HOP bus – the first Community Transit Network (CTN) route – is a community-focused bus with large windows, unique branding, and perimeter seating to encourage social interaction. A Renewed Vision for Transit will build upon the success of the CTN.

Image from the City of Boulder

1 City of Boulder.

The Importance of Place

In our attempts to quantify relationships between land use, transportation, and urban design we too often lose the simple message – it’s all about the places we create. Improved transportation infrastructure and service increase access to land, which in turn increases travel demand. Since some amount of infill may be desired and important to the economic health of the city and region, the TMP Update must focus on a finer-grained integration of land use with sustainable transport. This integration will help reduce per capita travel demand while improving access to jobs and services, supporting housing affordability, and advancing environmental goals.



- **Emissions:** With transportation contributing over 20% of Boulder’s greenhouse gas emissions, success in achieving the goals of the TMP are essential to keeping this contribution from growing. Given the large portion of vehicle fuel-related emissions, the TMP is intimately tied to broader sustainability initiatives, such as the Climate Commitment.
- **Declining Transportation Revenues and Purchasing Power:** Due to increasing costs, stagnating revenue, and decreased purchasing power, the City’s ability to operate, maintain, and improve the community’s transportation system is eroding. Since 2002, the City has seen a 40% decline in purchasing power, largely due to increasing costs of materials and labor.
- **Growing Public Health Concern:** Obesity and other sedentary-related diseases are plaguing generations – young and old. The research is clear: land use environments and roadway design impact health. People who live in neighborhoods with a mixture of uses within comfortable walking distance are 7% less likely to be obese, lowering their relative risk of obesity by 35%.² On the other hand, every additional 30 minutes spent daily in a car correlates to a 3% greater chance of obesity.³

The Renewed Vision for Transit will focus on developing a complete transit system – a network of high-quality, frequent transit routes that connect local destinations and neighborhoods to regional destinations. More than just a service plan, the Renewed Vision for Transit will focus on transit supportive programs and policies, corridor planning, service design, and improved access and connections that make transit a first choice of travel for more Boulder residents, workers, and visitors.

The Renewed Vision for Transit will be integrated with the overall TMP Update, community sustainability goals, and the Climate Commitment. The final Renewed Vision for Transit report will provide a strategic action plan for wise investment in transit over time within financial constraints. Consistent with broader TMP goals and regional climate and sustainability objectives, the goal of the Renewed Vision for Transit is to:

- **Put the passenger first:** make transit easy and comfortable to use for people of all ages and all abilities
- **Make transit a convenient choice of travel:** focus on service quality by connecting local and regional destinations and improving bicycle and pedestrian access to transit
- **Use transit to build community:** improve access and connectivity to transit and build transit facilities to support central community gathering places

- **Improve transit service and ridership through regional partnerships:** work with neighboring jurisdictions to improve access to transit and increase regional transit ridership
- **Reduce the environmental impacts of travel:** use transit to support the Sustainability Framework and Climate Commitment goals



A renewed transit vision will help Boulder meet the Transportation Master Plan (TMP) mode share goal of 75% non-SOV travel by 2025.

Image from Nelson\Nygaard

The Renewed Vision for Transit is just one element of the five TMP Update focus areas:

- **Complete Streets:** Renewed vision for transit and bicycle and pedestrian innovations
- **Regional Travel:** Regional corridors, including bus rapid transit on US 36
- **Funding:** Sustainable and local funding sources, including a Transportation Maintenance Fee
- **Transportation Demand Management:** Community-wide Eco Pass and parking policy
- **Integration with Sustainability Initiatives:** Integrate TMP outcomes with the Climate Commitment, economic vitality, Sustainable Streets and Centers, parking management, Parks Master Plan and Boulder Civic Area Plan

² “Driving, Walking, and Where You Live: Links to Obesity.” McCann Consulting. (accessed June 15, 2013).

³ Ibid.

What's Included in The State of The System Report?

The State of the System report communicates key transportation issues and trends, while also serving as a foundational report to guide the Renewed Vision for Transit. While this Executive Summary provides key findings from the report, the complete report includes the following chapters:

- **Chapter 1 Renewed Vision for Transit** – an overview of the TMP Update and its focus on a Renewed Vision for Transit.
- **Chapter 2 Our Challenge, Our Chance** – a summary of community feedback and direction on the issues and driving forces that will shape Boulder's transit future.
- **Chapter 3 Land Use and Travel Demand** – a brief summary of land use patterns in Boulder, an assessment of Boulder's transit-oriented land use patterns, and an overview of current and future travel demand.
- **Chapter 4 Transit Service** – an overview of existing transit service providers, funding, and performance in Boulder.
- **Chapter 5 Peer Review** – an assessment of transit performance in Boulder compared to a number of peer communities in the U.S.
- **Chapter 6 Transit Innovations and Leading Practices** – an overview of leading transit innovations in the U.S. and internationally.
- **Appendix A: Detailed Route Profiles** – detailed route profiles for Boulder's existing local and regional routes.
- **Appendix B: Community Outreach Summary** – a detailed community outreach summary.⁴

⁴ The Community Outreach Summary includes outreach completed to date. The final version of the Outreach Summary will be completed at the end of the planning process.

How is the Community Involved?

The Renewed Vision for Transit is guided by a robust community outreach process, including a Technical Advisory Committee, a Community Feedback Panel, online and social media tools, open houses, and storefront workshops.

- **Transit Technical Advisory Committee (TAC):** The TAC is comprised primarily of technical staff from local and regional policy, agency, and key community stakeholders, such as transportation staff from City of Boulder and Boulder County, Regional Transportation District, the Director of the Chamber of Commerce, University of Colorado representatives, and local Transportation Management Organizations.
- **Stakeholder Interviews:** Interviews are being held with key stakeholders throughout Boulder County, including the University of Colorado, the Center for People with Disabilities, the Regional Transit District, among others.
- **Community Storefront Workshops:** Storefront workshops provide feedback on transit and other mobility issues, especially from transit users. The workshops are held in different geographic locations to ensure participation from a range of people, and on the principle that it is important to bring outreach feedback opportunities to people as they go about their daily lives.
- **Design Your Transit System Online Tool and Questionnaire:** The project team developed a "Design Your Transit System" online decision-making simulation tool. This new outreach strategy walks participants through a series of visually oriented exercises to better understand which elements of system design are most likely to attract new riders and improve the quality of experience for existing and new users. View the online tool at www.bouldertransitdesign.com.
- **Inspire Boulder:** Questions are posted to Inspire Boulder, the City's online community forum, to get feedback on key transit service issues and



The Design Your Transit System online tool allows the community to prioritize transit investments.

Image from Nelson\Nygaard

opportunities. Visit Inspire Boulder at www.inspireboulder.com.

- **Community Feedback Panel:** The Community Feedback Panel is a group of interested members of the public who have volunteered to be queried on TMP-related issues. Approximately 400 people signed up for the Panel. The panel is called upon throughout the process to provide input on the Design Your Transit System Tool and the long-term transit scenarios.
- **Transportation Advisory Board (TAB):** The TAB is the host of the Transportation Master Plan Update and has been engaged throughout the process with monthly updates.

Key findings from the community outreach process, in addition to the technical analysis of the State of the System Report, are summarized below.

What are the Key Findings ?

What's our challenge?

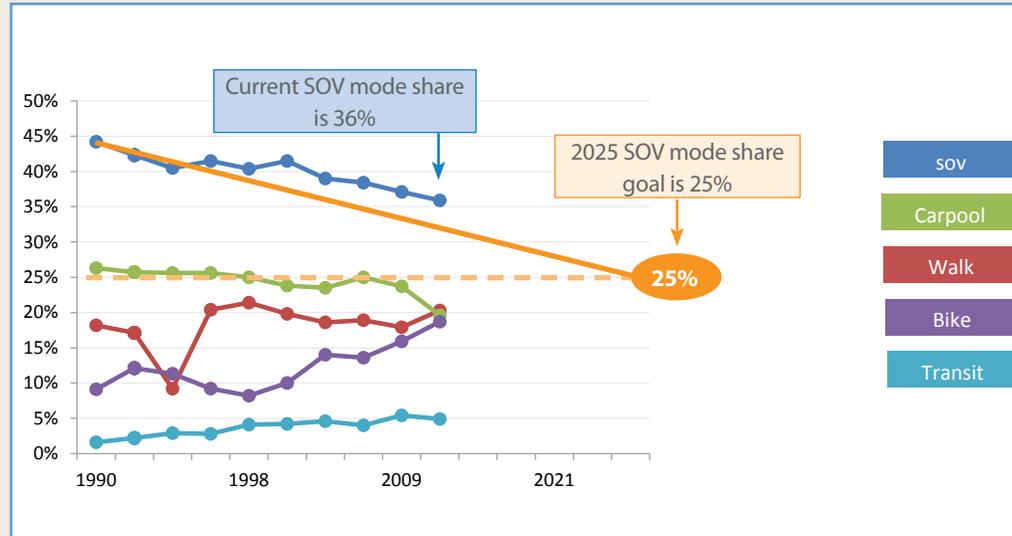
The City has aggressive mode share goals

The 2008 TMP includes a goal of 25% single-occupancy vehicle (SOV) use by the year 2025 for all trips. As shown in Figure ES-1, Boulder is not on course to meet this goal. Since 1990, the SOV rate has declined from 44.2% to 35.9% in 2012 for all trips. Bicycle use has more than doubled during this time from 9.1% to 18.7% in 2012. While transit use has more than tripled in the 12-year period, growing from 1.6% in 1990 to 4.9% in 2012, transit has the lowest share of all modes and has stagnated in recent years. To meet the SOV goal by 2025, SOV trips between 2013 and 2025 would have to be reduced at an average rate of 2.5% per year.

Average daily weekday transit ridership peaked in Boulder in 2008 at 33,919 rides (local and regional routes) (Figure ES-2). Between 2008 and 2010, ridership declined, dropping to 30,428 total rides in 2010. Since 2010, bus ridership is driving back toward the City's 10-year high at 32,636 rides in 2012. One of the key outcomes of the renewed vision for transit will be to:

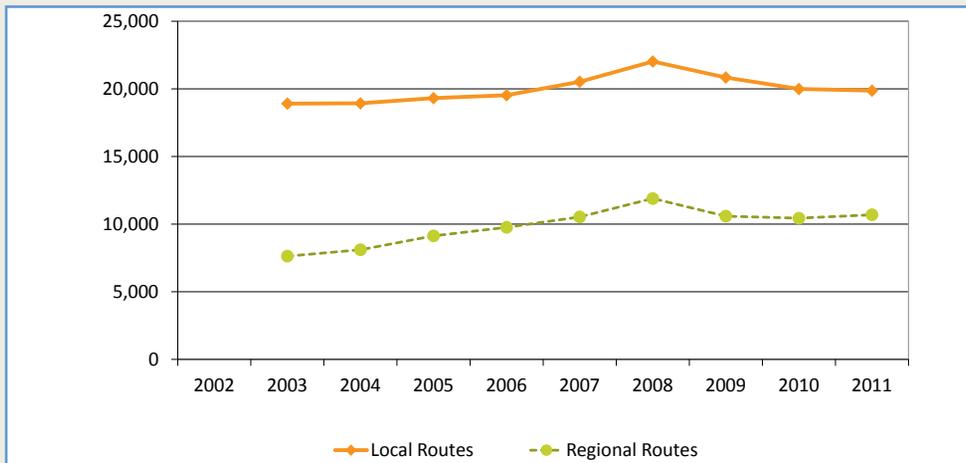
- Increase transit ridership for both local and regional trips (particularly commute trips)
- Continue to build a convenient, attractive and effective transit network that enhances the multimodal transportation system

Figure ES-1 City of Boulder Mode Split for All Trips, 1990–2012



Source: City of Boulder Modal Shift in the Boulder Valley, 1990 – 2012

Figure ES-2 City of Boulder Average Weekday Daily Transit Ridership, 2003–2012



Source: Data is from 2012 RTD Annual Ridership Data; HOP data was provided by the City of Boulder; Climb data was provided by Via; YL data was provided by Boulder County

What's working well?

The CTN model works

The Community Transit Network (CTN) routes, particularly those operating largely in Boulder, are both the most cost-effective and productive routes in the transit system serving Boulder County. On Boulder local routes, ridership is highest on the SKIP, HOP, and DASH, while the B to Denver has the highest regional boardings (Figure ES-3).

The HOP is the most cost-effective local Boulder route at only \$2.07 per passenger trip carried, followed by the SKIP and BOUND (Figure ES-4). The B is the most cost-effective regional Boulder route at \$5.90. By comparison, the systemwide RTD average cost per boarding for local routes not including Boulder is \$4.81; the systemwide RTD average for regional routes not including Boulder is \$12.25.

Figure ES-3 Average Weekday Ridership by Route, 2003 and 2012

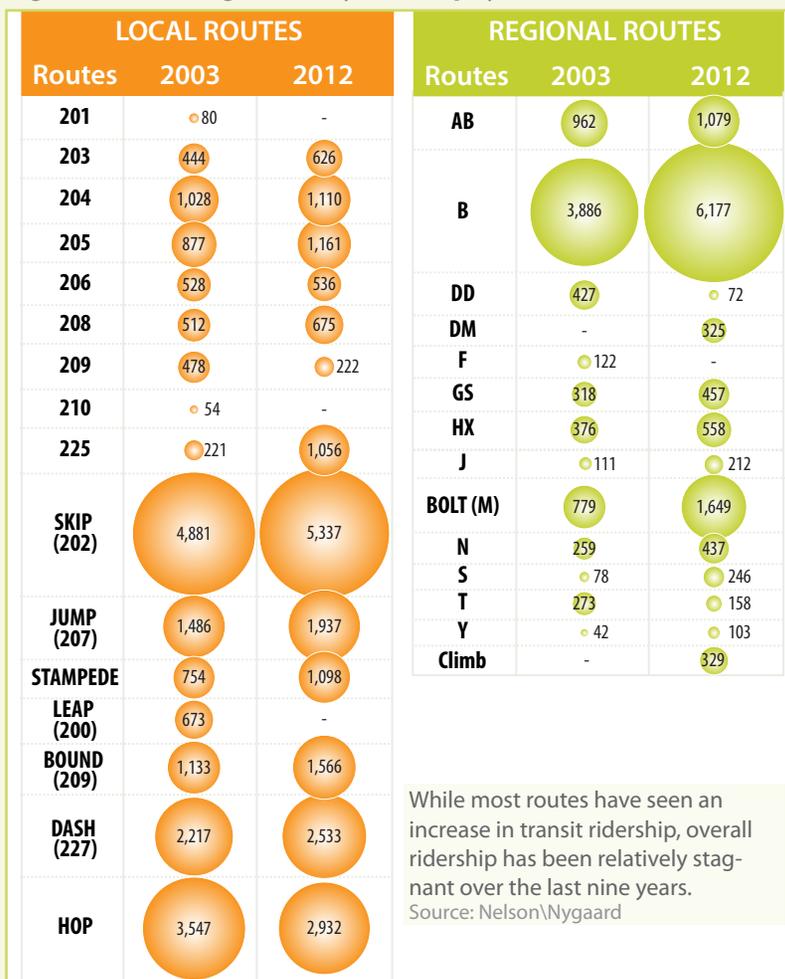
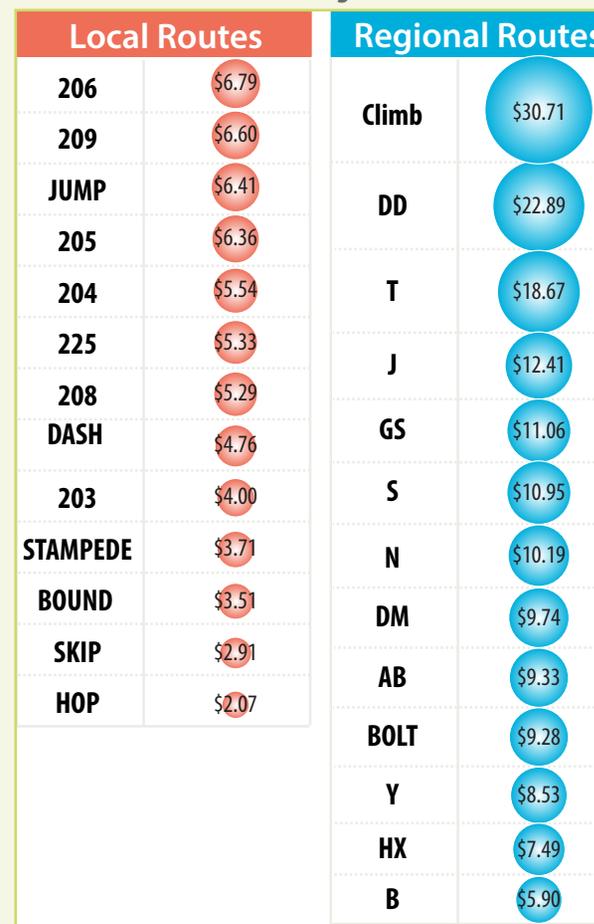


Figure ES-4 Cost Effectiveness (Cost per Boarding) of Boulder Local and Boulder Regional Routes



Cost per boarding is a common metric used to measure the efficiency of transit service. The local CTN routes (namely the HOP, BOUND, SKIP) provide the most cost-effective service (cost per boarding).
Source: Nelson\Nygaard

Note: RTD systemwide average is \$4.43 per boarding.

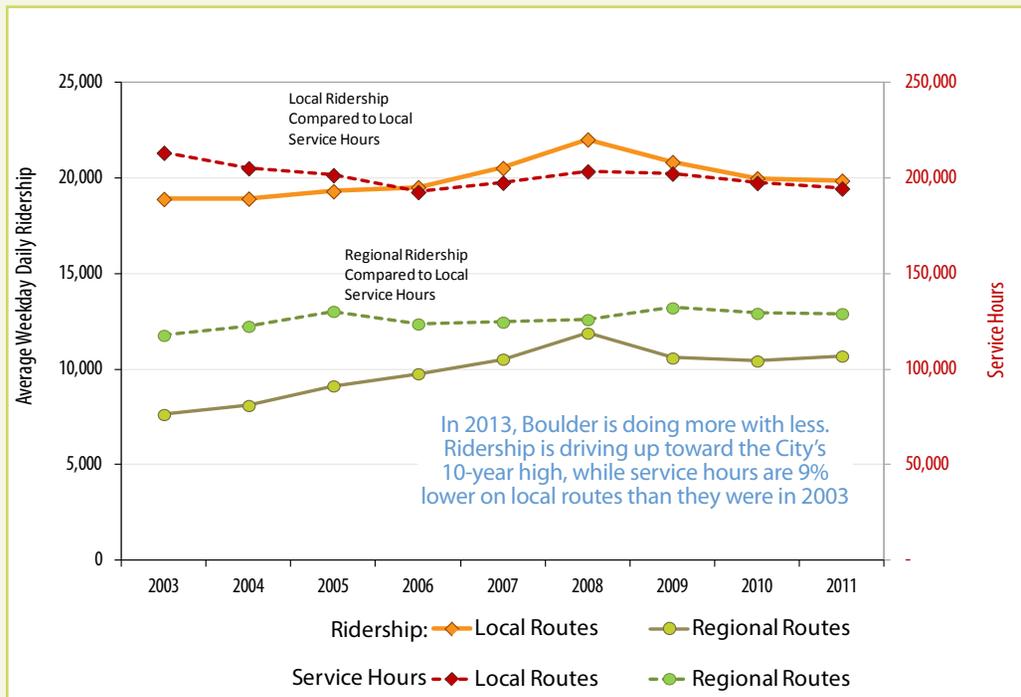
What's working well?

Boulder is doing more with less

Although ridership has experienced a slight decline since 2008, the productivity of the transit system has improved. In 2012, Boulder is doing more with less. **Ridership is driving back toward a 10-year high, while service hours are 9% lower on local routes than they were in 2003.** While these trends indicate a more efficient transit system, in some cases, higher ridership with lower service hours results in very crowded buses.

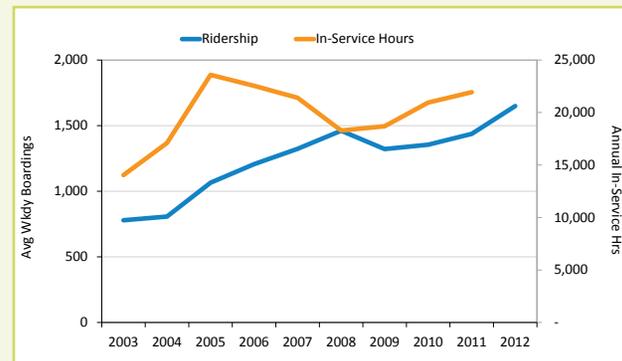
Some regional routes that only have Boulder and one other community as end points, such as the BOLT (Figure ES-6), have shown great resiliency to the recession and have a promising ridership projection.

Figure ES-5 Average Weekday Ridership Compared to In-Service Hours, 2003–2012



Source: Data is from 2012 RTD Annual Ridership Data; HOP data was provided by the City of Boulder; Climb data was provided by Via.

Figure ES-6 BOLT Ridership History, 2003–2012



The BOLT provides service between the Boulder Transit Center and Longmont. Regional routes that only have Boulder and one other community as end points have shown great resiliency to the recession and better ridership history than other regional routes.

Source: Nelson\Nygaard

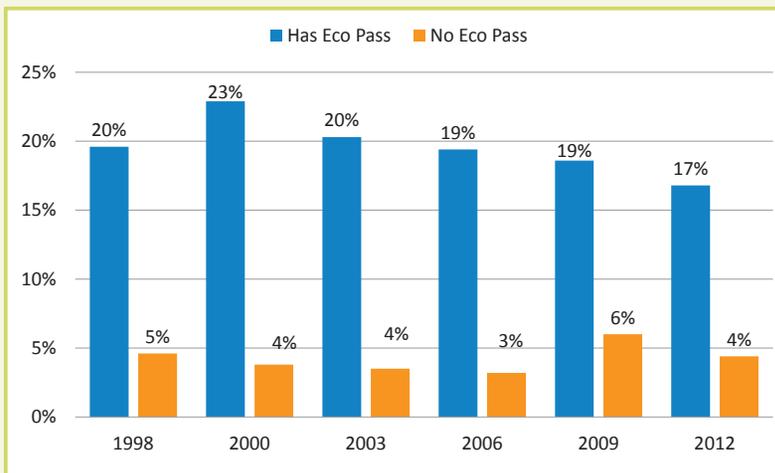
What's working well?

The City's transportation demand management programs work

The City of Boulder has a long and successful history of managing parking and transportation in downtown Boulder, the University of Colorado, and surrounding neighborhoods. In 2012, \$773,750 in downtown parking revenue was used to fund Eco Passes for 6,190 downtown employees. **Surveys show that people with an Eco Pass are 4 to 7 times more likely to ride transit** (Figure ES-7). Areas with paid parking districts – downtown and the University – have also proven to have higher transit ridership than other areas of the city (due to paid parking, among other reasons) (Figure ES-8).

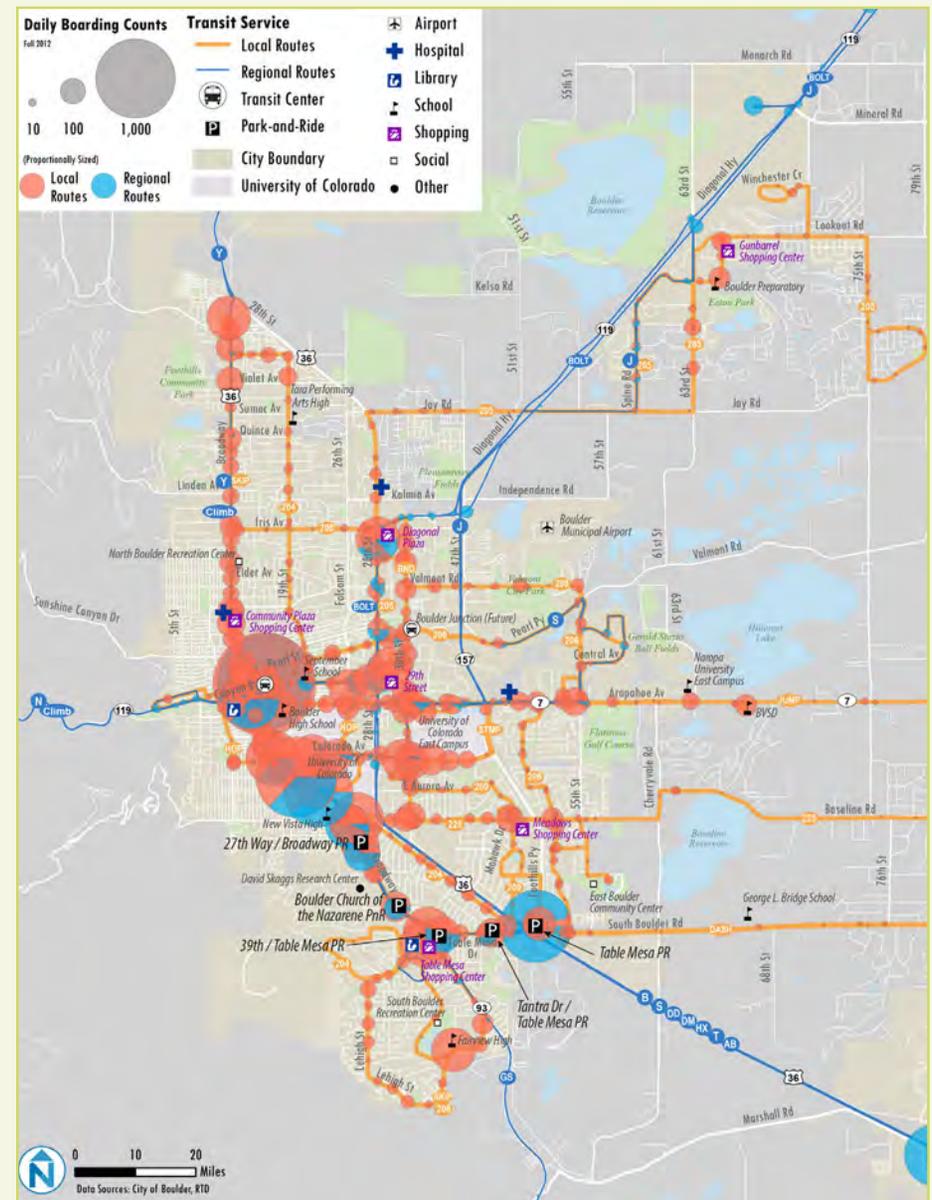
Community-wide parking management strategies and expanded parking districts will be examined to help the City meet TMP mode split goals and reduce single occupant commuting to new job centers in East Boulder. An expanded Eco Pass program is also being examined to meet mode split goals, particularly in areas of opportunity (e.g. East Boulder).

Figure ES-7 Bus Ridership by Eco Pass Status: Percent of Respondents Who Made at Least One Trip per Week on the Bus, 1998–2012



Source: City of Boulder Modal Shift in the Boulder Valley, 1990 – 2012

Figure ES-8 Average Daily Ridership in Boulder and Boulder County



What are the barriers?

The in-commute is growing

High housing costs and limited availability of housing in Boulder combined with a strong and growing job base have increased the level of in-commuting in recent years. Although still only a small percentage of overall travel in Boulder, the in-commute is growing. Approximately 59% of Boulder workers are estimated to travel into Boulder for work. While Boulder has achieved a remarkably low SOV mode share for local travel (48.5% for commute trips), in-commute travel remains primarily SOV at nearly 80% (Figure ES-10). Between 2006 and 2012 the number of Boulder workers commuting from outside of Boulder increased by 7,444 commuters, or 13%. This trend is expected to increase (Figure ES-9).

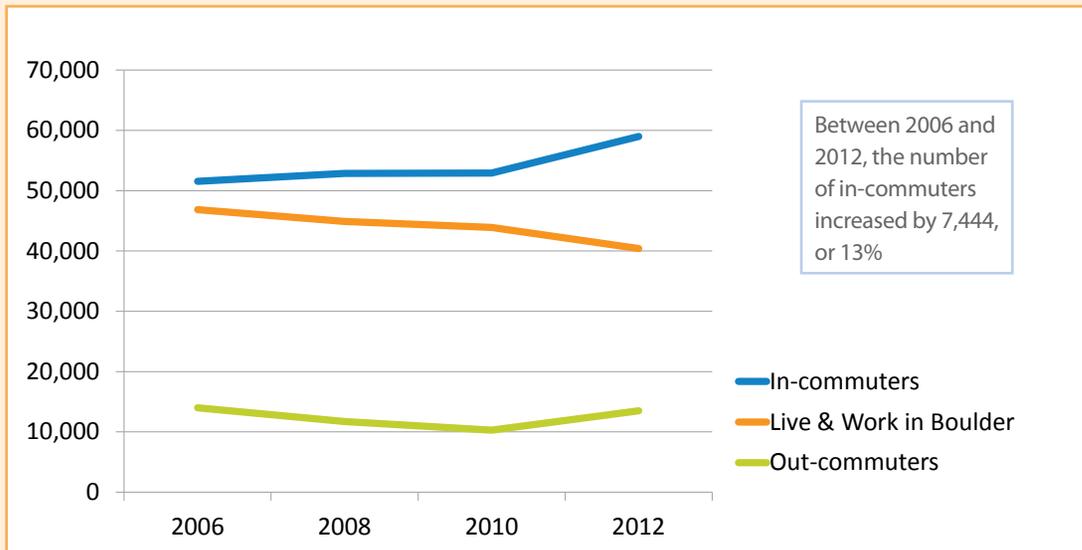
As Boulder adds more jobs, an increasing percentage of the population is expected to live in east Boulder County, Weld County, and along the US 36 Corridor. In addition to making sure that more existing and future workers have the housing options to live and work in Boulder, success in reducing SOV travel among “in-commuters” will require key partnerships between Boulder, Boulder County, RTD, CDOT, and neighboring communities (see the *Regional Partnerships are Key* section on page ES-15).

Addressing the needs of long-distance commuters in the Boulder Valley will also be expensive compared to addressing local travel needs. The TMP Update will explore the most appropriate balance of investments in local and regional service enhancements.



Commuter traffic on US 36 is already an issue. With projected increases in population and employment along the US 36 corridor between Boulder and Denver, traffic volumes are projected to increase dramatically over the next two decades (see page ES-14 for more details).
Image from Nelson\Nygaard

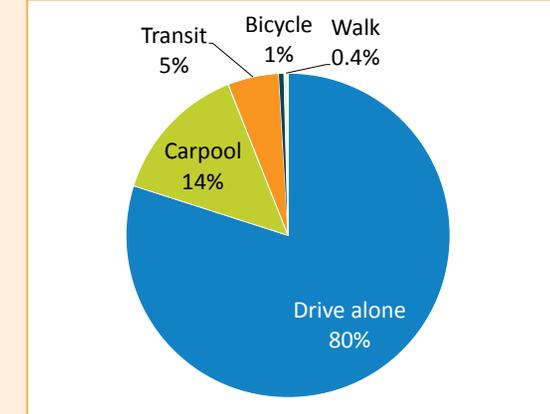
Figure ES-9 Growth in Boulder In-Commute, 2006 – 2012



Between 2006 and 2012, the percent of Boulder workers living outside of Boulder increased from 52% to 59% of total workers. It should be noted that this data includes commute trips only; it does not account for students traveling to school. Between 1993 and 2009, the percent of University of Colorado students living outside of Boulder also increased from 15% of undergraduates in 1993 to 41% in 2009 (not including students living on campus).

Source: City of Boulder

Figure ES-10 Boulder In-Commute Mode Share



Source: Census Transportation Planning Products (CTPP). 2006 – 2008 American Community Survey “Journey to Work,” University of Colorado.

Note: In-commute data is not available for communities with fewer than 20,000 residents. For example, employees from the following communities in Boulder County traveling to Boulder for work were not counted: Jamestown, Louisville, Lyons, Nederland, Ward, Superior, and Erie.

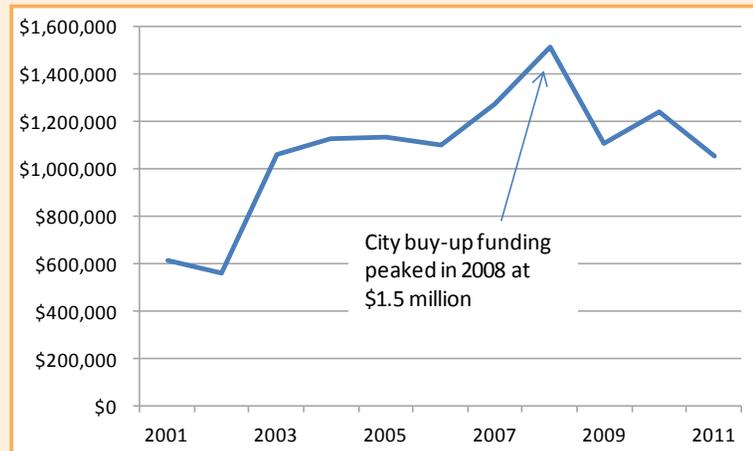
What are the barriers?

Transportation revenue and purchase power are declining

Like many jurisdictions nationwide, Boulder is faced with the challenge of stagnant revenue, cost escalation, and decreasing purchase power to invest in its transportation system. The City has identified a 40% decline in purchase power since 2002 coupled with stagnant sales tax revenue that has resulted in a growing funding gap (Figure ES-13). In 2013, the City identified a total annual funding gap range of \$3.2 million to \$5.6 million for three key areas of transportation operations and maintenance: (1) pavement maintenance, (2) routine maintenance, and (3) transit/Eco Pass service support. Transit service and Eco Pass support are estimated to experience a funding gap of \$700,000 annually.

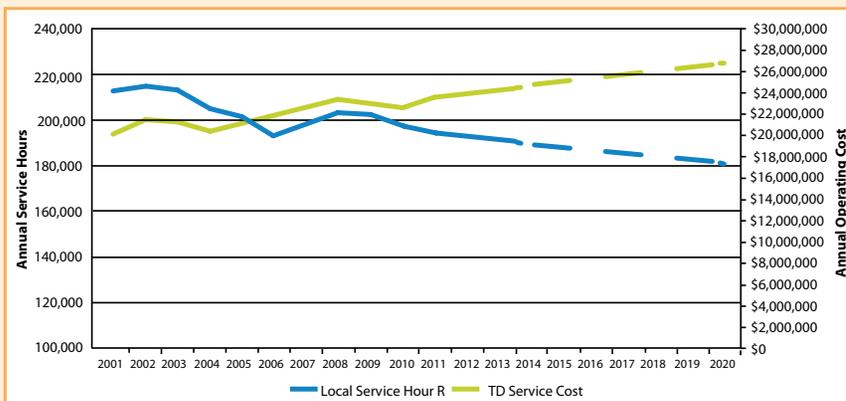
In addition to the City's funding gap, RTD has not provided 10-minute frequencies on all Community Transit Network routes; its capacity to do so continues to diminish as RTD service costs increase (Figure ES-12). While the City has historically funded the HOP route (together with RTD and CU) and buy-up service on the JUMP and BOUND, its capacity to continue to buy-up service is also diminishing (Figure ES-11). City buy-ups in transit service peaked in 2008 at \$1.5 million; in 2011, the City's investment had declined to \$1.1 million. This decline is expected to continue given the funding gap noted above. To meet TMP mode split goals, increased and sustainable funding sources are needed.

Figure ES-11 City Transit Buy-Up History, 2001–2011



Source: City of Boulder

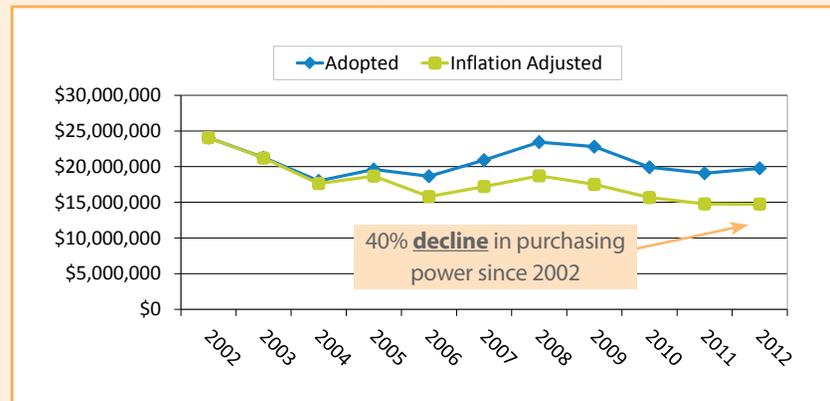
Figure ES-12 Projected RTD Service Costs vs. Hours (2001–2020)



RTD service hours are declining, while costs to maintain or increase service are increasing. This trend is expected to worsen.

Source: City of Boulder

Figure ES-13 City of Boulder Adopted Transportation Budget



The City of Boulder estimates a 40% decline in purchasing power from 2002 forward.

Source: City of Boulder

What are the opportunities?

Focus on areas of opportunity

Given that west Boulder is largely built out, most planned development will occur in Boulder Junction, Boulder Community Hospital Foothills Campus, the University of Colorado East Campus, and in Gunbarrel. By 2035, population is estimated to increase by only 2,000 residents west of 28th Street while it is estimated to increase by more than 8,000 residents east of 28th Street. Similarly, only 1,000 dwelling units are anticipated west of 28th Street by 2035, while over 4,000 new units are anticipated to the east. Employment is also projected to increase more east of 28th Street (7,500 employees will be added west of 28th Street compared to 8,700 employees east of 28th Street).⁶

The TMP Update, is focused on these transitioning areas as primary opportunities to create great places that are walkable, sustainable, and economically vital. Focus will also be given to areas where transit investment can be maximized by supporting efficient land use.

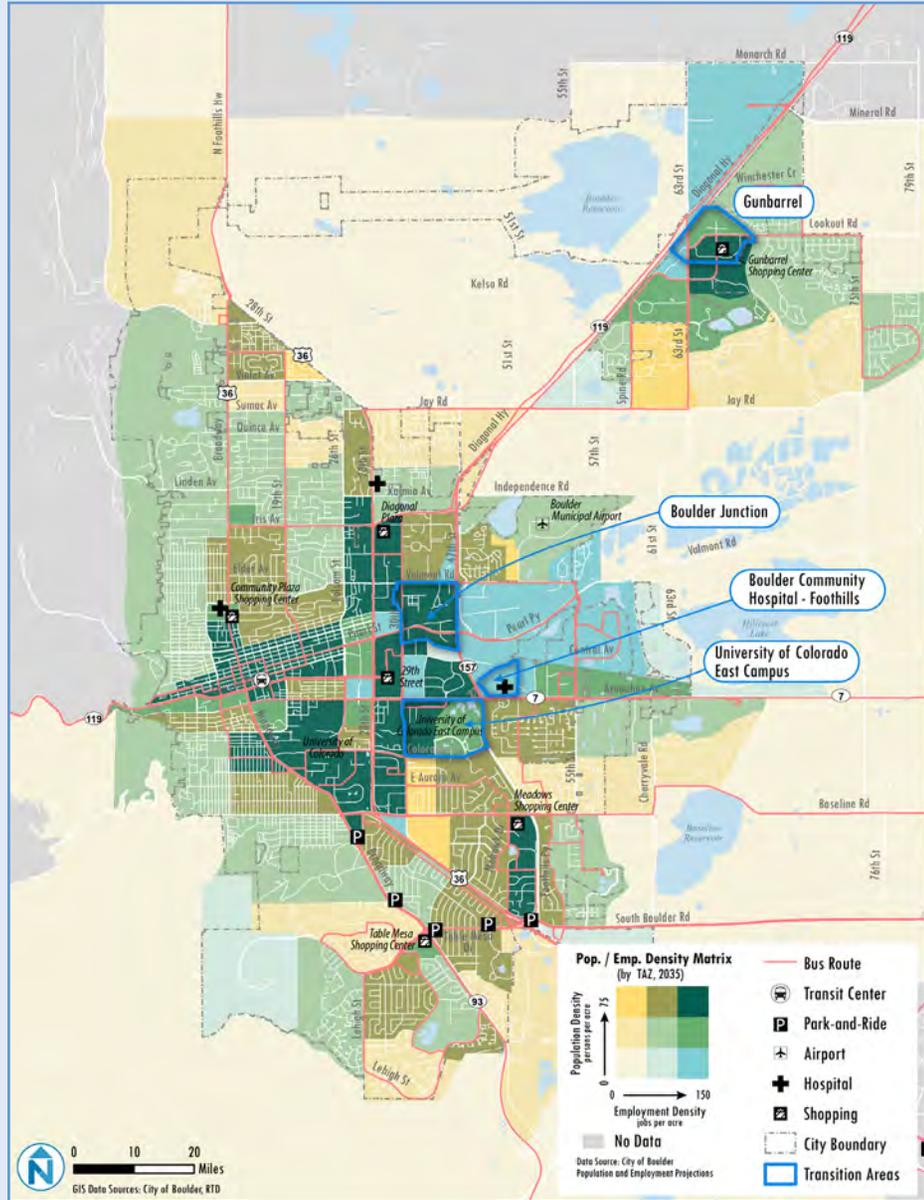
The Renewed Vision for Transit will also explore opportunities to make cost effective transit enhancements to the entire existing system, including downtown, at the University of Colorado, and in other areas.



The Boulder Community Hospital is in the process of consolidating the majority of its inpatient acute care services at the Foothills campus on the corner of Foothills Parkway and Arapahoe Avenue. This new development will add a significant number of employee and visitor trips to the area.

Population and employment growth is expected to be concentrated around the University, in East Boulder, and in Gunbarrel.
Source: Nelson\Nygaard

Figure ES-14 Future Land Use and Key Development Areas in 2035



6 City of Boulder Population and Employment Projections.

What are the opportunities?

Boulder is a 'Tale of Two Cities'

Boulder's evolution is often described as a "tale of two cities." The west side of Boulder developed in a more traditional highly connected grid and development pattern of smaller, walkable blocks. East Boulder is characterized more by its "super blocks," with an orientation towards the automobile, large blocks, and a less walkable grid development pattern.

For all modes to succeed in East Boulder, significant investments will be needed to develop an interconnected street network with bicycle and pedestrian access to key transit corridors, mix of land uses, and strong anchors with all-day transit demand. As shown in Figure ES-15, street connectivity is much lower in East Boulder. While downtown has a connected street system with high intersection density (number of intersections per square mile), blocks are long and scattered in East Boulder making walking, biking, and accessing transit more difficult.

Figure ES-15 Intersection Density in West vs. East Boulder



Intersection density is a good measure for street connectivity and walkability. In downtown, there are 321 intersections per square mile, whereas east Arapahoe between 30th Street and Foothills Parkway only has 51 intersections per square mile.

Image from Nelson\Nygaard



On Arapahoe Avenue in East Boulder, the sidewalk ends abruptly in a commercial shopping area.

Image from Nelson\Nygaard



Pearl Street Mall in downtown Boulder provides a mixed-use walkable environment.

Image from Flickr beautifulcataya

What are the opportunities?

Boulder Junction and East Boulder redevelopment will affect demand

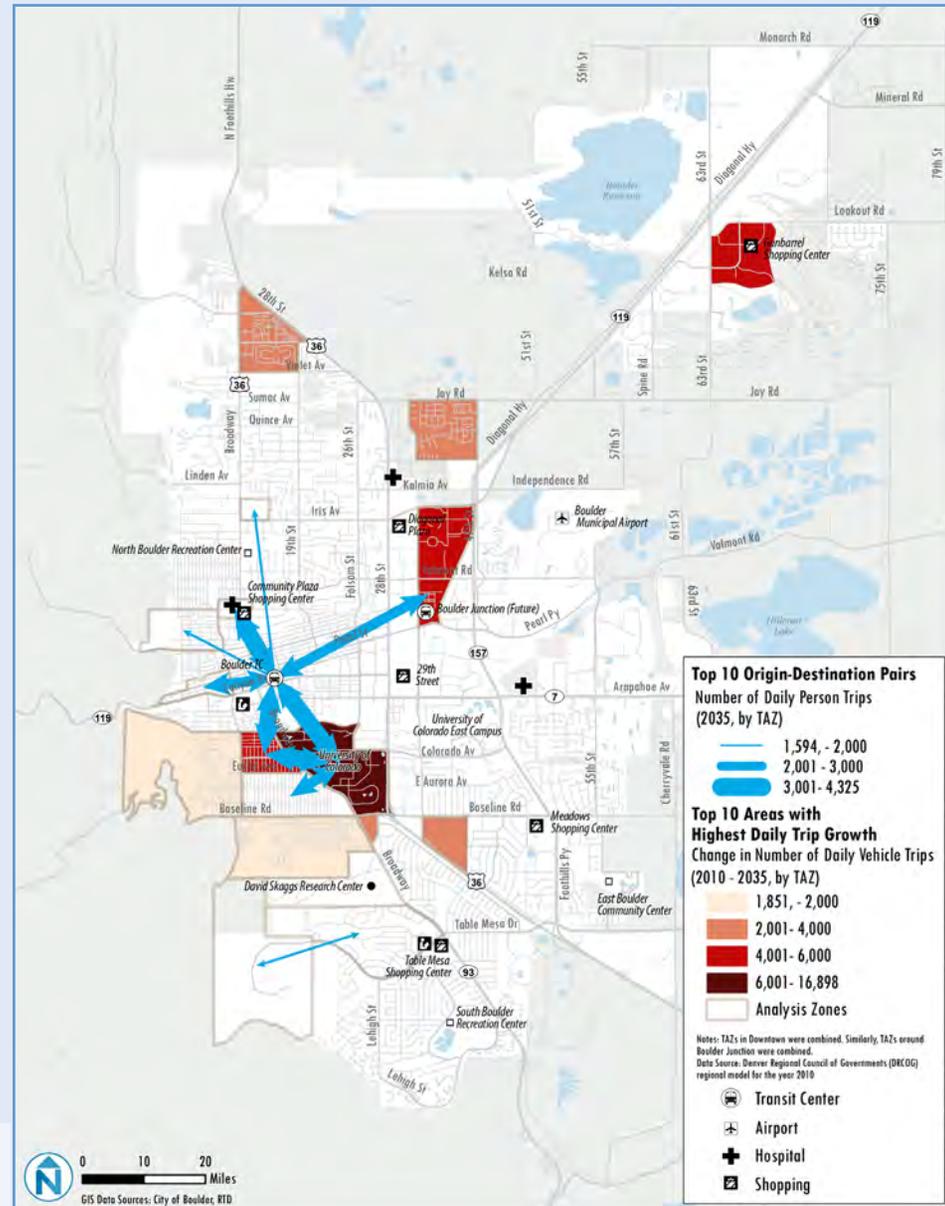
Boulder Junction will be a new complete neighborhood and destination in Boulder and provide important regional and local transit connections. A new regional transit center will be located underground on the site, allowing a broad pedestrian plaza to be developed. Figure ES-16 shows the top ten projected origin-destination pairs in the city. Trip projections from the regional model estimate that the connection between Boulder Junction and downtown and the University of Colorado and downtown will be significant. Many of these projected trips will move through Boulder Junction en route to other areas via regional transit transfers. As a regional hub and the end of the future US 36 bus rapid transit (BRT) line scheduled to open in 2016, Boulder Junction and additional development in East Boulder will create significant new demand for transit. These changes in demand will need to be considered when early action items for transit service changes are developed, and also incorporated into the Renewed Vision for Transit. Completing missing bicycle network connections will be key to connecting this area to the rest of the city.



Boulder Junction will be a new transit center.
Image from Nelson\Nygaard

Trips between the University of Colorado and downtown are projected to be among the highest in the city in 2035.
Source: Nelson\Nygaard

Figure ES-16 Top 10 Origin-Destination Pairs and Areas of Trip Growth, 2035

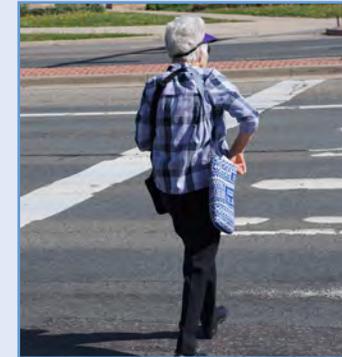


What are the opportunities?

Changing demographics are shaping transit needs

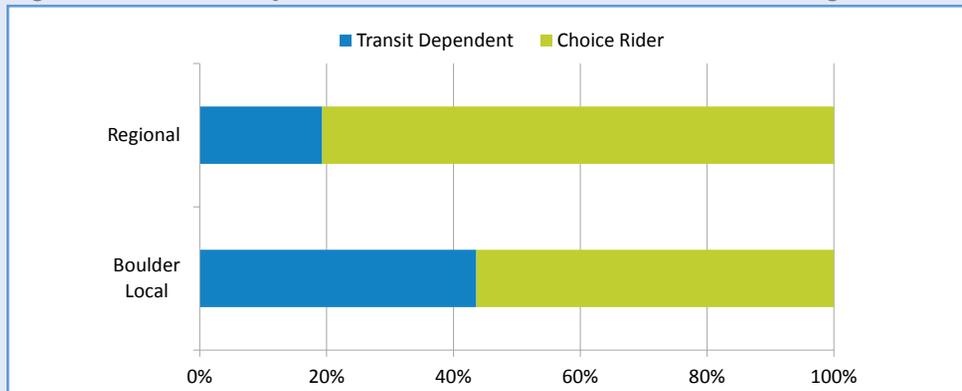
Three generations will be most influential in shaping Boulder's future transit demand. These include Baby Boomers (born 1946-1964), Generation X (1961-1984), and Millennials (1977-2003). Together, these generations represent over three-quarters of Boulder's total population.⁷ There is also a continued need to design transit for people with disabilities who are living with significant mobility challenges and are unable to use fixed route transit. As Boulder develops its Renewed Vision for Transit, it will be critical to consider the following trends:

- Nationally, it is estimated that one out of five people aged 65 and older do not drive.⁸ In Boulder, this translates to over 1,700 seniors who do not drive. Transitioning older adults to fixed route transit can reduce expensive paratransit costs.
- RTD estimates that over 40% of bus riders in Boulder are "transit dependent," meaning they do not have access to a vehicle, have a disability or impairment that prevents vehicle operation, or do not possess a valid driver's license (see Figure ES-17).⁹
- As the older population grows, the need for paratransit service will also grow. The number of paratransit trips provided in Boulder in 2012 represents a 16% increase over 2011. According to the 2010 Census, the population of older adults and people with disabilities in Via's service area is expected to grow 95% between 2010 and 2025, from 12,463 to 24,365.¹⁰



An older woman crosses Arapahoe Avenue in east Boulder in front of the Boulder Community Hospital Foothills Campus.
Image from Nelson\Nygaard

Figure ES-17 Transit Dependent Riders and Choice Riders for Local and Regional Riders



Source: 2011 RTD Customer Satisfaction Survey



Via Mobility Services provides accessible transportation for seniors and people with disabilities residing in Boulder County.
Image from Nelson\Nygaard

⁷ U.S. Census 2010.

⁸ Bailey, Linda. 2004. Aging Americans: stranded without options. Washington, DC: *Surface Transportation Policy Project*.

⁹ RTD. 2011. RTD Customer Satisfaction Survey.

¹⁰ Getting There Collaborative. 2005. Analysis of Colorado's Human Service and Public Transportation Needs.

What are the opportunities?

US 36 BRT is an opportunity to improve regional mobility

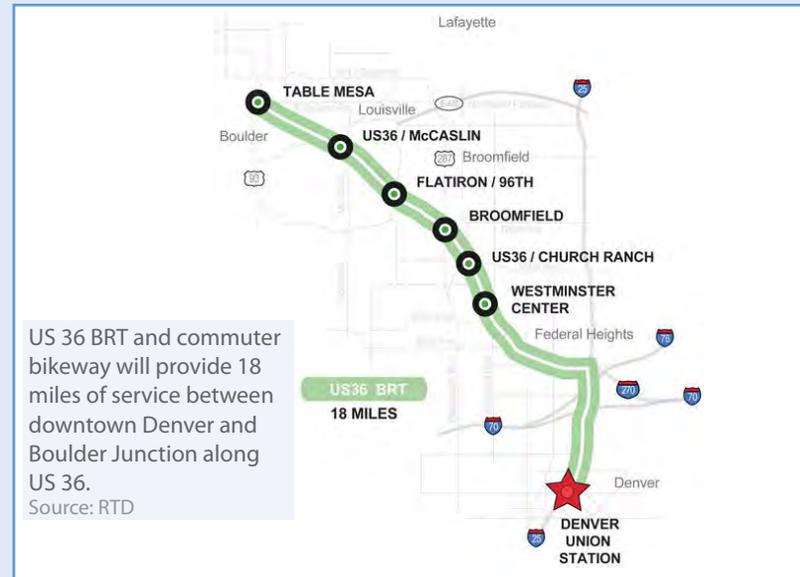
According to regional forecasts, the population along US 36 is expected to increase 28%, employment will expand 53%, and traffic volumes are projected to increase substantially over the next 15 years. Between 2010 and 2012, traffic along the corridor has increased 1.4%.¹¹

As part of FasTracks – the region’s multi-billion dollar transit expansion plan – 18 miles of bus rapid transit (BRT) service will be launched between downtown Denver and Boulder Junction along US 36 to help respond to this growing population and the increasing numbers of employees commuting into Boulder for work.

As seen in numerous case study examples, new BRT service typically leads to significant ridership increases due to improved amenities and faster service. To be effective, US 36 BRT will need to provide efficient, reliable, and comfortable service for travelers. For the service to work well for those traveling to and from Boulder, local routes will need to be restructured to get people to and from BRT stations. The introduction of “fully-featured” BRT service on US 36 will also be an opportunity to generate momentum for extending BRT and transit lane enhancements into the city (e.g. on Broadway) and along other important regional corridors.

¹¹ US 36 Mobility Report.

Figure ES-17 US 36 BRT Corridor



US 36 BRT could generate momentum for extending BRT and transit lane enhancements within the city.

Image from Nelson\Nygaard

What are the opportunities?

Regional partnerships are key

Boulder County and the City of Boulder have aligned their transportation and land use goals. The recent Boulder County Transportation Master Plan directs the region to focus access and mobility policies on non-single occupancy vehicle (SOV) modes of travel, with transit being a backbone to creating sustainable land use and transportation patterns countywide. Neighboring communities like Fort Collins are leading the way in transit innovations with the implementation of a bus rapid transit system (BRT) – the first BRT system in the Front Range. The US 36 First and Final Mile Study sponsored by US 36 Commuting Solutions also highlights opportunities to integrate regional bikeways and trails, transit routes, and open space to address first and final mile connectivity.

Regional partnerships will be critical to address the growing regional in-commute issues as a top priority for the TMP Update. Success in reducing SOV travel for in-commute trips will require an active stance from Boulder, new fare tools, strong partnerships with RTD and others, and new funding sources to grow service offerings.

Setting a mode share target for in-commuters could be an important step for the Colorado Department of Transportation, the City of Boulder, and Boulder County, but will need to be set in concert with regional partners and a regional mode share goal.



Fort Collins will launch the Front Range's first BRT system in Spring 2014.
Image from City of Fort Collins



Boulder County's Bus then Bike program is installing covered secure bike parking at key transit stops in Boulder County.
Image from 303 cycling

Strategy 1:

Develop a Multimodal Transportation System



Strategy 2:

Create the Complete Trip



Strategy 3:

Invest in Key Transportation Corridors



Strategy 4:

Increase Accessibility



Strategy 5:

Enhance Mountain Area Connections



The Boulder County Transportation Master Plan prioritizes five key strategies to improve transportation in the region.
Source: Boulder County Transportation Master Plan (2012)



Report Summary

This section provides a brief overview of the conclusions and next steps from each chapter in the State of the System report.

Chapter 2 provides an overview of Boulder’s challenge to develop a Renewed Vision for Transit, including key issues and opportunities identified by the community outreach process and trends that influence transit design. Based on the findings in Chapter 2, the Transit Plan will focus on the following:

- **Mode split:** Identify strategies to continue improvement in transit mode share, helping Boulder reach its TMP mode share target.
- **Build on the CTN model:** Explore opportunities to expand the Community Transit Network (CTN), increase the number of regional transit connections, and integrate Bus Rapid Transit (BRT) on key corridors.
- **Information and education:** Explore opportunities to improve customer information, travel training, and peer-to-peer transit use mentoring.
- **Respond to changing demographics:** Design transit for changing demographics, including the elderly, the disabled, families, young professionals, and students.
- **Focus on the in-commute:** Explore opportunities to decrease the drive-alone rate of in-commuters.
- **Focus on potential redevelopment and infill areas:** Identify strategies to serve areas with transit, manage parking, and ensure development is pedestrian, bicycle, and transit friendly.
- **Focus on funding opportunities:** Explore opportunities to increase local funding for transit.
- **Integrate with climate work:** Integrate the Renewed Vision for Transit with Climate Commitment and Sustainability Framework.
- **Work with Partners:** Identify opportunities for Boulder to work with regional partners to enhance transit service levels and quality.

Chapter 3 provides an overview of land use and travel demand in Boulder – key factors that will influence the future of transit use in the city and region.

Based on the findings in Chapter 3, the Renewed Vision for Transit will focus on the following:

- **Transit Supportive Land Use:** Identify opportunities to create well connected, compact urban form on blocks closest to the community core or transit network to support high frequency transit service.
- **Increase Transit Mode Share:** Although Boulder has been successful increasing walk and bicycle mode share, while transit has remained stagnant. A key desired outcome of this plan is to increase transit mode share in the short-term and over the plan period.
- **Regional Partnerships:** Explore opportunities to continue to build effective regional partnerships to address the growing in-commute.
- **Focus on Areas of Opportunity:** Identify integrated transportation and land use strategies to accommodate the growing population and employment that is projected at Boulder Junction, CU east campus, around the Boulder Community Hospital on Arapahoe, and in Gunbarrel.
- **Anticipate Projected Demand:** Population and employment are projected to grow considerably over the next 20+ years (12% and 19% respectively). When developing transit alternatives consider projected trip patterns resulting from growth, and transit needs – both fixed route and demand responsive – resulting from areas with increased concentrations of youth, elderly populations, low-income residents, and carless households.
- **Housing Affordability:** In partnership with the Comprehensive Housing Strategy, explore opportunities for transit to improve overall affordability for Boulder residents and workers.

Chapter 4 provides an overview of transit service in Boulder. As the update to the TMP moves ahead, there are areas of need that should be considered further during the development of the Renewed Vision for Transit and short-term service recommendations:

- **Focus on land use:** Land use activity in east Boulder is reaching a point that justifies attention in how the CTN is structured and how it embraces that activity. Some of the issues related to this are a factor of the route network, while others address the need for access to new or growing destinations.
- **Fill in missing connections:** In the northwest part of Boulder, there is a lack of east/ west connectivity. For example, to get from a location on north Broadway to a grocery store on 28th Street, passengers have to travel downtown first, then back north. In the northeast part of Boulder, the IBM plant and the employment in Gunbarrel is underserved. Buses may be only part of the solution for such campus settings, as employees likely travel from many parts of Boulder County.
- **Transit System Branding:** The named routes and service buy-up has been a successful model for Boulder. But the local network includes some numbered routes and some routes that are “officially” part of the CTN, based on being named (and meeting CTN service levels). The mix and match nature of the network, how residents perceive the various routes, and how that impacts ridership response needs further investigation.
- **Focus on Boulder County:** Factors for success in increasing transit ridership between adjacent communities should be investigated further, assessing how the same root motivators used to increase transit ridership in Boulder can apply to regional routes. This assessment should evaluate the need to provide expanded or new park-and-ride facilities in some of these communities. While these facilities currently exist, the long-term potential is greater than current park-and-ride capacity in several locations.
- **Regional Service is Key:** A robust regional BRT service is a great opportunity for increased transit market share in the corridor. Presently, there are a number of regional services that target people departing Boulder in the morning. Some are well utilized, others, are not. The TMP update should evaluate the possibility for routes to operate two-way service, encouraging both “in” and “out” transit commuting in Boulder. An increasing number of commuters to Boulder come from areas outside of RTD’s boundaries – Fort Collins, for example. These markets should be examined for the possibility of

developing intercity commuter services. Other non-single occupant options such as carpooling or vanpooling should be explored where the market for a transit route does not yet exist.

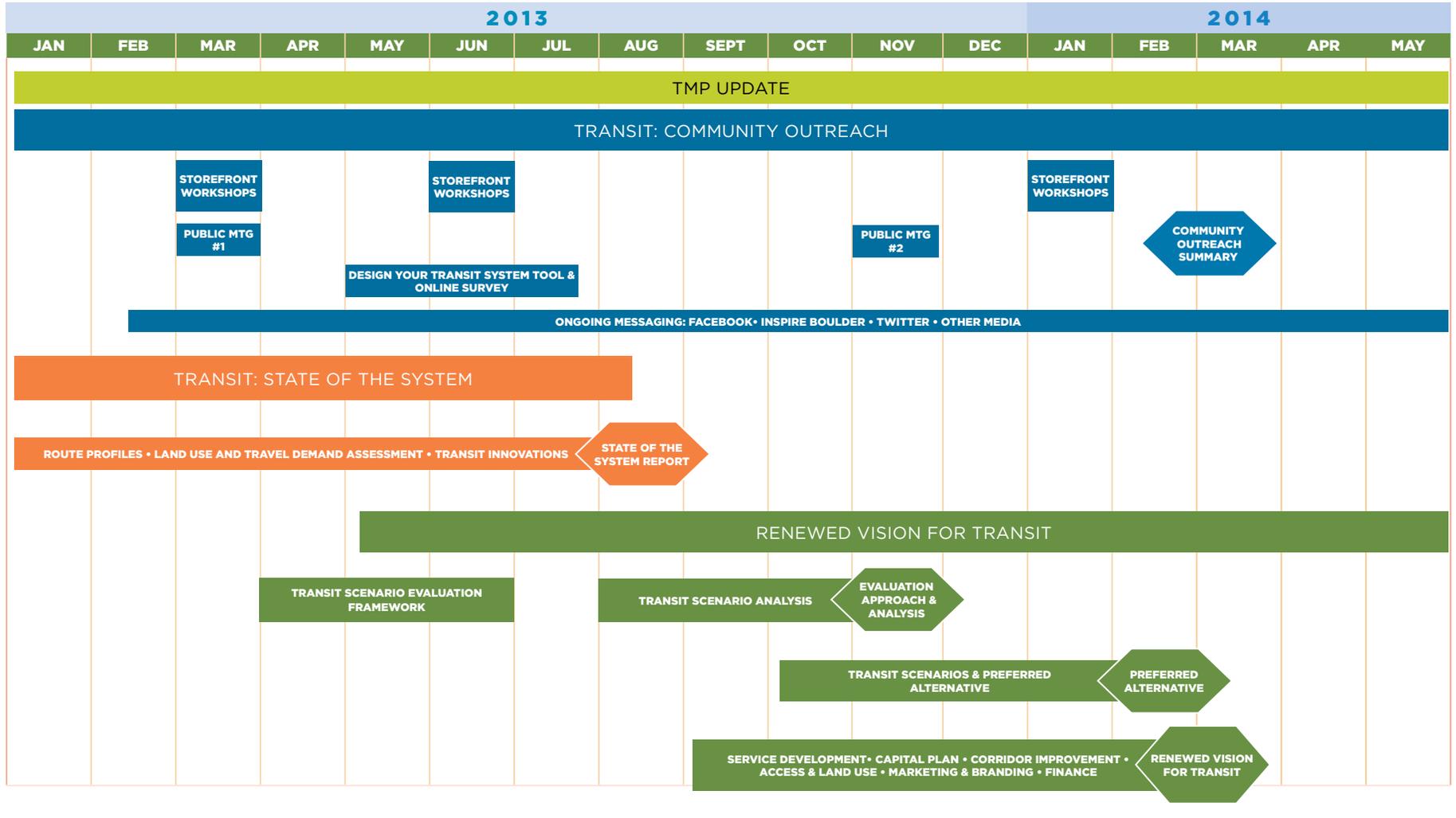
Chapter 5 provides a peer evaluation of seven peer transit systems. Key findings include:

- **Focus on investments that have led to peer ridership growth:** Peer cities and agencies show the greatest bump in transit ridership where significant investments in speed and reliability (i.e., BRT services) have been made. This is an important consideration for Boulder moving forward.
- **Efficiency:** Boulder’s efficiency metrics (i.e., cost per passenger, cost per revenue hour) don’t compare well to peer cities that are not part of broader regional transit systems. While this is expected, it does present a key tradeoff question for Boulder in defining a renewed vision for transit. Focus on transit improvements and coordinated land use improvements inside City boundaries or broaden the City’s preview to deal with regional travel patterns?
- **Integrate university transit services:** Many peers have intercampus transportation services integrated with local/regional transit, simplifying system offerings and creating a more cohesive, transparent transit product. There could be substantial cost tradeoffs associated with integration; this is worth exploring in the next phase of the project.
- **Build on fare program successes:** Eco Pass programs combined with strong ridership help Boulder transit routes to operate with less subsidy than peer systems. The transit plan will look at opportunities to further reduce public subsidies for transit. Coordination with the Boulder County’s Eco Pass study will be critical.

Renewed Vision For Transit Schedule

Based on the findings in the State of the System Report and feedback from the community, a Renewed Vision for Transit will be developed—a vision that responds to changing needs; capitalizes on unique local opportunities; supports housing, climate, and placemaking initiatives; strengthens regional partnerships; and stays true to Boulder’s strong local values.

Figure ES-18 Renewed Vision for Transit Schedule



Boulder TMP Update: Transit Element

Renewed Vision for Transit - Scenarios

Scenario Title	Scenario Description	Annual Operating Elements & Costs			Capital Elements & Costs (Including Vehicles & Facilities)				
		Distinguishing Features	Total	Local	Regional	Distinguishing Features	Total	Local	Regional
Baseline -- Current and Funded Service and Capital	<ul style="list-style-type: none"> Illustrative of 20-year transit future under current funding sources Provide point of comparison for other scenarios 	<ul style="list-style-type: none"> US 36 BRT Service levels comparable to existing system 	\$60M	\$26M	\$33M	<ul style="list-style-type: none"> US 36 BRT facilities to Table Mesa Bus only lanes with enhanced stops on 28th, Diagonal, and Arapahoe Transit Hub at Euclid and Broadway Boulder Junction Transit Center 	\$112M	\$37M	\$74M
Scenario 1 -- Local and Regional Enhanced Service	<ul style="list-style-type: none"> High operating cost Low capital cost Enhances local and regional service 	<ul style="list-style-type: none"> Provide circulation between Boulder Junction, 29th St, CU Main Campus, and CU East Campus (CTN+ route) Expand service within other Boulder County communities, including Lafayette, Louisville, Broomfield, and Superior Provide commuter express service from Denver to IBM and other Gunbarrel employers via US 36 	\$106M	\$33M	\$73M	<ul style="list-style-type: none"> US BRT facilities to Table Mesa CTN bus stop improvements on Broadway, 19th/20th, 28th, 30th, Diagonal, South Boulder Rd, Arapahoe, Pearl, and Valmont 	\$173M	\$45M	\$128M
Scenario 2 -- Boulder Local Community Transit Network (CTN) Buildout	<ul style="list-style-type: none"> Low operating cost Medium capital cost Builds out Boulder CTN grid Enhances service on highest priority regional routes 	<ul style="list-style-type: none"> Provide rapid transit on N and S Broadway Provide circulation between Boulder Junction, 29th St, CU Main Campus, and CU East Campus (CTN+ route) 	\$96M	\$41M	\$54M	<ul style="list-style-type: none"> US 36 BRT facilities extended to North Boulder CTN bus stop improvements on 28th, South Boulder Rd, Baseline, Arapahoe, Valmont, Iris, and Jay 	\$238M	\$115M	\$124M
Scenario 3 -- Local and Regional Rapid Transit Network	<ul style="list-style-type: none"> Medium operating cost High capital cost Supports reliable, competitive regional connections with substantial capital investment Coordinated with Northwest Area Mobility Study (NAMS) 	<ul style="list-style-type: none"> Provide rapid transit on N and S Broadway; 28th; 30th & the Diagonal; Arapahoe to Lafayette Enhance bus on South Boulder Rd; Pearl St Upgrade express bus from North Boulder to DIA via Broadway and US 36 	\$100M	\$27M	\$72M	<ul style="list-style-type: none"> US 36 BRT facilities extended to North Boulder Rapid Transit facilities on 28th, 30th and the Diagonal, and Arapahoe to Lafayette Enhanced Bus facilities on South Boulder Rd and Pearl St CTN bus stop improvements on Valmont, Iris, and Jay 	\$466M	\$176M	\$290M

Key

 \$50 million

 \$25 million

NOTE: Scenario programmatic elements will be determined in coordination with City and County studies that evaluate EcoPass expansion and opportunities for new or expanded parking districts; strategies identified in the City of Boulder Climate Commitment; and through the US 36 Commute Solutions partnership that has identified first and last mile commuting needs.



Boulder Transportation Master Plan Renewed Vision for Transit: Transit Analysis

Working Draft

March 2014

EXECUTIVE SUMMARY

A key component of the 2013 Boulder Transportation Master Plan (TMP) Update is a Renewed Vision for Transit. The vision will be grounded in an extensive, outcome-based analysis of future scenarios for transit system development in Boulder and surrounding communities.

Along with investments in other modes and programs, improved transit services, programs, and enhancements to the transit customer experience will help Boulder reach its target to have 75 percent of all local trips made by non-single occupant modes by the year 2025. As Boulder moves closer to this target, progress is more challenging and requires significant investment and programmatic support. Still, recent data shows that Boulder has been able to achieve a citywide non-SOV mode share of 64 percent for all trips. While a 75 percent non-SOV mode share would be considered unachievable in most U.S. communities, Boulder considers it a realistic goal and further, one that is essential to meet policy objectives that support the local economy, environmental goals, and a high quality of life.

A key step in developing the Renewed Vision for Transit is to develop transit scenarios that provide the opportunity to test various levels and types of capital and operating investment. This process will inform a preferred scenario that will be the framework for the Renewed Vision for Transit. It is important to note that the scenarios themselves are not meant to represent system plans that could be fully implemented. Rather, the scenario evaluation process helps to:

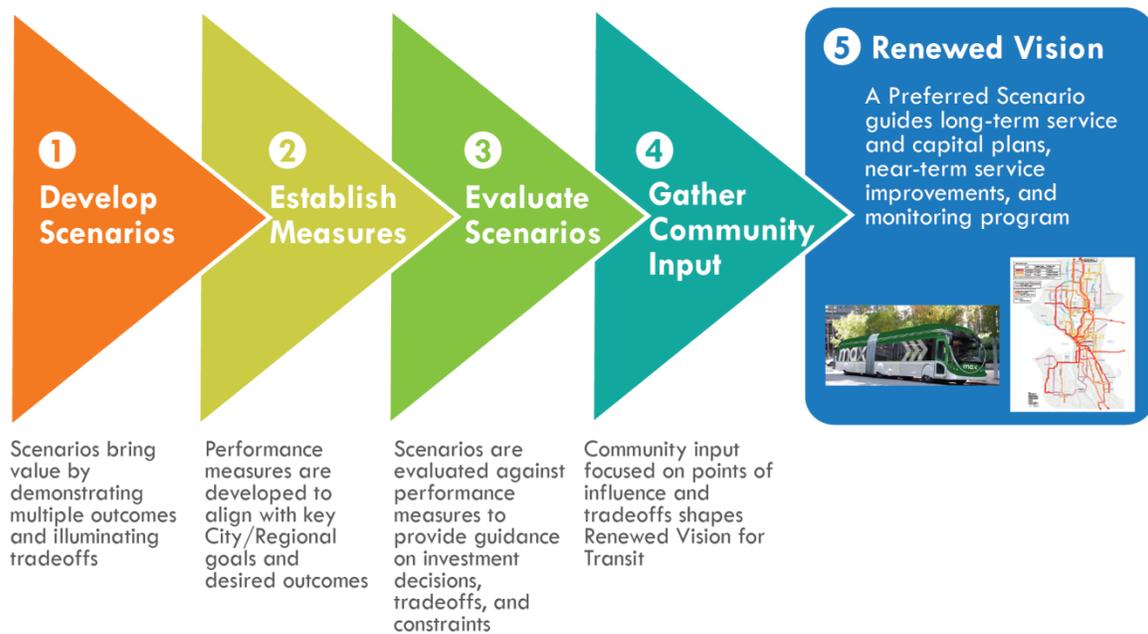
- Illuminate possible futures, not “the” future plan
- Test key constraints
- Test tradeoffs
- Inform decisions

This Transit Analysis Report provides an overview of the transit scenario development process, methodology, and results.

Transit Scenario Development and Evaluation Process

Figure E-1 summarizes the approach to develop and evaluate the transit scenarios and how the scenarios will be used to develop a Renewed Vision for Transit.

Figure E-1 Transit Scenario Evaluation Process



Based on input from the Technical Advisory Committee,¹ the Transportation Advisory Board, City of Boulder staff, and the public, the following four transit scenarios were developed:²

- **Baseline:** This scenario represents a “No Net New Service” position based on the assumption that any financial growth is consumed by increases in operating costs and that capital development is limited to currently funded projects such as the US 36 Corridor BRT. The primary intent of this scenario is to act as a point of comparison for Scenarios 1, 2, and 3, which represent varying levels of growth and system investment.
- **Scenario 1: Enhanced Local and Regional Service.** This scenario emphasizes investment in operating resources to develop a CTN level of service on the most productive corridors in the city of Boulder and on regional connections to/from Boulder. Capital investments in transit corridors are limited in this scenario.
- **Scenario 2: Boulder Local CTN Buildout.** This scenario focuses on local Boulder service investment, making the buildout of the CTN network a top priority. CTN service is delivered on all corridors that are believed to have supportive land use attributes in the plan outyear. Corridor capital investments are prioritized on corridors that best support CTN development by providing needed speed and reliability enhancements.
- **Scenario 3: Local and Regional Rapid Transit Network.** This scenario has a more modest level of investment in local and regional transit operations, although it provides a

¹ The Transit Technical Advisory Committee (TAC) convened in January 2013 and is comprised primarily, but not exclusively, of “technical staff” from local and regional policy, agency, and key community stakeholders such as transportation staff from Boulder County, RTD, the Director of the Chamber of Commerce, CU representatives, and local Transportation Management Organizations (TMOs). The TAC is intended to be advisory and to provide input on the transit work and public outreach for the transit element of the TMP update.

² Scenario projections are based on 2035 population and employment data.

67% increase over the Baseline scenario. Capital development for Rapid Bus and Enhanced Bus is emphasized in this scenario.

The Boulder Transportation Master Plan (TMP) established a transportation plan that fits within broader community goals to protect the natural environment while enhancing Boulder's quality of life, improving economic vitality, and protecting valued open space and natural areas.

In support of the community's Sustainability Framework and broader Transportation Master Plan goals, four evaluation accounts were developed to evaluate long-term transit plan scenarios and specific proposed evaluation measures. Each account includes the most important evaluation metrics that tie to the community's broader goals to enhance Boulder's quality of life, improve economic vitality, and protect valued open space and natural areas (Figure E-2).

What is the Scenario Evaluation Process?

The scenario evaluation process is an iterative process that provides the opportunity to test various levels and types of investment. The analysis results answer these key tradeoff questions, among others:

- Which scenario results in the most cost effective investment from a ridership standpoint?
- Which scenario has the greatest impact on greenhouse gas reduction?
- Which scenario most effectively captures regional transit riders?
- Which scenario most effectively serves job access and transit dependent riders?

Figure E-2 Transit Scenarios: Evaluation Accounts and Metrics



Transit Scenario Results

As evidenced by the key findings summarized in Figure E-3 and Figure E-4 below, there is no one scenario that performs the “best.” Rather, the analysis highlights how local versus regional investments impact key tradeoffs differently. For example, local investment in transit (i.e. Scenario 2) is the most cost effective but does not perform the best from a transit dependent riders and job access standpoint. By comparison, regional investment (Scenario 1) has the greatest impact on reducing greenhouse gas emissions and capturing retained wealth in the local economy.

Figure E-3 Summary of Accounts and Measures

Boulder TMP Update

Accounts and Measures Summary

	EFFICIENCY			
	SCENARIO 1 <small>Local & Regional Service</small>	SCENARIO 2 <small>Local CTN Buildout</small>	SCENARIO 3 <small>Rapid Transit/BRT</small>	
	Ridership/Productivity	2nd	BEST	2nd
	Travel Time	3rd	2nd	BEST
	Cost Effectiveness	2nd	BEST	2nd
User Experience	3rd	2nd	BEST	
	COMMUNITY			
	SCENARIO 1 <small>Local & Regional Service</small>	SCENARIO 2 <small>Local CTN Buildout</small>	SCENARIO 3 <small>Rapid Transit/BRT</small>	
	Transit Accessibility	2nd	3rd	BEST
	Transit Mobility	2nd	3rd	BEST
	Housing & Transportation Costs	BEST	2nd	BEST
Active Transportation	2nd	BEST	2nd	
	ECONOMY			
	SCENARIO 1 <small>Local & Regional Service</small>	SCENARIO 2 <small>Local CTN Buildout</small>	SCENARIO 3 <small>Rapid Transit/BRT</small>	
	Neighborhood Accessibility	BEST	BEST	2nd
	Access to Jobs	BEST	2nd	BEST
Green Dividend	BEST	3rd	2nd	
	ENVIRONMENT			
	SCENARIO 1 <small>Local & Regional Service</small>	SCENARIO 2 <small>Local CTN Buildout</small>	SCENARIO 3 <small>Rapid Transit/BRT</small>	
	Change in VMT	BEST	3rd	2nd
	Mobile Source Emissions/ GhG Reduction	BEST	3rd	2nd
Net New Operating Cost per kg GhG Reduced	BEST	3rd	2nd	

Figure E-4 Transit Scenario Analysis Results Key Findings

Account	Key Findings
Efficiency	<ul style="list-style-type: none"> ▪ Scenario 2 (in-city CTN focused strategy) nets the most new riders at the lowest cost per ride ▪ Reducing travel time attracts regional ridership ▪ Regional investments are least cost effective on a per rider basis but yield other benefits (i.e. travel time, GhG reduction, and other community benefits noted below) ▪ In Scenario 3, Longmont (119) has highest ridership potential of all regional BRT routes, but Arapahoe and South Boulder are also strong ▪ Scenario 1 (local and regional investment) captures the most regional riders (total and net new riders) ▪ The net new operating cost per VMT reduced is also the most cost effective in Scenario 1
Community	<ul style="list-style-type: none"> ▪ Scenarios with higher service investment outside of Boulder (i.e. Scenario 3) do a better job serving low to mid-income residents, jobs, and transit dependent populations ▪ Active transportation outcomes are better for in-city routes due to higher net new ridership and higher rates of walk and bicycle access to transit
Economy	<ul style="list-style-type: none"> ▪ Scenario 2 has highest access to retail and services within Boulder ▪ Scenarios that focus on regional investment (i.e. Scenarios 1 and 3) put CTN/frequent service within walking distance of the most jobs and the most low- to mid-wage jobs ▪ At a corridor level, Rapid Transit on the Diagonal and Arapahoe are among the best performers for GhG reduced and therefore capture the most “retained wealth” (“retained wealth” is derived from VMT reduction)
Environment	<ul style="list-style-type: none"> ▪ Scenario 2 maximizes reduction in GhG and VMT within the City of Boulder, but Scenario 1 (local and regional investment) has highest overall GhG and VMT reduction benefit ▪ Regional investments are a less cost effective way to get people on transit, but trip lengths are longer leading to greater GhG reduction benefits

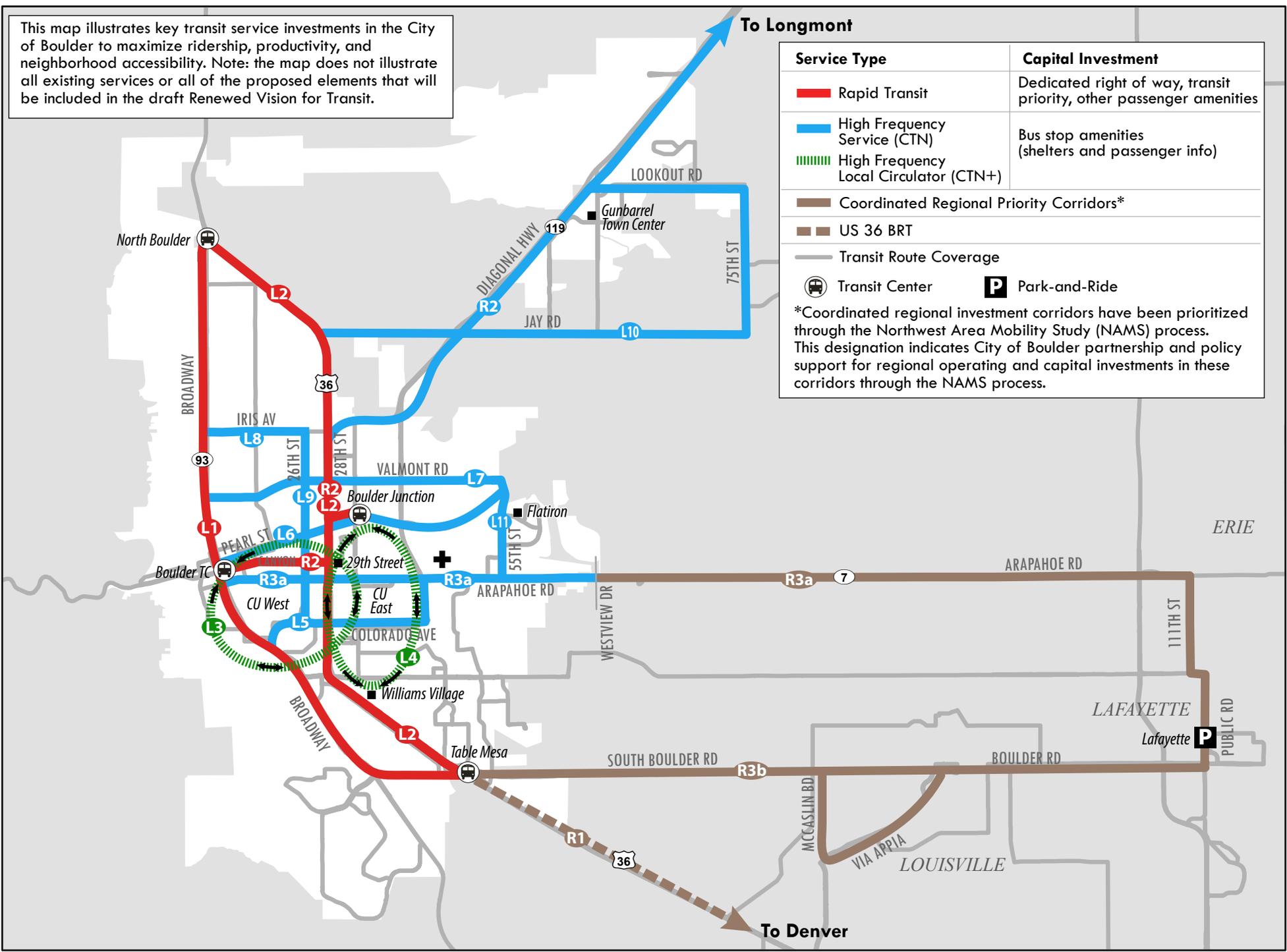
Proposed Service Investments: Emphasizing Ridership, Productivity, Neighborhood Accessibility

This map illustrates key transit service investments in the City of Boulder to maximize ridership, productivity, and neighborhood accessibility. Note: the map does not illustrate all existing services or all of the proposed elements that will be included in the draft Renewed Vision for Transit.

To Longmont

Service Type	Capital Investment
Rapid Transit	Dedicated right of way, transit priority, other passenger amenities
High Frequency Service (CTN)	Bus stop amenities (shelters and passenger info)
High Frequency Local Circulator (CTN+)	
Coordinated Regional Priority Corridors*	
US 36 BRT	
Transit Route Coverage	
Transit Center	Park-and-Ride

*Coordinated regional investment corridors have been prioritized through the Northwest Area Mobility Study (NAMS) process. This designation indicates City of Boulder partnership and policy support for regional operating and capital investments in these corridors through the NAMS process.



To Denver

Draft Vision Approaches: Ridership, Productivity, Neighborhood Accessibility Emphasis

Service Summary (Ridership, Productivity, Neighborhood Accessibility)						
Service Description			Cost Summary		Ridership and Productivity (2035)	
Project ID	Corridor Description	Service Type	Annual Operating Cost	Capital Cost	Total Annual Weekday Rides	Total Rides per Service Hour
Key Regional Corridors						
R1	US 36: Boulder - Denver	US 36 BRT	-	-	-	-
R2	Diagonal: Longmont - Downtown (via Canyon)	Local - CTN	\$6.2 M	\$8.3 M	911,000	19.1
R3a (in-city)	Arapahoe: Downtown - City Limits	Local - CTN	\$1.9 M	\$2.5 M	382,000	26.5
R3a (out-of-city)	Arapahoe: City Limits to Lafayette	NAMS	-	-	-	-
R3b	South Boulder Rd: Table Mesa - Lafayette	NAMS	-	-	-	-
Local Rapid Transit or High Frequency Service (CTN)						
L1	Broadway: Table Mesa - N. Boulder	Rapid Transit	\$6.1 M	\$48.6 M	4,809,000	134.0
L2	28th: Table Mesa - N. Boulder	Rapid Transit	\$2.0 M	\$29.7 M	279,000	27.4
L3	Central / West Circulator (Enhanced Service)	Local - CTN +	\$2.1 M	\$3.2 M	3,094,000	118.5
L4	Central/East Circulator (Extended/Bidirectional)	Local - CTN +	\$2.7 M	\$4.2 M	1,199,000	35.2
L5	Stampede (Extended/Bidirectional)	Local - CTN	\$2.3 M	\$3.1 M	536,000	30.3
L6	Pearl: Broadway to 55th	Local - CTN	\$1.3 M	\$1.5 M	253,000	26.1
L7	Valmont: 9th - 55th	Local - CTN	\$1.3 M	\$1.8 M	357,000	35.3
L8	Iris: Broadway - 26th	Local - CTN	\$0.6 M	\$0.8 M	88,000	19.1
L9	26th/Folsom: Colorado - Iris	Local - CTN	\$1.0 M	\$0.2 M	153,000	21.0
L10	Jay: 28th - 75th	Local - CTN	\$2.4 M	\$3.8 M	156,000	8.5
L11	55th: Valmont - Arapahoe	Rapid Transit	\$1.4 M	\$2.1 M	109,000	10.3

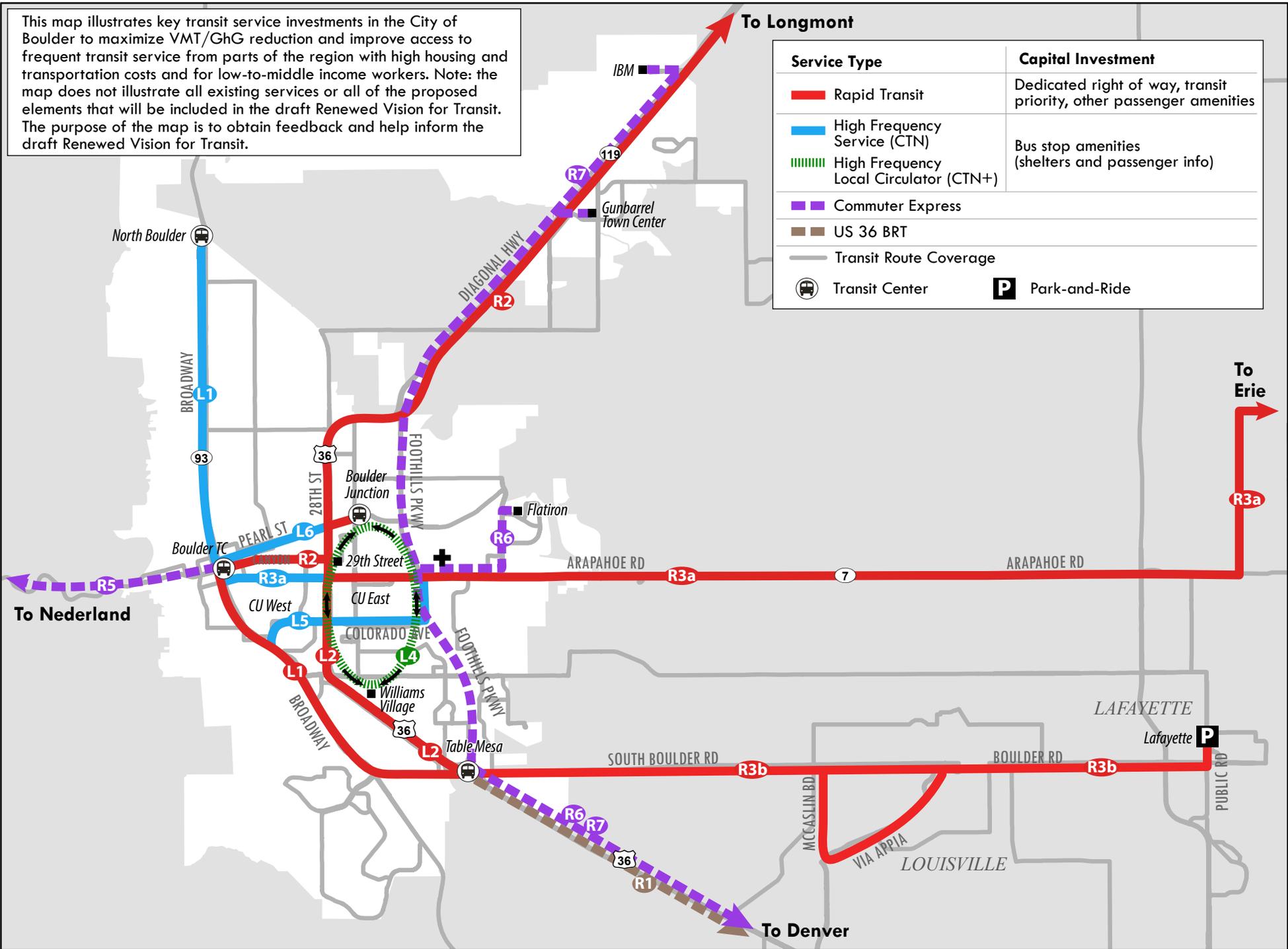
Approach Metrics	
Measure	Data
Annual Weekday Operating Cost	\$31.3 M
Capital Cost	\$109.7 M
Net New Annual Weekday Rides	6,661,000
Total Annual Weekday Rides	12,326,000
Total Rides per Service Hour	50.0
Operating Cost per Rides	\$2.54
Annualized Operating + Capital Cost per Total Rides	\$3.29
Annual VMT Reduced	8,740,000
Annualized Operating + Capital Cost per VMT Reduced	\$4.64
Annual GhG Emissions Reduced (MT) ¹	2,780
Housing+Transportation Costs ^{2,3}	63,910
Access to Low-to-Middle Income Jobs ^{2,4} (Work Location)	324,103
Access to Low-to-Middle Income Jobs ^{2,4} (Home Location)	99,401

Notes:
 1. From new transit trips
 2. Within 3/8 mile distance of corridors included in approach
 3. Number of households paying greater than 45% of income for combined housing and transportation costs
 4. Workers earning \$3,333 per month or less

Proposed Service Investments: Emphasizing VMT/GhG Reduction, Housing+Transportation Costs, Job Access

This map illustrates key transit service investments in the City of Boulder to maximize VMT/GhG reduction and improve access to frequent transit service from parts of the region with high housing and transportation costs and for low-to-middle income workers. Note: the map does not illustrate all existing services or all of the proposed elements that will be included in the draft Renewed Vision for Transit. The purpose of the map is to obtain feedback and help inform the draft Renewed Vision for Transit.

Service Type	Capital Investment
Rapid Transit	Dedicated right of way, transit priority, other passenger amenities
High Frequency Service (CTN)	Bus stop amenities (shelters and passenger info)
High Frequency Local Circulator (CTN+)	
Commuter Express	
US 36 BRT	
Transit Route Coverage	
Transit Center	Park-and-Ride

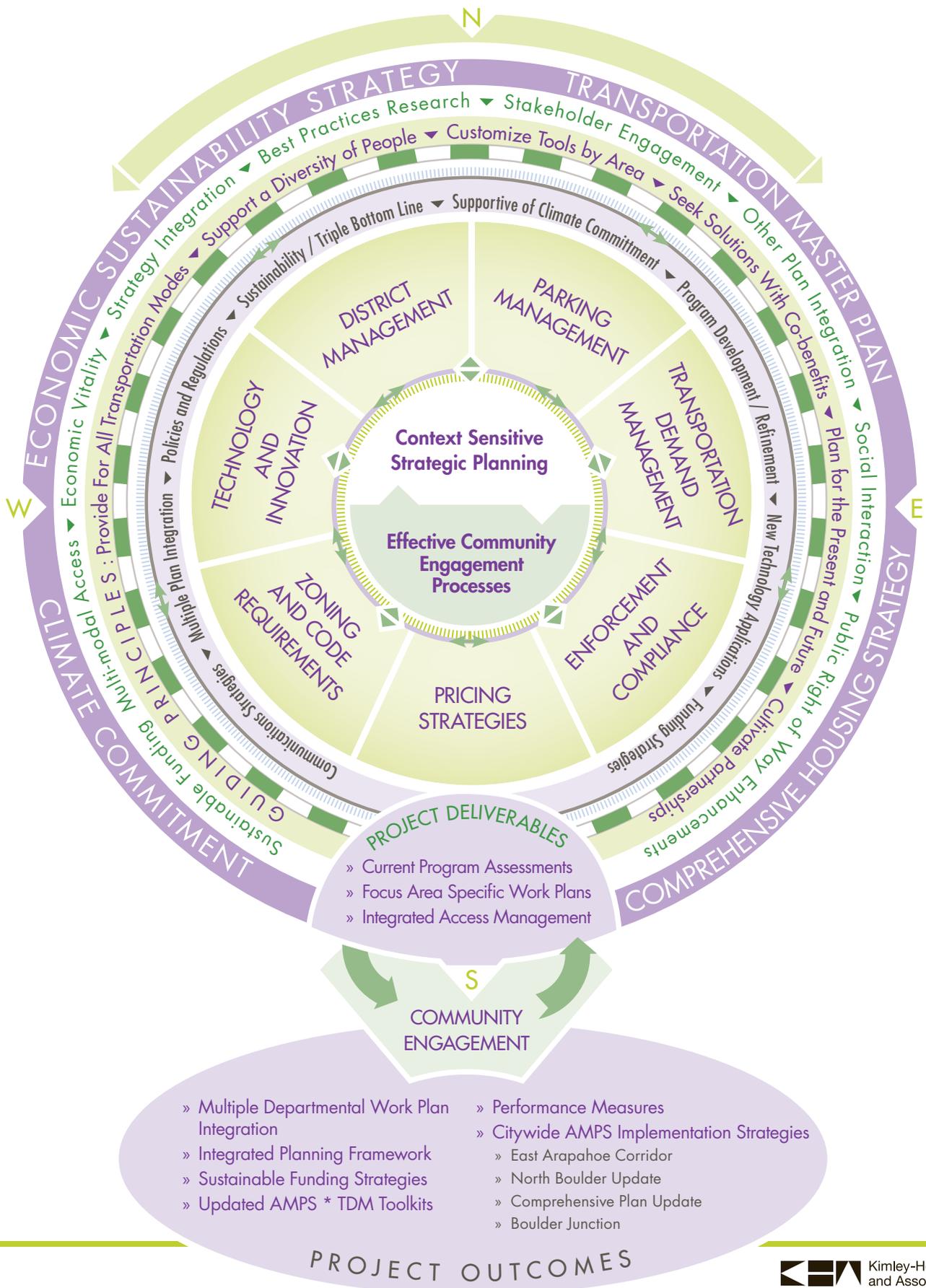


Draft Vision Approaches: GhG/VMT Reduction, Housing+Transportation Costs, Job Access Emphasis

Service Summary (GhG/VMT Reduction, H+T Cost, Job Access)						
Service Description			Cost Summary		Ridership and Productivity (2035)	
Project ID	Corridor Description	Service Type	Annual Operating Cost	Capital Cost	Total Annual Weekday Rides	Total Rides per Service Hour
Key Regional Corridors						
R1	US 36: Boulder - Denver	US 36 BRT	-	-	-	-
R2	Diagonal: Longmont - Downtown (via Canyon)	Rapid Transit	\$8.8 M	\$88.8 M	1,239,000	27.0
R3a	Arapahoe: Downtown - 28th (Local - CTN); 28th - Erie (Rapid Transit)	Local - CTN/ Rapid Transit	\$9.6 M	\$80.0 M	1,543,000	28.3
R3b	South Boulder Rd: Table Mesa - Lafayette	Rapid Transit	\$4.5 M	\$53.4 M	1,240,000	49.4
Regional Commuter Express Corridors						
R5	Boulder - Nederland	Express Corridor	\$1.8 M	\$2.6 M	319,000	34.7
R6	Denver - Flatiron	Commuter Express	\$3.5 M	\$6.8 M	310,000	16.8
R7	Denver - IBM/Gunbarrel	Commuter Express	\$4.5 M	\$11.7 M	701,000	29.8
Local Rapid Transit or High Frequency Service (CTN)						
L1	Broadway: Table Mesa - Downtown (Rapid Transit); Downtown - N. Boulder (Local - CTN)	Rapid Transit/ Local - CTN	\$5.4 M	\$7.0 M	3,484,000	83.8
L2	28th: Table Mesa - Valmont	Rapid Transit	\$1.6 M	\$2.1 M	180,000	14.5
L3	Central/West Circulator (HOP)	No Change	-	-	-	-
L4	Central/East Circulator (Extended/Bidirectional)	Local - CTN +	\$2.7 M	\$4.2 M	1,199,000	35.2
L5	Stampede (Extended/Bidirectional)	Local - CTN	\$2.3 M	\$3.1 M	536,000	30.3
L6	Pearl: Broadway to 28th	Local - CTN	\$0.6 M	\$0.7 M	204,000	42.5

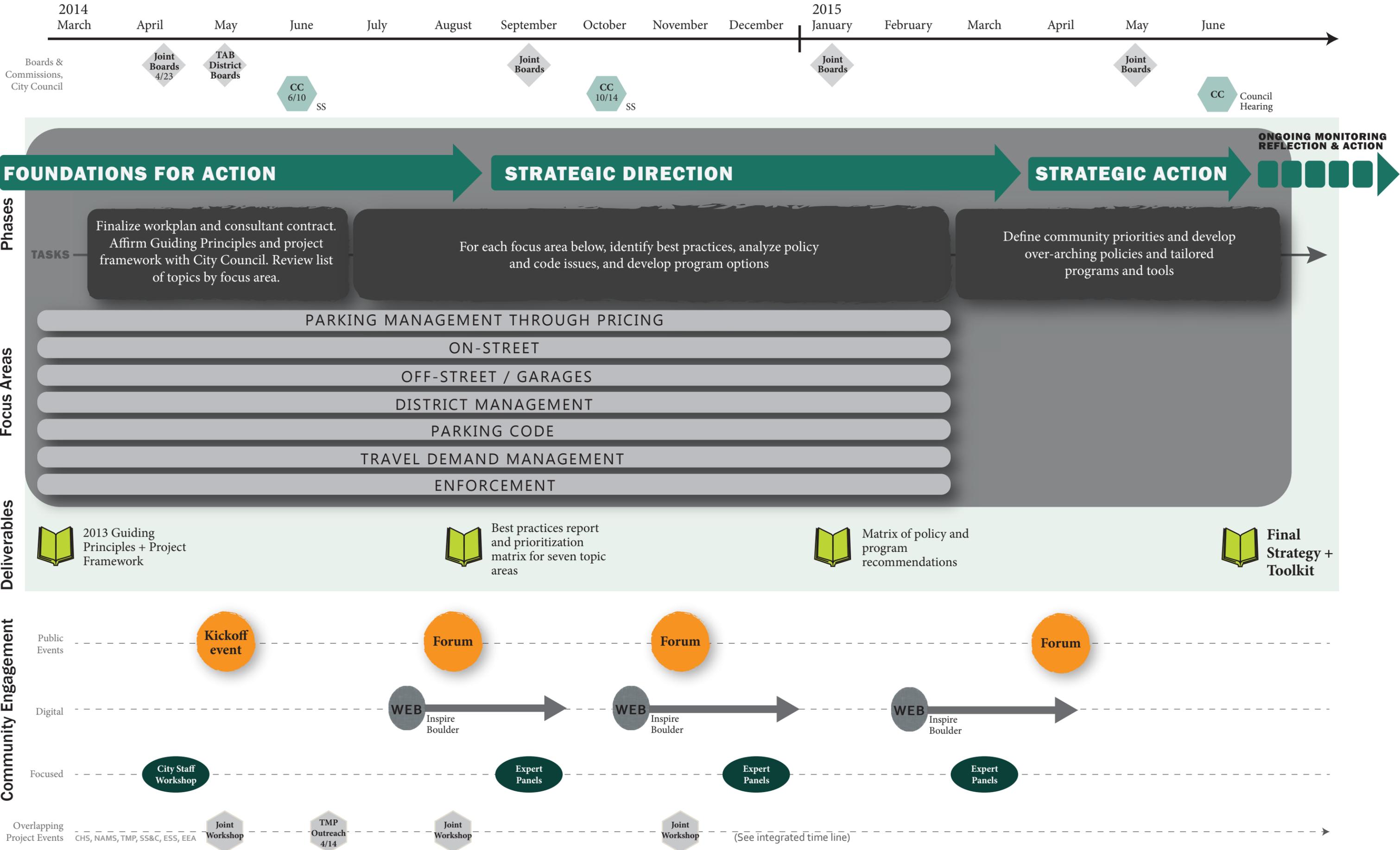
Approach Metrics	
Measure	Data
Annual Weekday Operating Cost	\$45.4 M
Capital Cost	\$260.5 M
Net New Annual Weekday Rides	6,277,000
Total Annual Weekday Rides	10,955,000
Total Rides per Service Hour	38.1
Operating Cost per Ride	\$4.33
Annualized Operating + Capital Cost per Total Rides	\$6.00
Annual VMT Reduced	20,397,000
Annualized Operating + Capital Cost per VMT Reduced	\$3.22
Annual GhG Emissions Reduced (MT) ¹	6,480
Housing+Transportation Costs ^{2,3}	76,100
Access to Low-to-Middle Income Jobs ^{2,4} (Work Location)	611,800
Access to Low-to-Middle Income Jobs ^{2,4} (Home Location)	181,100

- Notes:
1. From new transit trips
 2. Within 3/8 mile distance of corridors included in approach
 3. Number of households paying greater than 45% of income for combined housing and transportation costs
 4. Workers earning \$3,333 per month or less



Access Management and Parking Strategy Timeline

DRAFT
04/07/14



Draft Guiding principles: City of Boulder Transit Funds

The following principles are intended to guide future investment decisions for use of the City of Boulder transportation funds for transit.

Strategically Invest Local Revenues –

- **Invest Resources that are consistent with Transportation Master Plan Priorities**
- **Local revenues need to support local improvements** - Locally raised transit funds should benefit the local community.
- **Prioritize Operating and Capital Investments for Efficiency and Effectiveness –** Strive to achieve a cost-effective investment program that increases transit ridership and mobility.
- **Leverage public investments to achieve multiple purposes whenever possible -** The transportation system should also support other community goals such as environmental sustainability, economic vitality, and community health and energy independence.

Ensure Accessibility: The transportation system must be accessible and safe for users of all abilities and incomes.

Preserve Integrity of Community Transit Network – Branded, direct, frequent and user-friendly service attributes are the hallmarks of the CTN, which has increased ridership significantly. Maintain and expand CTN service attributes.

Emphasize Reliable and Predictable Transit Service: The reliability of the system and predictability of travel time are frequently as important as speed. Prioritize multiple multimodal options over reliance on a single option. Expand real-time travel information.

Cultivate and Expand Partnerships -

- **Develop and maintain effective regional partnerships and coalitions:** Regional transit is important to provide enhanced options to in-commuters to support the local employment base and improve air quality for Boulder residents and employees.
- **Coordinate and pursue regional partnerships that leverage local funds -** Improve regional transit to and from Boulder. Develop and maintain regional partners to help provide effective regional service and partner on funding.

Maintain “net” service hours in Boulder: During the last decade, there has been significant reduction in RTD transit service in Boulder.

- Ensure rebuilding of the local transit system to ensure “no net loss” of service hours and if possible, service expansion and enhancement to transit routes that are effective, productive, meet community needs and are consistent with the Transportation Master Plan.
- Some parts of the transit system may need to be reduced while other parts are enhanced or expanded to meet changing demand.
- As Boulder invests more in transit, assure that RTD does not divest resources.