

**Boulder City Council  
STUDY SESSION  
Televised**

**Tuesday  
November 29, 2016  
EARLY START  
5:30-9 p.m.**

**5:30-6 p.m.  
Update on Open Space Flood Recovery:  
Chapman Drive  
(This item does not have a memo.)**

**6-7 p.m.  
Review of Resilient Boulder Strategy and  
Summary of Public and Board & Commissions Feedback**

**8-9 p.m.  
Transportation Master Plan Progress Update:  
Emphasis on the Complete Streets Focus Area – Renewed Vision for  
Transit**

**Council Chambers  
Municipal Building  
1777 Broadway**

Submit Written Comments to City Council, ATTN: Lynnette Beck, City Clerk, 1777 Broadway, P.O. Box 791, Boulder, CO 80306 or Fax to 303-441-4478 or E-mail: [council@bouldercolorado.gov](mailto:council@bouldercolorado.gov)

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## MEMORANDUM

To: Members of City Council

From: Jane S. Brautigam, City Manager  
Tanya Ange, Deputy City Manager  
Mary Ann Weideman, Deputy City Manager  
Greg Guibert, Chief Resilience Officer

Date: November 29, 2016

**Subject: Review of Resilient Boulder Strategy and Summary of Public and Board and Commission Feedback**

### PURPOSE

The purpose of this memo is to provide Council an opportunity to review the draft Resilience Strategy, assess the changes identified during the public comment and Boards and Commissions review period, and suggest any additional changes for the adoption (acceptance) of the final strategy. The draft strategy is attached as Appendix A.

### QUESTIONS FOR COUNCIL

1. Does Council agree with the proposed changes to the strategy in order to address public and Board and Commission feedback?
2. Does Council have any suggestions for additional changes to the strategy?

### EXECUTIVE SUMMARY

100 Resilient Cities (100RC) is a global network pioneered by the Rockefeller Foundation to help cities around the world become more resilient to the physical, social, and economic challenges of the 21st century. Boulder joined the network as part of the initiative's first wave in 2013 and through its participation is committed to demonstrating leadership in resilience as well as leveraging the resources and opportunities it presents.

The objective of Boulder's Resilience Strategy is to provide a roadmap for building resilience in the city organization and community through strategic and targeted changes in how the city conducts business and makes decision. The strategy identifies core areas where the city's work has already helped advance resilience principles and established a strong foundation for future action; identifies specific actions for further embedding resilience principles and concepts into city operations; and defines an approach for developing an ethos of preparedness and vigilance in the community. The strategy was informed both by the substance of the Phase II focus area projects and the planning process successes and challenges that were encountered.

The strategy development process was divided into two phases: Phase I established the foundation for the resilience strategy. Phase II encompasses strategy creation, culminating in its adoption. This memo summarizes the resilience strategy document and provides an overview of the feedback and comments received during the public comment period and from boards and commissions. Finally, this memo also identifies specific proposed changes to the strategy based on feedback and asks Council for any additional revisions.

## BACKGROUND

Resilient Boulder supports the adoption and incorporation of a view of resilience that includes not just the shocks – floods, wildfires, violence, and other acute events – but also the stresses that weaken the fabric of a city on a day to day or cyclical basis, such as economic hardship or social inequality. By addressing both the shocks and the stresses in a holistic manner, a city becomes better able to respond to adverse events, and is better able to deliver basic functions in both good times and bad, to all populations.

The City Resilience Strategy should trigger action, investment, and support within city government and from outside groups. Rather than a static plan, the resilience strategy should be a living document to be continuously fine-tuned as priorities are addressed and initiatives get implemented.

100RC has outlined a general approach and methodology for developing resilience strategies that the city has used to customize a process according to community goals and capacity and in coordination with other city projects. Generally, the phases of work are as follows:

1. **Phase I (through May 2015): Preliminary Resilience Assessment.** The Preliminary Resilience Assessment (PRA) is a synthesis of the outputs and findings from diagnostic activities of Phase I. The PRA helps identify which activities are priorities for future analysis in Phase II. The findings of the PRA were provided to council at its study session on May 12, 2015. The memo for that study session can be found [here](#).
2. **Phase II (through early 2016): Strategy Development.** Activities in the second phase lay the foundation for the resilience strategy and were provided to council at its study session on September 17, 2015. The memo for that study session can be found [here](#). Development and acceptance of the Resilience Strategy document later this year will conclude Phase II.
3. **Phase III (in 2016): Early Implementation.** The remainder of 2016 will be dedicated to early implementation activities and ensuring financial sustainability of resilience activities beyond the initial 100RC investment.

Resilient Boulder's approach to development of the strategy was organized around three guiding tenets:

- **Integration:** Resilience as a concept and in practice must be deeply embedded into the practical operation of city government and as a routine, natural element of community activity. The strategy identified areas for immediate integration where relatively minor adjustments to existing policies or practices will have a magnifying impact across the community or the city as an organization.
- **Alignment:** Boulder has a long tradition of progressive land use planning, flood plain mitigation, and proactive climate action, among many other community values and priorities. The strategy seeks to align with and help advance these existing commitments and efforts, bringing specific

added value rather than creating entirely new processes, plans, or major investments.

- **Sustainability:** Building resilience is a never-ending process that needs ongoing infusion of new information about changing conditions, reassessment of community strengths and weaknesses, and continued social and financial investment or alignment.

## **SUMMARY OF THE RESILIENT BOULDER STRATEGY**

Through this strategy, and as reflected by the process leading up to the preparation of this document, the Boulder community will prepare and adapt to existing and future challenges by infusing resilience into the day-to-day operations and activities of residents, businesses and government. The vision presented in strategy is to build on a legacy of frontier innovation to cultivate a creative spirit to adapt to and thrive in a changing climate, economy, and society.

Based on assessment, analysis, and discussions, the strategy identifies four overarching complex resilience challenges facing the community:

- Natural events such as flooding and wildfires will become more frequent and severe as a result of climate change.
- Ecological and social stresses are tied to hazards and will negatively impact and exacerbate each other.
- Rising housing and commercial real estate costs may limit the diversity of residents and businesses and threaten long-term economic vitality.
- Boulder's residents, businesses, and government need to work together to be vigilant and prepared for future disruption.

Working collaboratively to create actions that achieve these interconnected strategies will help build a resilient and adaptive community that is better able to address the unpredictable impacts of environmental, social, and economic shocks and stresses.

The following three strategies represent the main action areas for the city:

- **CONNECT AND PREPARE** - Prepare all segments of the community for uncertainty and disruption by encouraging community preparedness, creating a culture of risk awareness, and personalizing resilience.
- **PARTNER AND INNOVATE** - Capitalize on the collective problem-solving and creativity of our community by leveraging advances in data, research, and observations to address emerging resilience challenges.
- **TRANSFORM AND INTEGRATE** - Embed resilience into city operations and systems by transforming our approach to community resilience.

The strategy outlines two types of activity for implementing the overarching strategies: Actions and Frontiers. Actions are immediate priority activities to be implemented over the next two to three years that take advantage of partnerships and resources catalyzed by the 100RC network and program. The actions being proposed are intended to be responsive to existing city priorities and bring a resilience lens and added value to projects and initiatives that are already underway. There are 15 actions identified in the strategy document across all three of the strategic areas. Frontiers, on the other hand, are transformative investments in community resilience that currently have no models to emulate,

represent complex areas for action, and/or require an extensive community conversation to be successful. There are three Frontiers identified in the document.

<b>Actions and Frontiers Summary Table</b>
<b>CONNECT AND PREPARE</b> - Prepare all segments of the community for uncertainty and disruption by encouraging community preparedness, creating a culture of risk awareness, and personalizing resilience.
1.1 Make Resilience Accessible: Deploy a community driven, interactive “Mobile Resilience Lab.”
1.2 Activate Volunteerism: Develop a volunteer community preparedness training program.
1.3 Assess Economic Strength: Identify risks to future economic vitality.
1.4 Prepare Businesses: Incentivize the use of continuity planning strategies with local businesses.
1.5 Connect for Rapid Recovery: Develop rapid post-disaster impact assessment capacity in partnership with the local business community.
1.6 Foster Artistic Engagement: Engage the creative power of the arts to convey and involve people in complex risk and resilience themes.
FRONTIER 1: Invest in the Future: Prioritize city investments to promote community resilience and proactively address future risks.
<b>PARTNER AND INNOVATE</b> - Capitalize on the collective problem-solving and creativity of our community by leveraging advances in data, research, and observations to address emerging resilience challenges.
2.1 Put Science in the Hands of the Community: Create a “citizen science” program to foster the co-creation of knowledge.
2.2 Ensure Food Security: Design and conduct a local food security assessment.
2.3 Make Data Accessible to All: Spur creative representation of data through investments in artistic visualization and knowledge display.
2.4 Crowd Source Solutions: Drive the creative use of community data through competitive challenges and hackathons.
FRONTIER 2: Envision the Future of Energy: Develop a sustainable, secure, and equitable energy system.
<b>TRANSFORM AND INTEGRATE</b> - Embed resilience into city operations and systems by transforming our approach to community resilience.
3.1 Create Community Resilience Centers: Ensure the continuity of all critical life-safety services at a network of community resilience centers.
3.2 Foster Climate Readiness: Build climate preparedness capacity across the city organization.
3.3 Advance Sustainability with Resilience: Integrate resilience principles into Boulder’s Sustainability Framework.
3.4 Embed Resilience in the Comprehensive Plan: Integrate resilience into the Boulder Valley Comprehensive Plan (BVCP).
3.5 Manage Thriving Ecosystems: Develop an integrated urban ecosystem management plan.
FRONTIER 3: Create Adaptive Social Services: Reduce homelessness by designing an adaptive and predictive social service network.

It is important to note that the Resilience Strategy is not a departmental master plan or a typical city work plan. As such, specific tasks, activities, or timelines that would be associated with individual

departments are not in this document. Each action and frontier is intentionally designed to be cross-departmental and, in most cases, relies in large part on active community participation in order to realize the full resilience value. However, a cross-departmental detailed action and work plan is being developed separately for 2017 and the remainder of 2016.

Through the actions identified here, the community will take steps towards addressing our resilience challenges, but these are not the first steps. These new actions add to ongoing and historic efforts in a way that brings intentional direction toward catalyzing change across all sectors of the community. Building community resilience is a never-ending process and requires constant adjustment to new conditions and opportunities. This collaborative approach will facilitate more robust information sharing and analysis, development of cross-cutting solutions, and strategic private-public partnerships.

### SUMMARY OF FEEDBACK

Immediately following the public release of the draft for public comment on April 28, 2016, staff formally presented the strategy to 11 Boards and Commissions. A summary table is provided below with minutes linked to each, where available.

<b>Boards &amp; Commissions</b>	<b>Meeting Date</b>
Downtown Management Commission	<a href="#"><u>5/2/2016</u></a>
Environmental Advisory Board	<a href="#"><u>5/4/2016</u></a>
Library Commission	<a href="#"><u>5/4/2016</u></a>
Transportation Advisory Board	<a href="#"><u>5/9/2016</u></a>
Open Space Board of Trustees	<a href="#"><u>5/11/2016</u></a>
Planning Board	<a href="#"><u>5/12/2016</u></a>
Human Relations Commission	<a href="#"><u>5/16/2016</u></a>
Water Resources Advisory Board	5/16/2016
Boulder Junction Joint Commissions	5/19/2016
University Hill Commercial Area Management Commission	5/19/2016
Parks & Recreation Advisory Board	<a href="#"><u>5/23/2016</u></a>

In addition to Boards and Commissions, Resilient Boulder solicited public feedback both at the April 28<sup>th</sup> launch event via a written form and online for a one-month period ending in late May 2016. Online feedback resulted in dozens of comments addressing multiple attributes of the strategy. Public feedback was also collected via one-on-one conversations, ad-hoc community discussions, and through advice and feedback garnered during other public engagements over the course of a 3-month period – June-August 2016.

Comments and feedback fall into four board categories:

1. Concerns about the look, tone, and feel of the document as a whole;
2. Specific suggestions to correct unclear, incomplete, or inaccurate content;
3. Broader suggested changes to address important missing content or concerns about the overall nature of the endeavor;
4. Comments that do not directly pertain to the document or are outside of the scope of the activities undertaken by Resilient Boulder.

For brevity, individual comments on similar topics have been condensed together to be illustrative of a larger point. Below is a table that summarizes the feedback and comments from all the boards and commissions, as well as the public input that was received. Next to each summary comment is a proposed remedy to be incorporated in the final document to be submitted to council for Approval in November 2016. The comments are organized by the four major themes described above. Finally, the table below only identifies feedback associated with concerns or omissions needed to inform final changes and therefore does not catalogue the positive response that has been received. Suggested remedies, therefore, are made with this balance between positive comments and the desire to make a change to the document.

<b>Look, Feel, or Tone</b>	
<b>Comment or Feedback</b>	<b>Suggested Remedy/Rationale</b>
The print size is too small; the text is too small	The document is available online; a separate, additional print run of the full final document is unlikely; additional graphically rich communication materials will be produced in 2017; additional materials will be translated into Spanish
The language around resilience is too vague; portions are hard to understand	Community resilience is a topic that resonates differently with each individual. Some minor text edits will be made to improve clarity; the street tree analogy on page 18 may be replaced or supplemented
A greater variety of people, urban themes, and community topics should be featured in photos throughout	No specific changes are suggested; in combination with other content changes suggested below, new photos may be included
The document feels too promotional; characterizes the community too favorably	No specific changes are suggested
<b>Specific Changes</b>	
<b>Comment or Feedback</b>	<b>Suggested Remedy/Rationale</b>
This resilience challenge “Rising housing and commercial real estate costs may limit the diversity of residents and businesses and threaten long-term economic vitality” should be expanded to include additional threats to community character and cohesion (page 5)	The suggested change will be made
The resilience challenges need to be tied more closely to the strategies; the icons could be used	Icons are used to create this linkage on the Actions summary page (page 44) and will be used

to strengthen the linkage	more extensively in future communication materials
The actions need additional detail; clearer next steps	A detailed action and work plan is being developed separately for 2017
The document should focus more on disaster/flood recovery; the focus should be on emergency management and preparedness	The strategy intentionally does not address specific hazards through targeted actions but instead focuses on building the institutional and collective community capacity to weather any severe event, most notably through Actions 1.1, 1.2, 1.4, 1.5, 3.1, and 3.2. Additionally, flood and fire recovery assessments are underway and will result in separate recommended actions by the emergency management and/or recovery teams
Action 3.5 should be expanded to be more inclusive of existing efforts to develop cross-departmental strategies around enhancing green infrastructure (page 41)	The suggested change will be made
“City Highlight: Fiscal Leadership” needs clarification to indicate whether it is a positive attribute and why (page 6)	The suggested change will be made and will indicate that Boulder’s generally conservative fiscal policies enhance the ability to absorb disruptions
The ‘strategy’ of the document is hard to find; the actions should directly address prevention and reduced exposure of wildfires and flooding	The strategy does not address reduced exposure to extreme events per se but instead focuses on preparing for and mitigating the effects of those events through building the institutional and collective community capacity. The FEMA-required Hazard Mitigation Plan (due for a 2017 update) will encompass many of these hazard-specific mitigation concerns
Action 3.5 should remove mention of the “urban” ecosystem if Open Space will be included in the integrated planning efforts (page 41)	The word “urban” will be removed from this action
<b>Broader Changes</b>	
<b>Comment or Feedback</b>	<b>Suggested Remedy/Rationale</b>
The historical framing around pioneer spirit and the frontier settlement explicitly fails to include a consideration indigenous history or perspective	The suggested historical/cultural context change will be made. The reference to “Frontiers” as transformative resilience investments will remain given the different connotation.
The prioritization of resilience activity should be grounded in an actuarial model	This is not currently possible given the range of social, economic, and environmental considerations that are not quantifiable; Action 3.2 (scenario-planning) is being developed to accommodate a wide-range of uncertainty in future planning
There is no mention of strengthening or assessing governance structures, policies, or accountability	The overarching intention of the activities proposed is embed and deepen a culture of

to be more resilient	resilience in all functions of government; specific analytical tools, metrics, and assessment methodologies are being developed as part of the actions, notably Frontiers 1 and 3 and Actions 1.3 and 3.2. An organizational assessment of the 2013 Flood recovery is being conducted as well
The document is missing a discussion of current water availability and management regimes as a community strength or vulnerability	The suggested change will be made
The actions associated with land-use and the Boulder Valley Comprehensive Plan should include specific consideration of planning themes such as 15-minute neighborhoods, sub-community level planning, and carless communities	Specific land use considerations and issues will be addressed through Action 3.4: Embed Resilience in the Comprehensive Plan; extensive public comment on that document will allow for ample consideration of this concern
<b>Outside of the Scope</b>	
<b>Comment or Feedback</b>	<b>Suggested Remedy/Rationale</b>
The resilience strategy should not be a vehicle to promote higher density development	Density is not addressed in the document; specific land use considerations and issues will be addressed through Action 3.4: Embed Resilience in the Comprehensive Plan; extensive public comment on that document will allow for ample consideration of this concern
The role of overpopulation and whether the community is too dense to be sustainable or resilient should be listed as a resilience challenge	Population growth is an important issue facing all communities along the Frontrange and is an important component of the scenario-based planning process proposed as part of Action 3.2, as well as an ongoing consideration in the Boulder Valley Comprehensive Plan update; the description of Action 3.2 will be modified to explicitly include other major drivers of change, such as population growth
The use of more qualitative approaches such as computer modeling, stress testing, and scenario-planning should inform the design and prioritization of the actions	Many of these approaches are foreseen in the implementation phase of various proposed actions, most notably Action 3.2: Foster Climate Readiness and the use of scenario planning and Frontier 2: Envision the Future of Energy with the use of infrastructure interdependency analysis, among others. However, robust and rigorous quantitative modeling for community resilience is nascent and extremely costly. It was beyond the scope and means of this project.
The strategy should consider the potential impact of an earthquake	The strategy intentionally does not address specific hazards but instead focuses on building the institutional and collective community capacity to weather any severe event.

	Earthquake risk, though quite small for Boulder, was considered as part of the Phase 1 assessment process.
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**QUESTIONS FOR COUNCIL**

1. Does Council agree with the proposed changes to the strategy in order to address public and Board and Commission feedback?
2. Does Council have any suggestions for additional changes to the strategy?

**PROJECT UPDATES**

Since the release of the draft strategy on April 28, 2016, staff have continued to work with community, regional, and national partners to develop detailed plans for actions proposed in the document. Because the actions that are presented in the strategy were selected and prioritized for their alignment with existing city efforts and ability to immediately add value to ongoing endeavors, many of them have proceeded into an implementation phase. Additionally, new opportunities have surfaced in the intervening 4 months. A selected set of project updates are summarized below:

**Action 1.1: Make Resilience Accessible**

The Mobile Resilience Lab launched during the summer of 2016 to test concepts and engagement techniques. The Lab was programmed and staffed by the Resilience Americorps service members and volunteers. They participated in a total of 12 outreach events over three months and engaged hundreds of residents around the concept of resilience. The Lab was set up at a variety of locations, including the farmer’s market, a senior center, Boulder Housing Partners sites, and neighborhood events. The Lab reached diverse residents, including children, elderly, low-income residents, and students.

In September, the Resilience Americorps team partnered with 12 students from the University of Colorado group, FLOWS, to conduct a training on how to install rain barrels and the importance of rainwater harvesting. FLOWS is a program that provides leadership training opportunities and green job skills for students and offers free water and energy upgrades for low-income Boulder residents. During the training, a total of six rain barrels were installed for low-income residents with the help of FLOWS students. Resilient Boulder, in partnership with Boulder Housing Partners, will make a total of 100 barrels available for free to BHP residents on a first-come, first-served basis. FLOWS members will be available to assist residents with installation.

*Next Steps:* In 2017, the Lab will be operated by the next cohort of AmeriCorps members and, pending grant funding, may operate out of a vehicle.

**Action 1.2: Activate Volunteerism**

In May of this year, Resilient Boulder and partners hosted two representatives from the Wellington Region Office of Emergency Management (WREMO) as part of a 100RC peer exchange focused on designing community preparedness programs and trainings. WREMO is recognized world-wide for their successful emergency management outreach course and supplementary engagement efforts, having reached over 10% of their population.

Using Wellington's successful program as our case study, Resilient Boulder developed *Better Together: An interactive course in disaster and community resilience*. *Better Together* was developed in close

cooperation with the City Manager's Office, the Police Department, Public Works, Fire/Rescue, Planning, Housing and Sustainability and the Office of Emergency Management, as well as community partners, BoCo Strong, United Way, and the University of Colorado. The 3-part course was offered in Oct. 2016 as a pilot initiative to solicit detailed feedback from an evaluation cohort. The specific goals of the course are to help our Boulder community develop a mindset of resilience; understand the emergency management process and develop realistic expectations of emergency responders; and build relationships in their neighborhoods around a common goal of being prepared to overcome hardships associated with natural disasters and other emergencies.

Initial feedback from course participants was very positive. Of the 24 original participants, there was a 92% retention rate between the first and second classes, and a 100% retention rate from class two to class three, for a total of 22 participants who completed the entire three-class course. 95% of participants who completed the course indicated that they "strongly agree" or "agree" that the *Better Together* course was informative and worthwhile. There was a general consensus that the highly interactive approach of the course allowed individuals to tailor the materials to their specific circumstances, despite having a cohort that was well diversified across all major attributes (age, gender, race, income, etc.). Finally, of the 22 participants who completed the course, 59% of them, or 13 individuals, set up informational interviews with Resilient Boulder staff to determine how they can remain involved in the program as a volunteer. More specifically, 6 were recruited to help as new Mobile Resilience Lab volunteers, 8 as potential EOC volunteers, and 9 indicated interest in the Neighborhood Grant Program, just to name a few of the volunteer opportunities presented to the class.

*Next Steps:* Incorporate feedback from the pilot cohort and finalize program materials. Offer the *Better Together* course three to five times to the community at-large in 2017. Place interested volunteers in programs applicable to their skills and interests.

### **Action 2.1: Put Science in the Hands of the Community**

Watson Foundation Summer Fellow, Isaac Deonarine, conducted extensive research on citizen science best practices, met with city departments and community stakeholders, and completed the fellowship by recommending a specific initiative to increase residents' knowledge of ecological processes and wildlife management. Wildlife observations, tracking, and monitoring was identified by various stakeholders across the city as well as a nonprofit partner, The Wild Foundation, as a knowledge gap during needs and gaps assessment. The specific data needs included: aggregation of information from many data points across a large area of land, education on human-wildlife interactions, and collective problem solving for a variety of wildlife issues (climate change, nuisance animals, zoning, biodiversity). The iNaturalist app was identified as a specific tool and data management platform as a way to help residents gather data by tracking wildlife sightings in the city. Currently, the resilience team is in the process of identifying specific goals various departments could address utilizing data gathered by residents on the iNaturalist platform.

*Next Steps:* Resilient Boulder is working with city and community partners to design a community-wide campaign around wildlife observations with an anticipated launch timed to coincide with Earth Week 2017.

### **Action 3.2: Foster Climate Readiness**

In September 2015, Council asked staff to investigate how “scenario planning” could be used explore ways to better account for climate change and other future uncertainties in planning and decision making. Scenario planning is a methodology that helps planners and decision makers consider how actions and choices made today may play out under future uncertainty. It is typically used to augment more traditional planning, which bases decisions on observed trends and generally accepted assumptions about how future conditions will evolve over time. Specifically, planners can use scenarios to consider how these divergent futures could affect their plans and use this improved understanding to develop contingency plans.

To meet Council’s directive, scenario-based planning was incorporated in the draft Resilience Strategy as Action 3.2 and city staff organized a series of four pilot workshops in 2016 with representatives from nearly all city departments. The first two workshops focused on the science of climate change and how it could manifest in Boulder. The second two workshops were facilitated by RAND Corp and used scenario planning methods to structure discussions on the vulnerability of Boulder to climate change and other future drivers, and it began an evaluation of developing scenarios to guide Boulder planning and decision making.

Scenarios are developed first by identifying key drivers of uncertainty —factors that could have important impacts on future outcomes—and plausible ranges for these drivers. Seven main drivers were identified through staff discussions:

- Climate
- Demographics
- Economy
- Technology
- Social Attitudes
- Regulation
- Infrastructure and Maintenance

There is sufficient overlap in the uncertainty factors influencing departments that a set of scenarios could usefully inform planning across the organization. At the city level, these scenarios initially could be used to compliment Boulder’s Climate Commitment in terms of envisioning variant climate futures. At the staff level, scenario planning could be used as a basis for a qualitative stress test of each department’s plans and could also help inform budgetary process.

*Next Steps:* In early 2017 staff will provide a report-out from the city climate workshops to the city Management Team and will include a summary memorandum from RAND Corp. Additionally, following the recommendations from the report, staff will begin to consider how the city might implement a more robust exploration process for incorporating scenario planning into the formal decision-making structures across the organization.

#### **Action 3.4: Embed Resilience in the Comprehensive Plan**

Climate, Energy and Resilience are among the focus topics for the major update of the Boulder Valley Comprehensive Plan (BVCP). Boulder’s partnership in the 100 Resilient Cities organization allowed the city to leverage consulting resources, HR&A Advisors, Inc., which prepared a report and recommendations (“Recommendations for Resilience Integration,” Revised Draft May 13, 2016) on addressing resilience in the BVCP. A summary of these recommendations includes:

1. Frame resilience as a guiding principle of the BVCP (along with sustainability) and convey a clear statement about community resilience. It should be a cross-cutting principle for the plan;
2. Encourage community and stakeholder engagement by adding new policies and directions that support risk education and preparedness;
3. Continue integrated planning across government departments and jurisdictions, institutional organizations, and the private sector; and
4. Establish measurable goals and integrated implementation strategies that build resilience value in the long term.

The planning team is working on the policies of the BVCP across city and county departments to ensure the updated BVCP policies in the Natural Environment, Energy and Climate, Economy, Transportation, Community Well-Being and Agriculture and Food sections better align with recently adopted plans or other policies, including the Resilience Strategy. Examples of policy edits include the addition of policies on Climate Preparation and Adaptation, Energy System Resilience and Economic Resilience, among others.

In addition, the Core Values section in the introductory chapter of the BVCP will include an overview of sustainability and resilience as an organizational framework for the plan's policies. The proposed reorganization of the BVCP will better align the sections of the plan with the Sustainability Framework and include new chapters on Safety and Preparedness as well as Governance, which will also feature new resilience policies.

The planning team is working closely on other focus topics for the plan update, which include the Built Environment and Housing sections of the plan. The exploration of various land use scenarios to address the jobs/housing balance and support climate action initiatives and resilience, among other sustainability principles, will inform edits to these sections of the plan.

*Next Steps:* For the remainder of 2016, activities will include discussion, review and input on policy edits with the governing bodies and advisory boards.

### **United Way Community Resilience Grants**

In August, Resilient Boulder submitted two grant proposals for Foothills United Way's Community Resilience Grants funding opportunity.

One proposal involves renovation of a school bus to house the City of Boulder's Mobile Resilience Laboratory. This grant envisions the purchase of a used school bus and modification of the interior to allow for a flexible learning and activity space, as well as to greatly facilitate the transport of activity materials. The city has learned through its experience with the launch of the block party trailer in early 2016 that having a vehicle or trailer which can be moved around the community generates excitement and creates program visibility. A vehicle will allow for a greater variety of programming, as well as the ability to lengthen the time that the community engagement or activity can occur. Finally, we will engage in a community art challenge for the design of the Lab's exterior as an additional method for deepening community ownership of the initiative.

The second proposal involves connecting neighbors through the expansion of the City of Boulder's volunteer-driven community preparedness and resilience course and supplying neighborhoods with Community Hubs in a Box to help individuals self-organize and self-sustain during crisis. A Community Hub in a Box is a physical box, placed in a community gathering space, that contains everything a

neighborhood would need during a disaster to gather and share information within the Hub and with emergency personnel, to gather and share resources and supplies within the neighborhood, and to help ensure everyone in the community is taken care of. These materials, coupled with the training that volunteers receive on how to use the items in the box, foster an environment of empowerment, helping to avoid the feeling of frustration felt by volunteers who want to help out during a disaster but don't know where to start.

*Next Steps:* Grant awards will be made in November 2016 and 2017 work plans will be adjusted accordingly.

**Department of Energy Grant Submission: Creating a Roadmap to Zero Emissions Households.**

This project aims to provide the City of Boulder and neighboring communities with a holistic understanding of the data needs and options available for encouraging zero emissions households. The objectives of this proposed project are to identify the data needed and create a replicable roadmap to inform city-level policies to encourage consumer uptake of energy efficient and renewable energy packages to create zero emissions households. As such, the outcomes of this project will be: a review of key findings from the Boulder Energy Challenge and Boulder Resilience Strategy to build out the targeting and analysis tool and developing a path for households, a stakeholder workshop to identify potential challenges and opportunities, field testing of data collection process, and a replicable roadmap for other municipalities to follow. The grant application proposes a project to create a roadmap to lead to zero emissions households. This project builds on the integration of 'energy as a service' bundling approach to reduce upfront cost barriers by creating a whole-energy system financed through energy savings and household cost reductions to achieve municipal level decarbonization and resilience goals. A new driver for municipalities is the integration of energy and resilience assessment metrics at the household level in an approach to address deep retrofit models. This project has the potential to transform the way data is collected at a residential level to influence data analytics and policy frameworks for cities developing clean energy strategies. This project aims to provide the City of Boulder and neighboring communities with a holistic understanding of the data needs and options available for encouraging zero emissions households. Partners include Boulder County, Colorado Resiliency and Recovery Office, Meister Consulting, National Renewable Energy Laboratory, and Snugg Home. The grant requested \$487,000 over a two-year period.

*Next Steps:* Boulder was not awarded this grant but is seeking additional funding sources and partnership opportunities.

**Resilience Value Realization (RVR): Integrated Planning Methodology**

In August, Resilient Boulder was invited by 100 Resilient Cities and the Rockefeller Foundation to test a new methodology for designing and managing complex resilience projects across multiple departments. The new methodology seeks to crystalize the resilience value of a project at the outset among a diverse team and, through intentional project design, to retain that value during all phases of project implementation and execution. The process builds on successful practice from the private sector.

*Next Steps:* Resilient Boulder will utilize the RVR planning method with support from 100RC and technical partners for at least one of the actions or frontiers identified in the strategy during early 2017.

**Resilient Together: Online Community Forum and Exchange**

Resilient Boulder, in partnership with [BoCoStrong](#), is pilot-testing an online community engagement platform made available through Australian company, [Bang the Table](#). Bang the Table's Engagement HQ

offers a range of digital tools to engage in collaborative learning, discussion, and debate. Over the course of the next 15 months, Resilient Boulder will test the ability various community engagement aspects of the platform to elicit meaningful and diverse interaction with the community. The online programming will be synchronized to amplify existing community engagement efforts, such as the Mobile Resilience Lab.

*Next Steps:* Resilient Boulder will launch the platform in November 2016.

## **NEXT STEPS**

Following Council feedback, a final version of the Resilience Strategy will be prepared and submitted for Approval in December 2016. The final document will reside online at [www.resilientboulder.com](http://www.resilientboulder.com) and an additional summary document will be published in English and Spanish. Resilient Boulder anticipates providing a full program update to Council in April or May 2017, timed to coincide with the 1-year anniversary of the strategy release. Additional programmatic updates will occur throughout the year as appropriate with work plan milestones and at the request of Council.

## **ATTACHMENTS**

**Attachment A: Resilience Draft Strategy** (Link found [here](#))

## **APPENDIX**

- A. City of Boulder Resilience Strategy Draft for Public Comment



## STUDY SESSION MEMORANDUM

**TO:** Members of City Council

**FROM:** Jane S. Brautigam, City Manager  
Maureen Rait, Executive Director of Public Works  
Michael Gardner-Sweeney, Director of Public Works for Transportation  
Kathleen Bracke, GO Boulder Manager  
Randall Rutsch, Senior Transportation Planner  
Jean Sanson, Senior Transportation Planner  
Natalie Stiffler, Transportation Planner II

**DATE:** November 29, 2016

**SUBJECT:** Study Session regarding the Transportation Master Plan Progress Update:  
Emphasis on the Complete Streets Focus Area - Renewed Vision for Transit

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### EXECUTIVE SUMMARY

The [2014 Transportation Master Plan](#) (TMP) was most recently updated in 2014 and serves as Boulder's vision for creating a safe and connected multimodal transportation system in support of the community's broader sustainability and resilience goals. The TMP provides the policy guidance for the city's annual work program and investment priorities. As part of council's approval of the 2014 TMP, staff committed to periodic discussions with council on implementation activities to ensure these match council priorities and expectations.

This study session provides council with an update on several aspects of the TMP with an emphasis on the Renewed Vision for Transit.

### Core Services and Safety Initiatives

First, staff is providing an update on the Transportation Division's core services and safety initiatives, including operations, maintenance, and capital projects. These core services support the city's Toward Vision Zero strategies and action items from the 2016 [Safe Streets Boulder Report](#) and the [Transportation Report on Progress](#). See **Attachment A** for details regarding activities related to the Toward Vision Zero and the NTMP. City Council agreed on November 15, 2016 to move forward with the transportation excise tax and impact fees for new development which will provide additional funding to the Transportation Division.

## **Complete Streets: Renewed Vision for Transit**

Second, this update provides an opportunity to highlight current and upcoming transit initiatives based on the TMP's [Transit Modal Plan](#) reflecting the Renewed Vision for Transit (RVT). The 2016 Transportation Report on Progress (RoP) shows that while transit ridership increased significantly with the implementation of the Community Transit Network (CTN) services, ridership has minimally increased since the mid-2000s as service hours have been reduced by the Regional Transit District (RTD). The RoP shows that the rate of mode shift away from the single occupant vehicle (SOV) needs to more than double to meet the TMP's objectives and Climate Commitment goals. Enhancing access to local and regional transit is particularly important for the regional travel of non-resident employees, as their SOV mode share has remained at 80 percent since 1991. The TMP analysis conducted in support of [Boulder's Climate Commitment](#) strategy illustrated the greenhouse gas (GhG) contribution of these long distance commuting trips, highlighting the need to focus on improving the regional transit trip. Encouraging more local and regional trips by transit assists the city in achieving a broad array of sustainability principles, including creating an accessible and connected, economically vital, and environmentally sustainable community.

More detailed information is provided for council feedback on the following efforts relative to the Renewed Vision for Transit:

1. **HOP Transit Study-** The RVT identified the need to examine the route and service provided by the HOP, after more than 21 years of service. A stakeholder committee has developed a set of four alternatives for potential HOP service modifications responding to existing conditions and demands, as well as future opportunities.
2. **East Arapahoe Transportation Plan-** Since the last full update to council at the December 8, 2015 Study Session, a community working group has been formed and has developed a plan purpose and project goals and objectives. The working group has considered a range of potential improvement elements for the corridor and is currently working on character districts and improvement options.
3. **US 36 Mayors & Commissioners Coalition Update-** The City of Boulder's participation in this regional coalition is an important element of building support and securing financing for completing regional travel options along US36, as well as developing a broader network of arterial Bus Rapid Transit (BRT) corridors as identified in RTD's Northwest Area Mobility Study (NAMS).
4. **Transit Service Delivery Analysis-** While the city currently supports local and regional transit through a variety of partnerships with Via Mobility Services, Regional Transportation District (RTD), University of Colorado (CU), Boulder County, and Fort Collins's Transfort, new strategies will likely be needed to implement the RVT. This study is examining the potential array of technical, fiscal, and governance structures to achieve the local and regional transit service, capital, and programs envisioned in Boulder's RVT and provide sustainable, enhanced levels of transit service for the community.

## **TMP Focus Area Updates**

Finally, this memo highlights other implementation efforts across the five TMP Focus Areas: Complete Streets, Regional Travel, Transportation Demand Management (TDM), Funding, and Integration with Sustainability Initiatives.

## **Questions for Council**

1. Does council have feedback regarding the Renewed Vision for Transit initiatives, including the following highlighted projects?
  - i.* HOP Study – top priority purposes, evaluation criteria, and draft alternatives
  - ii.* East Arapahoe Transportation Plan – project purpose, goals, objectives, potential design and management elements
  - iii.* US36 Mayors and Commissioners Coalition – policy agenda
  - iv.* Transit Service Delivery Model Analysis – key questions, assumptions, and draft scope of work
2. Does council have feedback regarding other current TMP implementation initiatives?

## **BACKGROUND**

### **Transportation Master Plan (TMP)**

The [Transportation Master Plan](#) (TMP) is the city's policy document establishing the goals, objectives and investment priorities for the Boulder community's vision of a multimodal transportation system. The 2014 TMP update and the [TMP Action Plan](#) are organized in five interrelated focus areas: Complete Streets, Regional Travel, TDM, Funding and Integration with Sustainability Initiatives. Focus Areas identify aspects of transportation where additional work is needed to meet the objectives of the plan.

The [2016 Transportation Report on Progress](#) shows the Boulder community is making good strides in areas such as increase travel by walking, biking, and transit by Boulder residents but shows little success in shifting the mode share of non-residential employees. More work is also needed to accelerate the pace of mode shift for both resident and non-resident employees if the city is to meet the objectives of the TMP and Climate Commitment. This is particularly true for non-resident employees as their SOV mode share of 80 percent has not changed since 1991. The impact of these long distance commute trips, averaging 28 miles a day, was shown in the GhG inventory and analysis conducted with the Climate Commitment team as part of the 2014 TMP update. On-going and projected increases in non-resident employees suggest that this will be a growing share of the city's GhG emissions unless regional transportation options are significantly enhanced. As the recent 45 percent increase in transit ridership on the US 36 BRT service shows, improved transit travel times and reliability can significantly increase ridership.

The 2016 Safe Streets Boulder Report provides the framework for the city's Toward Vision Zero (TVZ) safety initiatives that are designed to reduce collisions for people using all modes of travel, with the goal of achieving zero serious injury and fatal crashes. Work continues in all of the Engineering, Education, Enforcement, and Evaluation (the Four Es) components of the

program to achieve these goals per the action items identified in the 2016 report. In 2017, staff will accelerate the implementation of the TVZ safety initiatives as well as launch the city's update process for the Neighborhood Traffic Mitigation Program (NTMP), supported by City Council as part of the 2017 priority based budgeting process.

The Transportation Division continues to make progress in implementing the TMP through core services including operations, maintenance, and capital projects. Highlights from 2016 include continued implementation of snow and ice control improvements, the development of standard operating procedures across work groups, and increased hand weeding on medians.

Transportation staff has committed to periodic check-ins with council to ensure TMP implementation continues to reflect the city's priorities. This study session is the fourth such check-in since the August 2014 acceptance of the 2014 TMP update. Previous TMP-related study sessions occurred on [Feb. 24](#) and [Aug. 25, 2015](#), and [May 31, 2016](#). The next full TMP progress update is scheduled for April 2017.

## **ANALYSIS AND ISSUES**

### **Complete Streets: The Renewed Vision for Transit**

This City Council Study Session is highlighting the TMP focus area of Complete Streets, with an emphasis on receiving council feedback on the city's progress toward the "Renewed Vision for Transit" (RVT) component of that focus area.

The 2014 TMP created a new transit modal plan reflecting Boulder's RVT including a comprehensive set of policies and strategies to enhance local and regional transit service, associated capital improvements, policies and programs. These transit initiatives work in concert with broader multimodal transportation system improvements to advance the TMP goals and provide enhanced local and regional travel options for Boulder's residents, visitors, and non-resident employees. Work toward the RVT is guided by the near, mid, and long term work items identified in the TMP Action Plan. Progress to date on several key areas of the RVT, plus other current and upcoming transit initiatives are discussed in the following section.

#### ***1. HOP Transit Study***

The HOP service is considered the city's flagship route of the Community Transit Network (CTN), as it was the first of Boulder's nationally renowned network of innovative, uniquely branded, and community-designed transit service. Based on the success of the HOP, the city partnered with RTD, CU, and Boulder County to develop today's system of CTN services, including the SKIP, JUMP, DASH, BOUND, BOLT and STAMPEDE.

The current study builds on the many years of successful operation of the HOP and CTN by looking at new ways to enhance the customer experience and address changes in land use and transportation options occurring over the last two decades. Since staff's last check-in with the Transportation Advisory Board (TAB) and council in May 2016, the HOP study project team has collected ridership data to establish existing conditions and trends and shared this information with the Stakeholder Committee, developed a set of draft alternatives based on the Stakeholder

Committee's goals and priorities for the HOP, and reviewed the set of alternatives in relationship with the evaluation criteria.

The draft evaluation criteria for the HOP based on the top-priority purposes identified and prioritized by the stakeholders are shown below:

1. Maximize ridership
2. Reduce carbon emissions by being competitive with driving
3. Cover streets that have no other service nearby
4. Reduce household/student transportation costs
5. Offer a fun experience riding the HOP

The draft evaluation criteria include the following:

- Operating cost
- Fleet requirements
- percent of residents and jobs within a quarter mile access to frequent service
- percent of residents and jobs within a quarter mile access to any service
- Level of service during commute times for service workers
- Ability to respond to future ridership demand

Based on the stakeholder input, staff developed four draft alternatives, in addition to the no change alternative, to create a range of possible futures for the city's and partner agencies' investment in HOP service. The draft alternatives would require varying degrees of operational changes and infrastructure, such as layover places, turn-arounds or new stops. Two of the four new alternatives have costs within \$100,000 of the existing 2016 HOP budget. In September and October 2016, the Stakeholder Committee reviewed the draft alternatives and participated in a polling exercise regarding preferences. The results indicate that the stakeholders are in support of modifying the existing HOP loop route into separate segments to provide more direct and uniquely designed service to/from key destinations and providing the ability to extend service farther from the center of the city, e.g., north on Folsom and east on Pearl. The stakeholders indicated preference for consistent and reliable frequencies on weekdays and weekends, and longer spans of service all year long. More detailed information regarding the HOP study is provided in **Attachment B**.

### ***HOP Transit Study Next Steps***

Upcoming work will refine the set of draft alternatives based on stakeholder, TAB, council, and broader community input. Staff will conduct pop-up events focused on CU campus and other key areas to gain community input. In addition, city staff is partnering with Whittier Elementary through Growing Up Boulder to engage English Language Development students on how to improve the HOP for the youth in our community. The fall and winter months will be spent gathering broader community input on the draft alternatives for the HOP and opportunities to

enhance the future design/branding for the HOP service and stops. Future stakeholder meetings in late 2016/early 2017 will be held to receive input on a preferred design alternative(s) and implementation strategies regarding stop locations, vehicles, and branding. Staff will return to TAB and council in early 2017 for input on a final preferred design alternative for the HOP and to discuss budget needs for possible implementation in 2018.

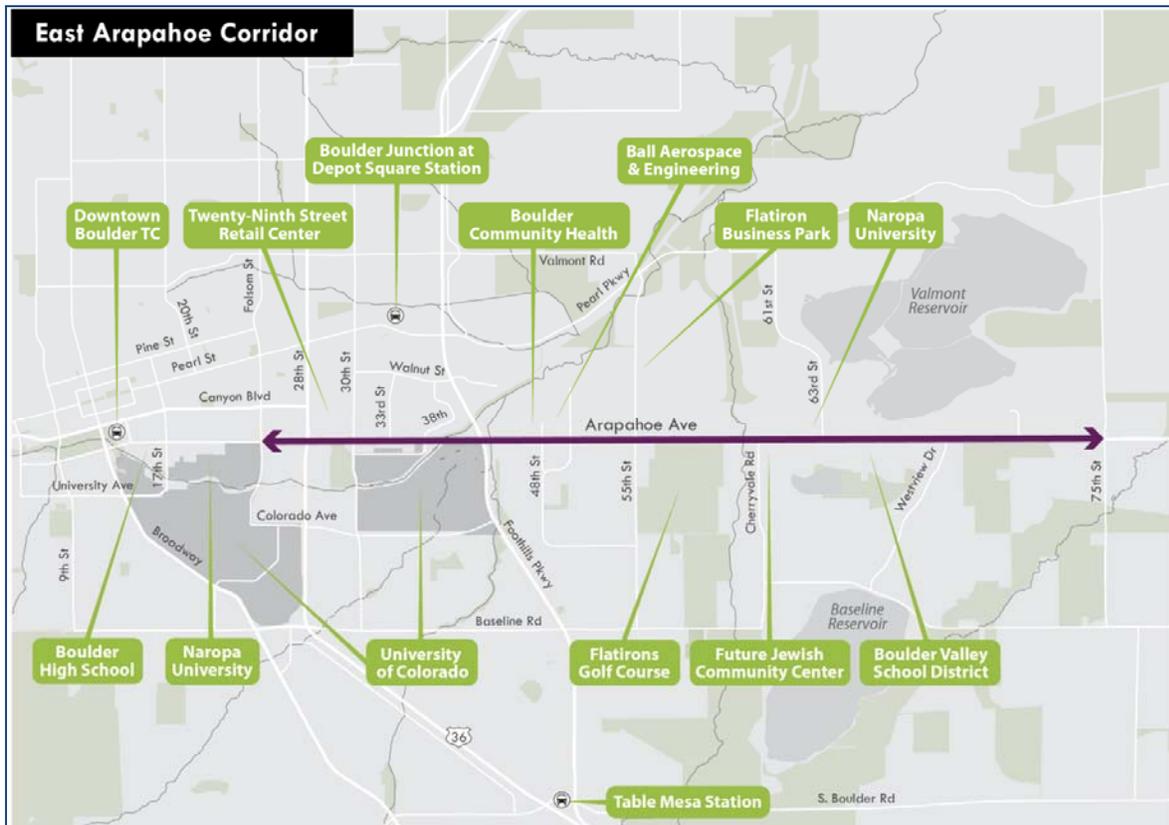
**Question for Council about the HOP Transit Study**

1. Does council have feedback regarding the Renewed Vision Transit initiatives, including the following highlighted projects?
  - i. **HOP Study – top priority purposes, evaluation criteria, and draft alternatives**

**2. East Arapahoe Transportation Plan**

The East Arapahoe Transportation Plan planning process is well underway and the project team is in close coordination with the Boulder Valley Comprehensive Plan (BVCP) update to consider future land use scenarios and the integration of these scenarios with the potential transportation improvements under consideration. **Error! Reference source not found.** illustrates the East Arapahoe Transportation Plan study area between the Downtown Boulder Transit Center and 75<sup>th</sup> Street.

Figure 1: East Arapahoe Transportation Plan Study Area

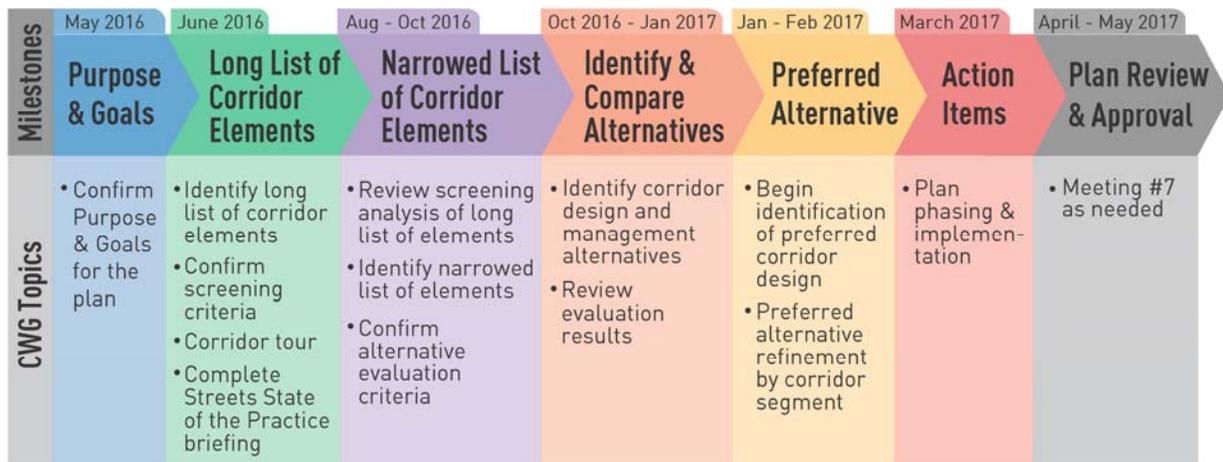


The project team is working with the project Community Working Group to refine the project purpose, goals and objectives as well as narrow the long list of potential design and management elements being considered to achieve the goals of the plan. Design elements are physical improvements along the corridor such as enhanced landscaping, bike facilities and roadway configurations. Management elements refer to strategies that influence people’s time, route or mode of travel, such as transit service, shared-use mobility and parking management. The project team will carry forward for further consideration those elements that align with the project purpose and goals and meet basic feasibility, cost and safety criteria.

**East Arapahoe Transportation Plan Next Steps**

**Figure 2** illustrates the planning process and schedule, as well as Community Working Group meeting topics.

Figure 2: East Arapahoe Transportation Plan Schedule & Process Diagram



The next steps in the planning process will be to engage the broader community and local and regional agency partners in developing and refining a set of alternatives – or packages of design and management elements – for more detailed evaluation, comparison and refinement. More detailed information regarding the East Arapahoe Transportation Plan, including a summary of the Community Work Group process and input, is available in **Attachment C**.

Upcoming activities for the East Arapahoe Transportation Plan include the following:

- Fall 2016 - Conduct community outreach events to obtain input and feedback on the results of the initial screening.
- Winter 2016 - Collaborate with the Community Working Group to identify alternatives (packages of design and management elements) for detailed evaluation and comparison in Winter 2016/17. Continue coordination with Boulder County’s SH 7 regional corridor study.
- Spring 2017 - Seek City Council input on selection of preferred alternative as well as potential phasing plan for implementation of corridor improvements over time, in coordination with broader SH7 coalition.

- Continue on-going coordination with multi-departmental staff team, including collaboration with the Boulder Valley Comprehensive Plan update process, as well as with Boulder County, Colorado Department of Transportation, Regional Transportation District, and other agency partners.

***Question for Council about the East Arapahoe Transportation Plan***

- 1. Does council have feedback regarding the Renewed Vision Transit initiatives, including the following highlighted projects?*
  - ii. East Arapahoe Transportation Plan – project purpose, goals, objectives, potential design and management elements*

**Transit Policy Areas**

***3. US 36 Mayors & Commissioners Coalition Update***

The City of Boulder continues to actively collaborate with the US36 Mayors and Commissioners Coalition (MCC) to address regional transportation needs. The MCC works from a consensus building approach and includes elected officials and staff from the communities along with US36 corridor, as well as Longmont, Erie, Lafayette, and Adams County. The MCC advocates for federal, state, and regional policy that is informed by RTD’s Northwest Area Mobility Study (NAMS). That study identified multimodal improvements remaining along US36 as well as new regional arterial Bus Rapid Transit (BRT) along SH119, SH7, US287, SH42, and South Boulder Road. The MCC elected officials meet monthly to review key regional policy and funding related items, and annually and/or as needed to participate in meetings with state legislators and federal congressional delegation. Boulder’s representative to the US36 MCC is Mayor Suzanne Jones, supported by staff from the City Manager’s Office and the Transportation Division. See **Attachment D** for a copy of the US36 MCC policy agenda and consensus document.

***Question for Council about the 36 Mayors and Commissioners Coalition***

- 1. Does council have feedback regarding the Renewed Vision Transit initiatives, including the following highlighted projects?*
  - iii. 36 Mayors & Commissioner Coalition – policy agenda*

***4. Transit Service Delivery Analysis***

The Renewed Vision for Transit (RVT) expands both local and regional transit connections. An implementation challenge for this transit vision is that the current service model, which relies heavily on the RTD for both local and regional transit service, is constrained to a level that does not meet community expectations. RTD staff is currently sharing with its regional partners that they are facing financial challenges, particularly with the recent opening of the many new FasTracks passenger rail lines. Their current and projected revenues are falling short of forecasts, and RTD is planning to reallocate resources from the remaining FasTracks implementation funds

as well as from their base operating system (bus transit) to support the operations of the new passenger rail service. RTD's limited resources and competing regional priorities means that the city needs to seek new/additional partnership opportunities to fulfill the RVT and TMP goals.

The city's TMP Action Plan calls for exploring alternatives for implementing the RVT. Transit Service Delivery Analysis will ask two primary questions:

1. How can the current service delivery structure deliver the future local and regional transit connections, and where are the challenges?
2. What are potential alternative funding, operating and governance/partnership structures that can optimize opportunities to implement Boulder's Renewed Vision for Transit?

The following key assumptions form the basis for the study:

- **Purpose:** The city is continuing to put more local funds into RTD, but is getting less transit service. To advance Boulder's RVT, the city needs to look at expanded and/or new transit service delivery models. In addition to confirming that the status quo model will not fulfill the city's TMP and sustainability goals, the study will assess the financial, technical and structural/organizational aspects of potential new models.
- **Goal:** It is the goal of this study for the City of Boulder to collaboratively work with regional and local partners to explore and assess all transit service delivery options and to recommend one or more options for moving forward for consideration by the city.
- **Partnerships:** It is a priority of the City of Boulder to maintain a partnership with RTD, Boulder County, CU, Transfort, Via and other local and regional agencies to accomplish the Renewed Vision for Transit.
- **Complementary solutions:** New partnerships and service delivery models should augment the existing transit network and create a layered network approach to provide a multimodal transportation network.
- **Fiscal responsibility:** A new service delivery model should prioritize the efficient use of public dollars and should leverage local and regional resources.
- **Timeframe:** The study should identify both short and long-term strategies for implementing a new transit service delivery model(s).

### ***Draft Scope of Work***

The work proposed for the Transit Service Delivery Model Analysis includes three phases and extensive community involvement.

#### ***Phase 1: Renewed Vision for Transit Implementation Assessment***

The first phase of the study is beginning this fall and includes an updated financial analysis of current and planned transit service per the RVT. This financial analysis will also help to inform policy discussions related to city-wide transportation operations and maintenance funding and a potential head tax exploration. The analysis will consider current and planned

service levels, funding sources and share of funding inputs versus service outputs to determine current and future funding inequities and/or gaps in service delivery.

This phase will also include an assessment of where the community is relative to accomplishing the RVT and what service planning, programs and operating and capital requirements are yet needed to achieve the RVT Action Plan and 2014 Transit Modal Plan. Acknowledging that the RVT is an aspirational plan that will require an incremental approach to implementation, this phase of the study will prioritize local and regional plan elements to be phased over time and assess the current and future financial gaps in service delivery.

### Phase 2: Transit Service Delivery Analysis

This phase of the study will include a peer review to understand lessons learned from other jurisdictions who have implemented local funding and governance initiatives or restructured their partnerships with regional transit service providers. It will also establish the goals for transit service delivery by which alternate structures can be measured.

The focus of this phase is to identify and analyze alternative transit service scenarios and related fiscal impacts. Options for restructuring transit service could range from ideas like the city and Boulder County establishing and operating consolidated transit service, to the city taking over local transit management and operations of the CTN system, to forming a new regional transit authority with a new taxing district. The study will include a detailed analysis of these and other service delivery scenarios to understand and evaluate costs, benefits, opportunities, and challenges.

### Phase 3: Refinements & Recommendations

This phase will include an analysis and recommendation to carry forward one or more preferred scenarios. It will involve a detailed financial analysis and recommended sustainable funding mechanisms to support the operations for the preferred governance model(s). This final phase will conclude with recommended next steps and a timeframe to implement.

### All Phases: Community and Agency Outreach and Engagement

The study will create a community and agency engagement process that ensures involvement and input by all stakeholders, interested parties, affected publics, and others into the development and recommendations of the study. Early in the study, the project team will identify the specific membership of committees proposed for the public and agency coordination process and what role each will play in decision-making for the project. Examples include a Technical Advisory Committee with membership from multi-department and multi-agency staff and a Policy Advisory Committee with membership from TAB and/or City Council.

A multi-pronged outreach approach will engage a broad cross-section of stakeholders while simultaneously working closely with a core group of interested and influential stakeholders. All outreach will be strategically tied to the milestones in each phase of the project and will seek to:

- Provide clear and consistent messaging to all stakeholders and audiences regarding the study status and milestones.
- Proactively communicate all opportunities for involvement to the public using both traditional and online communication tools.
- Generate accurate and timely media coverage of the study.
- Help ensure partner agencies and the public is aware of opportunities to provide input that is integrated into decision-making at key milestones.
- Support positive and productive two-way engagement between the city staff and stakeholders.

***Next Steps for Transit Service Delivery Analysis***

**Figure 4** below shows the proposed schedule for this study.

*Figure 4. Draft Schedule*



***Question for Council about the Transit Service Delivery Analysis***

1. Does council have feedback regarding the Renewed Vision Transit initiatives, including the following highlighted projects?
  - iv. ***Transit Service Delivery Model Analysis -- key questions, assumptions, and draft scope of work***

**TMP Focus Area Updates**

***TMP Focus Area: Additional Complete Streets Initiatives***

***North Boulder Mobility Hub***

The project team has continued work with RTD, Boulder County and CDOT to develop the North Boulder mobility hub – envisioned as a high-quality multimodal transit center and an

enhanced gateway into the city at the intersection of North Broadway and US36. The site will be transformed into a multimodal transportation hub to better serve the North Boulder area, which includes linking to local and regional transit routes. Draft concept plans provide a combined set of transportation services on one site; including a transit station and bus turnaround, Boulder B-cycle, a Bike-n-Ride shelter, car share services and place-making elements, such as architectural and sculptural gateway features. The goal of the mobility hub is to provide seamless mobility by fully integrating the city's expanding transit network with all modes of transportation. An example of the draft concept plans is shown in **Figure 6**.

The project team is currently working with CDOT to find alternate site for road maintenance materials storage that is currently housed on the site of the future mobility hub. Staff will share draft concept plans with the public in fall/winter 2016-17 in conjunction with the North Broadway Reconstruction Project. Community input and feedback will help shape the preferred alternative for further refinement and detailed site design.

*Figure 6. Conceptual schematic of North Boulder Mobility Hub*



### ***Railroad Quiet Zones***

In response to concerns expressed by community members regarding the impacts of train horn noise, city staff is working with agency partners to pursue the implementation of “quiet zones” for railroad crossings impacting Boulder. Council received an update regarding this project as part of the [June 7, 2016 Information Packet](#), as well as in recent Heads Up information.

Quiet zones are at-grade railroad crossings that include physical infrastructure and warning systems so that train engineers are not required to sound the train horn at the crossing. The city has been awarded approximately \$1 million in grant funding from the Denver Regional Council

of Governments to advance quiet zones for the Boulder community. Staff is updating a 2014 technical study and cost estimates, and is beginning a public engagement process to inform a prioritization and phasing plan for implementation. Staff will seek input on a number of factors to consider when prioritizing the quiet zone crossing improvements, including the number of people living and working within 0.5 miles of the railroad crossings, type and proximity of adjacent land uses (existing and/or planned), as well as street characteristics, safety and costs for installation, plus any potential ongoing maintenance responsibilities.

#### Upcoming Quiet Zones Engagement:

- Fall 2016 – As part of an initial awareness phase, staff is using a variety of communications channels (website, social media, emails, etc.) to inform the community about quiet zones, the project process and upcoming opportunities to provide input. Consistent with this approach, staff attended a recent neighborhood meeting hosted by the Kings Ridge area neighborhoods to provide more information about quiet zones and the city’s planning process. Approximately 50 residents attended and based on feedback from the host and attendees, people received helpful information and clarity on upcoming process and how to stay involved.
- December and January – During the beginning of the engagement phase, staff will seek community input for the quiet zone planning process, including opportunities for public input to assist with prioritizing the railroad crossings being considered for quiet zones. This will kick off at a city hosted public meeting, scheduled for the evening of Thursday, Dec. 15, at the Hyatt hotel at Boulder Junction.

#### Project Timeline:

- Late 2016 to early 2017 – Staff will update the technical study and cost estimates, begin a community engagement process to identify and prioritize quiet zone crossing improvements, develop phasing plan for implementation, and continue to pursue additional funding strategies.
- Spring 2017 – Update to Transportation Advisory Board and City Council
- Mid-2017 to 2018 – Selection of crossing location(s), crossing improvements, and conduct final design, engineering and permitting process with BNSF, the Public Utilities Commission (PUC), Federal Railroad Administration (FRA) and other agencies.
- 2018 to 2019 – Construction of selected quiet zone crossing improvements.

**Attachment E** provides a copy of the city’s Railroad Quiet Zone update, including a map of the railroad crossing locations that are being studied for potential quiet zones. Additional information regarding railroad quiet zones, including copies of the quiet zone study reports, are available on the city’s [Railroad Quiet Zones website](#).

#### ***Community-Wide Eco Pass***

The Community-Wide Eco Pass Program efforts will continue through participation in RTD’s Pass Program Working Group. The purpose of the working group is to evaluate existing pass programs of all kinds in the RTD system and provide feedback about the viability of new pass

programs. The Community-Wide Eco Pass program will be discussed as part of this working group, and group members are expected to have access to Smart Card data to evaluate programs.

At this time, RTD has selected a facilitator for the working group and is now in the process of forming the stakeholder group, which will consist of up to 25 members from throughout the district. Councilmember Young has been approached by RTD to participate on behalf of the city in this working group. Stakeholder interviews will take place in November/December and the first meeting is expected to be held in January 2017.

### ***Complete Streets Practitioner Panel Event***

On Oct. 19, 2016, the City of Boulder hosted a national practitioners panel as part of the city's "Connecting People and Places – Sharing the National Experience" panel series. Representatives consisting of staff, elected officials, and researchers from Austin, TX; Cambridge, MA; Davis, CA; Denver, CO; and Eugene, OR, visited Boulder to share their experiences. The event consisted of the following activities focusing on local transportation projects while exploring lessons learned at the national level:

- Kick-off tour for two new corridor studies on Colorado Avenue and 30<sup>th</sup> Street
- Project open house for current Complete Streets projects and programs
- The panel event, which brought together experts from around the country to discuss the multi-faceted elements of implementing Complete Streets projects in a collaborative learning environment

### ***Canyon Boulevard Complete Street Study***

Since the May 31, 2016 City Council Study Session, the project team has completed an assessment of the conceptual design options to move forward in selecting a design alternative. The assessment process resulted in three design alternatives plus a "No Build" option that will be shared this fall for community feedback. This assessment process began with a first level of screening where the conceptual options were compared to existing conditions and the other options to identify the best design alternatives for Canyon Boulevard. The team also included a previously considered idea of repurposing a lane for a transit and a bicycle lane and the idea of providing a center running bus rapid transit only lane in addition to the four vehicular lanes. Following the next phase of community engagement this fall, these design alternatives will be presented to the related advisory boards and commissions for their input. This information will be provided to City Council for their feedback on the design alternatives at a study session that will be scheduled in early 2017. For more information, see [Canyon Boulevard Complete Streets Study website](#).

### ***Upcoming 30<sup>th</sup> and Colorado Corridors Study***

The 2014 TMP also identified the need to study the 30th Street and Colorado Avenue corridors. This study will examine the transportation conditions and needs for Colorado Avenue, from Foothills Parkway-Broadway/Euclid; and for 30th Street, between Baseline Road to Pearl Parkway. The study will develop and evaluate conceptual transportation design options to improve travel for people walking, bicycling, riding transit and driving. This corridors study will begin later this fall and will be conducted in conjunction with the design of the 30th and Colorado bicycle and pedestrian underpass project. This project was awarded federal

Transportation Improvement Program (TIP) funds in 2015 and is anticipated to begin construction as early as 2018 or 2019.

### ***General Capital Project Updates***

The Transportation Division is responsible for the multimodal capital projects as outlined in the city's Capital Improvement Program (CIP). These projects are identified through the TMP planning process and prioritized in the three TMP investment program levels (current, action, and vision) based on a variety of criteria aligned with the TMP objectives and city's overall sustainability goals. As funding is identified for these projects, they move forward into the planning, design, and construction phases managed by Transportation's Capital Projects team.

There was an increased number of transportation improvements made from 2012-2015 due to the Capital Improvements Bond passed by voters in the November 2011 election and all of these projects were finished within the bond deadline. The majority of the bond funded transportation projects focused on infrastructure maintenance including the pavement reconstruction of Arapahoe Avenue from 15<sup>th</sup> to Folsom, increased resurfacing of collector and local streets, replacement of substandard signs and the irrigation system for the medians and landscape areas adjacent to Foothills Parkway. Funding was also spent to replace traffic signal incandescent lamps with LED lamps which use 80 percent less energy, and went towards system enhancements including additional pedestrian crossings, intersection improvements, new multi-use paths and sidewalks and improvements to the downtown Boulder transit station.

Following is a brief listing and status summary of current capital improvement projects for Transportation. A map showing the location of these projects is included in **Attachment F**.

#### *28th Street (between Iris and Yarmouth Avenues)*

Status: This project was completed in the summer 2016.

Description: Built a multi-use path, multi-use path bridge, bike lane and widened a vehicular bridge over Four Mile Creek.

#### *Diagonal Highway Reconstruction (between 28th Street and Independence Road)*

Status: Project will be completed by the end of fall 2016.

Description: Reconstructs vehicle traffic lanes, adds protected bicycle lane and multi-use paths.

#### *Andrus to Airport Multi-use Path (between Andrus and Airport Roads)*

Status: Anticipated to begin construction in winter 2017.

Description: Extends 63rd Street multi-use path to Airport Road and connects a missing link between Gunbarrel area and urban Boulder.

#### *Frontier Avenue Bridge Replacement (between Pearl Parkway and Pearl Street)*

Status: Project was completed in spring 2016.

Description: Replaced a deteriorated bridge with a new bridge and adds sidewalks.

*Boulder Creek at Arapahoe Avenue Pedestrian Bridge Replacement*

Status: Anticipated to begin construction in winter 2017.

Description: Replaces a deteriorated pedestrian and bicycle bridge with a new bridge.

*Baseline Underpass (baseline Road, between Broadway and 27th Way)*

Status: Project will be completed in spring 2017.

Description: Builds an underpass to replace the current street-level pedestrian and bike crossing to improve safety.

*Hanover Avenue Multi-use path (between Broadway and 46th Street)*

Status: Project was completed in summer 2016.

Description: Builds a multi-use path and adds curb extensions and marked crosswalks.

*29<sup>th</sup> and Valmont Intersection (Valmont Avenue, between 28<sup>th</sup> Street and 30<sup>th</sup> Street)*

Status: Project will start in fall 2016 and be completed in spring 2017.

Description: Reconstructs Valmont, builds new turn lanes, wider sidewalks, and a new traffic signal.

***TMP Focus Area: Transportation Demand Management (TDM)***

City staff collected additional parking supply and demand data in the spring and summer of 2016 to evaluate the effectiveness of a sample of existing TDM plans implemented through the city's development review process. The primary reasons for conducting this evaluation are to determine if the existing TDM plans are being implemented and to understand their impact on the travel behavior of residents or employees at those developments. Staff surveyed nine commercial and seven residential developments that were required to submit TDM plans after going through the city's site review process. All developments have been completed and were occupied before 2008. Employers and property managers were interviewed and employees and residents were surveyed.

The resulting report clearly shows that there is a disconnect between what the developers are required to do and what is communicated to the future tenants and property managers regarding on-going responsibilities for offering and monitoring the on-site TDM programs. Requirements that are tied to capital infrastructure or financial guarantees have been implemented at a higher rate than the requirements that rely on the tenant/property management company implementing a program or service for its employees or residents over time. The report also highlights the difficulty of conducting evaluations with tenants that are unaware of requirements and where managers do not have a means to distribute surveys electronically. Despite providing incentives to respond to the surveys, response rates were generally low, which in turn impacts the reliability of survey results due to high sampling errors.

Based on the report findings and recommendations, staff will be making adjustments to the proposed TDM plan ordinance design and bring this forward for board and City Council consideration in early 2017. Staff will develop a database to track existing and future TDM

plans, establish a method to assist developers in communicating requirements to future tenants, identify ways to require high response rates, and work with the City Attorney's Office to determine how to tie the ordinance to the property and future tenants after the developer fulfills their initial requirements. Staff will present this information to Planning Board and City Council, and staff will use this new information to further develop and modify design the TDM plan ordinance.

### ***TMP Focus Area: Funding***

Staff continues to work on transportation development excise tax and impact fees for new commercial and residential development. Staff returned to City Council on Nov. 15, 2016, for a public hearing that included an update to the transportation development excise tax and a new transportation impact fee, which will provide funding for capital improvements related to new development. For the second reading of the ordinance, council unanimously voted to approve the update to the transportation development excise tax (DET) which includes the reallocation of the Park Land DET to Transportation and the creation of a new transportation impact fee.

As part of the impact fee and excise tax analysis, City Council also requested that staff examine the issue of on-going funding for transportation operations and maintenance. This phase of the study will begin in 2017.

### ***TMP Focus Area: Integrated Sustainability Initiatives***

The TMP's fifth focus area is intended to identify policies and opportunities for integrated, inter-departmental efforts in support of sustainability initiatives. These activities continue on an on-going basis in a number of work areas to ensure collaboration with transportation and land use planning, supporting community goals for sustainability and resiliency. Continuing 2016-17 activities include:

#### ***Boulder Valley Comprehensive Plan Update (BVCP)***

Transportation staff members are part of the core team for the BVCP update and participated in developing the trends reports and the first phase public outreach effort. Staff and transportation consultants are engaged in the quantitative and qualitative analysis of the BVCP scenarios. The Neighborhood Access Tool created during the TMP process will also be used as part of evaluating the scenarios.

#### ***Climate Commitment***

Transportation staff continues to participate in the on-going development of the Climate Commitment, including the interdepartmental implementation and electric vehicle groups and the preparation of the East Arapahoe area case study for the Energy Planning Pilot project.

#### ***AMPS – Coordination with Civic Area and Chautauqua Plans***

The multi-departmental initiative to create an Access Management and Parking Strategy is continuing in 2016, with a focus on collaboration with key work program items such as the Civic Area and Chautauqua Access Management Plan (CAMP), as well as updating TDM plans for new development projects.

Staff working on the development of the CAMP completed data collection over the summer of 2016 and are currently working with a Community Working Group to review these findings and develop potential strategies to test during a pilot program in the summer of 2017. Staff will be returning to City Council with a proposal in April, 2017.

### ***TMP-related Work Planned for 2017***

#### ***Safe Streets Boulder – Toward Vision Zero Safety Initiatives***

On-going implementation continues for the Toward Vision Zero safety initiatives as identified in the 2016 Safe Streets Boulder report. Staff is also following City Council direction in the 2017 Budget Ordinance to develop a new program for implementing engineering treatments on neighborhood streets to calm speeding traffic, as part of the NTMP. Implementation of the Safe Streets Boulder Report will focus on the Four Es of Engineering, Education, Enforcement and on-going Evaluation. Highlights of the implementation include location-specific changes in signing, striping and signal operation, more robust use of green paint at potential conflict zones for bicycles, continued education and outreach programs such as the “Heads Up” Campaign, and coordination with the Boulder County District Attorney’s Office regarding potential legislative opportunities associated with enhancing safety enforcement initiatives. The city is in the process of organizing a community advisory committee involving local stakeholders, civic organizations, neighborhoods, and agency partners to collaborate on the development and implementation of a wide array of safety initiatives to reduce crashes for people using all modes. Additional details on these efforts are contained in **Attachment A**.

#### ***Pedestrian Plan Update and Multimodal Low Stress Network Analysis***

Staff will kick-off the process to update the city's Pedestrian Plan while integrating the 2.0 multimodal low stress network analysis to improve safety and enhance pedestrian, bicycle, and transit vehicle connections in Boulder. Objectives of these planning initiatives will include auditing and inventorying existing pedestrian facilities, identifying new pedestrian-focused projects and programs while linking low stress routes for bicycling and walking including accessibility to transit.

#### ***Transportation Funding Analysis***

In 2017, Transportation Division staff will continue working on the exploration of potential Head Tax funding as part of the city-wide team and will return to council for an update in January 2017.

#### ***Question for Council on remaining Focus Areas***

- 2. Does council have feedback regarding other current TMP implementation initiatives?***

### **COMMENTS FROM TRANSPORTATION ADVISORY BOARD**

The Transportation Advisory Board (TAB) discussed the TMP implementation activities at its November 14, 2016 board meeting. TAB members are currently participating on the stakeholder committees for the HOP study as well as for the East Arapahoe Transportation Plan. In addition, TAB will have representation on the newly forming Toward Vision Zero (TVZ) community

advisory committee which is scheduled to begin in 2017. TAB continues to support the city's TVZ safety initiatives and staff provides monthly updates on progress of implementation across all E's: Engineering, Education, Enforcement, and Evaluation. In discussing the HOP Study, Bill Rigler who served as the TAB representative on the stakeholder committee, commented that the process was well run and that the consultant provided good information and kept the committee on track. Members of the Board discussed the range of HOP route options presented relative to their effects on other routes, access to major destinations, and times and frequency of service. Members generally agreed that having standardized frequency made sense as one member has heard from citizens that consistent reliability of the service has been the main issue. Regarding the East Arapahoe Transportation Plan, TAB is represented by Anna Reid. TAB appreciates the coordination of the transportation planning process with the current update for the BVCP, as well as distinguishing the various character zones along the corridor.

TAB members had clarifying questions of the other topics presented and generally agreed with the presented approaches of each work area.

TAB receives monthly updates on the various TMP implementation items and will continue to provide feedback in the future on all of the transportation related initiatives.

## **NEXT STEPS**

The TMP implementation continues to be guided by the [TMP Action Plan](#) in alignment with the annual City Council work program and city budgeting process, as well as by input from TAB and the City Council via periodic study sessions. The next full TMP progress update is scheduled for April 2017 and will include highlights from all of the TMP focus areas, with an emphasis on Complete Streets, TDM, and Funding.

Staff continues work in all of the TMP focus areas as well as in collaboration with other city-wide planning initiatives, including coordination with the Boulder Valley Comprehensive Plan update, Access Management and Parking Strategy, Chautauqua Access Management Plan, and the Climate Commitment.

Staff continues with ongoing community engagement and will be returning to discuss key milestones with the boards and council throughout 2017.

For more information and updates regarding the 2014 Transportation Master Plan, please visit: [www.bouldertmp.net](http://www.bouldertmp.net)

## **ATTACHMENTS**

- A. Toward Vision Zero Transportation Safety Strategy
- B. HOP Transit Study
- C. East Arapahoe Transportation Plan Planning Update
- D. US 36 Mayors and Commissioners Coalition Update and Policy Agenda
- E. City of Boulder- Railroad Quiet Zones Update
- F. City of Boulder 2016-2017 Projects map

### ***Toward Vision Zero Transportation Safety Strategy***

The “Toward Vision Zero” goal of eliminating fatal and serious injury collisions is outlined in the 2014 *TMP*. An important step in meeting the Toward Vision Zero objective is the [2016 Safe Streets Report](#), which provides an overview of the city’s efforts to continuously improve safety for people using all modes of travel. The report was included in the packet for the May 31 study session and analyzes traffic safety data from 2009 to 2014.

Examples of [key findings](#) from the *Safe Streets Boulder: Toward Vision Zero* report include the following:

- Bicyclists and pedestrians are overrepresented in collisions that result in serious injuries and fatalities
- 12 percent of serious injuries and 38 percent of fatalities involve an impaired person
- Nearly half of all collisions within city limits occur at intersections

A plan of action for reducing the number and severity of collisions is included in the 2016 *Safe Streets Report*. It represents a comprehensive approach that combines engineering, education, enforcement and evaluation strategies (the “Four Es”). While a complete list of city activities in support of the Four Es is included in the *Safe Streets Report*, examples of accomplishments to date and upcoming action items include the following.

#### ***Engineering***

- The 29<sup>th</sup> Street and Valmont Road intersection has an identified pattern of rear-end, left-turn, and sideswipe collisions involving pedestrians, cyclists, and motor vehicles. In response, intersection improvements are being made, including widening bike lanes, the addition of left-turn lanes, and the installation of a traffic signal.
- Converting permissive left-turn signal displays from circular green ball indications to flashing yellow arrow indications has been shown to reduce collisions involving left-turn movements, due to the improved clarity of the flashing yellow arrow displays. Conversions to flashing yellow arrow displays are being made at a number of traffic signals in Boulder, prioritizing intersections with higher numbers of left-turn collisions. Examples of locations already converted include Arapahoe Avenue and 30<sup>th</sup> Street, and Colorado Avenue and Regent Drive, with more locations scheduled to be converted next year.
- Modifications to traffic signal operation in response to identified collision patterns are being made in a number of locations, including Baseline Road and 30<sup>th</sup> Street (southbound left-turn and eastbound left-turn protected-only operation during weekday PM peaks), the Diagonal Highway and 30<sup>th</sup> Street (increased westbound left-turn green arrow time during the PM peak), and Broadway and Spruce Street (providing east/west advance pedestrian interval).
- Installing signs and pavement markings around the city to reduce conflicts between turning vehicles and bicycles and pedestrians, including dashed lines and yield marking for drivers, and markings reminding cyclists of the 8 mph speed limit at intersections.

### ***Education and Enforcement***

Transportation safety is also dependent on human behavior that engineering solutions alone cannot address. That is why cross-departmental initiatives are underway to support safety education, outreach, and enforcement within the community. Examples include:

- The Heads Up Boulder campaign, a collaborative effort between the Transportation Division, the Police Department to reduce pedestrian, bicyclist and vehicle collisions at crosswalks.
- Staff working with the University of Colorado Boulder and Boulder County staff to deliver safety messaging to students locally and across the county.
- The Way of the Path outreach program, which seeks to improve bicycle and pedestrian safety along the city's multi-use path network.
- Partnerships with local partners and schools to teach children safety tips when walking or biking to school.
- Transportation Division staff also has identified impaired driving, walking and biking as a safety concern and is working with the Police Department and Boulder County District Attorney's office to explore possible opportunities to enhance enforcement strategies, including consideration of potential legislative approaches.

### ***Evaluation***

In addition to the *Safe Streets Report*, staff continually collects and assesses safety data to evaluate whether a strategy is working, when immediate action is required and what solutions would be most effective in the long term. Preliminary findings are presented to the City Council and community during the Transportation Master Plan updates provided during the year. The Transportation Division also will publish a new *Safe Streets Boulder Report* in 2018.

The Four Es represent a comprehensive strategy that is flexible to meet a variety of transportation safety challenges. For example, communitywide education, enforcement and evaluation are well-suited to discourage behaviors such as impaired driving or bicycling. In the case of engineering, a narrower approach focused on specific places and/or problems is often more effective. Staff seeks to identify the worst locations, behaviors and trends so the city can take targeted action. Staff understands this to be more effective than blanket strategies that might not address the underlying safety challenges and could cause unforeseen issues.

In addition, staff is working to launch a Toward Vision Zero community advisory committee to bring together representatives from the city as well as agency partners and community stakeholders to collaborate on the development and implementation of safety strategies. The first advisory committee meeting will be held in early 2017.

Staff will continue to work with all community stakeholders to identify issues, evaluate ongoing work and consider the additional changes that may be needed to respond to the analysis and concerns. More details and ongoing updates are available at the [project website](#)

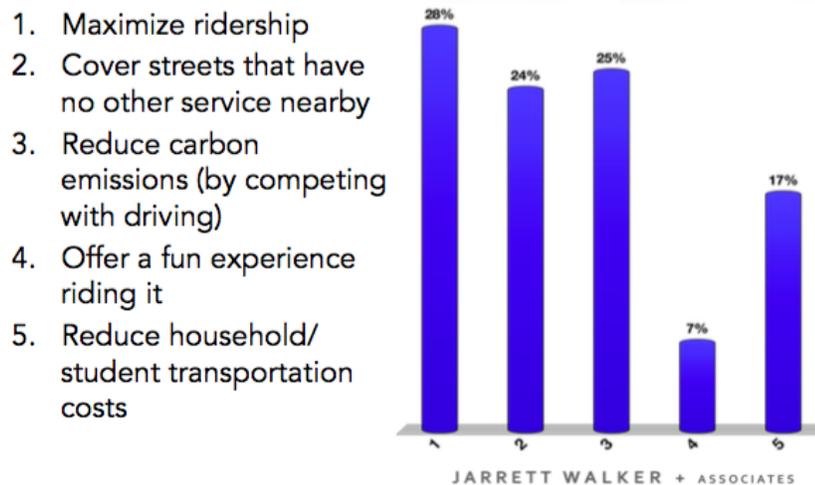
## HOP Transit Study

The stakeholder committee for the HOP includes representatives from RTD, CU students and transportation staff, University Hill residents, Google, 29<sup>th</sup> St. Mall, Via Mobility Services, and the Transportation Advisory Board. The committee met four times between May and October to learn about the values and tradeoffs related to transit planning, review the HOP's existing conditions and trends, prioritize the purpose and goals of the HOP to guide the development of alternatives, and review and provide preferences related to the draft alternatives.

At the stakeholder committee's second meeting in July, the group prioritized the purpose and goals of the HOP to inform the development of alternatives. The purposes prioritized by the stakeholders are shown below.

1. Maximize Ridership
2. Reduce Carbon Emissions by being competitive with driving
3. Cover Streets that have no other service nearby
4. Reduce Household/Student Transportation Costs
5. Offer a Fun Experience Riding the HOP

### Of the HOP's potential purposes, what are your top three priorities?



The draft criteria to evaluate the performance of each alternative in achieving the top 3 purposes are as follows:

- Operating cost
- Fleet requirements
- percent of residents and jobs within a quarter mile access to frequent service
- percent of residents and jobs within a quarter mile access to any service

- Level of service during commute times for service workers
- Ability to respond to future ridership demand

The table below describes the measure used to address each purpose and the reasoning for using each measure.

Measure	Purpose(s) addressed by measure		Why use this measure?
Percent of residents and jobs near <i>frequent</i> transit	Maximize ridership	Reduce carbon emissions (by competing with driving)	In a walkable urban environment like Boulder, frequency is a major predictor of transit ridership, as long as there are many people, jobs and activities near that frequent service. Getting frequent service close to concentrations of residents and jobs is a proven strategy for increasing transit ridership and thereby reducing VMT and carbon emissions.
Level of service during commute times for service workers and lower-income people	Maximize ridership	Reduce carbon emissions (by competing with driving)	Low-income people and service workers have many incentives to use transit. Yet transit may not run when they need to commute, or if it does run, poor frequency provides little choice in when to travel. In a city with a booming service, recreational and tourism economy, providing more frequent transit on evenings and weekends is a proven strategy for increasing total transit ridership.
Ability to serve longer-distance trips (i.e. compete with driving, rather than walking or cycling)		Reduce carbon emissions (by competing with driving)	Today the HOP is useful only for short trips, which can also be made by bike and often by foot. Transfer data shows that the HOP is little used as a "last mile" connection for regional transit trips. The ability of the Boulder transit network to serve longer trips will be directly related to its ability to competing with driving. Different transit network designs are better or worse at serving longer-distance trips.
Percent of residents and jobs with access to <i>any</i> service	Cover streets that have no other service nearby		Covering places with at least some transit service ensures that people with special needs (and mobility impairments) have access to service if they need it. The percent of residents and jobs within a certain distance of any service - of any frequency - measures this "coverage" purpose of transit.

Ability to adapt and response to future ridership demands	Maximize ridership	Reduce carbon emissions (by competing with driving)	Some transit network designs offer more choices for future investments and expansions of transit services, which would make it more feasible for the City to serve growth in transit ridership potential. Other network designs are more constraining and make growth of the network more difficult and expensive.
Operating costs	All purposes		The cost of any alternative is a measure of how well it meets all of its purposes. If an alternative offers a lower operating cost, that frees up more of the City's resources (or partner resources) to be spent on further achievements.
Fleet requirement	All purposes		Fleet requirement reflects an operating cost (the cost to store, maintain and repair the vehicles) and a capital cost (the cost to purchase the vehicles). As above, a lower cost means that more of any purpose can be achieved with City resources.

**Draft Alternatives**

Based on the stakeholder's prioritization of purposes for the HOP, four draft alternatives in addition to the no change alternative, shown on the following five pages, were developed to show stakeholders the range of possible futures for the City and partner agencies' investment in HOP service.

# ALTERNATIVE 0: No Change

Showing local and regional RTD, City of Boulder, and CU Routes.

### Prevailing Midday Frequencies

The prevailing midday frequency is the typical interval between arriving buses at each stop.

-  0 - 15 minutes
-  0 - 15 minutes on CU school days
-  16 - 45 minutes (typically 30 minutes)
-  Regional routes (typically longer than 60 minutes, or limited daily trips)
-  CU routes
-  One-way service
-  Route continues at lower frequency

### Frequencies and Spans:

The HOP comes every 12 minutes on non-CU weekdays. On CU school days, it comes every 9 minutes, on average. Weekday evenings and weekends it comes every 18 minutes.

The span on service on weekdays is 15 hours; on Saturdays, 13 hours; and on Sundays and holidays, 8 hours. (Service runs later on all days, in the other Alternatives.)

### CU Routes

These routes are operated by CU and are only open to students and others affiliated with the university.

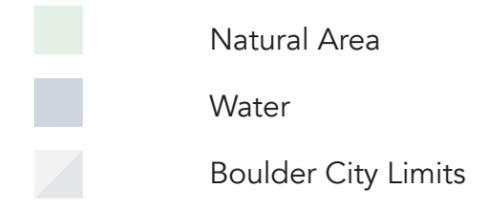
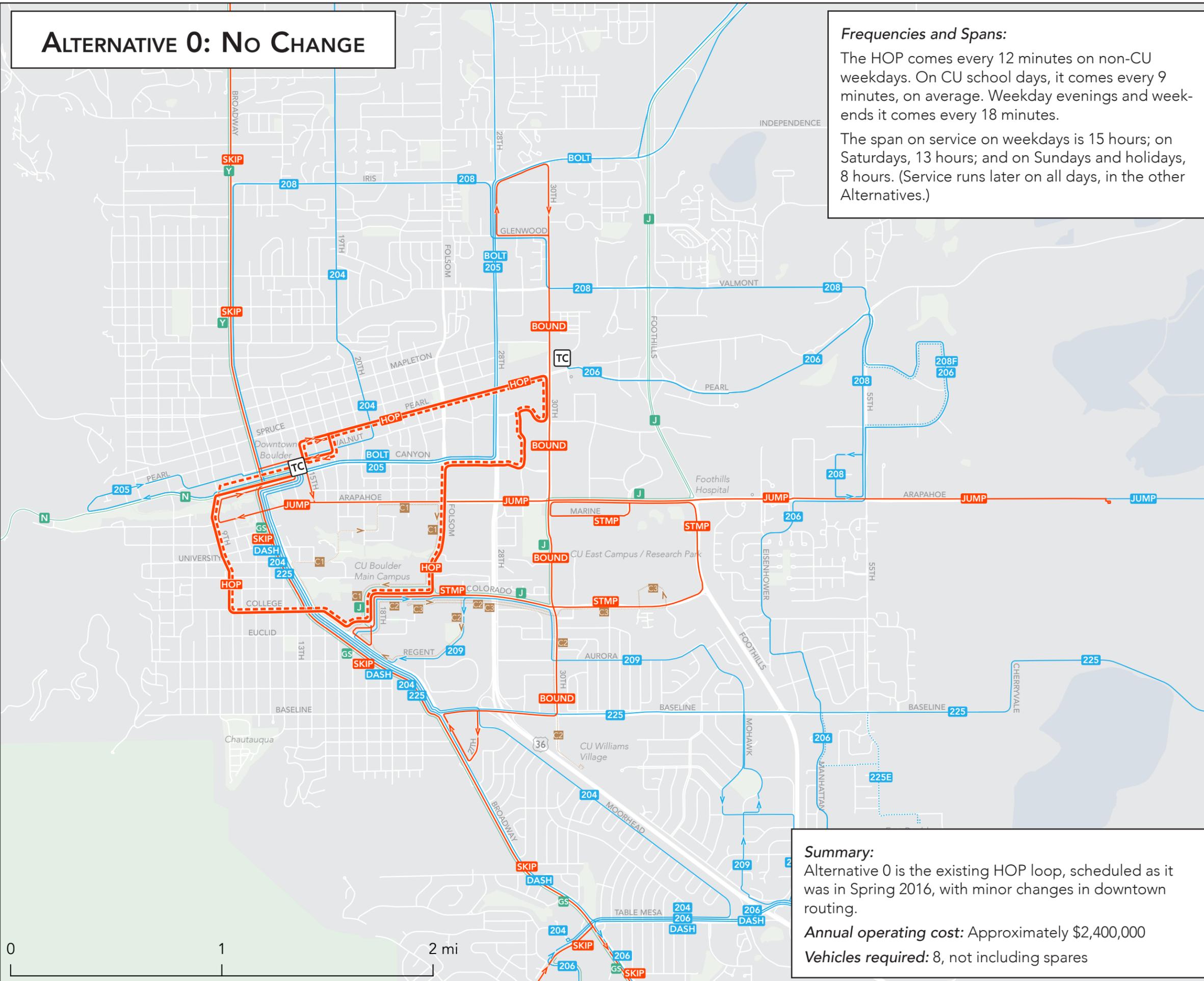
-  **ATHENS COURT SHUTTLE**  
AM/PM only, every 15 minutes.
-  **WILL VILL**  
Fall & Spring only, every 5 minutes.
-  **DISCOVERY EXPRESS**  
Every 15 minutes.

### Summary:

Alternative 0 is the existing HOP loop, scheduled as it was in Spring 2016, with minor changes in downtown routing.

**Annual operating cost:** Approximately \$2,400,000

**Vehicles required:** 8, not including spares



# Boulder Transit Network

Showing local and regional RTD, City of Boulder, and CU Routes.

## Prevailing Midday Frequencies

The prevailing midday frequency is the typical interval between arriving buses at each stop.

-  0 - 15 minutes
-  0 - 15 minutes on CU school days only
-  16 - 45 minutes (typically 30 minutes)
-  Regional routes (typically longer than 60 minutes, or limited daily trips)
-  CU routes
-  One-way service
-  Route continues at lower frequency

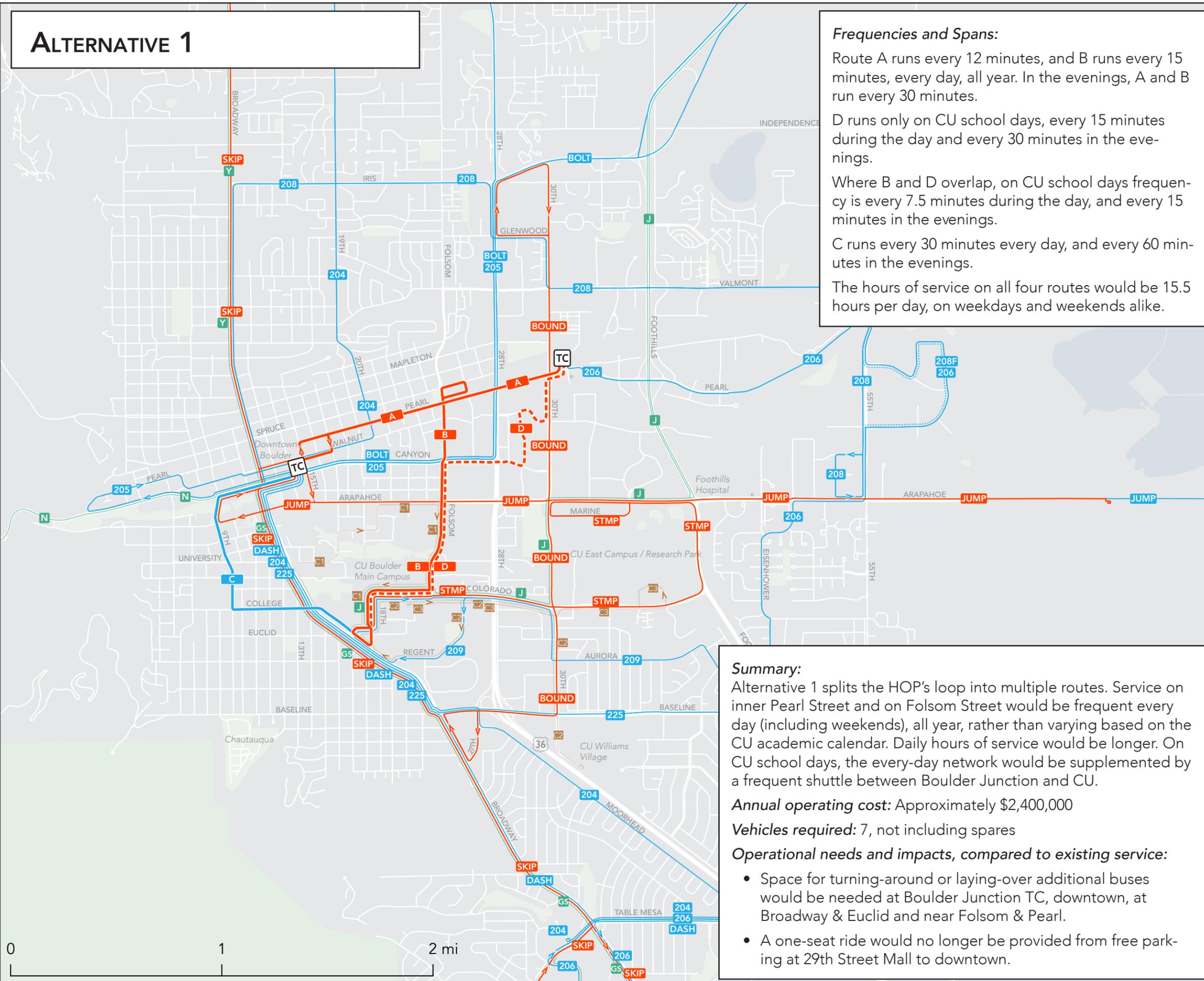
## CU Routes

These routes are operated by CU and are only open to students and others affiliated with the university.

-  **ATHENS COURT SHUTTLE**  
AM/PM only, every 15 minutes.
-  **WILL VILL**  
Fall & Spring only, every 5 minutes.
-  **DISCOVERY EXPRESS**  
Every 15 minutes.

-  Natural Area
-  Water
-  Boulder City Limits

# ALTERNATIVE 1



### Frequencies and Spans:

Route A runs every 12 minutes, and B runs every 15 minutes, every day, all year. In the evenings, A and B run every 30 minutes.

D runs only on CU school days, every 15 minutes during the day and every 30 minutes in the evenings.

Where B and D overlap, on CU school days frequency is every 7.5 minutes during the day, and every 15 minutes in the evenings.

C runs every 30 minutes every day, and every 60 minutes in the evenings.

The hours of service on all four routes would be 15.5 hours per day, on weekdays and weekends alike.

### Summary:

Alternative 1 splits the HOP's loop into multiple routes. Service on inner Pearl Street and on Folsom Street would be frequent every day (including weekends), all year, rather than varying based on the CU academic calendar. Daily hours of service would be longer. On CU school days, the every-day network would be supplemented by a frequent shuttle between Boulder Junction and CU.

**Annual operating cost:** Approximately \$2,400,000

**Vehicles required:** 7, not including spares

### Operational needs and impacts, compared to existing service:

- Space for turning-around or laying-over additional buses would be needed at Boulder Junction TC, downtown, at Broadway & Euclid and near Folsom & Pearl.
- A one-seat ride would no longer be provided from free parking at 29th Street Mall to downtown.



# ALTERNATIVE 2

Showing local and regional RTD, City of Boulder, and CU Routes.

### Prevailing Midday Frequencies

The prevailing midday frequency is the typical interval between arriving buses at each stop.

-  0 - 15 minutes
-  0 - 15 minutes on CU school days only
-  16 - 45 minutes (typically 30 minutes)
-  Regional routes (typically longer than 60 minutes, or limited daily trips)
-  CU routes
-  One-way service
-  Route continues at lower frequency

### Frequencies and Spans:

Route A runs every 12 minutes, Routes B and D+ run every 15 minutes, every day, all year. In the evenings, A, B, and D+ run every 30 minutes.

Where B and D+ overlap, frequency is every 7.5 minutes every day, and every 15 minutes in the evenings.

C runs every 30 minutes every day, and every 60 minutes in the evenings.

The hours of service on all four routes would be 15.5 hours per day, on weekdays and weekends alike.

### CU Routes

These routes are operated by CU and are only open to students and others affiliated with the university.

-  **C1** Athens Court Shuttle  
AM/PM only, every 15 minutes.
-  **C2** Will Vill  
Fall & Spring only, every 5 minutes.
-  **C3** Discovery Express  
Every 15 minutes.

### Summary:

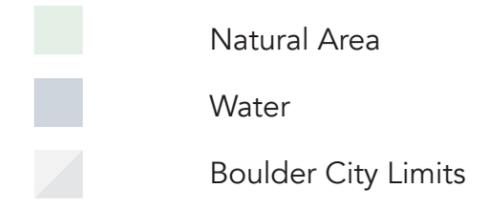
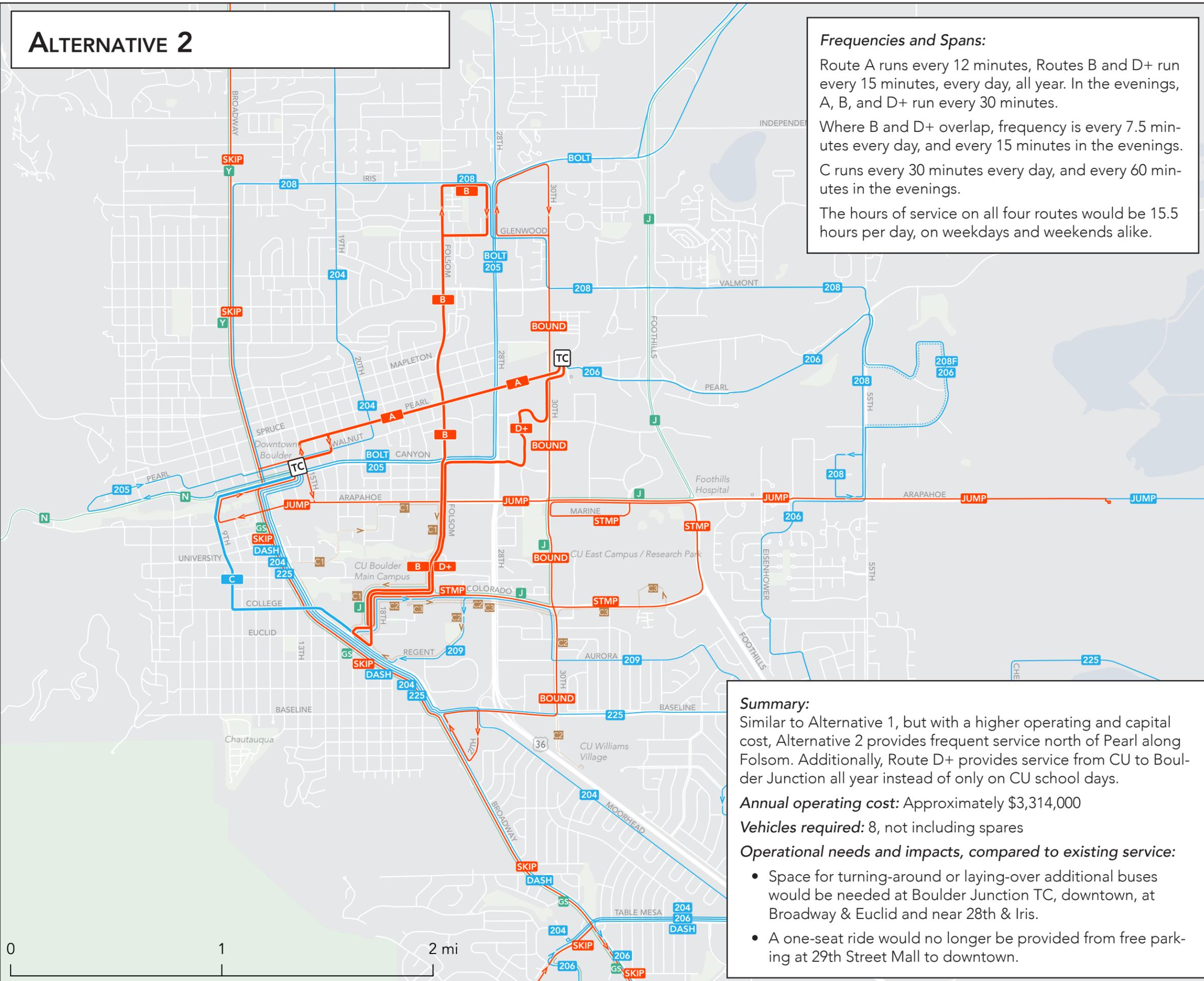
Similar to Alternative 1, but with a higher operating and capital cost, Alternative 2 provides frequent service north of Pearl along Folsom. Additionally, Route D+ provides service from CU to Boulder Junction all year instead of only on CU school days.

**Annual operating cost:** Approximately \$3,314,000

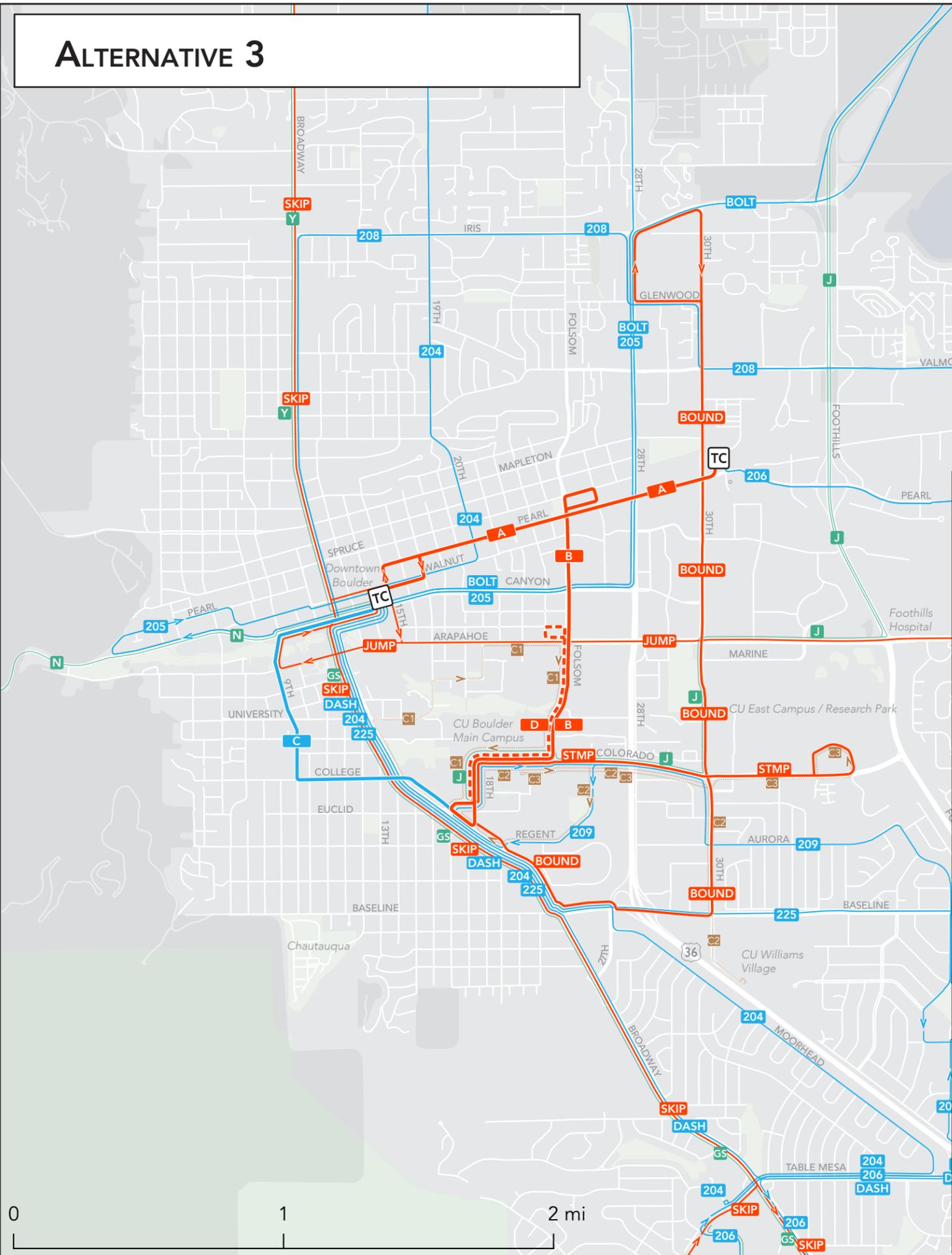
**Vehicles required:** 8, not including spares

### Operational needs and impacts, compared to existing service:

- Space for turning-around or laying-over additional buses would be needed at Boulder Junction TC, downtown, at Broadway & Euclid and near 28th & Iris.
- A one-seat ride would no longer be provided from free parking at 29th Street Mall to downtown.



# ALTERNATIVE 3



**Frequencies and Spans:**  
 Route A runs every 12 minutes, and B runs every 15 minutes, every day, all year. In the evenings, A and B run every 30 minutes.  
 Where B and D overlap, on CU school days frequency is every 7.5 minutes during the day, and every 15 minutes in the evenings.  
 C runs every 30 minutes every day, and every 60 minutes in the evenings.  
 The hours of service on all four routes would be 15.5 hours per day, on weekdays and weekends alike.

**Summary:**  
 Alternative 3 is similar to Alternatives 1 and 2, but it includes changes to the Bound, Stampede and CU's C3 shuttle. This alternative would require more detailed analysis and planning among the City, VIA, RTD and CU.  
 Service on inner Pearl Street and on Folsom Street would be frequent every day (including weekends), all year, rather than varying based on the CU academic calendar. Daily spans of service would be longer. On CU school days, the every-day network would be supplemented by a frequent shuttle on Folsom between Arapahoe and Euclid.  
 The Bound would go a little farther, at its southern end, to CU campus. People riding the HOP or the Stampede from 30th to the center of CU campus could now use the Bound for that trip. The cost of operating the Bound would increase, but the Stampede would be shortened and its schedule harmonized with CU's C3 shuttle to cover that new cost.  
**Annual operating cost:** Approximately \$2,300,000  
**Vehicles required:** 6, not including spares  
**Operational needs and impacts, compared to existing service:**

- All assumptions about the Bound, Stampede and C3 must be checked and analyzed with RTD and CU.
- Space for turning-around or laying-over additional buses would be needed at Boulder Junction TC, downtown, at Broadway & Euclid and near Folsom & Pearl.
- Transit would no longer pass through the *middle* of 29th Street Mall. However, the Bound would offer a one-seat-ride from the Mall to CU, and with a 1/4 mile walk Route A or the Jump would take people to downtown.

## Attachment B: Hop Transit Study Boulder Transit Network

Showing local and regional RTD, City of Boulder, and CU Routes.

### Prevailing Midday Frequencies

The prevailing midday frequency is the typical interval between arriving buses at each stop.

- 0 - 15 minutes
- 0 - 15 minutes on CU school days only
- 16 - 45 minutes (typically 30 minutes)
- Regional routes (typically longer than 60 minutes, or limited daily trips)
- CU routes
- One-way service
- Route continues at lower frequency

### CU Routes

These routes are operated by CU and are only open to students and others affiliated with the university.

- Athens Court Shuttle  
AM/PM only, every 15 minutes.
- Will Vill  
Fall & Spring only, every 5 minutes.
- Discovery Express  
Every 15 minutes.

- Natural Area
- Water
- Boulder City Limits

# ALTERNATIVE 4

Showing local and regional RTD, City of Boulder, and CU Routes.

### Prevailing Midday Frequencies

The prevailing midday frequency is the typical interval between arriving buses at each stop.

-  0 - 15 minutes
-  0 - 15 minutes on CU school days only
-  16 - 45 minutes (typically 30 minutes)
-  Regional routes (typically longer than 60 minutes, or limited daily trips)
-  CU routes
-  One-way service
-  Route continues at lower frequency

### CU Routes

These routes are operated by CU and are only open to students and others affiliated with the university.

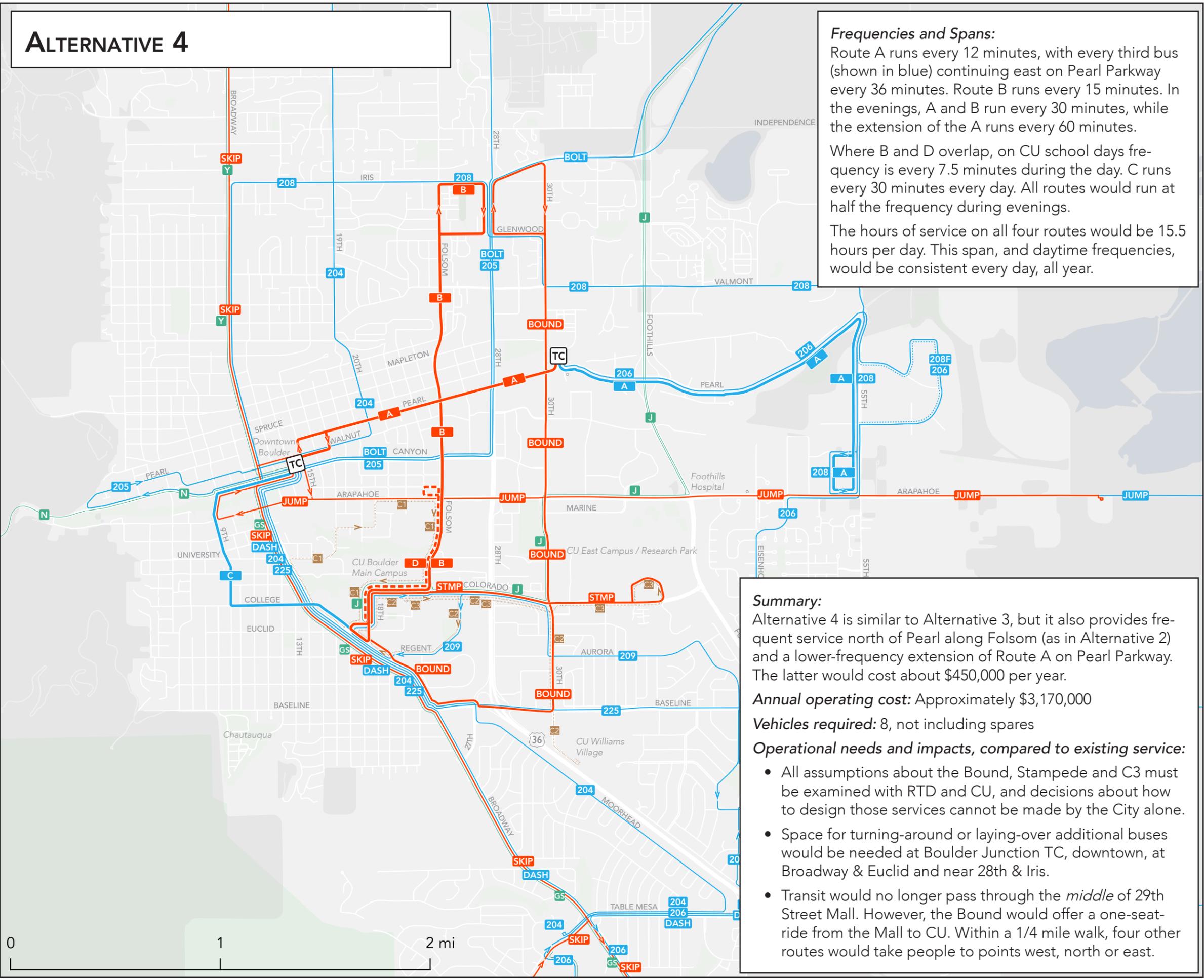
-  **ATHENS COURT SHUTTLE**  
AM/PM only, every 15 minutes.
-  **WILL VILL**  
Fall & Spring only, every 5 minutes.
-  **DISCOVERY EXPRESS**  
Every 15 minutes.

-  Natural Area
-  Water
-  Boulder City Limits

**Frequencies and Spans:**  
 Route A runs every 12 minutes, with every third bus (shown in blue) continuing east on Pearl Parkway every 36 minutes. Route B runs every 15 minutes. In the evenings, A and B run every 30 minutes, while the extension of the A runs every 60 minutes.  
 Where B and D overlap, on CU school days frequency is every 7.5 minutes during the day. C runs every 30 minutes every day. All routes would run at half the frequency during evenings.  
 The hours of service on all four routes would be 15.5 hours per day. This span, and daytime frequencies, would be consistent every day, all year.

**Summary:**  
 Alternative 4 is similar to Alternative 3, but it also provides frequent service north of Pearl along Folsom (as in Alternative 2) and a lower-frequency extension of Route A on Pearl Parkway. The latter would cost about \$450,000 per year.  
**Annual operating cost:** Approximately \$3,170,000  
**Vehicles required:** 8, not including spares  
**Operational needs and impacts, compared to existing service:**

- All assumptions about the Bound, Stampede and C3 must be examined with RTD and CU, and decisions about how to design those services cannot be made by the City alone.
- Space for turning-around or laying-over additional buses would be needed at Boulder Junction TC, downtown, at Broadway & Euclid and near 28th & Iris.
- Transit would no longer pass through the *middle* of 29th Street Mall. However, the Bound would offer a one-seat-ride from the Mall to CU. Within a 1/4 mile walk, four other routes would take people to points west, north or east.



## Summary of Draft Alternatives

Below is a summary of unique features for each draft alternative:

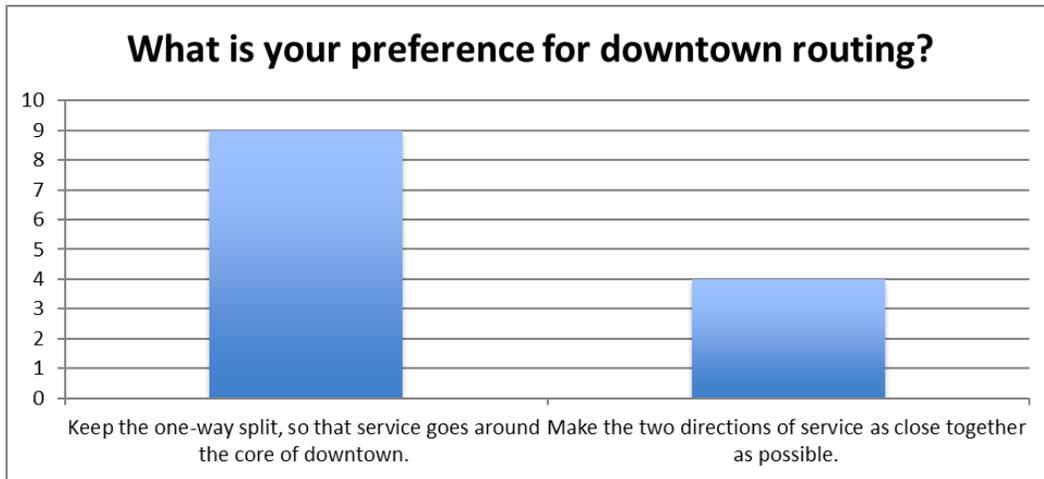
- **Alternative 0: No Change.**
  - Because it is a loop, all places served by the HOP receive the same frequency and span of service.
- **Alternative 1 – Constrained Budget**
  - The HOP is split into linear routes.
  - Frequent service is maintained on Pearl Street.
  - While the peak frequency on Pearl and Folsom Streets is not as high as with the current HOP, the frequency is more consistent throughout the week and the year. Also, total spans of service, and spans of frequent service, are longer each day.
  - North-south frequent service is added over a short distance on Folsom Street.
  - The diagonal trip from Boulder Junction or 29th Street Mall to CU could be made using the frequent grid with a transfer. However, during CU school days, a special shuttle makes this diagonal trip.
  - University Hill is served by a route running every 30 minutes, between downtown and CU. This is common to all of the following Alternatives.
  - The cost of this Alternative is very similar to 2016 HOP operating costs, though it requires one fewer bus in the fleet and would therefore save capital and maintenance costs.
- **Alternative 2 – Unconstrained budget**
  - This is very similar to Alternative 1, with these additions:
    - The diagonal route from Boulder Junction to CU runs every day, all year and not just on CU-school-weekdays.
    - The north-south route on Folsom continues all the way to Iris Street.
    - As in Alternative 1, all of the routes have longer spans of service each day, week and year and longer spans of their most frequent service than the HOP does today.
    - The cost of Alternative 2 is \$1 million more than 2016 HOP operating costs, but requires the same number of buses.
- **Alternative 3: Network Changes, Constrained Budget**
  - This Alternative is much more complex than the others, and relies on as-yet-untested assumptions about RTD and CU bus operations.

- The spans and frequencies of new routes are as described for Alternatives 1 and 2.
- To address the desire for a diagonal, "one seat ride" from places on 30th such as Boulder Junction, the 29th Street Mall and CU facilities into campus, we have altered the Bound. This may obviate the need for a special CU shuttle identified as "Route D" in other alternatives for many trips.
  - This change to the Bound also may obviate the need for the doubling-back of the Stampede. Eliminating this part of the Stampede could cover some of the cost of extending the Bound.
    - Once the Stampede is shortened, its route is very similar to CU's C3 shuttle. Harmonizing these two schedules may provide further savings.
- In short, there is a great deal of service converging on CU. Rethinking the network in this area may produce some savings, or new uniquely-useful services. This particular proposal is but one of many possibilities.
- Apart from the Bound, Stampede and C3 shuttle, this Alternative would cost slightly less to operate than the current HOP and would require only 6 buses. However, it is possible that the suggested changes to non-HOP services might require additional revenue hours or fleet.
- **Alternative 4: Network Changes, Unconstrained Budget**
  - This Alternative is similar to alternative 3 but also includes the unfunded ideas to extend service north on Folsom and east on Pearl Parkway to advance the two long term Renewed Vision for Transit action items.

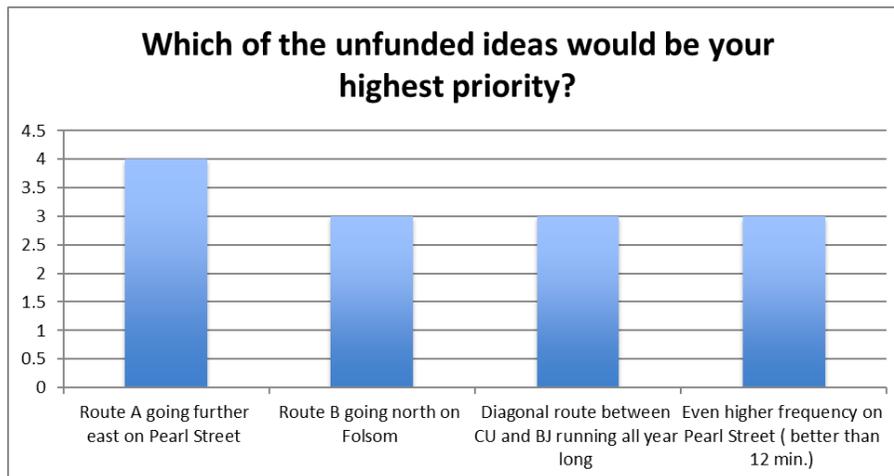
### Stakeholder Committee Input on Draft Alternatives

In September and October, we met with the Stakeholder Committee to review the set of draft alternatives. The stakeholders were also polled on their preferences regarding downtown routing and span of service, again on the importance of maintaining the loop, prioritization of the constrained alternatives, and prioritization for unfunded network routing ideas. The results from the polling are summarized and shown below.

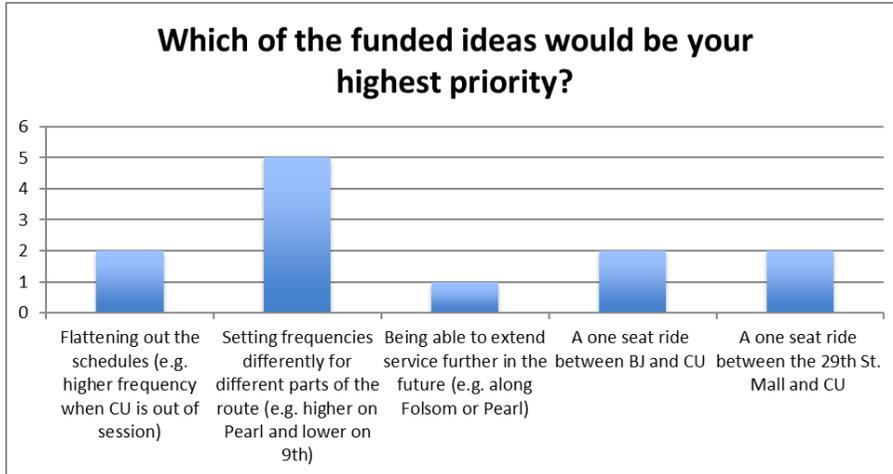
We asked the stakeholders their preference for downtown routing, and 69% of respondents polled to keep the current routing downtown to serve both sides of Pearl St.



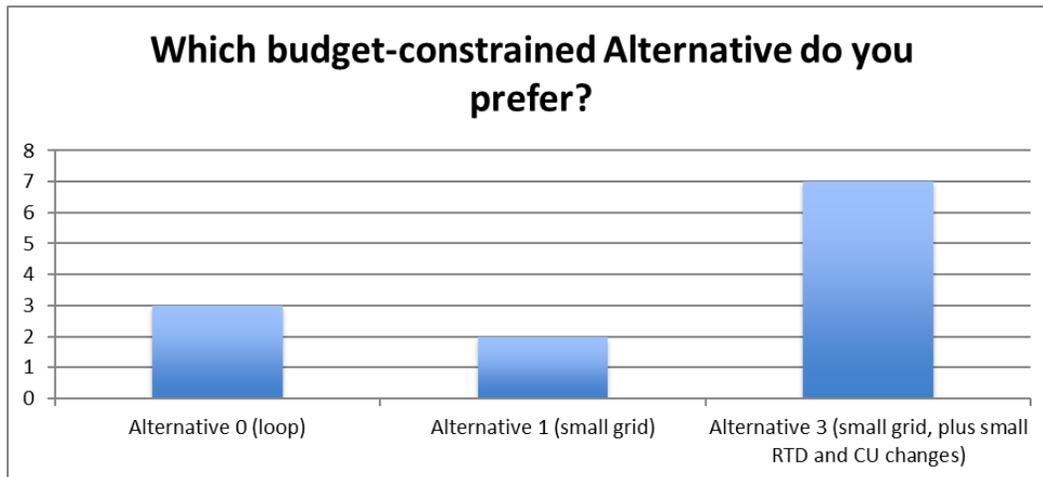
Next, we asked the group their preference for some of the unfunded ideas that are shown in Alternatives 2 and 4, and there was preference for all ideas when resources are available.



We also asked the group their preference for funded ideas, and 42% of respondents stated that their highest priority is to be able to set frequencies differently for different parts of the route.



Finally, we asked the stakeholders for their preference for the budget constrained alternatives, and 73% of respondents voted on Alternative 3.



#### Next Steps

Upcoming work will refine the set of draft alternatives based on stakeholder, TAB, council, and broader community input. Staff will conduct pop-up events focused on CU campus and other key areas to gain community input. In addition, city staff is partnering with Whittier Elementary through Growing Up Boulder to engage English Language Development students on how to improve the HOP for the youth in our community. The fall and winter months will be spent gathering broader community input on the draft alternatives for the HOP and opportunities to enhance the future design/branding for the HOP service and stops.



# EAST ARAPAHOE TRANSPORTATION PLAN Planning Update

**N** NELSON  
NYGAARD

FOX TUTTLE HERNANDEZ  
TRANSPORTATION GROUP

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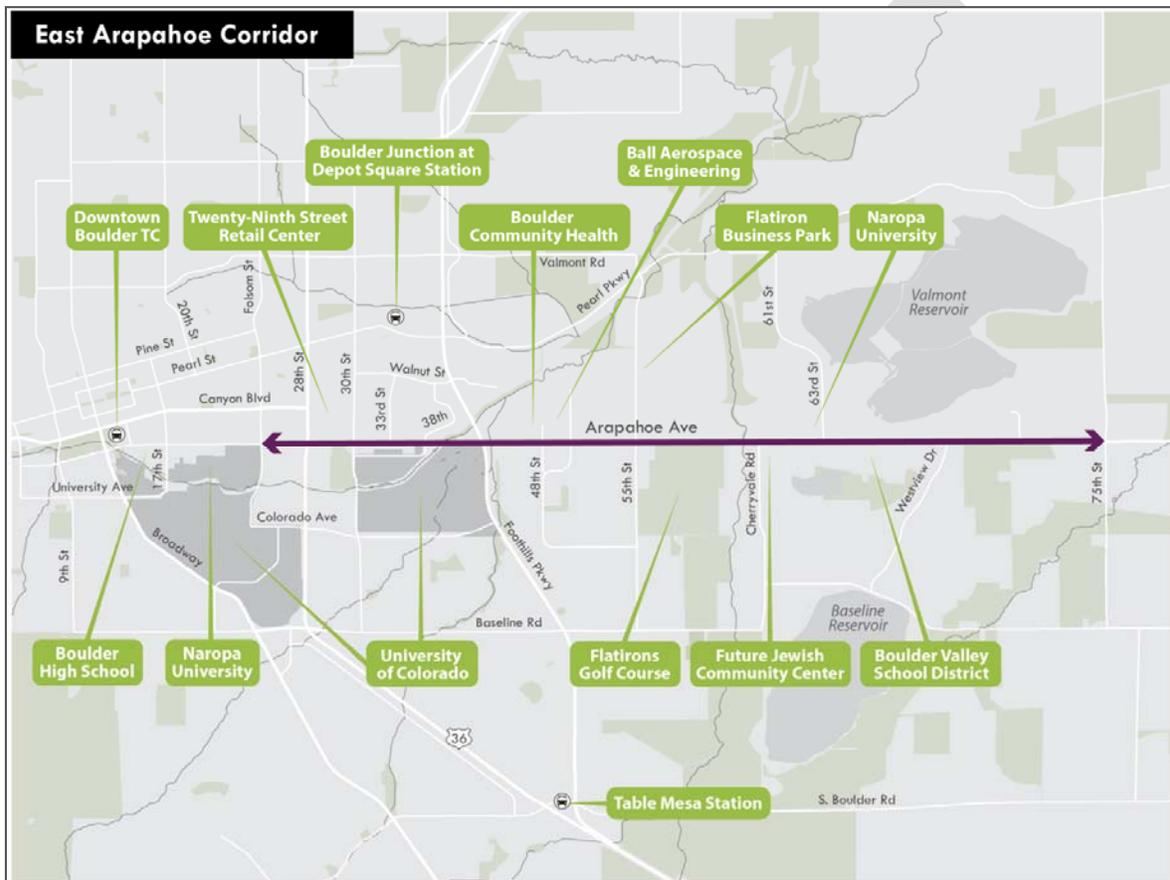
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## EAST ARAPAHOE TRANSPORTATION PLAN UPDATE

The East Arapahoe Transportation Plan planning process is well underway and the project team is in close coordination with the BVCP Update to consider future land use scenarios and the integration of these scenarios with potential transportation improvements under consideration. **Error! Reference source not found.** illustrates the East Arapahoe Transportation Plan study area between the Downtown Boulder Transit Center and 75<sup>th</sup> Street.

Figure 2: Study Area



The project team is currently in the process of working with the newly established Community Working Group to narrow a long list of potential design and management elements being considered to achieve the goals of the plan. Design elements are physical improvements along the corridor such as enhanced landscaping and roadway configurations. Management elements refer to strategies that influence people's time, route, or mode of travel such as transit service, shared use mobility, and parking management. The project team will carry forward for further consideration those elements that align with the project purpose and goals and meet basic feasibility, cost, or safety criteria.

The next steps in the planning process will be to engage the broader community and local and regional agency partners in developing and refining a set of alternatives – or packages of design and management elements – for more detailed evaluation, comparison and refinement.

## **SUMMARY OF COMMUNITY WORKING GROUP MEETINGS & PLANNING PROCESS**

Since the last full update to City Council on the East Arapahoe Transportation Plan at the December 8, 2015 Study Session, staff has convened a Community Working Group (CWG) of twenty-two members who have met three times to date. The working group, which represents different interests and perspectives, is providing input and feedback to the project team during the East Arapahoe planning process. Topics discussed in each CWG meeting are summarized below:

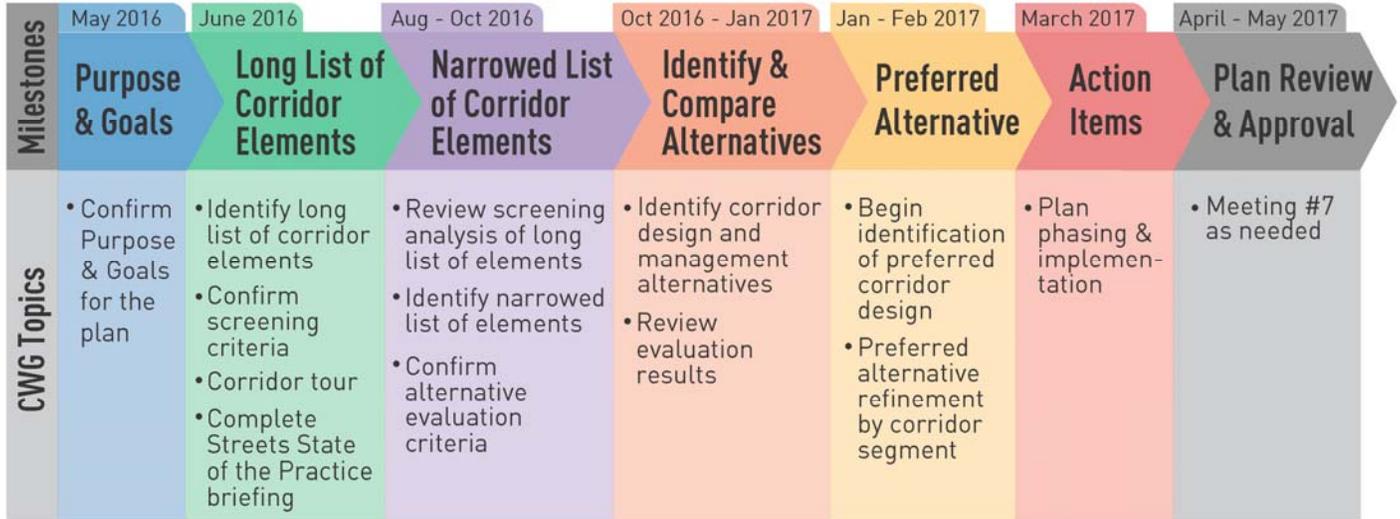
- The first CWG meeting, held on May 5, 2016 was an opportunity to introduce the project, the role of the working group and for the working group members to engage in small group discussions about the purpose and goals of the plan.
- At the second CWG meeting, held on June 15, 2016, city staff presented and obtained input on the Plan Purpose, Goals and Objectives, which has been revised based on input from the first working group meeting. The project team also provided the working group with information about current conditions in the corridor. Much of the meeting discussion centered on best practices for multimodal corridor planning and obtaining input from the working group on the wide range of transportation design and management elements to be considered for the East Arapahoe corridor.

A corridor tour was held in conjunction with second meeting. Members of the working group walked many portions of the corridor, pointing out and discussing potential issues and opportunities related to current conditions such as vehicle speeds, noise, pedestrian crossings, bicycle travel, landscaping and urban design, sidewalks and multiuse paths and transit stops and service.

- The third CWG meeting, held on August 3, 2016, provided an opportunity for the working group to review and provide feedback on an initial screening of design and management elements. Discussion and key pad polling resulted in the elimination of some potential design ideas that had been proposed by the public for the corridor.
- At the fourth CWG meeting, held on October 6, 2016, the working group helped the project team define distinct character districts within the corridor and potential design and management elements appropriate for each district.

Figure 2 illustrates the planning process and schedule, as well as Community Working Group meeting topics.

Figure 2: Schedule & Process Diagram



## PLAN PURPOSE, GOALS AND OBJECTIVES

City staff has collaborated with the Community Working Group, TAB, City Council and other stakeholders to establish a Plan Purpose, Goals and Objectives. The Purpose, Goals and Objectives reflect public input received in prior phases of the planning process and expand on and refine the guiding principles which had previously been developed as part of Envision East Arapahoe. The Goals and Objectives will serve as the framework to guide the development of the East Arapahoe Transportation Plan, including the development and analysis of alternative solutions to multimodal transportation needs along the corridor, though recognizing the unique needs of each segment.

### Plan Purpose

The Plan Purpose has been crafted as a narrative that describes why the city is undertaking this planning process and what the long term plan aims to accomplish:

Today, the East Arapahoe Corridor is one of the city’s busiest regional travel corridors. As we plan for the future, exponential growth in surrounding communities will likely place additional demands on the corridor’s existing transportation system. From people commuting into Boulder for work or school, traveling to Boulder for healthcare services, or simply accessing recreational and shopping amenities – forecasted regional transportation demands on the East Arapahoe Corridor will change how the corridor functions today.

Coupled with increased regional transportation demand, are the changing local travel needs for people working, living and accessing services within the East Arapahoe corridor itself. East Arapahoe is no longer seen as a “pass through” corridor for in-commuters; and has, in fact, become one of Boulder’s largest employment centers. People are looking for safe and convenient ways to travel between destinations along Arapahoe and other areas of the city. From students

traveling between university campuses, to employees wanting to grab lunch – the need for people to move safely and conveniently via walking, biking, transit, ride sharing, driving plus moving goods and services changes how we think about travel and transportation options in this transitioning area of the city.

Recognizing these changing regional and local conditions, the East Arapahoe Transportation Plan is a long-range plan that considers a number of potential transportation improvements within the East Arapahoe corridor, including safety for people using all modes, walking and biking enhancements, improved regional and local transit, efficient vehicular travel, as well as urban design features that work hand in hand with mobility improvements to truly transform the corridor. As East Arapahoe becomes more of a destination, people using all modes are looking for a more comfortable experience – with features that are scaled for people and create a place that is attractive to both travel through and spend time in.

Importantly, transportation improvements will support the goals and objectives of the Boulder Valley Comprehensive Plan, the Transportation Master Plan (TMP), Access Management and Parking Strategy (AMPS), and the city's Climate Commitment and Sustainability Framework.

### **Plan Goals and Objectives**

Each of the goals and objectives listed below support the Boulder Valley Comprehensive Plan, the Boulder TMP and the city's Sustainability Framework. They are categorized by the 2014 TMP Focus Areas – including Complete Streets, Regional Travel, Transportation Demand Management (TDM), Funding and Integration with Sustainability Initiatives, and are aligned with the TMP objectives. While organized by Focus Area, each goal and associated objective is interrelated and mutually supporting to achieve the desired outcome.

#### **Goal 1. Complete Streets: Provide Complete Streets in the East Arapahoe corridor that offer people a variety of safe and reliable travel choices.**

- Objective 1.a. Provide safe travel for people of all ages and stages of life using all modes along the East Arapahoe corridor.
- Objective 1.b. Improve the ease of access, comfort and experiences for people walking in the East Arapahoe corridor.
- Objective 1.c. Broaden the appeal of bicycling along the East Arapahoe corridor to people of all ages and bicycling abilities.
- Objective 1.d. Make riding transit a convenient and practical travel option in the East Arapahoe corridor.
- Objective 1.e. Move drivers efficiently through the East Arapahoe corridor.

#### **Goal 2. Regional Travel: Increase the number of person trips the East Arapahoe corridor can carry to accommodate growing local and regional transportation needs.**

- Objective 2.a. Improve local travel options within the East Arapahoe corridor for residents, employees, and visitors.
- Objective 2.b. Improve regional travel options between Boulder and communities to the east for work and other regional trips, including access to health care facilities.

**Goal 3. Transportation Demand Management (TDM): Promote a more efficient use of the transportation system and offer people travel options within the East Arapahoe corridor.**

- Goal 3.a. Improve “first-and-last-mile” connections to help people conveniently and safely walk, bike, or make shorter car trips to and from transit.
- Goal 3.b. Promote the use of multiple transportation options and TDM programs in East Boulder by residents and workers (examples include EcoPass programs, shared use mobility and parking management).

**Goal 4. Funding: Deliver cost-effective transportation solutions for the East Arapahoe corridor that can be phased over time.**

- Objective 4.a. Coordinate with public and private entities, including adjacent land owners and local and regional agency partners, to implement cost-effective transportation improvements (including capital, operating and maintenance investments).

**Goal 5. Sustainability Initiatives: Develop transportation improvements in the East Arapahoe corridor that support and integrate with the Boulder Valley Comprehensive Plan and Boulder’s Sustainability Framework (*desired outcomes include a community that is Safe, Healthy & Socially Thriving, Livable, Accessible & Connected, Environmentally Sustainable, and Economically Vital Community and provides Good Governance*).**

- Goal 5.a. Reduce greenhouse gas (GhG) emissions and air pollution from vehicle travel within the East Arapahoe corridor.
- Goal 5.b. Improve travel options that promote public health for residents and workers along the East Arapahoe corridor.
- Goal 5.c. Provide access to affordable transit and other travel options to low- and moderate-income residents and workers along the East Arapahoe corridor.
- Goal 5.d. Preserve and enhance economic vitality in the East Arapahoe corridor, working with Boulder businesses.

## **INITIAL SCREENING OF CORRIDOR DESIGN & MANAGEMENT ELEMENTS**

Between June and August 2016, the project team screened a long list of potential corridor design and management elements that can help achieve the stated purpose and goals of the East Arapahoe Transportation Plan. The design and management elements were identified based on national and international best practices, local and regional plans related to the East Arapahoe corridor, previous technical work in this corridor, TAB and City Council input, public and stakeholder outreach completed prior to the formation of the Community Working Group, and input received at the second working group meeting in June 2016.

In coordination with the Community Working Group members at the third meeting in August 2016, the project team conducted an initial “screening” of the long list of potential corridor design and management elements. The purpose of the screening is to eliminate elements that are not aligned with the project purpose and goals or do not meet basic feasibility, cost, or safety criteria. This is the first step in a multi-stage process to develop and refine a set of alternatives,

or packages of design and management elements, that can help to achieve the stated purpose and goals for the corridor.

Figure 3 summarizes the results of the initial screening. The shading of the element indicates the recommendation as follows:

Recommend <b>moving forward</b> for consideration
Recommend using in <b>limited circumstances</b>
Recommend <b>removing</b> from consideration

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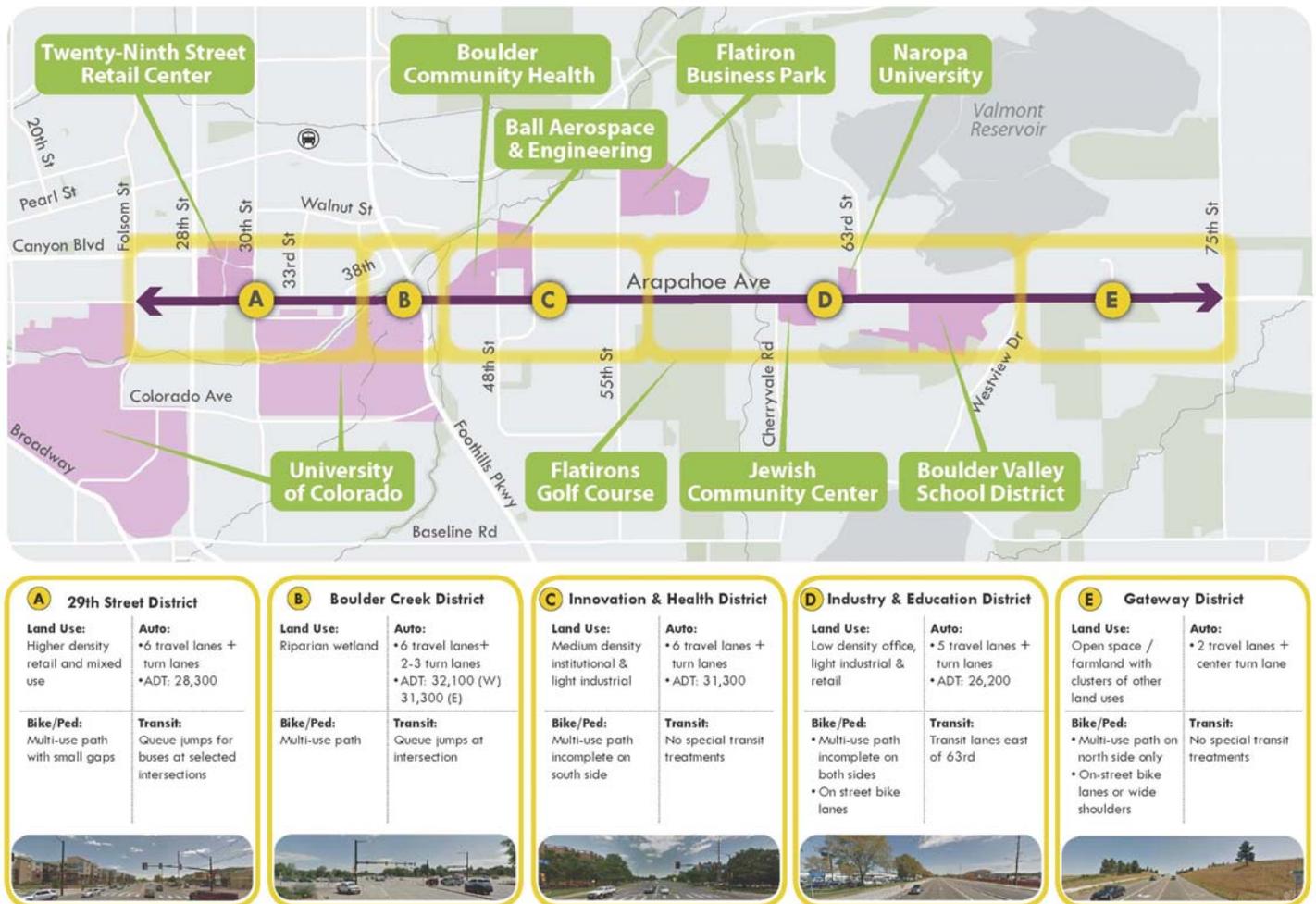
Figure 3: Summary of Screening Results

Bike/Pedestrian/Streetscape		Transit and Transportation Demand Management (TDM)		Vehicular	
S1	Additional crossings	T1	Side running bus in mixed traffic	V1	Three general purpose travel lanes per direction (maintain existing number of lanes)
S2	Intersection enhancements	T2	Enhanced Bus (similar to BRT but without dedicated lanes)	V2	Two general purpose travel lanes per direction with one lane repurposed for enhanced transit (and/or pedestrian, bicycle and/or streetscape enhancements)
S3	Multi-use path (off-street bike facility; shared space)	T3	Bus Rapid Transit (side-running in Business Access and Transit Lane)	V3	Three general purpose travel lanes with an additional transit lane per direction
S4	Enhanced multi-use path (e.g., delineation between bikes and pedestrians)	T4	Bus Rapid Transit (center running in dedicated lanes)	V4	Adding general purpose lanes (east end of corridor)
S5	Shared travel lanes with pavement markings (sharrows)	T5	Streetcar	V5	Reversible traffic lane (zipper lane)
S6	Bike lanes	T6	Light rail transit	V6	Wider general purpose travel lanes
S7	Buffered bicycle lanes	T7	Commuter rail	V7	Narrower general-purpose travel lanes (subject to working with CDOT)
S8	Protected bicycle lanes	T8	Peak-only exclusive transit lanes	V8	High-occupancy vehicle (HOV) lanes
S9	Shared bus & bike lane (11-12' lane that allows bus and bikes)	T9	Better information and timed transfers	V9	Managed lanes (Express lanes)
S10	Amenity zone features (lighting, planters, bus shelters, benches, public art, etc.)	T10	Real-time, app-based information	V10	Signal timing adjustments
S11	Landscaping	T11	Expanded EcoPass	V11	Reduce posted speed limit (assumes reduction of 45 mph segments to 35 mph)
S12	Public art	T12	Reversible transit lane	V12	Access management (assumes closing some driveways and converting parking lots to shared use/access)
S13	Gateway features	T13	Improved transit amenities	V13	Roundabout
		T14	Park and rides (assumed to be edge or satellite parking)	V14	Grade separated interchange (Foothills & Arapahoe)
		T15	Parking management	V15	Speed humps
		T16	First/last-mile connections	V16	Tunnel
		T17	Shared use mobility		

## EAST ARAPAHOE CHARACTER DISTRICTS

In the current phase of the planning process, the project team is working with the Community Working Group to define distinct character districts along the corridor. Moving forward, these districts will be used as a framework for considering which transportation design and management elements could meet the specific needs and desired community vision for each district (or segment) of the corridor. Packages of design and management elements will be developed for each character district. Figure 1 illustrates these districts.

Figure 4: East Arapahoe Character Districts



## NEXT STEPS

Upcoming activities for the East Arapahoe Transportation Plan include the following:

- Conduct community outreach events in November 2016 to obtain input and feedback on the results of the initial screening and character districts.

- Collaborate with the Community Working Group in December 2016 to identify alternatives (packages of design and management elements) for detailed evaluation and comparison in Winter 2016/17. Continue coordination with Boulder County SH 7 Study.
- Conduct community outreach events in December 2016 to obtain input and feedback on the alternatives for evaluation.
- Seek City Council input of selection of preferred alternative in Spring 2017.
- Continue on-going coordination with multi-departmental staff team, including collaboration with the Boulder Valley Comprehensive Plan update process, as well as with Boulder County, Colorado Department of Transportation, Regional Transportation District, and other agency partners.
- Include connection with BVCP scenario planning process as well as coordination with SH7 regional BRT study by Bo County. Share progress by the Community Working Group (CWG) and narrowed range of elements remaining, seek council input and share next steps and when we will be back at council for selection of preferred alternative.

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# US 36 Mayors and Commissioners Coalition Update

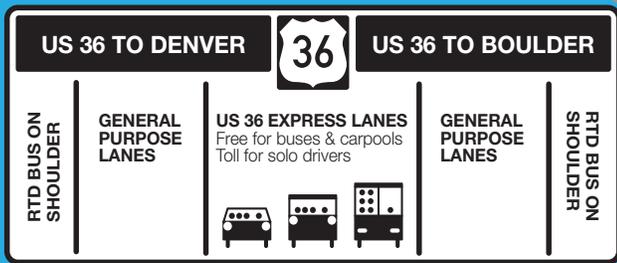
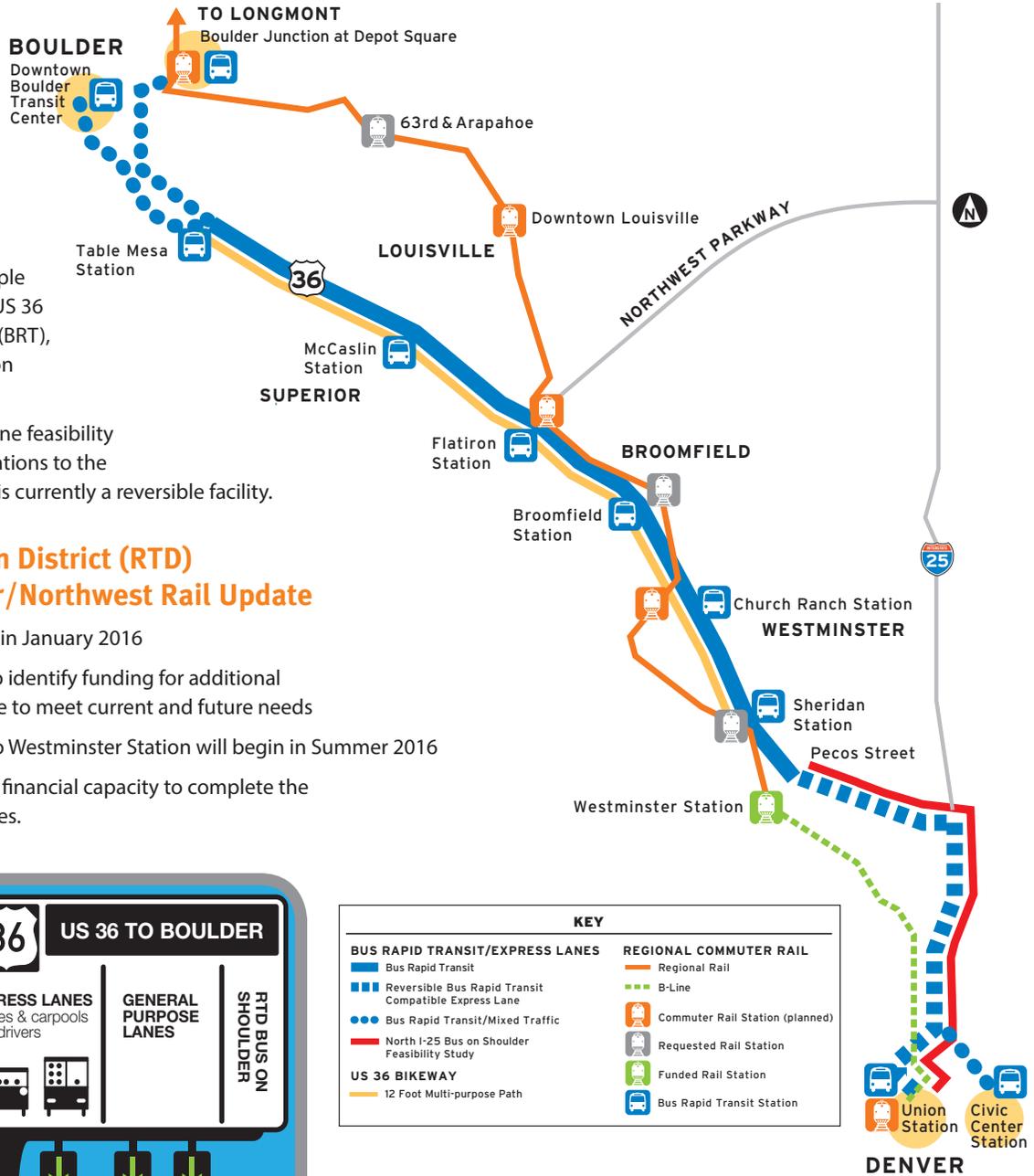
April 2016

## US 36 Express Lanes Project

- Completed in Spring 2016
- \$497 million Public Private Partnership of CDOT, RTD, DRCOG, Plenary Roads Denver and local governments
- Prioritizes the movement of people by travel options, including the US 36 Express Lanes, Bus Rapid Transit (BRT), US 36 Bikeway and Transportation Demand Management
- CDOT funded a study to determine feasibility of adding Bus on Shoulder operations to the North I-25 Express Lanes, which is currently a reversible facility.

## Regional Transportation District (RTD) FasTracks Flatiron Flyer/Northwest Rail Update

- Flatiron Flyer BRT Service began in January 2016
- The US 36 Coalition is working to identify funding for additional Flatiron Flyer vehicles and service to meet current and future needs
- Northwest Rail service (B Line) to Westminster Station will begin in Summer 2016
- RTD does not currently have the financial capacity to complete the Northwest Rail for several decades.



All US 36 users benefit from improvements with more consistent speeds that are 20-29 percent faster during commute hours (comparing pre-construction to current).

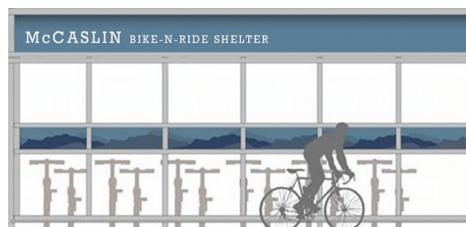
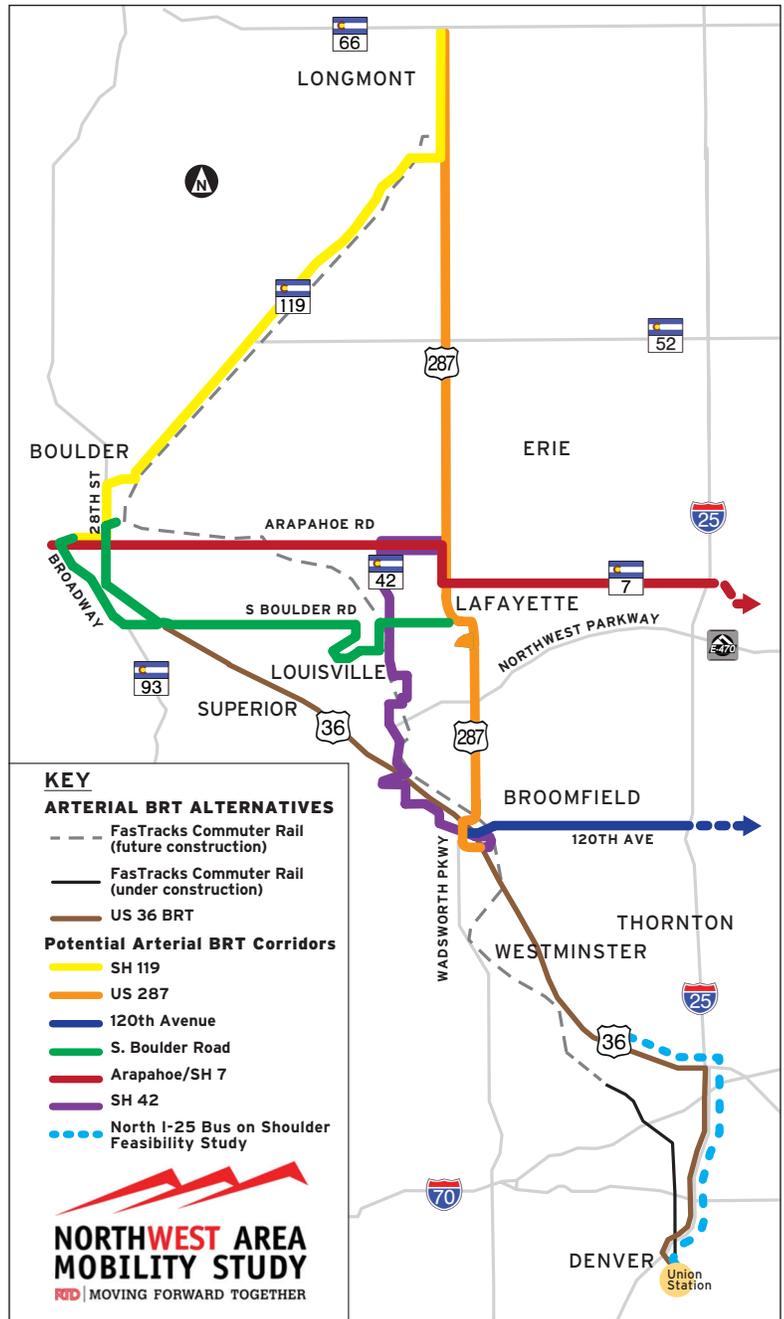
Project provided 7,234 short-term jobs and \$125 billion in long-term benefits.

## Northwest Area Mobility Study (NAMS)

- Study completed by RTD in 2014
- Prioritized mobility improvements for the Northwest Denver/ Boulder region
- Local governments achieved consensus on projects and the RTD Board endorsed them
- Projects would create an integrated mobility system for the Northwest region:
  - Complete remaining elements of US 36 BRT
  - Construct I-25 Bi-Directional Managed Lanes between US 36 and downtown Denver
  - Create arterial BRT corridors for SH 119, SH 7, US 287, South Boulder Road, 120th Avenue, and add enhanced transit service on SH 42 and 28th Street/Broadway
  - Implement railroad quiet zones along Northwest Rail alignment
  - Complete Northwest Rail
- These priorities require additional federal, state and local funding.

## The US 36 Coalition is requesting continued federal support as follows:

- Fully fund the FTA Capital Investment Grants Program in the FY 2017 Transportation Appropriations Bill;
- Support grant opportunities under the Bus and Bus Facilities Program to purchase Flatiron Flyer vehicles;
- Support Small Starts Grant (2018/19) and funding for studies and capital improvements to implement arterial BRT/enhanced bus service along six essential corridors;
- Support grant opportunities to implement recommendations of the US 36 First and Final Mile Study, including Bike-n-Ride shelters, wayfinding, and transit pass programs;
- Support future TIGER grant for North I-25 Bus on Shoulder implementation;
- Streamline train horn rules and quiet zone implementation through the review of FRA's locomotive train horn regulations;
- Incentivize/encourage the railroads to work with local governments to share track for passenger/commuter rail operations;
- Support federal funding of safety improvements (including quiet zones) for passenger/commuter rail service and Transit Oriented Development area.



US 36 Mayors & Commissioners Coalition



## **POLICY AGENDA**

### **US36 Mayors and Commissioner Coalition 36 Commuting Solutions**

**Approved on Thursday, September 8, 2016**

The U.S. 36 Mayors and Commissioners (“MCC”) supports federal, state and regional policy that is consistent with the positions identified in this Policy Agenda. These positions are mostly informed by the 2014 consensus achieved during the Northwest Area Mobility Study (NAMS) which was considered a realistic and equitable approach to furthering the will of the voters that in 2004 approved the FasTracks ballot measure. The agreement was captured in an April 7, 2014 “NAMS Local Stakeholder Consensus Document” (**Attachment A**) which should be read in conjunction with this Policy Agenda in order to understand the specifics on funding sources, projects and the timing and order of priority in which they are each supported.

The Policy Agenda provides representatives of the MCC with the authority to advocate on behalf of the coalition for the stated positions as opportunities arise before legislative, regulatory or administrative bodies and individual leaders. Any potentially controversial or high-profile policy communication made on behalf of the MCC should receive prior-approval from the full MCC, when possible. Regardless, all such communications should subsequently be brought to the attention of the full MCC at the earliest opportunity.

The Policy Agenda is approved by each of the individual governing bodies of the members that make up the MCC. It may be revisited and revised at any time to reflect changing circumstances or to provide specific interpretation of these positions as they apply to any one policy question.

- **Arterial Bus Rapid Transit (BRT)/ Enhanced Bus Service Projects** - Seek non-FasTracks funding and support for capital and operating improvements necessary to implement an arterial BRT/Enhanced Bus Service network, including supportive multimodal system enhancements. State Highway 119 from Longmont to Boulder is the highest priority arterial BRT corridor. The remaining corridors, listed below, should be implemented based on further refinement of regional priorities, project scopes funding availability and leveraging opportunities:
  - State Highway 7 connecting North I-25/North Metro Park-n-Ride/Northglenn, Broomfield, Erie, Lafayette and Boulder
  - State Highway 287 connecting Longmont, Lafayette, Erie and Broomfield to the US 36 Corridor
  - South Boulder Road connecting Lafayette and Louisville to Boulder
  - 28<sup>th</sup> Street/Broadway (connecting US 36 BRT and South Boulder Road BRT to Boulder Junction/14<sup>th</sup> & Walnut)
  - Improved transit connection from Louisville/Lafayette/Superior/Broomfield to US 36 via SH 42/95<sup>th</sup> Street
  - 120<sup>th</sup> Avenue between Broomfield Park-n-Ride and Adams County Government Center

## **POLICY AGENDA**

### **US36 Mayors and Commissioner Coalition 36 Commuting Solutions**

**Approved on Thursday, September 8, 2016**

- **Northwest Rail** – Support full completion of the Northwest Commuter Rail Project to Longmont.
  - Support creative and alternative rail implementation strategies (including level of service phasing) as circumstances effecting feasibility, such as change in BNSF position, costs, ridership, and funding sources, evolve.
- **I-25 Bi-Directional Managed Lanes** - Seek funding and support for the construction of additional managed lanes between US 36 and downtown Denver to facilitate bi-directional service to benefit the broader region (both North I-25 and US36 connections to/from Denver) and interim measures, including bus on shoulder service.
- **Managed Lanes** – Support managed lanes as a practical solution for improving mobility by providing viable travel options in congested corridors. Managed lanes should result in regulation of demand to ensure choices for the traveler beyond the single occupancy vehicle by providing for the option of travel by bus and free or discounted access to high occupancy vehicles (“HOVs”), as well as allow pricing to help manage corridor performance, such as dynamic, variable-priced tolls linked to congestion.
  - Support the free-flowing operation of managed lanes while opposing the imposition of arbitrary deadlines for converting from HOV-2 to HOV-3 not tied to either protecting performance of these lanes or to previously-executed agreements.
  - Support funding for education and incentives to promote full utilization of the HOV lanes.
  - Support increased transparency and public involvement in decisions to create future managed lanes, especially those involving private partners.
  - As a general policy, support requirement that any significant new highway (freeway/expressway) lane-capacity (public or private) built with state or federal funds be required to be managed (priced/tolled) to maximize the person-carrying capacity of the facility and to encourage free HOV and transit usage unless reasonable exceptions apply.
- **Rail/Transit Stations** – Support funding and implementation of station investments and First and Final Mile infrastructure and programs that serve both BRT and future rail.
- **Railroad Crossing Quiet Zones** – Support flexibility in, and funding for implementation of, quiet zones along the length of the Northwest Corridor, with a priority on crossings that benefit the greatest number of residents in the most cost effective manner.

## **POLICY AGENDA**

### **US36 Mayors and Commissioner Coalition 36 Commuting Solutions**

**Approved on Thursday, September 8, 2016**

- **Transportation Funding** – Support state or regional transportation funding that includes a commitment for a substantial percentage of multimodal (i.e., transit, bicycle and pedestrian) investment (e.g., MCC supported MPACT 64’s previous proposal to allocate 33 percent of new statewide transportation funding for transit purposes).
  - Support new bonding or other borrowing for transportation projects only if there are new or existing designated sources of funding identified to pay off those obligations.
  
- **US 36 Bus Rapid Transit System** – Seek funding and support for the full implementation of the US 36 BRT system as committed to in the 2004 FasTracks ballot measure, the US 36 Environmental Impact Statement and Record of Decision, the TIGER and TIFIA funding applications and additional elements approved by the RTD Board on September 17, 2013, including relocation of the Church Ranch boarding platforms, improvements to the Westminster Center pedestrian bridge and structured parking in Broomfield.
  - Support Flatiron Flyer BRT service improvements and station area enhancements to more fully serve existing and new Transit Oriented Development in each of the US36 MCC communities.
  - Seek funding for implementation of the US 36 First and Final Mile study recommendations that provide a tangible benefit to residents, employees and commuters in the corridor.
  - Support RTD authority to authorize bus-on-shoulder use on limited corridors to expedite local bus service.

## NAMS LOCAL STAKEHOLDER CONSENSUS DOCUMENT

### US36 Mayors and Commissioner Coalition 36 Commuting Solutions

April 7, 2014

The local stakeholders thank RTD and our other regional partners for working with us through Northwest Area Mobility Study (NAMS) on this challenging consensus process. Collectively, we believe that the priorities reached through this consensus approach are realistic and equitable, while respecting the will of the voters in 2004.

Local stakeholders actively participating in the NAMS have spent significant effort working together to develop a path forward on transit investments in the Northwest Corridor. Following much discussion, debate and deliberation we have come to a consensus predicated on the information received to date through the NAMS that regional transit operating and infrastructure improvements in the Northwest region should include the following elements.

- **Completion of the US 36 Bus Rapid Transit (BRT) System:** Completion of the US 36 BRT system as committed in the 2004 FasTracks, US 36 Environmental Impact Statement and Record of Decision, TIGER and TIFIA funding applications and additional elements approved by the RTD Board on September 17, 2013, including relocation of the Church Ranch boarding platforms, improvements to the Westminster Center pedestrian bridge and structured parking in Broomfield. Local stakeholders also support implementation of the US 36 First and Final Mile study recommendations that provide a tangible benefit to residents, employees and commuters in the corridor. In order to leverage these capital improvements and show a true net FasTracks benefit to the corridor, service enhancements and a robust operating plan that includes increased bus frequencies must be implemented.
- **Arterial BRT/ Enhanced Bus Service Projects:** Arterial BRT/Enhanced Bus Service system capital and operating improvements should be implemented as soon as feasible. No FasTracks funds should be utilized for these arterial BRT investments.
  - State Highway 119 from Longmont to Boulder is the highest priority arterial BRT corridor.
  - The remaining corridors should be implemented based on further refinement of regional priorities, project scopes funding availability and leveraging opportunities.
  - State Highway 7 connecting North I-25/North Metro Park-n-Ride/Northglenn, Broomfield, Erie, Lafayette and Boulder
  - State Highway 287 connecting Longmont, Lafayette and Broomfield to the US 36 Corridor
  - South Boulder Road connecting Lafayette and Louisville to Boulder
  - 28<sup>th</sup> Street/Broadway (connecting US 36 BRT and South Boulder Road BRT to Boulder Junction/14<sup>th</sup> & Walnut)
  - Improved transit connection from Louisville/Lafayette/Superior/Broomfield to US 36 via SH 42/95<sup>th</sup> Street.
  - 120<sup>th</sup> Avenue between Broomfield Park-n-Ride and Adams County Government Center

- **I-25 Bi-Directional Managed Lanes:** Construction of two additional managed lanes between US 36 and downtown Denver to facilitate bi-directional service that will benefit the broader region (both North I-25 and US36 connections to Denver). Identified interim measures should be implemented as quickly as possible, including bus on shoulder service and downtown Denver circulation improvements, with long term measures to follow.
- **Railroad crossing quiet zones** should be implemented along the length of the Northwest Corridor, with a priority on crossings that benefit the greatest number of residents in the most cost effective manner.
- **Early Action Rail/Transit Stations:** Station investments and US 36 First and Final Mile infrastructure and programs that serve both BRT and future rail should be implemented. \$17 million has already been identified from EAGLE P3 savings for the Downtown Longmont station that will serve both BRT and future rail. Similar investments should be made at other stations that will serve both future rail and BRT/Enhanced Bus Service such as Boulder Transit Village, Gunbarrel, East Arapahoe, Downtown Louisville, Broomfield at Flatirons Crossing and 116th, and Westminster at 104<sup>th</sup> /Church Ranch and at 88<sup>th</sup> Avenue.
- **Northwest Rail:** The local stakeholders recognize the commitment made to voters in the 2004 FasTracks election and the ongoing public expectation that rail will be built in the corridor from FasTracks revenue. Local stakeholders support full completion of the Northwest Commuter Rail Project to Longmont. Considering costs, lack of revenues, ridership projections, uncertainty with Burlington Northern Santa Fe (BNSF) and other challenges, completion of Northwest Rail is a longer term goal. Local stakeholders support periodically exploring creative and alternative rail implementation strategies (including phasing) as circumstances effecting feasibility, such as change in BNSF position, costs, ridership, and funding sources, evolve.

**Re-evaluation of Priorities:** We believe that the public expects and deserves visible cost effective mobility improvements in the short term that form the foundation of our long term transportation system while honoring the vision of rail connecting the corridor communities to each other and the Denver region expressed in the 2004 FasTracks plan approved by the voters.

To that end:

- We support regular monitoring of the factors influencing the costs, revenue and feasibility of the implementation options identified above, including phasing, and, should they significantly change, the reconsideration of investments priorities.
- We recognize that FasTracks funding should be targeted towards those Northwest corridor improvements identified in the FasTracks system approved by the voters in 2004. FasTracks funding should therefore be used to build and operate the US 36 BRT system as well as those improvements that are consistent with implementation of Northwest Rail from Westminster to Longmont and other, nonFasTracks funding sources should be targeted toward those improvements that are not consistent with the FasTracks plan.
- We also firmly believe that the RTD should focus any further FasTracks investments in the Northwest Corridor prior to using FasTracks funds for improvements, or equipment replacement, in any other corridor.

## City of Boulder - Railroad Quiet Zones Update

In response to community concerns regarding the impacts of train horn noise, the City of Boulder is pursuing “quiet zones” for railroad crossings that affect the city. A quiet zone is a street-level railroad crossing that includes additional safety measures in compliance with federal requirements that allow a train engineer to forgo sounding a horn at the crossing. This fall, the city is beginning a community engagement process to seek input on potential railroad quiet zones.

The city has worked with agency partners, including the Federal Railroad Administration (FRA), the Colorado Public Utilities Commission (PUC), and Boulder County, as well as the Burlington Northern Santa Fe Railway Company (BNSF) to explore potential quiet zone solutions that improve both safety at crossings and the quality of life for people who live near them.

In 2014, the city completed a quiet zone study of the nine BNSF railroad crossings located within and adjacent to the city (see list of crossings and map on page 2). The report, which included cost estimates, evaluated potential infrastructure improvements and non-infrastructure programs that could reduce or eliminate train horn noise. Based on the study results, the total cost to create quiet zones at these locations was estimated to be approximately \$5 million (in 2013 dollars).

Recently, the Denver Regional Council of Governments (DRCOG) awarded the city of Boulder \$1,056,000 in funding to advance work on Boulder-area quiet zones. The city’s matching this DRCOG funding with \$264,000 in local funding for a total program budget of \$1,320,00. Although less than the total amount needed to complete all proposed city quiet zones, the award allows the city to get started. This next phase of work includes updating the technical requirements and cost estimates, and begins the community engagement process.

The community will be asked to consider how best to prioritize quiet zone crossing improvements based on factors like the number of people living and working within half a mile of the railroad crossings, type and proximity of adjacent land uses (existing and/or planned), as well as street characteristics, costs for installation, potential on-going maintenance responsibilities, opportunities for multi-agency and public/private partnerships, and above all, safety.

### Timeline

**Fall/Winter 2016-17:** Update technical study and cost estimates, begin community engagement process to identify and prioritize potential quiet zone crossing improvements, develop phasing plan recommendations for implementation, and continue to pursue additional funding strategies.

**2017-18:** Selection of crossing location(s), crossing improvements, final design, engineering, and permitting process with BNSF, PUC, FRA and other agencies.

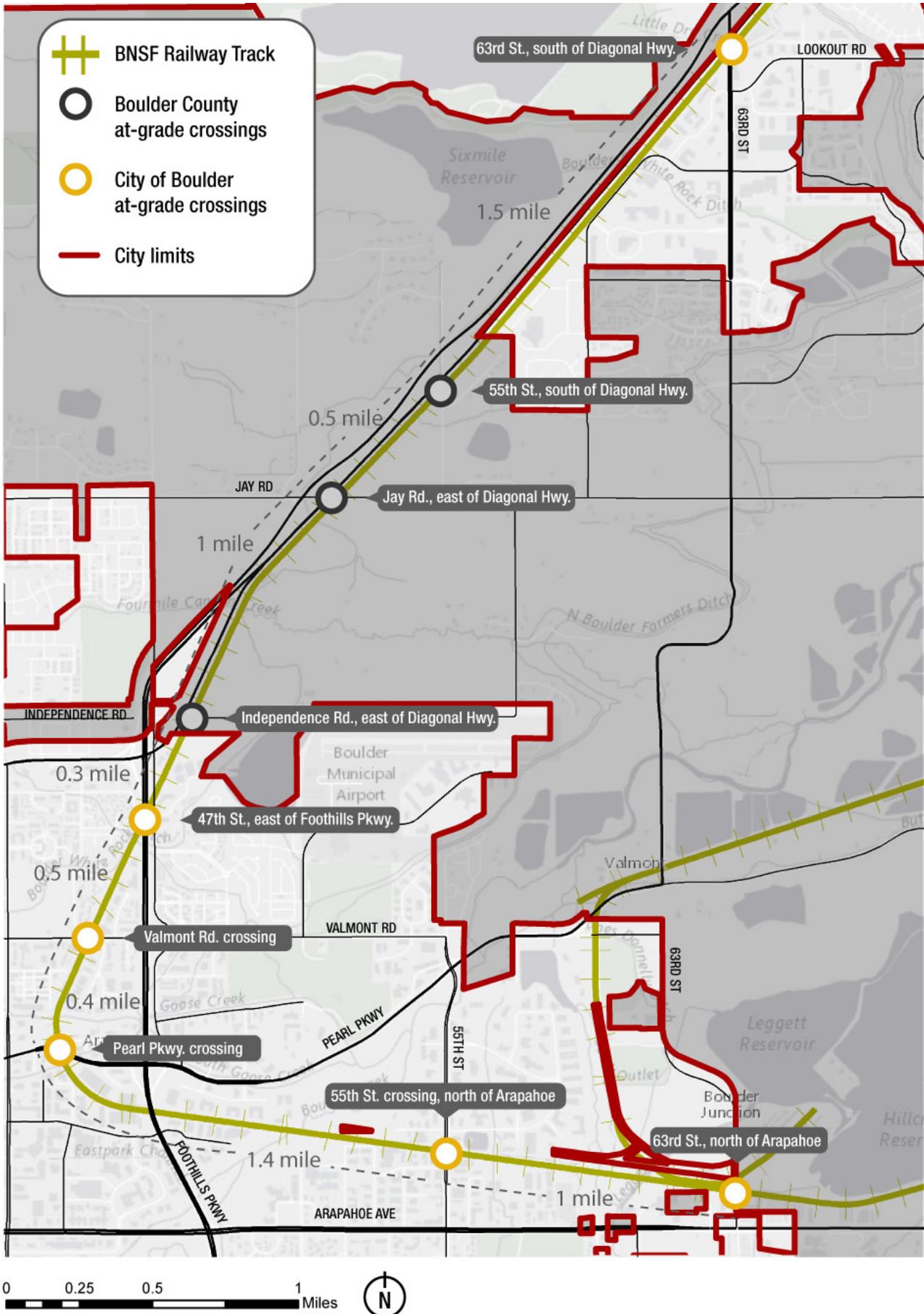
**2018-19:** Construction of selected quiet zone crossing improvements

### More information

Learn more about railroad quiet zones and review the quiet zone study reports at <https://bouldercolorado.gov/Transportation>. Or contact Kathleen Bracke, GO Boulder Manager with the City of Boulder’s Transportation Division. E-mail: [brackek@bouldercolorado.gov](mailto:brackek@bouldercolorado.gov) and phone: (303) 441-4155. City staff is available to meet with neighborhood groups and individuals to discuss railroad quiet zones in more detail.



# City of Boulder - Railroad Quiet Zone Locations



# CITY OF BOULDER 2016-2017 PROJECTS

