

# Boulder, Colorado, USA



## An example of an integrated transportation system

**Boulder has been tremendously successful in integrating biking, walking, and public transit. Boulder residents ride public transit at twice the rate of the national U.S. average, walk more than three times as often, and ride bikes 21 times more than the national average. These efforts qualified Boulder to represent the U.S. in ICLEI's Eco Mobility Alliance.**

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### Abstract

Since 1989, the City of Boulder has committed to moving away from a transport model based on the Single Occupant Vehicle (SOV). Over the years, the Transportation Master Plans (TMP) evolved to set more aggressive goals. The current Boulder's TMP has set a goal of reducing the share of SOV trips to 25% of all trips by Boulder residents by 2025. Providing alternative transportation choices and integrating the transportation plan into other city plans has been the key to reducing SOVs.

The Transportation Department is tracking the success of transportation planning in Boulder. Based on an analysis from 2011, transit users in Boulder have increased 300% since 1991, while Single Vehicle Occupancy has declined 15%. Moreover, Boulder is a model community for biking with a Platinum Bicycle Friendly Community certificate by the League of American Bicyclist.

The city has continued to set ambitious goals by targeting the Diamond certificate in biking and providing safe pedestrian streets. The city is collaborating with the region, to plan for Bus Rapid Transit lanes along the U.S 36 and Northwest Rail system, which will offer more transit options for citizens. Boulder Junction, a 160-acre transit oriented development, is a new effort that integrates land-use and transportation planning.

### Introduction

Since 1989, when Boulder's first Transportation Master Plan was adopted, the City started to advocate for alternative transportation. The city sought to provide mobility in a way that is safe and convenient and to preserve a high quality of life by minimizing auto congestion, air pollution, and noise. Unlike many other cities that have tried to reduce automobile dependency, Boulder is much more successful in promoting multi-model transportation and reducing Single Occupant Vehicle (SOV) trips. Moreover, Boulder's transit system is based on a bus system, which is unique to North American transportation planning. The decreasing availability of federal funding is an obstacle for implementing the transportation plans and the City of Boulder is seeking alternative funding resources to move forward. Valuable lessons can be provided for other cities by identifying the factors that contributed to the success of transportation planning in Boulder.



#### Population

101,808 (2012)

#### Land area

24.66 square miles

#### Municipal budget

2013 Transportation Department Approved Budget is US\$ 13.5 million (2011)



Boulder is an ICLEI member since March 2007, and takes part in ICLEI's EcoMobility Alliance.

## Case Study

### Boulder in context

Boulder, with a footprint of 24.66 square miles, is in Boulder County, Colorado. The 2012 Census estimates that the City population is 101,808, 80% of which are Caucasian. Boulder is among the most educated cities in the U.S. with 71.9% of adults attending college (Meltzer, 2010).

Boulder has an avid outdoor lifestyle. The city's location at the base of the Rocky Mountains has provided outdoor recreational opportunities for professional athletes and sports-oriented people. These natural features help attract around 30,000 students to the University of Colorado every year, making Boulder one of the most vibrant college towns in the U.S. (Florida, 2011).

Both the high cost of housing and a robust economy are contributing to a high number of commuters into the Boulder. According to the 2010 Census, the median house value was \$484,800, more than twice the average price for Colorado. The University of Colorado and National Laboratories in Boulder are among the largest employers in the City. The Colorado Department of Labor and Employment data indicates that the average annual wages of employees in Boulder is \$57,533, which is \$9,669 higher than Colorado average (Boulder Economic Council, 2012).

Transportation in Boulder, however, is a tale of two cities. Boulder's west side was developed before 1950 and has set a stage to provide a multi-modal transportation. In contrast, the east side, which developed later, is more car-oriented.

### A balanced solution to multimodal transportation systems

Boulder's multimodal transportation system is based on buses, biking, and walking. Since 1990, the City's Transportation Master Plans (TMP) has been launching several initiatives to improve the transportation system, and find ways to make transit more appealing to users. Boulder's Community Transit Network provides regional and local services. The city surveyed residents to identify strategies to promote public transit ridership, resulting in new seat arrangements, larger windows, music, a sign with the driver's name, and contemporary graphics decorating the bus body (Transportation Division, 2012). Additionally, bus frequency is 10 minutes or less, and three times more often than before the program. The traditional hub and spoke transit system is being redeployed in a grid system to improve connectivity and reduce travel time for patrons.



Boulder Creek Pathway between the Boulder Public Library and the Municipal Building

However, the lack of a dedicated lane for regional bus system has been a challenge. Boulder City is therefore working with the Colorado Department of Transportation, and Regional Transportation District (RTD) to add a bus lane to U.S 36 Highway to decrease travel times. In addition, the funding shortage from the federal government has delayed this project.

The Eco Pass Program, the city's most recognized TMP tool, is a discounted annual transit pass offered to residents and employers. After the successful pilot in 1989, it was replicated as the University of Colorado's student pass program (1993), the Business Eco Pass (1993), and the Neighborhood Eco Pass (1997). The Eco-Pass has been an essential and essential part to making transit a competitive element of the city's multimodal transportation system. The Eco-Pass holders use transit 5 to 9 times more than others.

Biking is not only another crucial component of Boulder's integrated transportation system, but also a part of the city's identity even before the first TMP. In 1977, Boulder hosted the first Bike to Work Day in the U.S. The adoption of the current TMP solidified the residents' engagement with bicycling. In 2011, the City of Boulder launched Boulder B-Cycle, a community bicycle sharing program with 22 stations around the city (Boulder B-Cycle website). Local and regional buses are equipped with bike racks and storage space under the bus. In addition, approximately 95% of Boulder's principal streets are bike friendly and have 159 centerline miles of bike facilities. An extensive network of paved shoulders and pathways are also included. Nevertheless, Boulder is struggling with bike safety issues. According to the Safe Streets Boulder Report, the cyclist accident rate is three times more than the pedestrian rate (Urie, 2012). The Transportation Department has emphasized providing streetscape design solutions to reduce the rate of accident for the 2013 TMP update. Through Boulder's involvement in ICLEI's EcoMobility Alliance, Boulder is learning best practices from cities like Münster, Germany, in improving bicycle safety.



Boulder B-Cycle Station located at Downtown to provide shared bikes on hourly basis. This is one of the 21 stations in the city.

#### The City of Boulder biking system includes:

- 58 miles paved multiuse pathways with 78 underpasses
- 34 miles of roads with bike lanes on both sides
- 4 miles of roadway with a climbing bike lane and downhill bike route
- 10 miles of road with paved shoulders
- 43 miles of roads designated as bike routes
- 10 miles soft surface trails



The third component of the system is walking. Every trip begins and ends as a pedestrian. Boulder is known for its unique environment favorable to pedestrians. In order to make walking more attractive, the City of Boulder implemented several initiatives such as the Missing Sidewalk Program, the Sidewalk Repair Program, and the Pedestrian Crossing Treatment Installation Guidelines (released 2006). Boulder's east side is still auto-oriented, and the City is working to address this issue through the Complete Streets Plan.

The Boulder Comprehensive Plan is the umbrella plan for all the city plans, including the Transportation Master Plan and provides for continuity and integration among the plans. For example, the Climate Action Plan has set GHG emissions reduction goals for the transportation sector and has provided funding to help achieve those goals. The Greenways Plan integrates floodplain management and transportation planning by providing grade-separated pedestrian and biking access along Boulder Creek and the fourteen (14) tributaries that transverse the city from west to east. The Open Space Plan increases the attractiveness of biking and walking as most of biking and walkways in Boulder continue throughout the greenbelt around the city. The city's parking revenue is providing Eco Pass funding for downtown employees. All the bus stations are equipped with bike racks for encouraging biking. The area plans are reflecting the big picture goals. For instance, Boulder is an example of bus-based transit-oriented development. In the Downtown area, which is close to the Boulder main transit center, only one third of the Downtown employees are arriving by car (Transportation Division, 2012). The Boulder Junction transit-oriented development on the east side of the city is a new effort to integrate multimodal transportation, managed parking, walkable fine-grained neighborhood, and dense, mix-use development.



The bus system is designed to carry the bicycles. The graphics on the bus have been pivotal in marketing.

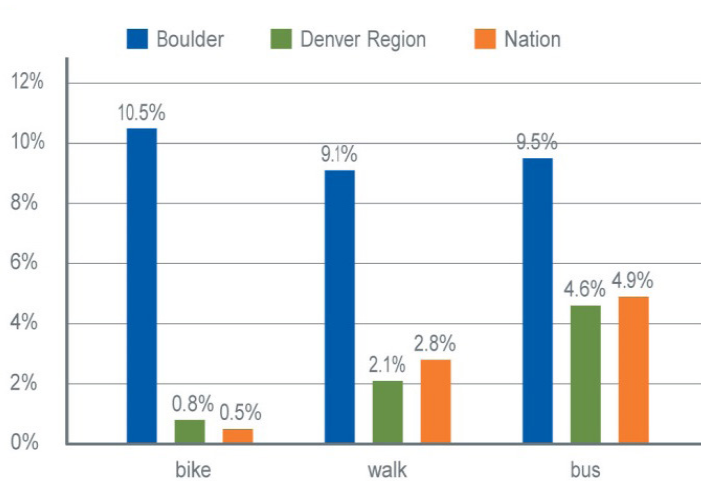
Collaboration with the regional transportation authority (RTD) and CU-Boulder to provide a complete transportation network has been an important part of transportation planning in Boulder. Implementation of non-local transit plans has largely been the result of strong regional collaboration.

## Results

Since 1990, the single occupant vehicle (SOV) rate has declined by 0.4% per year. However, to reach the 25% goal by 2025, this rate needs to be doubled. In 2009, the City achieved a 1994 goal of no growth in vehicle miles traveled (VMT). The bus system has experienced a 300% increase in mode share, which is the greatest increase across all modes. By February 2010, transit ridership surpassed 37,000 trips per day. To further increase the transit ridership, a coalition of corridor governments, RTD, and CDOT are committed to providing \$300 million to provide a bus and bike dedicated lane along U.S. 36. Biking rates have increased 70%, and the walking rates have remained stable. To improve walking conditions, the City has added 530 linear feet of sidewalks to complete walking systems. Improving sidewalks and removing barriers have been other efforts in this regard. Travel time within the city has been steady over the years. (Transportation Division, 2012)

### List of Awards for Boulder

- 2004 Metro Vision Award for the Denver Regional Council of Governments (DRCOG)
- The National 2004 Institute of Transportation Engineers (ITE) Best Practices Award
- 2008 Exemplary Human Environment Award for Encouraging Non-motorized Transportation by the Federal Highway Administration



Modal share in 2010: Boulder's residents ride bus transit twice as much as the national U.S. average, bike over 21 times more than the national average and walk three times more than the average.

Transportation contributes 22% of the greenhouse gas (GHG) emissions of the city. In order to reduce that footprint, the Climate Action Plan designated funding to the Transportation Department. Most of the funds will be spent on the GO Boulder Business and Eco Pass programs (Transportation Division, 2012).

## Lessons Learned

Boulder's Transportation Department **collaboration with other City departments has been key**. Boulder Comprehensive Plan provided the big picture goals and tied different plans together. Collaboration with regional partners is another factor contributing to the successful transit system.

**The City of Boulder needs to find sustainable funding sources** to progress towards the goals. Dependency on federal funding in regional plans delayed some key projects.

**Integrating multiple transportation options and improving the reliability of the system** have been an important factor to encourage the community to use alternative transportation. Bus frequency, access to bike, and pedestrian routes have provided convenient options for people who choose not to use their vehicles. Downtown pedestrian mall and walking-biking routes along Boulder Creek and the fourteen (14) tributaries provided pleasant and grade-separated access to move around Boulder. With the grade-separated greenways multiuse path system, most cycling trips are time competitive with the auto and bus.

**Building political support** has been an important aspect of Boulder's transportation planning. Extensive community outreach and education encouraged the citizens to choose alternative transportation. The city is assessing the progress frequently, which helps policy makers to make an informed decision.

**Eco-Pass is critical to providing access and driving transit demand.** A person with an Eco-Pass is 5 to 9 times more likely to use transit.

**Managed, unbounded, and pay for parking is critical to developing the desired land use** pattern, creating a level modal playing field and managing transportation demand. The city currently has four parking districts (Downtown, University Hill, University of Colorado, and Boulder Junction). Future plans are to expand the areas of the city with managed parking.

**Land-use plays an important role in the success of multi-model transportation.** Boulder is planning to change the block scales, land-use, and street patterns on the east side of the city. The superblocks pattern and lack of mix-use affects the community interest in walking and biking. Developing the Boulder Junction Transit Oriented Development on the east side of the city can be a catalyst for this change.

**Marketing and education are pivotal strategies to change people's travel behaviors.** Before 1989, the bus service primarily had served low-income residents and had not been considered a viable option by car owners. To encourage citizens in alternative transportation, the city implemented a marketing strategy to change social behavior. After a few years of a successful campaign, the budget for marketing and educational initiatives has been nearly eliminated.

## Replication

The Boulder model is replicable for many U.S. college towns. A young population is more likely to use alternative transportation, especially when a subsidized bus program is provided. When given a complete biking and walkway system, students are especially attracted to alternative transportation.

It is critical to test the city political climate for investing in alternative transportation. Building community consensus and bringing the policy makers on board is the first step in comprehensive transportation planning. Social marketing geared toward behavior change can also help accelerate the process of shifting people out of their cars.

It is necessary to prioritize investment in visible changes to build community support. For example, providing a small scale Complete Street example may help the community to realize the value of access to such a system citywide.

Frequent monitoring and measuring are other tools that can increase the chance for success. It will help recognize the mistakes in early stages and build upon the success moving forward. Ongoing evaluation is also important in building and maintaining trust within the community.

## **Budget and Finances**

The 2013 City of Boulder Plan approved a budget of \$13,522,500 for transportation (Staff, 2013). The local portion of the funding comes from a 0.6% sales tax, approved in 1967 by voters. The budget is also subsidized by federal funding, which is awarded for large infrastructure projects. Additionally, a small portion of the budget is money paid by developers in the form of Development Excise Taxes.

During the last ten years, the Transportation Fund decreased by 19%, with an estimated 38% drop in purchasing power. Knowing this, the City of Boulder set its expenditure priorities in 2011, increasing the percentage of the budget for operations, safety, and maintenance of current systems by nearly 20%. The city focused reductions and efficiency initiatives in other aspects, such as the city marketing efforts of GO Boulder and the reduction of transit services.<sup>4</sup>

In 2011, a bond against existing revenues was approved by voters, granting the city a one-time infusion of \$17 million to solve some urgent transportation infrastructure maintenance related issues, and \$9 million for new projects.

Currently, long-term funding deficiencies remain for the City of Boulder and have become a key challenge to implementing its 2012 TMP. The progressive decreases of federal and state funding have made the challenge even greater for the near future.

The funding allocation is reflecting the priorities for the local government. More than 75% of the enhancement budget is directed to the bike, pedestrian, and transit projects. Fifty-six percent (56%) of the Operation and Maintenance budget goes towards maintenance of the roads.



## Key Contacts

Boulder, Colorado

Tracy Winfree

Public Works Department,  
Transportation Division

PO Box 791,  
Boulder, CO 80306

Tel: 303-441-3266

Email:

WinfreeT@bouldercolorado.gov

## ICLEI World Secretariat

Capacity Center

Kaiser-Friedrich-Str. 7

53113 Bonn, Germany

Tel. +49-228 / 97 62 99-00

Fax +49-228 / 97 62 99-01

Email: [capacity.center@iclei.org](mailto:capacity.center@iclei.org)

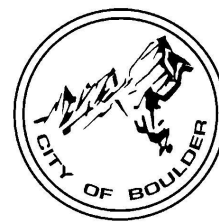
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