WEEKLY INFORMATION PACKET
MEMORANDUM

To: Mayor Appelbaum and City Council

From: Jane S. Brautigam, City Manager
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Date: October 22, 2009

Subject: Information Item: Update on Transportation Metrics

EXECUTIVE SUMMARY:

Two new sources of data offer an opportunity to provide an update on transportation metrics. The 2008 American Community Survey (ACS) data was released in September 2009 by the U.S. Census Bureau, and City of Boulder Transportation staff has recently completed its analysis of the 2009 Downtown Boulder Bicycle Parking Count.

The ACS is conducted by the U.S. Census Bureau to provide data between decennial Census surveys. The 2008 ACS data shows that the City of Boulder continues to make consistent progress toward reaching the Transportation Master Plan (TMP) and Climate Action Plan (CAP) goals of reducing single-occupant vehicle (SOV) travel, as measured by work-trip mode share.

Key findings from the 2008 ACS, in the context of past ACS and Census results, include:

1. The City of Boulder is continuing to make progress in reducing SOV mode share as measured for work-trips. Since the 2000 Census, the SOV work-trip mode share by residents has decreased from 61.3 percent to 53.6 percent.
2. Boulder residents report significantly higher alternative mode shares compared to the nation and Denver Metro area. The bus/bike/walk mode share is 28.8 percent for Boulder residents compared to 8.3 percent for the nation and 7.7 percent for the Denver Metro area.
3. Boulder residents' bicycle commuting share (9.9 percent) is almost 20 times the national average (0.5 percent) and is the highest among Bicycle Friendly Communities that were also surveyed by the 2008 ACS. Boulder's transit use is twice the national average (10.6 percent locally v 5.0 percent nationally), and walk trips are three times the national average (8.3 percent locally v 2.8 percent nationally).

4. The ACS results validate the survey findings and methodologies from the city's Boulder Valley Regional Employee Survey and Travel Diary Surveys, as they report similar SOV work-trip mode shares over time.

The 2009 Downtown Boulder Bicycle Parking Count was completed in August by city staff and volunteers. It suggests that the number of people bicycling downtown continues to grow. The annual count was conducted to estimate the demand for bicycle parking and the impact of converting old parking meters to bicycle parking racks as well as determine the need for and location of additional bicycle parking in the downtown area. This was the third annual count conducted by the city. Since the count was initiated, the downtown area has experienced a significant growth in the number of bicycles parked downtown, and in many areas, the demand for bicycle parking exceeds the supply. The main conclusions of the count are:

1. The number of bicycles counted in the downtown area increased by 14 percent between 2008 and 2009, and 46 percent between 2007 and 2009.
2. The most popular areas for parking bicycles have not changed substantially between 2007 and 2009. One noticeable change is a significantly higher concentration of bicycles parked at the Farmers Market (both Wednesday and Saturday).
3. The areas where additional bicycle parking is needed are similar to the previous findings. The Farmers Market continues to have a high unmet demand for bicycle parking. Supply is also not meeting demand in the areas immediately west and east of the Pearl Street Mall.
4. Both the 2008 and 2009 counts also showed an increased amount of bicycles parked in the alleyways north and south of Pearl Street. It is possible that there has been an increase in the number of employees commuting by bicycle to the area. Although it appears that some businesses have provided racks, additional bicycle parking is needed in the alleyways.

FISCAL IMPACT:

This is an information item with no fiscal impact on the city.

COMMUNITY SUSTAINABILITY ASSESSMENTS AND IMPACTS:

- Economic: Both sources of transportation metrics demonstrate that the City of Boulder continues to make progress in meeting the goals of the Transportation Master Plan. By providing multimodal options to residents, employees and visitors, Boulder's economic vitality is strengthened by reducing dependence on fossil fuels, increasing available travel options and lowering the cost to move goods and people in and around the city.
- Environmental: By reducing vehicle trips and vehicle miles through strategic multimodal investments, the city is making progress in meeting the goals of the Climate Action Plan. Transportation emissions are approximately 22 percent of the city's carbon footprint.
- Social: By providing residents and employees of Boulder with viable transportation options, the city is helping to reduce the cost of travel, building more livable communities, and fostering social interaction.

BACKGROUND AND ANALYSIS :

Background and analysis is provided in the attached reports.

NEXT STEPS:

Continue to monitor progress toward Transportation Master Plan (TMP) goals and objectives. The next update to the Boulder Valley Travel Diary Study is underway. Results are anticipated in early 2010. In addition, this data will be incorporated in the upcoming Report on Progress after 20 years of the City of Boulder's first TMP.

ATTACHMENTS:

- **Attachment A: Journey to Work in the City of Boulder**
- **Attachment B: 2009 Downtown Boulder Bicycle Count**

Attachment A.

Journey to Work in the City of Boulder
Travel Data Update: October 2009

Compiled by City of Boulder Transportation Staff

Newly released data from 2008 American Community Survey (ACS) shows that the City of Boulder continues to make consistent progress on reducing single-occupant vehicle (SOV) travel. The data, released in September 2009, measures work-trip mode shares. The ACS is conducted by the U.S. Census Bureau to provide data between decennial Census surveys. For both the Census and the ACS, respondents are asked how they "usually" travel to work. All respondents reside in the City of Boulder. The margin of error is 1.65 percent with a 90 percent confidence interval.

Key findings from the 2008 ACS, in the context of past ACS and Census results, include:

1. The City of Boulder continues to make progress in reducing SOV mode-share. Since the 2000 Census, the SOV work-trip mode share has decreased from 61.3 percent to 53.6 percent according to the 2008 ACS.
2. Boulder residents report significantly higher alternative mode shares compared to nation and Denver Metro area; according to the 2008 ACS, the bus plus bike plus walk mode share is 28.8 percent for Boulder residents compared to 8.3 percent and 7.7 percent for the nation and the Denver Metro area respectively.
3. Boulder's bicycle commuting share (9.9 percent) is almost 20 times the national average (0.5 percent) and is the highest among Bicycle Friendly Communities that were surveyed by the 2008 ACS. Boulder's transit use is twice the national average (10.6percent locally v 5.0 percent nationally), and walk trips are three times the national average (8.3 percent locally v 2.8 percent nationally).
4. The ACS results validate our local survey findings and methodologies as they report similar SOV work-trip mode shares over time.

Boulder's Journey to Work

According to Census and ACS data, the 'drive-alone' work-trip mode share has decreased by 7.7 percent from the 2000 Census to the 2008 ACS. In that same time period, the transit work-trip mode share increased by 5 percent and the bicycle work-trip increased by 2.9 percent. Pedestrian travel fell by 2.5 percent in the same period. It is also interesting to note that the percentage of Boulder residents who work from home nearly doubled since the 2000 Census.

Table 1: Work-trip Mode Share Data

Mode	1990 Census	2000 Census	2006 ACS	2008 ACS	Change between 2000 Census and 2008 ACS
Drive-alone	61.3%	59.8%	55.5%	53.6%	-7.7%
Carpool/Vanpool	9.5%	8.7%	6.7%	6.9%	-2.6%
Bus	5.6%	8.3%	9.0%	10.6%	+5.1%
Bike	7.0%	6.9%	8.8%	9.9%	+2.9%
Walk	10.7%	9.0%	10.0%	8.3%	-2.5%
Other	0.8%	0.8%	0.8%	1.0%	+0.2%
Work from home	5.1%	6.5%	8.6%	9.6%	+4.5%

Census and ACS data suggest that in comparison to work-trip mode split data for the nation and the Denver Metro area, the City of Boulder's investments in multimodal infrastructure and support programs have had a significant impact on single-occupant vehicle use. Since the 2000 Census, the national drive-alone work-trip mode share has increased by 5.1 percent, while Boulder's has decreased by 7.7 percent. The Denver Metro area has experienced virtually no change.

Table 2: Comparing Drive-alone Work-trips Mode Shares

Drive-alone Work-trip Mode Share	1990 Census	2000 Census	2006 ACS	2008 ACS	Change between 2000 Census and 2008 ACS
Boulder	61.3%	59.8%	55.5%	53.6%	-7.7%
Denver Metro	75.0%	75.6%	76.0%	75.5%	+0.5%
Nation	69.5%	75.7%	75.9%	74.6%	+5.1%

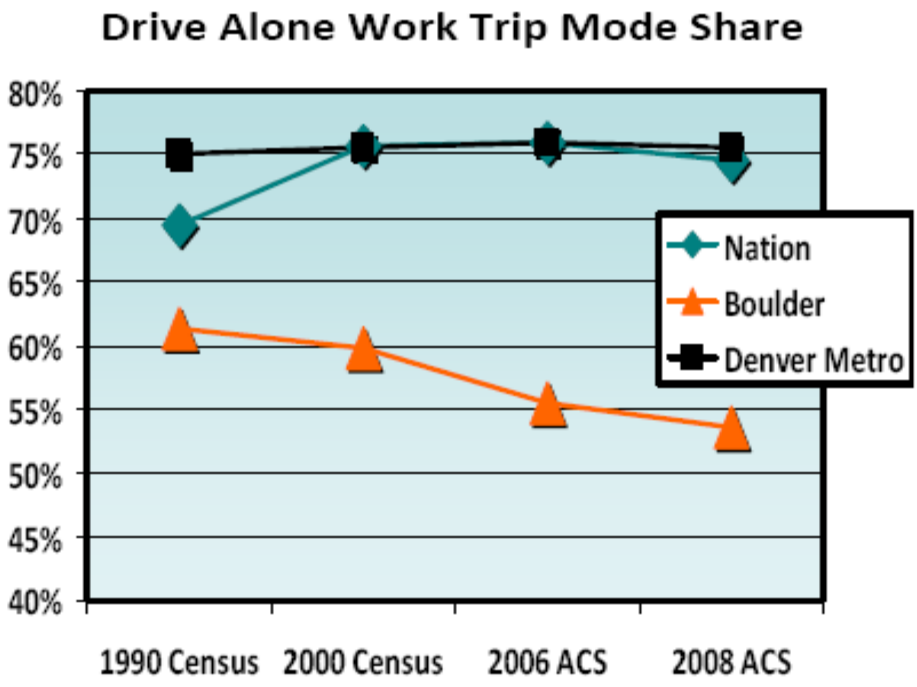


Table 3 shows the ACS drive-alone work-trip results for residents of the communities included in the survey in Colorado. City of Boulder residents have the lowest drive-alone mode share in Colorado, more than 13 percentage points lower than Denver with the next lowest share.

Table 3: Comparison of Colorado communities

Drive-alone Work-trip Mode Share	2008 ACS
Colorado	73.7%
Arvada	78.5%
Aurora	76.1%
Boulder	53.6%
Centennial	75.5%
Colorado Springs	78.9%
Denver	66.7%
Fort Collins	70.5%
Greeley	76.3%
Highlands Ranch	75.8%
Lakewood	74.9%
Longmont	73.3%
Loveland	80.4%
Pueblo	75.1%
Thornton	79.1%
Westminster	80.7%

Using other modes

In looking at alternative mode work-trip shares, the City of Boulder has experienced a 3.1 percent increase in modes other than driving alone or working from home since the 2000 Census. While in the same period the nation and the Denver Metro Area has witnessed declines of 2.3 percent and 1.7 percent respectively.

Table 4: Comparing Alternative Mode Work-trips Mode Shares

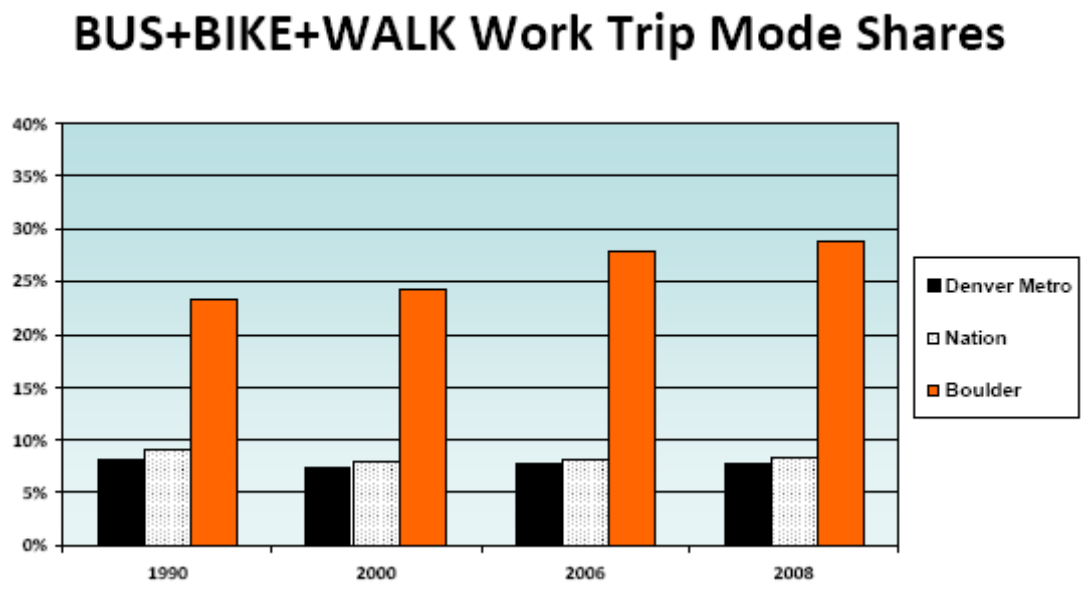
Work-trip Mode Share		1990 Census	2000 Census	2006 ACS	2008 ACS	Change from 2000 to 2008
Nation	Carpool	12.7%	12.2%	10.7%	10.7%	-2.0%
	Bus	5.00%	4.70%	4.80%	5.00%	0.0%
	Bike	0.40%	0.40%	0.50%	0.50%	0.1%
	Walk	3.70%	2.90%	2.90%	2.80%	-0.9%
	Other	0.90%	0.80%	1.10%	1.40%	0.5%
	Total	**22.69%**	**21.00%**	**20.00%**	**20.40%**	**-2.3%**

Attachment A.

Work-trip Mode Share		1990 Census	2000 Census	2006 ACS	2008 ACS	Change from 2000 to 2008
Denver Metro	Carpool	12.4%	11.5%	9.8%	10.5%	-1.9%
	Bus	4.20%	4.30%	4.60%	4.90%	0.7%
	Bike	0.70%	0.70%	0.70%	0.80%	0.1%
	Walk	3.30%	2.40%	2.30%	2.10%	-1.2%
	Other	0.70%	0.70%	1.40%	1.30%	0.6%
	Total	**21.34%**	**19.64%**	**18.84%**	**19.62%**	**-1.7%**

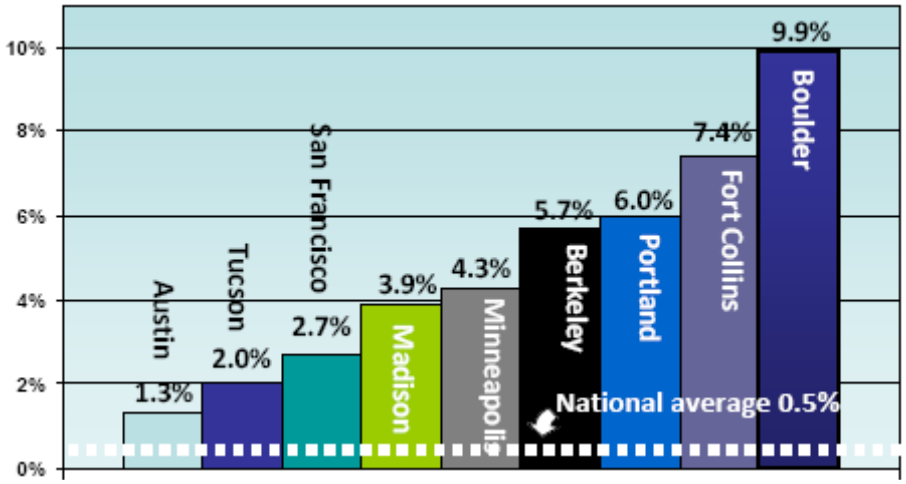
Work-trip Mode Share		1990 Census	2000 Census	2006 ACS	2008 ACS	Change from 2000 to 2008
City of Boulder	Carpool	9.5%	8.7%	6.7%	6.9%	-2.6%
	Bus	5.60%	8.30%	9.00%	10.60%	5.0%
	Bike	7.00%	6.90%	8.80%	9.90%	2.9%
	Walk	10.70%	9.00%	10.00%	8.30%	-2.4%
	Other	0.80%	0.80%	0.80%	1.00%	0.2%
	Total	**33.59%**	**33.69%**	**35.30%**	**36.69%**	**3.1%**

In comparing combined bus, bike and walk work-trip mode shares, Boulder's working residents reported significantly different travel behavior. The bus+bike+walk mode share for work-trips for Boulder's residents of 28.8 percent is over three times the national average and almost four times higher than residents of the Denver Metro area.



Bicycle Commuting

The 2008 ACS data also reveals that Boulder's bicycle commuting mode share is 19.8 times the national average, and is the highest of the League of American Bicyclists Bicycle Friendly Communities with Platinum or Gold designations that were surveyed in 2008.



Note: Davis, CA, the only other Platinum city besides Boulder, was not surveyed in the 2008 ACS.

Validation of City of Boulder Survey Data

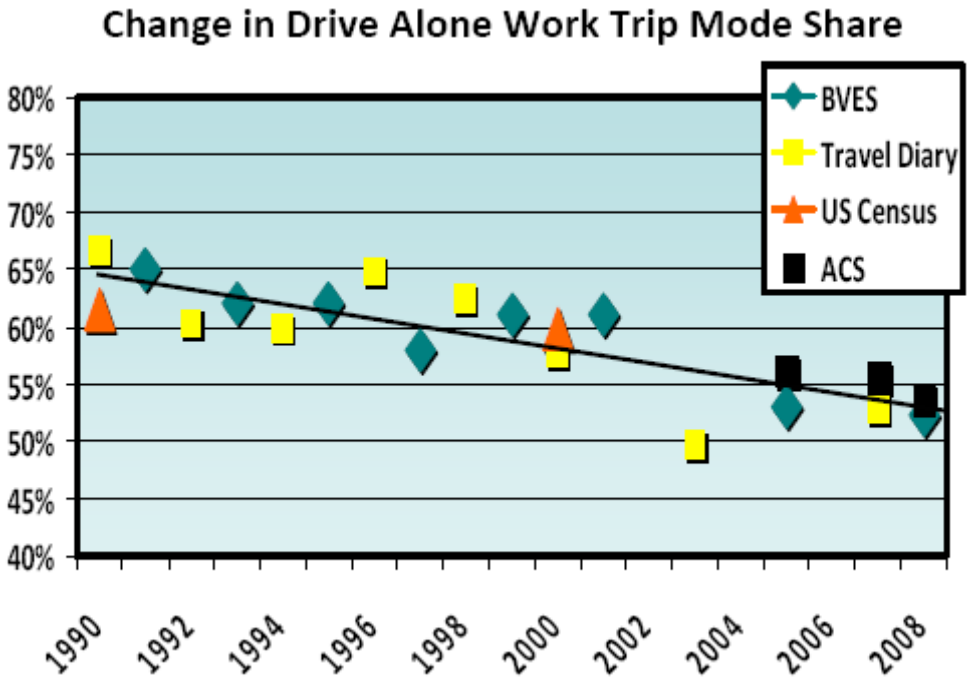
The results also validate survey findings from the Boulder Valley Employee Survey (BVES) and the Travel Diary Surveys, which are funded by the City Transportation Division and conducted by the National Research Center. Drive-alone mode shares are very consistent between the local and national surveys.

It is important to remember that difference in other modes may result from the different ways in which respondents report their travel behavior. Respondents to the BVES are asked to record how they got to work on a particular day, while the ACS asks how respondents "usually" get to work. This also may be why there are larger fluctuations in our local survey data, particularly for bike and transit mode shares.

Table 5: Comparison of BVES and ACS

Work-trip Mode Share	2005 BVES	2006 ACS	2008 BVES	2008 ACS
Drive-alone	**53.0%**	**55.5%**	**52.3%**	**53.6%**
Carpool/Vanpool	7.0%	6.7%	5.0%	6.9%
Bus	15.0%	9.0%	8.7%	10.6%
Bike	7.0%	8.8%	17.2%	9.9%
Multimodal	2.0%		4.3%	
Walk	7.0%	10.0%	8.5%	8.3%
Other	2.0%	0.8%	0.6%	1.0%
Work from home	7.0%	8.6%	3.4%	9.6%

Attachment A.



This graph plots the results of the various surveys over time. The Travel Diary Survey tracks all trips made by Boulder residents, including non-work-trips. The black line indicates the trend line over time. In aggregate, the surveys indicate continuing progress towards Boulder's goals of shifting trips from single occupant vehicles to other modes.

Other ACS Data of Note

The ACS collects a wide variety of travel behavior data. Travel behavior data can be further analyzed by a number of respondent characteristics, including income, gender, vehicle access, travel time and time leaving for work. For example, according to the 2008 ACS, the number of vehicles that a respondent can access significantly impacts their journey to work. As the table below shows, respondents that have access to one or two vehicles have similar travel behavior excluding walking to work. However, respondents with access to three or more vehicles are far less likely to use transit.

Table 6: Access to Vehicles Impact on Travel Behavior in Boulder

2008 ACS Work-trip Mode Share	No Vehicle	1 vehicle	2 vehicles	3 vehicles or more
Drive-alone	17.8%	50.5%	57.8%	65.3%
Carpool	6.7%	5.6%	7.5%	6.6%
Bus	22.2%	12.6%	10.1%	3.9%
Walked	43.8%	11.7%	1.4%	4.0%
Other including bicycle	4.8%	11.3%	12.2%	10.1%
Worked at home	4.8%	8.3%	11.0%	10.1%

The ACS also measures travel time to work. Despite growth in population and employment, travel time in Boulder has not significantly increased. For almost half of Boulder residents, the journey to work takes less than 15 minutes. Only one in five Boulder residents has a work commute that takes longer than 30 minutes. Since 1990, there have not been significant changes in terms of the percent of commuters that travel less or more than 30 minutes respectively. In 1990, 82 percent of commuters traveled less than 30 minutes, and in 2008, 81 percent travel less than 30 minutes.

Table 7: Travel Time to Work

Travel Time to Work	1990 Census	2000 Census	2006 ACS	2008 ACS
Less than 10 minutes	23.3%	20.2%	24.0%	20.8%
10 to 14 minutes	26.5%	25.3%	25.4%	27.1%
15 to 19 minutes	18.7%	20.8%	19.7%	16.6%
20 to 24 minutes	9.0%	11.0%	10.0%	12.2%
25 to 29 minutes	2.8%	3.3%	3.1%	4.2%
30 to 34 minutes	5.7%	6.2%	7.0%	6.6%
35 to 44 minutes	4.7%	3.8%	3.5%	3.1%
45 to 59 minutes	5.5%	4.8%	3.3%	4.9%
60 or more minutes	3.7%	4.5%	4.1%	4.6%

For further information on the City of Boulder's analysis of ACS data, contact Chris Hagelin, Senior Transportation Planner, at 303-441-1832 or hagelinc@bouldercolorado.gov.
ACS data is available at http://www.census.gov/acs/www/.
City of Boulder Travel Diary Survey (also called Mode Shift Report) and Boulder Valley Employee Survey results are available at http://ci.boulder.co.us/index.php?option=com_content&task=view&id=467&Itemid=1657.

Attachment A.

Attachment B.

2009 Downtown Boulder Bicycle Count
Executive Summary

The 2009 Downtown Boulder Bicycle Count was conducted to:

- estimate the demand for bicycle parking,
- understand the impact of converting parking meters to bicycle parking racks, and
- determine the need for and location of additional bicycle parking in the downtown area.

The 2009 Downtown Boulder Bicycle Parking Count was completed in August by city staff and a large crew of volunteers. This was the third annual count conducted by the city. Since the count was initiated, the downtown areas has experience a significant growth in the number of bicycles parked downtown and in many areas the demand for bicycle parking exceeds the supply.

The downtown area was divided into eight zones of four to six blocks and consisted of a total of 197 block faces. Four counts were conducted from Aug. 19 - 22 at different times of the day to estimate peak bicycle parking demand. In 2007 and 2008, the bicycle counts were done at the beginning of August, but the surveys were completed at the same times of the day as the 2009 survey.

Results

A total of 4,088 bicycles were counted for an average per count of 1,022 bicycles per day. Counts ranged from a low of 825 on Thursday morning to a high of 1315 on Friday evening. Of the 4,088 bicycles counted, approximately 72 percent were observed on racks (66.4 percent) or parking meters (5.9 percent), 22 percent were locked on things other than racks or meters, such as trees, railings, or fences, and 6 percent were left freestanding. Freestanding bicycles were primarily counted outside of the Farmers' Market as well as other businesses or residences. Between 2008 and 2009, there was a 14 percent increase in the number of bicycles counted, and a 46 percent increase between 2007 and 2009. It is important to note that the number of bicycles parked on 'other' has increased significantly since 2007; up 76 percent. Clearly, there is a need for additional bicycle parking, particularly at the Farmers' Market and at both ends of the Pearl Street Mall. See Table 1 for results.

Table 1: Downtown Boulder Bicycle Count Summary

Year	Bikes on racks	Bikes on meters	Bikes on 'other'	Freestanding bikes	Total bikes counted
2007	1,852	275	505	164	2,796
2008	2,354	256	792	172	3,574
2009	2,713	242	887	246	4,088
Percent change 2007 to 2008	27%	-7%	57%	5%	28%
Percent change 2008 to 2009	15%	-5%	12%	43%	14%
Percent change 2007 to 2009	46%	-12%	76%	50%	46%

According to the results of the count, the areas with the highest bicycle counts, regardless of whether or not the bicycles were parked on racks, concentrate around five specific areas. The same five locations also had the highest bicycle counts in 2008, with only the Library and 11th Street between Pearl and Spruce streets switching their ranking in the top five.

1. the RTD transit station on 14th Street
2. the Farmers' Market on 13th Street
3. Pearl Street between 9th and 11th streets
4. 11th Street between Pearl and Spruce streets
5. Main Library area

The five primary areas where the counts suggest that supply is not meeting demand as measured by bicycle locked on objects other than racks or free-standing are:

1. Farmers Market area
2. Pearl Street between 9th and 11th
3. 16th Street south of Walnut
4. Alley between Broadway and 11th Street north of Pearl
5. Pearl Street between 15th and 16th Streets

Conclusions

1. The number of bicycles counted in the downtown area increased by 14 percent between 2008 and 2009, and 46 percent between 2007 and 2009.
2. The most popular areas for parking bicycles in any manner have not change substantially between 2007 and 2009. One noticeable change is a significantly higher concentration of bicycles parked at the Farmers' Market.
3. The areas where additional bicycle parking is needed are similar to the previous findings. The Farmers Market continues to have a high unmet demand of bicycle parking. Supply is also not meeting demand in the areas west and east of the Pearl Street Mall.
4. Both the 2008 and 2009 counts also showed an increased amount of bicycle parked in the alley ways north and south of Pearl Street. It is possible that there has been an increase in the number of employees commuting by bicycle to the area. Although it appears that some businesses have provided racks, additional bicycle parking is need in the alley ways.

Achieving accurate counts of bicycling is difficult. The mode is very weather dependent, bicyclists tend to self-select on surveys, and Boulder's extensive system of infrastructure means that bicyclists do not concentrate in any particular locations (such as bridge crossings). Therefore, the city uses a variety of metrics to understand bicycle use and views them mostly as a tools to track change over time. The downtown bicycle parking survey provides one set of data that indicates that bicycle use has grown in the past two years.

For further information on the Downtown Boulder Bicycle Counts, please contact Chris Hagelin, Senior Transportation Planner, at 303-441-1832 or hagelinc@bouldercolorado.gov.