Date: October 2, 2015

Folsom Street Living Lab

Weeks 1-9 – Primary Evaluation Criteria

As part of the Living Laboratory Phase II Folsom Street project, data on vehicle and bicycle volumes, vehicle speed, vehicle travel time, collisions, and bicyclist demographics was collected before the installation of protected bicycle lanes, during weeks 1-9 after the installation, and will continue to be collected as part of the ongoing evaluation process. While the after data from these early weeks is valuable, it is important to note that it is still considered preliminary; ongoing data collection and analysis in the coming weeks will continue to inform the evaluation of the project.

Secondary evaluation data is also being collected as part of the evaluation process. This summary includes preliminary bicycle demographic data. Additional details about the secondary evaluation criteria and the collection time periods for each can be found at www.BoulderLivingLab.net.

Before data collection time periods vary by criteria and are noted in the individual tables below. After data collection time frames are:

- **Weeks 1-2:** July 27 to August 9, 2015
- **Week 3:** August 10 to August 16, 2015
- **Week 4:** August 17 to August 23, 2015
- **Week 5:** August 24 to August 30, 2015
- **Week 6:** August 31 to September 6, 2015
- **Week 7:** September 7 to September 13, 2015
- **Week 8:** September 14 to September 20, 2015
- **Week 9:** September 21 to September 27, 2015

Vehicle Volume and Speed

The city has been collecting average weekday traffic volume and speed at two locations along Folsom Street, north of Bluff and north of Canyon. The data is collected using Miovision technology and is recorded for a three-day period, and reported as the average of the three days, or average daily traffic (ADT). Note that Boulder Valley School District (BVSD), University of Colorado –Boulder (CU) and Naropa schools have been in session during some, but not all, of the before and after data collection periods (noted in the tables below).

Folsom Street north of Bluff Street – Posted Speed Limit = 30 mph

Evaluation Period	Date Collected	ADT-Weekday (vpd)	Average Speed (mph)	85th Percentile Speed (mph)	School In Session
Before	4/27-5/1/15	15,780	35	39	Yes
After-Week 2	8/5-8/7/15	13,790	33	37	No
After-Week 3	8/12-8/14/15	13,930	33	37	No
After-Week 5	8/26-8/28/15	14,310	32	36	Yes
After-Week 6	9/2/15-9/4/15	14,100	32	36	Yes
After-Week 7	9/8/15-9/11/15	14,210	32	36	Yes
After-Week 8	9/15/15-9/17/15	13,570	33	36	Yes
After-Week 9	9/22/15-9/24/15	13,750	33	36	Yes

Folsom Street north of Canyon Blvd. – Posted Speed Limit = 30 mph

Evaluation Period	Date Collected	ADT-Weekday (vpd)	Average Speed (mph)	85th Percentile Speed (mph)	School in Session
Before	6/30-7/2/15	18,970	29	34	No
After-Week 2	8/3-8/5/15	15,790	25	30	No
After-Week 3	8/10-8/12/15	16,480	24	29	No
After-Week 5	8/25-8/26/15	16,500	24	29	Yes
After-Week 6	9/2/15-9/4/15	15,960	24	29	Yes
After-Week 7	9/9/15-9/11/15	16,590	26	30	Yes
After Week 8	9/16/15-9/17/15	16,200	26	30	Yes
After Week 9	9/22/15-9/24/15	15,750	26	30	Yes

- **ADT =** Average Daily Traffic
- **VPD =** Vehicles per Day
- **MPH =** Miles per Hour

Corridor Travel Time

The travel time it takes to drive the Folsom corridor end-to-end from Valmont to Arapahoe in the northbound and southbound directions was measured by driving the corridor before and after the installation of the protected bike lanes. The project team used the before travel time measurements to help calibrate the VISSIM modeling software, and then to forecast the expected travel time after the installation.

Average PM Peak Hour Travel Times (in minutes: seconds)

Evaluation Period	PM Northbound	PM Southbound
Before (Nov. 2014)	3:32	3:20
Modeled	4:47[1]	4:30
Week 1-2	4:15	5:36
Week 3	4:02	4:41
Week 5	4:37	4:52
Week 6	4:13	5:19
Week 7	4:13	4:52
Week 8	3:05	4:36
Week 9	4:00	3:55

Northbound PM Peak Hour Travel Time Variability (in minutes:seconds)

Evaluation Period	Average	High	Low	Variability
Before	3:32	4:52	2:46	2:06
Week 1-2	4:15	6:48	2:40	4:08
Week 3	4:02	5:15	2:49	2:26
Week 5	4:37	6:33	2:57	3:36
Week 6	4:13	6:47	2:38	4:07
Week 7	4:13	5:25	3:03	2:22
Week 8	3:05	5:01	2:40	2:39
Week 9	4:00	4:57	2:39	2:36

Southbound PM Peak Hour Travel Time Variability (in minutes:seconds)

Evaluation Period	Average	High	Low	Variability
Before	3:20	3:44	2:13	1:31
Week 1-2	5:36	8:14	3:53	4:21
Week 3	4:41	5:58	3:35	2:23
Week 5	4:52	6:15	3:53	2:22
Week 6	5:19	7:50	3:52	3:58
Week 7	4:52	7:31	3:43	4:12
Week 8	4:36	7:28	3:33	3:55
Week 9	3:55	5:29	2:08	3:21

Collisions

Collision data for the Folsom corridor from Valmont to Colorado is being compiled from police reports. The totals include all crashes at the intersections and in segments along the corridor. The following summarizes the average collision frequency (1.6 per week) from 2012 to 2014 for vehicle-vehicle, vehicle-bicycle, and vehicle-pedestrian collisions. The collisions reported for Weeks 1-9 are also summarized below by mode.

Summary of Before Collisions Along Folsom Street from Valmont to Colorado from 2012-2014

Before Time Period	Vehicle-Vehicle	Vehicle-Bike	Vehicle - Pedestrian	Total
2012-2014	212	34	7	253
Average per Year	70.6	11.3	2.3	84.3

After Collisions Along Folsom Street from Valmont to Colorado

After Evaluation Period	Vehicle-Vehicle	Vehicle-Bike	Vehicle-Pedestrian	Total
Week 1-2	1	1	0	2
Week 3	1	0	0	1
Week 4	1	1	0	2
Week 5	0	0	0	0
Week 6	0	0	0	0
Week 7	1	0	0	1
Week 8	1	1	0	2
Week 9	3	0	0	3
Total	**8**	**3**	**0**	**11**

Bicycle Volume

Daily bicycle volumes are being collected at three locations along Folsom using permanent 24-hour counters: Boulder Creek, South Street, and Pine Street. BVSD, CU and Naropa were not in session during the before data collection period. Before and after volumes at Boulder Creek were collected by a permanent 24-hour counter. The before volumes at South and Pine streets were collected from 6 a.m. to 9 p.m. on June 30, 2015, and after volumes are being collected by permanent 24-hour counters installed in late July 2015. The after data includes bicycle volumes while BVSD, CU and Naropa were both in and out of session. Note that the validation of the counters is currently in progress, and volumes may later be adjusted to account for potential variances.

Bicycle volumes at all three locations increased during Weeks 4 and 5 from before conditions and Week 3 volumes. As noted previously, BVSD classes started during Week 4 and CU and Naropa classes started during Week 5, likely influencing the bicycle volumes.

Daily Weekday Average Bicycle Volumes Along Folsom Street at Pine Street

Evaluation Period	Northbound	Southbound	Total	School in Session
Before	437	440	877	No
Week 1	620	655	1,275	No
Week 2	551	625	1,176	No
Week 3	554	616	1,170	No
Week 4	603	651	1,254	No
Week 5	705	766	1,471	Yes
Week 6	684	748	1,432	Yes
Week 7	754	766	1,520	Yes
Week 8	681	713	1,393	Yes
Week 9	676	713	1,389	Yes

Daily Weekday Average Bicycle Volumes Along Folsom Street at South Street

Evaluation Period	Northbound	Southbound	Total	School in Session
Before	388	389	777	No
Week 1	497	578	1,075	No
Week 2	512	556	1,068	No
Week 3	406	500	906	No
Week 4	570	600	1,169	No
Week 5	706	791	1,497	Yes
Week 6	725	799	1,524	Yes
Week 7	730	813	1,543	Yes
Week 8	692	769	1,461	Yes
Week 9	695	761	1456	Yes

Daily Weekday Average Bicycle Volumes Along Folsom Street at Boulder Creek

Evaluation Period	Northbound - Adjusted	Southbound – Adjusted	Total - Adjusted	School in Session
Before	592	483	1,076	No
Week 1	683	521	1,204	No
Week 2	607	497	1,104	No
Week 3	603	478	1,081	No
Week 4	782	602	1,384	No
Week 5	1,060	880	1,940	Yes
Week 6	1,226	855	2,081	Yes
Week 7	1,212	945	2,157	Yes
Week 8	1,248	926	2,174	Yes
Week 9	1,096	904	2,000	Yes

Notes:

- "Before" volumes at Pine and South were collected from 6 a.m. – to 9 p.m. on June 30, 2015, and converted to daily volumes using the average hourly distribution from the permanent counter data.
- "Before" volumes at Boulder Creek are an average of weekday volumes from the last week of July and first two weeks of August from 2012 to 2014.
- "After" volumes are an average of daily volumes on Tuesday, Wednesday, and Thursday during the corresponding week.
- Volumes from Folsom at Boulder Creek have been adjusted using previously determined adjustment factors. Volumes from Pine and South have not yet been adjusted.
- The increase in bike volume from Week 4 to Week 5 is attributed to school in session. The increases in this volume along this corridor so far are consistent with the increases the city typically sees when school is back in session.

Bicycle Demographics

Bicycle demographic data has been observed and recorded along the Folsom corridor before and after the installation of pilot project. The before data was collected on April 28, 2015, for two hours. After data was collected on July 29, August 3, August 12-13, August 25-27, Sept. 1-3, Sept. 8-10, Sept. 15-17, and Sept. 23-25 for a total of 20 hours. Observations have been taken during weekday AM, noon, and PM rush hours. Observers record the total number of male and female bicycle riders on the roadways. In addition, the number of children and adults riding with children is recorded and comprises the "family" category (see table below).

Bicycle Weekday Demographic Along Folsom Street

Evaluation Period	Male	Female	Family
Before	72%	28%	4%
Week 1-2	78%	22%	6%
Week 3	67%	33%	5%
Week 5	66%	34%	4%
Week 6	66%	34%	4%
Week 7	67%	33%	2%
Week 8	70%	30%	1%
Week 9	69%	31%	2%