Active Transportation: City of Fayetteville, Fall 2014

Cameron Baker
University of Arkansas
Sustainability Capstone

Background

Non-renewable energy poses the greatest threat to climate change in the world we live in. The US alone contains more than 200 million automobile drivers who rely upon this energy to function day-to-day. Because of this, it is important to develop alternative transportation practices. Our heavy dependency on fossil fuels makes the US economy vulnerable, and not to mention its continuous contribution to CO_2 levels in the atmosphere. For this reason, I focused my project on the current state of active transportation in the City of Fayetteville. Specifically, I set out to observe and analyze the trends of bicycle ridership and pedestrian transit in the city. I generally assumed that the City of Fayetteville was a fairly environmentally conscious place, with its user friendly trail systems and sustainable culture. This project was an effort to better understand the status of its active transportation, and the important role it plays in the sustainable development of the City of Fayetteville.

The Project

The project included three distinct parts. First off, the research, organization, and creation of a reliable methodology to conduct the counts. The methodology was derived largely in part from the National Bicycle & Pedestrian Documentation Project.[1] Secondly, the recruitment and education of volunteers to carry out the counts. And lastly, the recording and analysis of the data collected. It was important to establish a reliable time frame to conduct the research, ultimately settling on fall of 2014. My project method called for the completion of one count per 15,000 residents, so five locations were chosen in the City of Fayetteville (seen at right). In addition, the methods focused on some limited but necessary key factors during the data collection – number of pedestrians vs. bicyclists, gender, helmet use, direction of travel, location at crossing – all being recorded at 15 minute intervals in a two hour time frame. Also, the volunteers were required to take observations regarding the weather, current state of infrastructure, and automobile traffic at count location.

Cumulative Data

	Time of Day					
	7:30-9:30 AM		11:00-1:00 PM		4:00-6:00 PM	
	Bicyclists	Pedestrians	Bicyclists	Pedestrians	Bicyclists	Pedestrians
Lawson	15	14	13	14	17	37
Dickson	20	228	27	182	30*	207
Appleby	14	21	8	20	11	19
Washington	5	18	17	16	20	45
Trenton	4	10	7	37	13	7
Total Pedestrians	291		269		315	
Total Bicyclists	58		72		91	
Observed Totals	349		341		406	

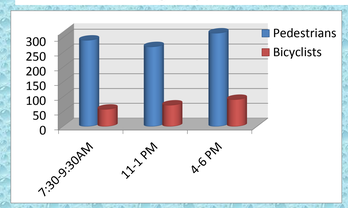
Figure 1. Overall Data collected from each count location. In addition, each count recorded the use of helmets, direction of user travel, and location at crossing (sidewalk, road, or bike path).

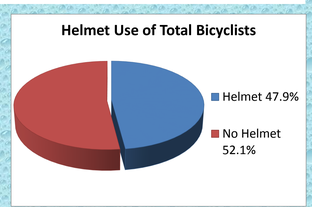
*The data provided for morning and afternoon periods was reported on weekdays, whereas the data for mid-day was taken on a Saturday.

Results

In assessing the different outcomes from this project, some trends are very clear. The highest counts of both modes of transport were seen in the afternoon period, whereas the morning and mid-day levels are fairly consistent. There exists a heavy ratio of pedestrians to bikers – 83:17% in the morning, 79:21% at mid-day, and 78:22% in the afternoon. The largest amount of pedestrian counts were observed in the locations closest to the the central geography of Fayetteville. This may suggest that walking trips are generally shorter than bicycling trips, and this is why so many pedestrians were observed in those areas. But it is important to mention the fact that many of these pedestrians are may be undertaking a walking trip as a means of other modes of transport, like walking to one's car. Also, there is a consistency in the number of pedestrians and bicyclists in areas where active transport infrastructure is present. On Dickson Street, there is easy access to the trail system, and wide sidewalks that give a bicyclist a sense of safety. In comparison, the locations of Appleby and Trenton lack sufficient sidewalk space and bike lane infrastructure, which may correlate to the lower trend of user application at these locations, as suggested by the data.

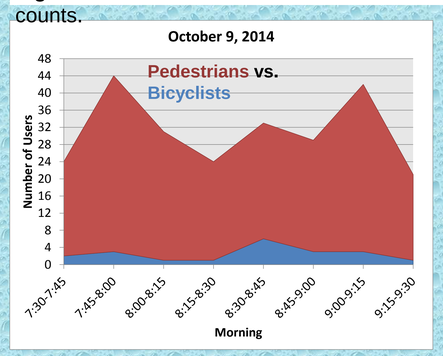
Figures 5 and 6. Illustrate the total ratio of pedestrians to bicyclists and the helmet use among bicyclists.

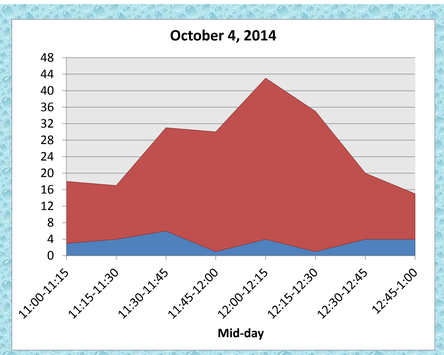




http://www.keepcalm-o-matic.co.uk

Figure 2. Illustrates the data observed at **Dickson Street**, one of the five locations used in the counts.





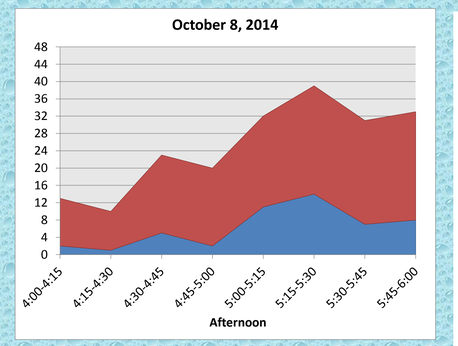


Figure 3. Map of Fayetteville marked with the 5 count locations.

Figure 4. Utilizing GPS technology to communicate screen line locations with volunteers

References

1. National Bicycle and Pedestrian Documentation Project, Alta Planning & Design and Institute of Transportation Engineers
2. 2011 Bicycle Count, City of San Francisco.
3. Aultman-Hall, Lisa, "Bicycle Cordon Count Pilot Study". 1999. Kentucky Transportation Center Research Report.

Sustainability

In conclusion, it is important to realize the role that active transport serves in advancing a more sustainable world. Socially, it means obtaining the conscious awareness to understand why riding your bike to school rather than driving a car is better for the environment. It relates to built systems because it is studies like this one that will provide the city planner with the tools necessary to adapt and develop more sustainable models of transportation. The crisis of climate change is a result of the imbalance in the natural system, and the development of active transport is just one of the many ways to address this issue. I now have a more comprehensive view of the positive impacts related with active transportation. There are those who may find it difficult to live a more sustainable lifestyle, but for me, it simply starts with a bike ride to school.