Using a Bicycle–Pedestrian Count to Assess Active Living in Downtown Wilkes-Barre

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Background: Downtown Wilkes-Barre, a town of 40,000 residents in Northeast Pennsylvania, and the hub of a planned urban, suburban, and rural trail network, was the site of a number of changes to improve walkability during the Active Living by Design (ALbD) grant period.

Purpose: The Wyoming Valley Wellness Trails Partnership and Greater Wilkes-Barre Chamber of Business and Industry initiated the Wilkes-Barre Downtown Bicycle and Pedestrian Count (Bike–Ped Count) in order to pilot bicycle and pedestrian counting methods and to evaluate downtown built environment and policy changes.

Methods: The Bike–Ped Count was conducted during nine 2-hour counting periods over 4 days in September using screen-line count methods at seven locations downtown and at River Common Park.

Results: During 18 hours of counting, staff noted 15,347 pedestrians and 773 bicyclists. The largest average number of pedestrians (512) was observed during lunch hours, whereas the largest numbers of bicyclists were observed during evening and weekend hours.

Conclusions: The Bike–Ped Count illustrates patterns of bicycling and walking downtown and allows comparisons of bicycling and walking among locations, including different cities. In the future, counts will help show how ongoing changes to the downtown environment affect walking and bicycling.

(Am J Prev Med 2012;43(5S4):S399–S402)

Introduction

In late 2003, the Wyoming Valley Wellness Trails Partnership (WVWTP) received a 5-year Active Living by Design (ALbD) grant centered on a developing trail network linking urban, rural, and suburban communities.[1] Wilkes-Barre PA, with about 40,000 residents, is the Wyoming Valley's largest municipality and employment center.[1] The Greater Wilkes-Barre Chamber of Business and Industry (the chamber), a WVWTP partner, works with other organizations to create a revitalized, walkable downtown.

From 2004 to 2008, activities included implementing mixed-use development, creation of a Business Improvement District to improve cleanliness and security and extensive renovation of River Common Park, part of the trail network.[1] In September 2009, WVWTP and the chamber initiated the Wilkes-Barre Downtown Bicycle and Pedestrian Count (the Bike–Ped Count). This program was designed to pilot bicycle- and pedestrian-counting methods, assess patterns of walking and bicycling, and understand the impact of walkability improvements.

Methods

The Bike–Ped Count was conducted using screen-line count methods, training materials and data collection forms published by the National Bicycle and Pedestrian Documentation Project (www.bikepeddocumentation.org, NBPD Project). Every pedestrian or bicyclist that crosses an imagined perpendicular screen in either direction on either side of the street or on the sidewalk is counted, and gender is noted (www.bikepeddocumentation.org/). The counter also records weather information. A single person recorded information at each site; inter-rater reliability was not measured.

The WVWTP and the chamber selected seven count sites believed to have frequent walking and bicycling because they were transportation hubs or key retail locations, or because of other factors. Counts were done near the YMCA; Rodano's Restaurant on

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0749-3797/$36.00
http://dx.doi.org/10.1016/j.amepre.2012.06.029

Public Square, a public transportation and community center (Rodano's); Provincial Towers, a senior high-rise near Boscov's Department Store; Esseff Hall at King's College on Main Street; the Market Street Bridge; and two River Common Park locations where the public can access the Susquehanna River, Northampton, and Irem Temple Portals. Figure 1 shows a map of locations. In order to capture morning commute, lunch, and evening traffic, two 2-hour counts were conducted on Tuesday, Wednesday, and Thursday, September 15–17, 2009. On Saturday, September 19, counts were conducted in the afternoon and evening.

The NBPD Project publishes adjustment methods to create average daily volumes from individual counts, allowing locations, including those in different cities, to be compared.[2,3] The Bike–Ped Count selected reference city locations with recent pedestrian data that were known as vibrant, walkable retail centers, comparing Provincial Towers, which is the Wilkes-Barre location with the highest average counts of bicyclists and pedestrians, to two blocks in downtown Philadelphia PA[4] and one in Chapel Hill NC.[5]

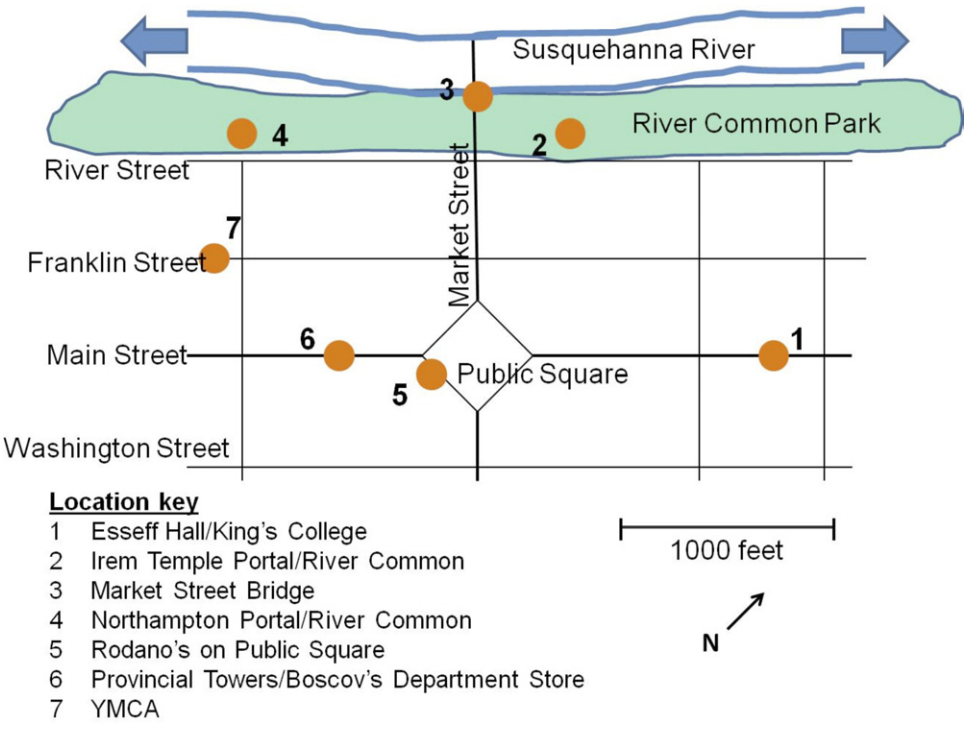

Figure 1. Map of Wilkes-Barre PA downtown counting locations

Results

During the 18 hours of counting, staff recorded 15,347 pedestrians and 773 bicyclists. Although 46% of observed pedestrians were women/girls, only 10% of bicyclists were women/girls.

Table 1 shows that the largest average numbers of pedestrians (512.3 per count location) were observed during lunch hours.

Rodano's, facing a number of bus stops, had the highest number of pedestrians during the morning commute. Provincial Towers had the largest number of pedestrians and bicyclists during most other counting intervals. Overall, average counts indicate 326.5 pedestrians and 16.5 bicyclists. Thursday's lunch count, held during the weekly Farmer's Market, had the highest average pedestrian count, with 687 pedestrians per location.

The number of bicyclists varied with weather and leisure time. Average temperature during counting days ranged from 55° to 65° F, with cloudy morning and lunchtime count periods.[6] Tuesday evening and weekend counting periods were sunny and warmer. The highest average numbers of bicyclists were recorded on Tuesday evening, September 15 (26.8), and on Saturday afternoon, September 19 (25.4).

Using the NBPD Project Extrapolation Spreadsheet, estimated daily pedestrian volume for Provincial Towers was 7572 pedestrians per day. Comparison locations, including Franklin and Columbia Streets in Chapel Hill (center of a growing college town in North Carolina) and the 1100 block of Walnut Street in Philadelphia (a large-city downtown residential community), had 14,184 and 14,158 estimated pedestrians per day, respectively. Metropolitan business district retail at the 1700 block of Walnut Street in Philadelphia had an estimated 26,903 pedestrians per day.

Discussion

The Bike–Ped Count was conducted to help understand the results of walk-friendly projects and policies that occurred from 2004 to 2008, including a Business Improvement District focused on security and cleanliness. A 2003–2004 focus group noted, "opinions about downtown are negative: rundown, empty streets, too many vacant storefronts."[7] A 2007 downtown intercept survey shows changes caused by redevelopment and implementation of the Business Improvement District, reporting that more than 75% of respondents felt downtown was "headed in the right direction," more than 50% felt downtown walkability was "excellent," and that 22% had arrived downtown by walking.[8]

Table 1. Wilkes-Barre PA downtown pedestrian and bicycle counts by location and counting time interval

	Weekday[a]						Weekend[a]				Overall	
	6:30AM–8:30AM	No. of counts	11:30AM–1:30PM	No. of counts	5:30PM–7:30PM	No. of counts	1:00PM–3:00PM	No. of counts	6:00PM–8:00PM	No. of counts	Average[b] (SD)	Range
Pedestrians												
1. Esseff Hall	307	1	258	2	276.5	2	591	1		0	393.4 (149.2)	285–591
2. Irem Temple Portal	46	1	48	2	81	2		0	46	1	58.3 (26.8)	24–102
3. Market St. Bridge	53	2	88	2	115	2		0	85	1	85.3 (58.0)	25–205
4. Northampton Portal	25.5	2	87	2	138.5	2	228	1		0	91.3 (77.3)	21–228
5. Rodano's	310	2	698	3	197	2	442	1	369	1	435.6 (412.5)	175–715
6. Provincial Towers		0	1299	3	440	2	822	1	643	1	891.6 (211.9)	420–477
7. YMCA	143	1	732	1	238.5	2	190	1		0	308.4 (240.2)	143–732
Average number of pedestrians during 2-hour interval[c]	141.4	9	512.3	15	333.4	14	454.6	5	285.7	4	326.5 (343.0)	21–1477
SD	130.6		497.8		125		262.3		278.3			
Range	21–326		24–1477		25–460		190–822		46–369			
Bicyclists												
1. Esseff Hall	0	1	8.5	2	6.5	2	9	1		0	7.8 (6.2)	0–17
2. Irem Temple Portal	0	1	1.5	2	18	2		0	9	1	8.0 (8.7)	0–22
3. Market St. Bridge	19	2	22.5	2	35.5	2		0	17	1	24.4 (21.6)	1–70
4. Northampton Portal	3	2	10	2	37	2	35	1		0	16.9 (18.5)	1–53
5. Rodano's	11	2	15.7	3	10	2	26	1	7	1	13.6 (6.6)	7–26
6. Provincial Towers		0	28	3	22.5	2	47	1	46	1	31.7 (10.8)	20–47
7. YMCA	3	1	12	1	5.5	2	10	1		0	7.2 (3.8)	3–10
Average number of bikes during 2-hour interval[c]	7.6	9	15.2	15	19.3	14	25.4	5	19.7	4	16.4 (14.9)	0–70
SD	8.0		10.0		19.6		16.3		18.0			
Range	0–22		1–32		1–70		9–47		7–46			

[a]Where counts >1, table cell value is an average of more than one count on different days during the same time interval.
[b]Averages across all bicycle or pedestrian counts for one location
[c]Averages across all counts and locations for each time interval

Bike–Ped Count figures also suggest that Wilkes-Barre has constant downtown walking traffic, although it is not as heavy as that in Chapel Hill and Philadelphia. A recent large-scale bicycle–pedestrian modeling study of San Diego, using NBPD Project methods, classified traffic of 100 pedestrians per hour as "high."[9] All of the current study locations would fit this classification, except for the Portals and Market Street Bridge.

The Bike–Ped Count suggests that although walking is a common method for moving around downtown during the workday, bicycling occurs most frequently during evening, weekday, and weekend hours. Bicycling seems to be related to weather, whereas walking is less affected, with the volume of walkers related to downtown opportunities such as the Farmer's Market. The lower number of female bicyclists in Wilkes-Barre reflects a documented gender gap in U.S. bicycling. Recent studies show 24% of bicycling trips and 27% of bicycle commuters are women.[10,11] Missed locations due to lack of staff or rain canceling two counting periods (evening of September 16 and morning of September 17) create limitations to the study, especially for morning count data (Table 1 shows number of counts at each time and location).

Conclusion

The Bike–Ped Count illustrates short-term patterns of biking and walking downtown. This initial count also will assist in measuring the impact of ongoing changes downtown. Comparison data across locations, time intervals, and cities can help set goals for increasing walking and bicycling.

Publication of this article was supported by several grants: an ALbD grant (49760); a special opportunity grant (55553); and a sustainability grant (65227) from the Robert Wood Johnson Foundation.

Analysis of the Downtown Wilkes-Barre Bicycle and Pedestrian Count is funded in part by a grant from the Pennsylvania Department of Conservation and Natural Resources, Bureau of Recreation and Conservation Growing Greener Environmental Stewardship Fund under the Pocono Forest and Waters Conservation Landscape Initiative managed by the Pennsylvania Environmental Council. The authors thank Bill Bolan and King's College for their help in recruiting counters for the study, as well as the Pennsylvania Department of Health and the LiveWell Luzerne Community Health Coalition. The authors also recognize the assistance of Barnes & Noble on Main Street, the ACHIEVE Wilkes-Barre project, Maternal and Family Health Services, and the Wilkes-Barre Family YMCA.

No financial disclosures were reported by the authors of this paper.

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