

National Bicycle and Pedestrian Documentation Project

Town of Blacksburg Count Plan

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ABSTRACT: The New River Valley Bicycle Association (NRVBA), in support of the Town of Blacksburg's Greenway/Bikeway/ Sidewalk/Corridor Committee goals to create a continuous, town-wide system of routes, participated in the National Bicycle and Pedestrian Documentation (NBPD) Project on Wednesday, September 9 (7 am – 7 pm) and Saturday, September 12, 2009 (12 pm – 2 pm). The NBPD project is designed to generate "accurate and consistent demand usage figures" to help local planning bodies to plan and design appropriate bicycle and pedestrian facilities and to measure the positive benefits of those new facilities. The NRVBA conducted count surveys at four locations, documenting number of riders, direction of travel, and certain behaviors such as wrong-way riding, sidewalk riding and riding without a helmet. The survey documented 1753 riders on Wednesday and 280 riders on Saturday. Of all riders, 11% rode on the sidewalk, 1% rode against traffic, and 74% rode without a helmet. This information can be used as baseline data to evaluate the need for bicycle accommodations and the effectiveness of future enhancements.

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EXECUTIVE SUMMARY

The Town of Blacksburg's Greenway/Bikeway/ Sidewalk/ Corridor Committee ("Corridor Committee") is in the process of identifying opportunities for the designation of continuous, town-wide bike routes. These routes will provide cyclists with the ability to easily make short trips, commute to work and school, and run utilitarian errands around town. The Corridor Committee recognizes the need to collect baseline user data and receive public input to establish the preferred and most used routes by cyclists.

Participation in the National Bicycle and Pedestrian Documentation (NBPD) Project in September 2009 offered the Town an opportunity to collect baseline user data for targeted areas of improvement. Through participation by local governments and organizations, the NBPD Project generates demand usage figures to help local planning bodies to plan and design appropriate bicycle and pedestrian facilities and to measure the positive benefits of those new facilities. The results of the nationwide counts are compiled by Alta Planning & Design (Alta) and the Institute of Transportation Engineers (ITE) Pedestrian and Bike Council and are made available to users for modeling and planning purposes.

In support of the Corridor Committee's goal of town-wide bike routes, the New River Valley Bicycle Association (NRVBA) developed and executed a work plan to participate in the NBPD Project. The NRVBA evaluated and finalized the collected data for submission to the national project organizers. The purpose of this document is to submit the results of the survey to the Town's Corridor Committee.

Through its membership and partnerships with the YMCA at Virginia Tech and local bike shops, the NRVBA had access to organizational and volunteer resources to be able to conduct the count. The NRVBA recruited 1 count manager, 2 trainers, and 35 counters. The counters attended one of three training sessions, where they received their location and shift assignments and were instructed on how to use the survey forms. The counters turned in their survey forms at the end of their shift.

The NBPD project asked participants to conduct the counts on one week day and one weekend day during the first full week of September 2009. Wednesday, September 9 (7 am – 7pm) and Saturday, September 12 (12 pm – 2 pm) were selected to account for the university setting and to compare peak times of travel with non-university towns.

The counts consisted of manual screen line counts and intersection crossing counts at four key points along corridors routinely used by bicyclists. The four locations included: Tom's Creek/Prices Fork; Washington/Kent; Progress/Giles; and Plantation at the entrance to Smithfield Plantation. Additional information, such as frequency of riding on the sidewalk, riding against traffic and riding without a helmet, was collected.

The survey forms were evaluated and tabulated. The survey documented 1753 riders on Wednesday and 280 riders on Saturday. Of all riders, 11% rode on the sidewalk, 1% rode against traffic, and 74% rode without a helmet.

The information collected during the counts will be submitted to the NBPD Project. The data will be used by the Town's Corridor Committee as it evaluates new bicycle accommodations around Town.

1.0 INTRODUCTION

The National Bicycle and Pedestrian Documentation (NBPD) Project is an annual bicycle and pedestrian count and survey effort sponsored by the Institute of Transportation Engineers Pedestrian and Bicycle Council. Alta Planning + Design Alta (“Alta”) developed the draft methodology and materials for conducting the count. In early August 2009, Alta offered a webinar on the count methodology, which representatives of the Town of Blacksburg’s Greenway/Bikeway/ Sidewalk/ Corridor Committee (“Corridor Committee”) attended. In support of the Corridor Committee, the NRVA used Alta’s detailed instructions and consulted directly with their staff, to create a work plan to conduct the count. This document describes the count methodology and presents the results of the survey.

2.0 COUNT DATES AND TIMES

The NBPD Project established the second week in September as the official annual national bicycle and pedestrian count and survey week and recommended the count be conducted on at least one mid-week day (Tuesday through Thursday) and a Saturday. The dates and times selected for the Blacksburg count were based on direct consultation with the planning engineers at Alta and specifically consider the university setting, population and anticipated number of volunteers.

Virginia Tech’s class schedules typically run either Monday/Wednesday/Friday or Tuesday/Thursday, and more classes are offered on M/W/F than the other two days. Consequently, the counts were conducted on Wednesday, September 9 and Saturday, September 12.

The national project allowed collection of week day data between the peak travel times of 5 pm and 7 pm or for a twelve-hour period between 7 am and 7 pm. Because of the university setting, the weekday counts took place between 7 am – 7 pm versus the peak evening commute periods that may be appropriate for non-university settings. (See Table 1.)

The national project recommended only a two-hour period between 12 pm and 2 pm for the weekend count. Virginia Tech had home games scheduled for every Saturday in September, and on September 12th, the game was scheduled for 1:30 pm. Because a game day could not be avoided, the count took place on September 12th.

Table 1. Count Dates and Times - Blacksburg

Date	Time
Wednesday, September 9	7 am – 7 pm
Saturday, September 12	12 pm – 2 pm

3.0 NUMBER OF COUNTS

In 2008, the US Census Bureau estimated the population of Blacksburg as 39,284. The NBPD Project instructions recommended one count location per 15,000 of population. The instructions provided criteria for selecting count locations, which included: bicycle corridors, key corridors that can be used to gauge the impacts of future improvements, locations where counts have been historically conducted, gaps or pinch points for bicyclists, and locations where incidents are high.

The NRVBA selected four locations for the count, based on the NBPD instructions, the anticipated number of counters that could be recruited, and input from NRVBA members. The locations were also based on where bicyclists could be expected and/or where future improvements are being considered. The locations and justification are provided in Table 2.

Table 2. Count locations and justification

Count Locations		Justification
1	Kent and Washington streets	Counts number of users coming from the Huckleberry Trail to access the university
2	Progress and Giles	Counts numbers of users on the proposed Central Blacksburg Loop
3	Tom's Creek and Prices Fork Road	Counts number of users using Tom's Creek and Prices Fork to access campus
4	Plantation Road (where gravel surface meets paved surface)	Counts number of users coming from Heathwood, Fox Ridge, and other high density housing

The NBPD Project asks for a background data sheet for each count location. The data sheet provides information on the setting and conditions in which the count took place and which will be used in compiling data for the national project. The instructions for completing the Background Data Sheet are found in **Appendix A**. The completed Background Data Sheet is found in Appendix A-1.

4.0 TYPES OF COUNTS

Intersection Crossing Counts were used to count the number of bicyclists passing through an intersection. Intersection crossing counts were used at Locations 1, 2 and 3. **Screen-line Counts** were used to count people passing by an imaginary line on the road. The screen-line count was used at Location 4. The counter entered the number of bicyclists passing through the intersection or the line on the form given. In both types of counts, the numbers of riders were counted in 15-minute intervals and were recorded by sets of five hash marks.

Counters were also given forms to record certain behaviors, such as riding on the sidewalk, riding against traffic and riding without a helmet.

5.0 COUNTERS

5.1 Recruitment

Volunteers were recruited through the New River Valley Bicycle Association; the YMCA at Virginia Tech; Virginia Tech's Office of International Research, Education & Development; and the Progress Street Neighborhood Association to conduct the counts.

5.2 Number of Counters

The count locations are identified in Table 2. The NBPD Project instructions recommended two-hour shifts. Shifts lasting longer than two-hours required the counter to be relieved for a 15-minute break and made the administration of the count more complicated. So, shifts were limited to two hours.

The NBPD Project instructions recommended more than one counter at high-volume intersections. For the Prices Fork and Toms Creek intersection, two counters were used; all other locations used one counter.

5.2.1. Weekday Count

The weekday count was conducted 7 am – 7 pm in two-hour shifts. Based on the instructions, 30 counters were recruited to conduct counts on Wednesday. (See Table 3.)

Table 3. No. of Counters – Wednesday (7 am – 7 pm)

	Count Locations	No. of Counters /per shift	No. of shifts	Total No. of Counters
1	Kent and Washington	1	6	6
2	Progress and Giles	1	6	6
3	Prices Fork and Tom’s Creek	2	6	12
4	Plantation Road (where gravel surface meets paved surface at entrance to Smithfield Plantation)	1	6	6
TOTAL NO. OF COUNTERS				30

5.2.2. Weekend Count

The weekend count was conducted 12 pm – 2 pm in one two-hour shift. Based on the instructions, 5 counters were recruited to conduct counts on Saturday. (See Table 4.)

Table 4. Count locations and justification – Saturday (12 pm – 2 pm)

	Count Locations	No. of Counters /per shift	No. of shifts	Total No. of Counters
1	Kent and Washington	1	1	1
2	Progress and Giles	1	1	1
3	Prices Fork and Tom’s Creek	2	1	2
4	Plantation Road (where gravel surface meets paved surface at entrance to Smithfield Plantation)	1	1	1
TOTAL NO. OF COUNTERS				5

6.0 TRAINING

Volunteers were provided training prior to the proposed count dates. During the training, counters were given an explanation of the project, the methodology for counting, instructions on how to complete the forms, a list of materials to bring with them during the count, and where to turn in completed forms and any safety equipment provided. The training was based on the training materials provided by Alta.

Four training sessions were offered to allow volunteers flexibility in attending one that best suits their schedule. (See Table 5.)

Table 5. Counter Training Schedule

Date	Location	Time
Monday, August 31	Squires Student Center	6:30 – 7:15 pm
Tuesday, September 1	Squires Student Center	6:30 – 7:15 pm
Thursday, September 3	VT Office of International Affairs	6:30 – 7:15 pm
Monday, September 7	Bollo's	7 am – 7:45 am

7.0 DAY OF COUNT

Ms. Liz Hokanson, Vice President, NRVBA, served as the Count Manager for the day of the count. The Count Manager was available during the count period to receive calls from counters and answer questions.

The counters were provided with the Count Manager's contact information and instructed to call if questions about procedure arose during the count, conditions changed at the count site that could cause the data to be invalid, someone did not show up for their assignment, or to inquire about any other unusual circumstance.

8.0 DATA

The counts took place at four locations within Town limits:

1. Kent and Washington streets;
2. Giles and Progress streets;
3. Prices Fork and Tom's Creek streets; and
4. Plantation Road near the entrance to the Smithfield Plantation.

The counters used either an "intersection crossing count form" or a "screenline count form" to record the number of riders passing through the intersection or by their position. The counters recorded the number of riders by marking hash marks on the form in 15-minute intervals.

Certain behaviors such as riding on the sidewalk, riding against traffic and riding without a helmet were also counted.

Once the counter finished their shift, the forms were turned into the YMCA office on Lancaster Street. All forms were returned. The forms were collected by Ms. Hokanson, who subsequently evaluated the data.

During the count on Wednesday, September 9th, a thunderstorm passed over town. Counters were instructed to seek shelter during the storm, and there are data gaps for: Kent and Washington between 5:00-5:15 pm; Giles and Progress between 4:30-5:00 pm; and Plantation between 4:30-5:00 pm.

One counter documented the number of rider riding with earbuds and disobeying stop signs. This data was collected for one two-hour shift only. A summary of this data appears in the Appendix.

Overall, the survey documented 1753 riders on Wednesday and 280 riders on Saturday. (See Table 6.) Of all riders, 11% rode on the sidewalk, 1% rode against traffic, and 74% rode without a helmet. The following sections represent a summary of the data collected, by intersection, during the two count periods.

Table 6. Summary of data

Count Locations		No. of Riders (Wed)	No. of Riders (Sat)
1	Kent and Washington	668	99
2	Progress and Giles	248	48
3	Prices Fork and Tom's Creek	469	64
4	Plantation Road (where gravel surface meets paved surface at entrance to Smithfield Plantation)	368	69
TOTAL		1753	280

8.1 Kent and Washington Streets

The intersection of Kent and Washington streets is located on the northeast side of campus and is adjacent to a large student housing area and is within two blocks of the Huckleberry Trail terminus.

Photo 1. – Intersection of Kent and Washington streets.



The counters used “intersection crossing forms” at the intersection of Kent and Washington Streets to record number of users and directional information. The counters recorded the following information. (See Table 7.)

Table 7. – No. of riders, direction entering and leaving, Washington and Kent streets.

Entering	Wednesday (9/9/09)		Saturday (9/12/09)		Leaving			
	No. of Riders	% of Total	No. of Riders	% of Total	N, %	S, %	E, %	W, %
North	149	22	28	28		62	6	32
South	268	40	30	33	67		16	16
East	122	18	17	17	19	26		55
West	129	19	24	24	45	21	33	
Total Number	668		99					

The average number of riders per hour was approximately 56. The peak travel times at this intersection were between 10 am and 11 am and just after lunch between 1 pm and 3 pm. Note that the thunderstorm occurred around 5 pm and this could have affected number of users. (See Table 8.)

Table 8. No. of riders broken down by hour. (Kent and Washington)

Hour	No. of Riders	Hour	No. of Riders	Hour	No. of Riders
7-8	37	11-12	56	3-4	69
8-9	58	12-1	58	4-5	38
9-10	64	1-2	89	5-6	41
10-11	69	2-3	64	6-7	25
Hourly average					56

8.2 Giles and Progress Streets

The intersection of Giles and Progress streets is located on the northeast side of town one block east of Main Street. The intersection is adjacent to both student housing and permanent town residents.

Photo 2. – Intersection of Giles and Progress streets.



The counters used “intersection crossing forms” at the intersection of Giles and Progress streets to record number of users and directional information. The counters recorded the following information. (See Table 9.)

Table 9. – No. of riders, direction entering and leaving, Giles and Progress streets.

Entering	Wednesday (9/9/09)		Saturday (9/12/09)		Leaving			
	No. of Riders	% of Total	No. of Riders	% of Total	N, %	S, %	E, %	W, %
North	76	30	13	27		51	45	3
South	64	26	9	19	60		25	15
East	74	30	14	29	30	30		40
West	34	14	12	25	4	19	76	
Total Number	248		48					

The average number of riders per hour was approximately 18. The peak travel times at this intersection were between 1 pm and 3 pm and 5 pm and 7 pm. Note that the thunderstorm occurred around 5 pm and this could have affected number of users. (See Table 10.)

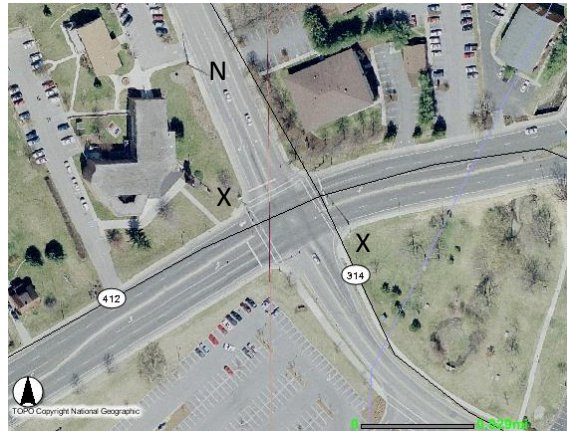
Table 10. No. of riders broken down by hour. (Giles and Progress)

Hour	No. of Riders	Hour	No. of Riders	Hour	No. of Riders
7-8	13	11-12	19	3-4	2
8-9	18	12-1	15	4-5	6
9-10	19	1-2	32	5-6	23
10-11	22	2-3	31	6-7	26
Hourly average					18

8.3 Price’s Ford Road and Tom’s Creek Road Intersection

The intersection of Prices Fork and Toms Creek streets is located on the north side of campus and serves as a main entrance to the campus. The intersection is adjacent to both student housing and full-time town residents.

Photo 3. – Intersection of Prices Fork and Toms Creek



The two counters used “intersection crossing forms” at the intersection of Prices Fork and Toms Creek streets to record number of users and directional information. The counters recorded the following information. (See Table 11.)

Table 11. – No. of riders, direction entering and leaving, Prices Fork and Toms Creek streets.

Entering	Wednesday (9/9/09)		Saturday (9/12/09)		Leaving			
	No. of Riders	% of Total	No. of Riders	% of Total	N, %	S, %	E, %	W,%
North	211	45	35	55		96	3	1
South	200	43	20	31	82		9	9
East	22	5	6	9	11	25		64
West	36	7	3	5	18	49	33	
Total Number	469		64					

The average number of riders per hour was approximately 39. The peak travel times at this intersection were between 8 am and 9 am and 1 pm and 3 pm. Note that the thunderstorm occurred around 5 pm and this could have affected number of users. (See Table 12.)

Table 12. No. of riders broken down by hour. (Prices Fork and Toms Creek)

Hour	No. of Riders	Hour	No. of Riders	Hour	No. of Riders
7-8	34	11-12	26	3-4	62
8-9	57	12-1	24	4-5	22
9-10	41	1-2	48	5-6	48
10-11	29	2-3	55	6-7	23
Hourly average					39

The counters at the Prices Fork and Toms Creek intersection noted that, while a large number of cyclists were crossing north-south through the intersection, there appeared, in the opinion of the

counters, to be a larger number of cyclists crossing at Webb and Turner streets, using the pedestrian crosswalk to cross Prices Fork. This observation may warrant a future count at this intersection.

8.4 Plantation Road

Plantation Road is located on the west side of campus and town. Plantation Road has access to a paved trail which connects a high density student housing area to campus.

Photo 4. – Plantation Road



The counters used a “screenline counting form” at Plantation Road to record number of users. The counters recorded the following information. (See Table 13.)

Table 13. Total Number of riders counted using Plantation Road

	Wednesday (9/9/09)	Saturday (9/12/09)
Total Number	368	69

The number of riders by the count location at Plantation was steady throughout the day. The average number of riders per hour was 36. (See Table 14.)

Table 14. No. of riders broken down by hour. (Prices Fork and Toms Creek)

Hour	No. of Riders	Hour	No. of Riders	Hour	No. of Riders
7-8	31	11-12	30	3-4	39
8-9	46	12-1	21	4-5	15
9-10	46	1-2	33	5-6	32
10-11	30	2-3	41	6-7	37
Hourly average					36

8.5 Behavior Data

The counters were asked to record number of riders riding on the sidewalk, riding against traffic and/or riding without a helmet. Of all riders of both Wednesday and Saturday, 11% rode on the sidewalk, 1% rode against traffic, and 74% rode without a helmet.

9.0 Conclusions

This survey has documented significant demand for bicycling facilities in the Town of Blacksburg (e.g., 1753 bicyclists during a 12-hour period on a weekday). As this is the first year that this count has been conducted, the data collected serve to establish a baseline measure. These data can be used in conjunction with other information to make decisions on future bicycle routes and enhancements.

This report looked at only a few patterns, i.e., how many rides on a particular route and where they were coming from and the direction they were going. Helmet use is extremely low at 74 percent. Other information collected on behaviors indicates that approximately 11 percent of the cyclists rode on sidewalks. In addition, some infractions were observed including 1 percent riding in the wrong direction, as well as some disobeying stop signs and red lights, and riding with earbuds. Educational opportunities seem to exist to address safety issues and rider behavior, ability and level of comfort for riding in traffic.

Raw data is available on request.