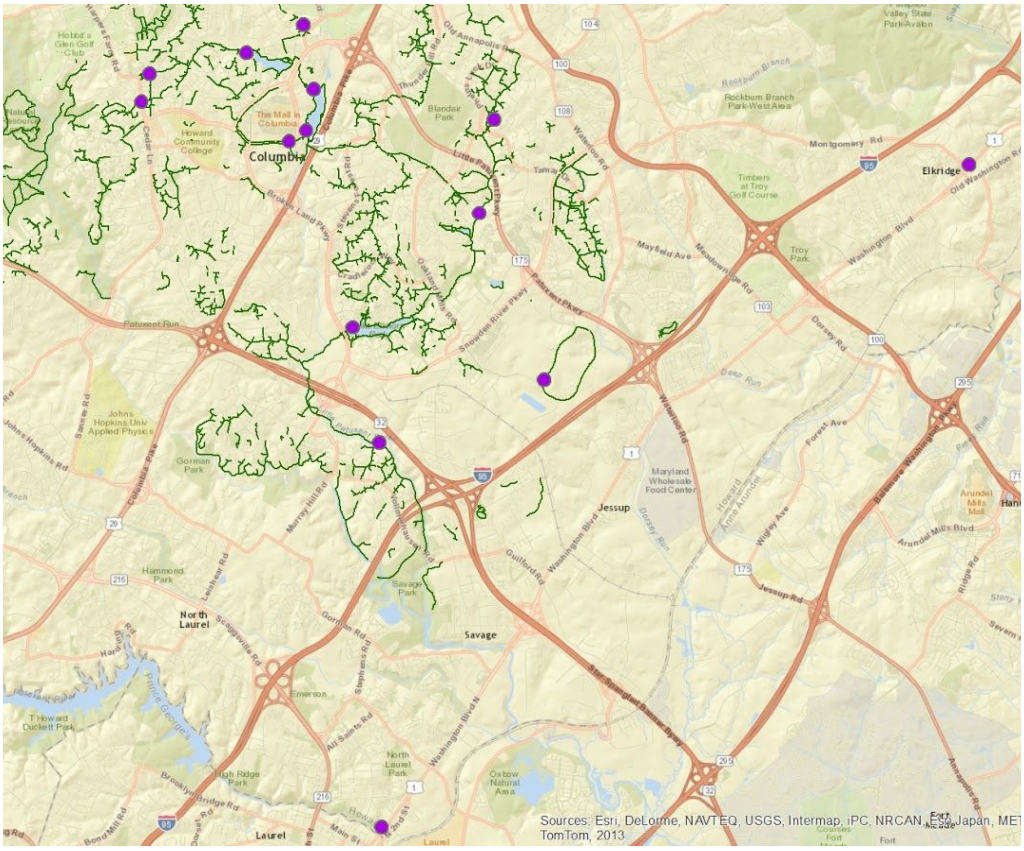
Bicycle and Pedestrian Count Program
2016 Summary Report - Year 3

Introduction

Columbia Association (CA) coordinated the third annual Bicycle and Pedestrian Count Program in May and June 2016. These counts are done manually and each location is surveyed on multiple days and depending on location, various times of day. Counts are completed in two-hour increments.

CA partnered with the Howard County Office of Transportation for the first time this year to expand the scope of the program. New count locations as a result of this partnership were at the Pratt Bridge along the Patuxent Branch Trail; at the intersection of Route 1 and North Laurel Road; and at the intersection of Montgomery Road and Route 1. CA also added three additional count locations at the pedestrian bridges that cross Columbia Road, Cedar Lane and Harpers Farm Road. More than 30 volunteers assisted with the counts. The information gathered will help CA and the Howard County Office of Transportation better understand bicycle and pedestrian usage and trends. The Harpers Farm Road bridge location was subsequently removed from the program because of incomplete counts, which made the data unreliable.

2016 Bicycle and Pedestrian Count Locations



Changes in the Count Program for 2016
All count forms had a new column to document bicyclists who had a commuter bag or pannier, which determines whether the bicyclists were using their bike for recreation or transportation purposes. CA and Howard County staff hope to use this information for future pathway planning.

At the pedestrian bridge locations near elementary schools (Columbia Road and Cedar Lane), CA staff wanted a better understanding of the types of users who use this facility in the morning on weekdays. Since these are bridges that provide connections to public elementary schools, information on backpack use was utilized to help determine the number of students and non-students who use these bridges.

The count locations at the Montgomery Road and Route 1 intersection in Elkridge and the Route 1 and North Laurel Road intersection in North Laurel differed from the other count locations, since these captured on-street users. Howard County Office of Transportation staff were interested in directional movement of bicyclists and pedestrians at these key intersections, so columns were added to the count form for capturing the direction/route of these users.

Trend Analysis
The majority of count locations are consistent with the precise locations over a three-year period beginning in 2014. In 2015, one new location was added in Downtown Columbia, and therefore only two years of data are available. In 2016, as noted above, six new count locations were added. The counts from these locations will provide a baseline for future counts.

Volunteers recorded counts at the various locations over a number of observations on different days and, as appropriate, different times of day. As with any volunteer effort, there are times when volunteers were not able to honor their commitment, and thus a handful of counts were not completed. This lack of a full count for various locations has an obvious impact on the total number of users at a particular location. For this reason, in addition to the total counts for each location, two-hour averages are provided for each year recorded. The two-hour counts provide a more apples-to-apples comparison year to year than do the total counts. The reason for this is that the total counts omit several count periods when counters did not record the users at all.

Pedestrian Counts
The largest change in the two-hour average weekday and weekend counts is at the Downtown Columbia count location. The weekend average from 2015 to 2016 increased by 221 people, or 238 percent. This is attributed to the Capital Jazz Festival held at Merriweather Post Pavilion during the 2016 count period. This is a large, regional attraction that draws thousands of people into Downtown Columbia. Conversely, pedestrian usage for the two-hour average period declined on the weekend at Lake Elkhorn, which only averaged 157 people in 2016 after averaging 205 in 2015 and 303 in 2014. However, a full weekend dataset was not available for Lake Elkhorn in 2016, as one volunteer was not able to participate in the weekend count (when

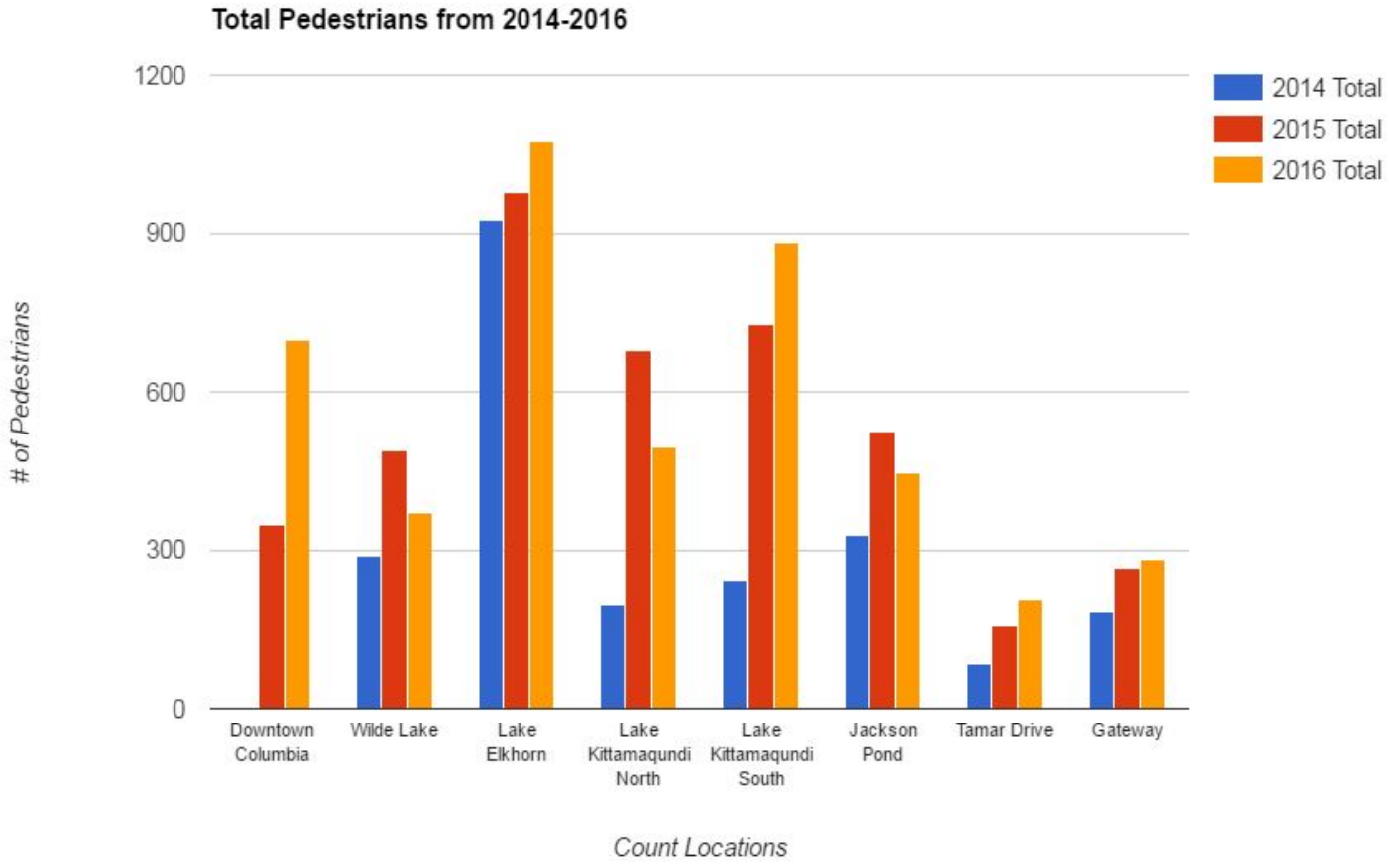
pedestrian use is at its highest level) which is a reasonable explanation of why this average is lower than anticipated, given previous counts.

2-Hour Average Pedestrian Count by Year

Comparison	2014 Weekday Avg. (2 hours)	2015 Weekday Avg. (2 hours)	2016 Weekday Avg. (2 hours)	2014 Weekend Avg. (2 hours)	2015 Weekend Avg. (2 hours)	2016 Weekend Avg. (2 hours)
Downtown Columbia	N/A	54	24	N/A	93	314
Wilde Lake	57	73	74	87	136	75
Lake Elkhorn	160	321	306	303	205	157
Lake Kittamaqundi North	37	116	167	63	166	162
Lake Kittamaqundi South	22	156	201	111	130	139
Jackson Pond	60	116	110	75	88	58
Tamar Drive	17	37	46	33	24	34
Gateway	61	89	94	N/A	N/A	N/A

Please note: green color indicates incomplete count

All pedestrian count locations captured in 2014 had higher count totals in 2016. However, a few count locations had lower pedestrian count totals in 2016 compared to 2015, which include Wilde Lake, Lake Elkhorn, Lake Kittamaqundi North and Jackson Pond. One obvious reason Lake Kittamaqundi North had lower totals is because volunteers did not show up on two of the five count days (one weekday and one weekend), resulting in an incomplete total count for this location. Using the average counts this location had on weekday and weekend, it is expected that the 2016 count total would have exceed the 2015 count total. At Wilde Lake, one volunteer did not count all pedestrians that went by the count location, but only those who continued in a direction around the lake. While this resulted in a lower count total for 2016, it is unlikely this would have added 119 additional pedestrians to match the total for 2015. Overall, the number of pedestrians during the count periods was the highest at Lake Elkhorn, followed by Lake Kittamaqundi, a continuation of observations made in the previous year.



Please note: Lake Kittamaqundi North and Wilde Lake had incomplete counts for 2016. For a better data comparison, please see two-hour average count data above

Bicycle Counts

Lake Elkhorn experienced the largest increase in total bicyclists between 2015 to 2016, and it is largely attributed to an increase in weekday bicyclists. The two-hour average for bicyclists was 21 in 2014 for Lake Elkhorn, which increased to 62 in 2016. Meanwhile, the weekend two-hour average of bicyclists has been trending downward from a high in 2014 of 87 to 40 in 2016, but the lack of a weekend count at Lake Elkhorn impacts this number.

Jackson Pond saw a large decrease in total bicyclists compared to the previous year, which occurred predominantly on the weekdays. The average two-hour count for bicyclists in 2014 was 25 and in 2016 dropped to 12. The weekend two-hour average count stayed nearly identical to the average in 2014 and 2015.

In other count locations, the two-hour average for bicyclists on weekday and weekends was consistent with previous years or trended higher.

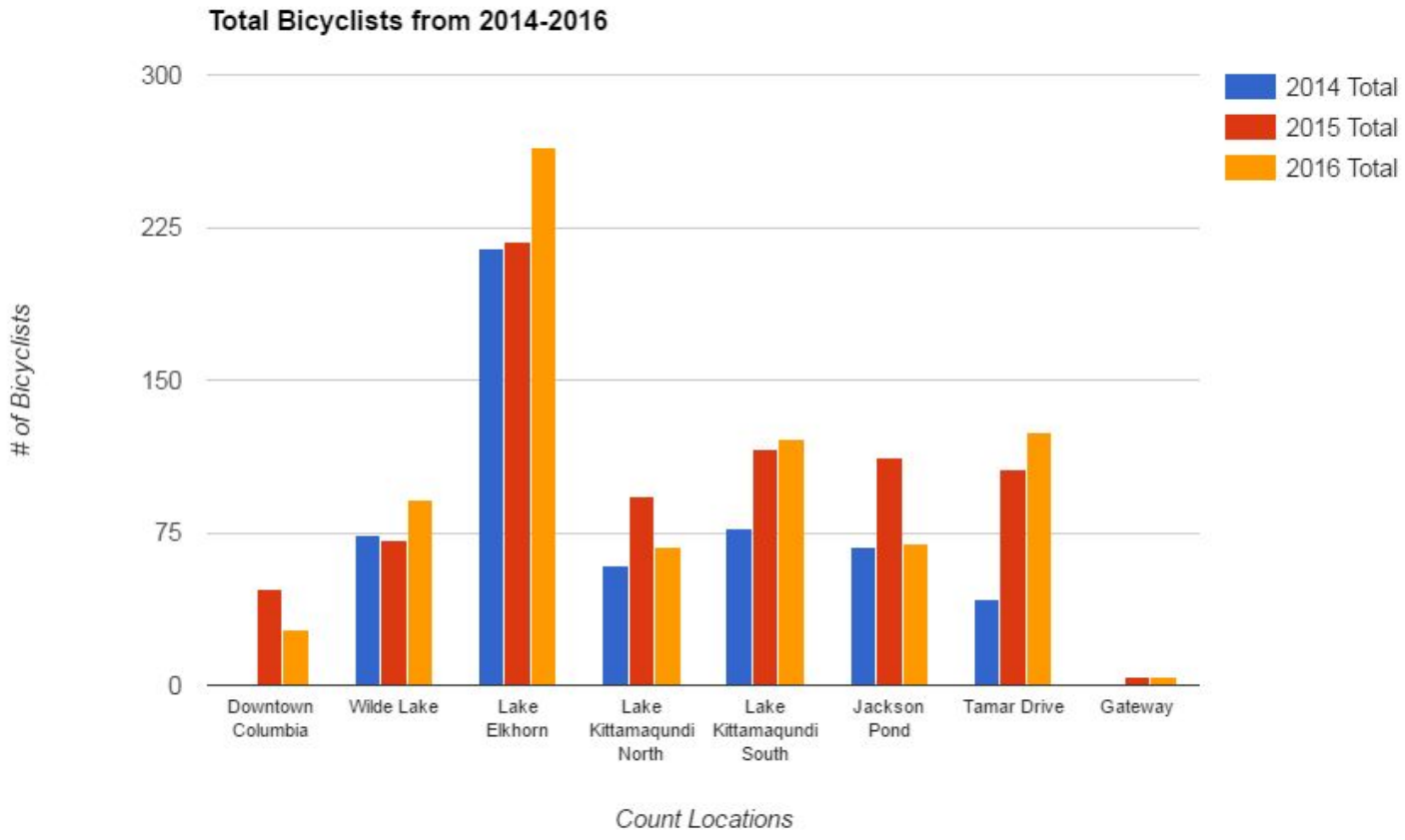
For the first time since the Bicycle and Pedestrian Count program was initiated, volunteers captured commuter bag information, and bicyclists with commuter bags made up more than 10 percent of counted riders at three locations. Downtown Columbia had the highest overall percentage of bicyclists who used a commuter bag with 26 percent, followed by Lake Elkhorn at 19 percent and Tamar Drive at 10 percent.

Two-Hour Average Bicyclists Count by Year

Comparison	2014 Weekday Avg. (2 hour)	2015 Weekday Avg. (2 hour)	2016 Weekday Avg. (2 hour)	2014 Weekend Avg. (2 hour)	2015 Weekend Avg. (2 hour)	2016 Weekend Avg. (2 hour)
Downtown Columbia	N/A	12	5	N/A	10	8
Wilde Lake	10	10	11	28	30	40
Lake Elkhorn	21	46	62	87	64	40
Lake Kittamaqundi North	3	16	21	27	33	27
Lake Kittamaqundi South	3	22	21	37	42	42
Jackson Pond	10	25	12	28	28	25
Tamar Drive	5	20	20	26	45	43
Gateway	0	2	2	N/A	N/A	N/A

Please note: green color indicates incomplete count

Lake Elkhorn witnessed the largest bicycle usage increase of all the count locations. In 2016, Lake Elkhorn had 264 bicyclists, compared to 218 in 2015, an increase of 46 cyclists. This increase occurred even though there was only one two-hour weekend count recorded rather than two, as one volunteer was not able to participate in the county program as anticipated. Lake Kittamaqundi North saw a decrease in cyclists compared to last year, and Lake Kittamaqundi South saw a slight increase. However, since Lake Kittamaqundi North did not have a volunteer show up for two of the five total count days, it is unlikely a large decrease in cyclists actually occurred, especially since Lake Kittamaqundi South had an increase in cyclists. Jackson Pond also saw a decrease of bicyclists from 2015 to 2016 (a total of 42). However, the 2016 total is nearly identical to the 2014 count total in this location.



Please note: Lake Kittamaqundi North and Wilde Lake had incomplete counts for 2016. For a better data comparison, please see two-hour average count data above

New Count Locations (off-street)

Pedestrians

The Cedar Lane pedestrian bridge had the largest number of pedestrians, even compared to Pratt Bridge, which included weekend counts. The majority of Cedar Lane and Columbia Road bridge users were youth. The percentage of pedestrians who were determined to be students at these locations were 60 percent at Columbia Road and 45 percent at Cedar Lane in the two-hour count period between 8-10 am. Youth pedestrians at these two locations were determined to be students if they had backpacks, an indication that they were using the pedestrian bridges to access the local elementary schools. Many of the adult users appeared to be parents or other family members escorting students to school.

Total and Two-Hour Average of Pedestrians at New Count Locations

New Count Locations	Saturday, May 28	Tuesday, May 31	Wednesday, June 1	Thursday, June 2	Saturday, June 4	Total	Weekday Avg.	Weekend Avg.
Pratt Bridge	63	94	98	91	78	424	94	70.5
Columbia* Road bridge	N/A	56	68	66	N/A	190	63	N/A
Cedar Lane Bridge*	N/A	96	228	217	N/A	541	180	N/A

*Please note: count locations were not done on Saturdays at school locations (Columbia Road and Cedar Lane Bridges)

Bicyclists

The Pratt Bridge count location had the second highest number of bicyclists of all count locations with 203, only behind Lake Elkhorn with 264. While Pratt Bridge also had the second highest weekday average of bicyclists in a two-hour period with 32 (only behind Lake Elkhorn at 62), Pratt Bridge had the highest weekend average of all count locations with 54 bicyclists. Harpers Farm Road, Columbia Road and Cedar Lane bridges had the lowest number of bicycle users of all the count locations.

Total and Two-Hour Average of Bicyclists at New Count Locations

New Count Locations	Saturday, May 28	Tuesday, May 31	Wednesday, June 1	Thursday, June 2	Saturday, June 4	Total	Weekday Avg.	Weekend Avg.
Pratt Bridge	61	31	31	34	46	203	32	54
Columbia Road*	N/A	2	2	2	N/A	6	2	N/A
Cedar Lane*	N/A	1	0	0	N/A	1	0	N/A

*Please note: count locations were not done on Saturdays at school locations (Columbia Road and Cedar Lane Bridges)

On-Street Count Locations (Route 1)

Pedestrians

The North Laurel Road and Route 1 intersection had far more pedestrians than the Montgomery Road and Route 1 intersection, with 135 compared to 39. The North Laurel Road and Route 1 intersection also had nearly identical morning and afternoon counts with morning pedestrians in the low 20s and afternoon pedestrians in the mid-to-low 40s.

Total and 2 Hour Average of Pedestrians on Route 1

Count Locations	Wednesday, June 1 AM	Wednesday, June 1 PM	Thursday, June 2 AM	Thursday June 2 PM	Total	AM Average	PM Average
Montgomery Road	14	N/A	6	19	39	10	19
North Laurel Road	23	46	24	42	135	23.5	44

Bicyclists

Similar to the pedestrian counts, there were substantially more bicyclists at the North Laurel Road and Route 1 intersection then Montgomery Road, with 20 compared to 10.

Total and 2 Hour Average of Bicyclists on Route 1

Count Locations	Wednesday, June 1 AM	Wednesday June 1 PM	Thursday, June 2 AM	Thursday June 2 PM	Total	AM Average	PM Average
Montgomery Road	1	N/A	0	4	5	1	4
North Laurel Road	6	5	0	9	20	6	7

Demographics

The locations with the highest percentage of youth were the Columbia Road and Cedar Lane pedestrian bridge locations, with 73 percent and 57 percent, respectively. These pedestrian bridges provide direct access to elementary schools and provide a mid-block, above street level crossing to school. Gateway, in an office/industrial park, had no youth, but the location explains the lack of youth using this pathway facility.

The count locations with the highest percentage of older adults as a proportion of total users are Wilde Lake with 12 percent, Lake Elkhorn with 10 percent and Cedar Lane Bridge with 11 percent. Columbia Road pedestrian bridge and Downtown Columbia had the lowest percentage of use by older adults, with none being recorded.

Overall, more males were counted in the 2016 Bicycle and Pedestrian Count program with 3,546, compared to 3,170 females. Cedar Lane and Columbia Road bridges had the highest percentage of females with 54 percent. The lowest percentage of females at a count location were on the Route 1 corridor with North Laurel at 27 percent and Elkridge at 25 percent.

Demographics of All Count Locations (Pedestrians and Cyclists)

Count Locations	Youth Average Percentage	Older Adult Average Percentage	Percent Female	Percent Male
Downtown Columbia	2%	0%	53%	47%
Wilde Lake	11%	12%	46%	54%
Lake Elkhorn	12%	10%	47%	53%
Lake Kittamaqundi North	9%	6%	50%	50%
Lake Kittamaqundi South	8%	0%	47%	53%
Jackson Pond	21%	9%	45%	55%
Tamar Drive	24%	5%	34%	66%
Pratt Bridge	11%	6%	38%	62%
Gateway	0%	3%	49%	51%
Columbia Road Bridge	73%	0%	54%	46%
Cedar Lane Bridge	57%	11%	54%	46%
Route 1 North Laurel	12%	2%	27%	73%
Route 1 Elkridge	8%	8%	25%	75%

Summary Remarks

The third annual Bicycle and Pedestrian Counts were successful and there was no inclement whether that hindered data collection. This allowed a full two-hour count period to be collected each day and volunteers were able to be secured despite the six additional count locations. The success rate of volunteers being present for their count locations and times was high, with only five missed dates (one at Lake Elkhorn, two at Lake Kittamaqundi and two at the Harpers Farm Road bridge).

CA and the Howard County Office of Transportation have applied for a State of Maryland grant to fund a pilot count program using automated counters. This grant would allow the organizations to augment its once-a-year count program and also reduce the reliance on volunteer counters. However, the use of volunteers and the continuation of the manual count program is anticipated to continue even if the pilot study and automated counters are

implemented until the results and efficacy of those new counters is demonstrated and understood.