Non-Motorized Travel in the City of Alexandria:
An Assessment Based On Alexandria’s First Counts for the National Bicycle and Pedestrian Documentation Project

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Presented to the Mayor, Vice Mayor, and City Council of Alexandria, VA

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Executive Summary

The Alexandria Bicycle and Pedestrian Advisory Committee (“BPAC”) has, for the first time, collected data on the number and gender of bicyclists and pedestrians traveling at certain key locations in the City of Alexandria. Using these data, BPAC has also generated estimates for the total daily, weekly, monthly, and yearly number of bicyclists and pedestrians at these locations. Through this effort to collect data and generate travel estimates, BPAC has led Alexandria’s participation in the National Bicycle and Pedestrian Documentation Project (“NBPD P”). BPAC plans to conduct counts next in September 2011, and periodically thereafter.

This count effort is critical to improving our understanding of non-motorized travel patterns in the City of Alexandria. While data collection is routine for virtually all other modes of travel, including automobiles and transit, comparable efforts for non-motorized travel have typically been much more rare and sporadic. As a result, data gaps are the norm, rather than the exception, for non-motorized travel. To address this challenge, the NBPD P empowers communities with the strategic tools necessary to begin to fill non-motorized travel data gaps. The methods for data collection and analysis employed by BPAC are consistent with those used by nearly 100 other communities around the country for over 300 count efforts.

As a result, this effort supports the City’s goals outlined in the 2008 Pedestrian and Bicycle Mobility Plan, which states that “walking and bicycling are fundamental to the character and livability of Alexandria, Virginia,” and that “the City of Alexandria is working to reduce dependence on private automobiles and provide citizens with transportation choices.” (2008 Plan: 4-5). In addition, this effort supports BPAC’s mission “to provide citizen input in planning and programming bicycle and pedestrian improvements and in promoting bicycling and walking in the city of Alexandria.” BPAC’s goals include providing a forum for:

- Citizen input in planning bicycle trails, bicycle parking and bicycle street access in Alexandria.
- Promoting bicycle and pedestrian safety, education, use, and awareness.
- Informing the City Council, staff, and citizens about bicycling and pedestrian issues that affects the citizens of Alexandria.
- Providing citizen input in the planning, review and implementation process for transportation projects in and around Alexandria.
- Forging links with other citizen advisory committees and commissions in Alexandria, as well as in neighboring communities, that share issues common to bicycling and walking in Alexandria.
- Working with the Alexandria City staff including the Bicycle and Pedestrian Coordinator to achieve these goals.

The July 2011 data collection effort consisted of manual counts conducted by trained volunteers at 10 locations during two count periods in July 2011:

1) Thursday, July 7th, 2011: 5:00pm-7:00pm (93°-95°, Mostly Sunny, No Appreciable Precipitation)
2) Saturday, July 9th, 2011: 12:00pm-2:00pm (90°-93°, Mostly Sunny, No Appreciable Precipitation)

Figure 1 below presents the 10 count locations, along with on-street and off-street facilities available for non-motorized travelers, imposed on an aerial view of the City of Alexandria. Most of the 10 locations chosen by BPAC were identified in the 2008 Pedestrian and Bicycle Mobility Plan as areas for improvement.

Figure 1: Count Locations and Non-Motorized Travel Facilities in the City of Alexandria.
The average percent across all locations of bicyclists and pedestrians who were women traveling on each count day is presented below in Table 1.

**Table 1. Average Percent Female of Total Bicyclists and Pedestrians By Day.**

<table>
<thead>
<tr>
<th></th>
<th>Bicycles</th>
<th>Pedestrians</th>
</tr>
</thead>
<tbody>
<tr>
<td>7/7/11</td>
<td>7/9/11</td>
<td>7/7/11</td>
</tr>
<tr>
<td>21.73%</td>
<td>30.92%</td>
<td>42.92%</td>
</tr>
</tbody>
</table>

Averaged across both count periods and all 10 locations, approximately 26.32% of bicyclists were women, while 42.77% of pedestrians were women.

Estimates for total non-motorized travel at each location for the month of July is presented in Table 2.

**Table 2. Estimates of Non-Motorized Travel By Mode and Count Location for the Month of July.**

<table>
<thead>
<tr>
<th>July</th>
<th>Average Bicyclists</th>
<th>Average Pedestrians</th>
<th>Average Others</th>
<th>Average Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>99,060</td>
<td>16,836</td>
<td>272</td>
<td>116,168</td>
</tr>
<tr>
<td>B1</td>
<td>60,031</td>
<td>17,394</td>
<td>549</td>
<td>77,974</td>
</tr>
<tr>
<td>B2</td>
<td>16,510</td>
<td>9,013</td>
<td>889</td>
<td>26,412</td>
</tr>
<tr>
<td>C</td>
<td>18,499</td>
<td>28,509</td>
<td>554</td>
<td>47,562</td>
</tr>
<tr>
<td>D</td>
<td>24,311</td>
<td>33,630</td>
<td>0</td>
<td>57,941</td>
</tr>
<tr>
<td>E</td>
<td>4,744</td>
<td>22,007</td>
<td>68</td>
<td>26,819</td>
</tr>
<tr>
<td>F</td>
<td>15,687</td>
<td>8,508</td>
<td>0</td>
<td>24,195</td>
</tr>
<tr>
<td>G</td>
<td>5,398</td>
<td>15,592</td>
<td>0</td>
<td>20,990</td>
</tr>
<tr>
<td>H</td>
<td>6,662</td>
<td>13,732</td>
<td>136</td>
<td>20,530</td>
</tr>
<tr>
<td>I</td>
<td>4,567</td>
<td>3,460</td>
<td>0</td>
<td>8,027</td>
</tr>
</tbody>
</table>
Estimates for total yearly non-motorized travel is presented in Table 3.

**Table 3.** Estimates of Non-Motorized Travel By Mode and Count Location for the Average Year.

<table>
<thead>
<tr>
<th>Annual</th>
<th>Average Bicyclists</th>
<th>Average Pedestrians</th>
<th>Average Others</th>
<th>Average Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>825,502</td>
<td>140,295</td>
<td>2,266</td>
<td>968,063</td>
</tr>
<tr>
<td>B1</td>
<td>500,258</td>
<td>144,949</td>
<td>4,573</td>
<td>649,779</td>
</tr>
<tr>
<td>B2</td>
<td>137,584</td>
<td>75,105</td>
<td>7,405</td>
<td>220,093</td>
</tr>
<tr>
<td>C</td>
<td>154,155</td>
<td>237,575</td>
<td>4,613</td>
<td>396,342</td>
</tr>
<tr>
<td>D</td>
<td>202,592</td>
<td>280,246</td>
<td>0</td>
<td>482,838</td>
</tr>
<tr>
<td>E</td>
<td>39,535</td>
<td>183,391</td>
<td>567</td>
<td>223,492</td>
</tr>
<tr>
<td>F</td>
<td>130,725</td>
<td>70,896</td>
<td>0</td>
<td>201,621</td>
</tr>
<tr>
<td>G</td>
<td>44,978</td>
<td>129,936</td>
<td>0</td>
<td>174,913</td>
</tr>
<tr>
<td>H</td>
<td>55,519</td>
<td>114,437</td>
<td>1,133</td>
<td>171,089</td>
</tr>
<tr>
<td>I</td>
<td>38,058</td>
<td>28,832</td>
<td>0</td>
<td>66,890</td>
</tr>
</tbody>
</table>
I. An Introduction to the City of Alexandria

The City of Alexandria is a vibrant community in Northern Virginia located within the Washington, DC, metropolitan region. With a population of approximately 142,131 residents, and a total area of 15.4 square miles, Alexandria has a population density of approximately 9,229 per square mile. Median household income for the City is approximately $80,186, and an estimated 10.5% of all households are car-free.¹

Alexandria offers a diverse landscape for travelers. The compact neighborhoods of Old Town and Del Ray on the City’s eastern side contrast the less dense and less grid-like West End of the City. There are currently four MetroRail stations located within the City that connect to the region’s heavy-rail Metro system. At these four stations, there are a total 110 bike racks and 44 bike lockers.² Travelers can take bicycles on Metro trains outside of certain restricted times, primarily around the commuting rush hours. In addition, MetroBus service is extensive throughout the City and offers another mode for connecting to the region’s transit system. All MetroBus buses are equipped with front-end bike racks to enable bus travelers to carry bicycles on their trips free of charge.

In addition, the City operates the local DASH bus system. Currently, DASH buses are not equipped with front-end bike racks. However, the City has grant funding for installing racks on the existing fleet of DASH buses over 2011-2012, and all new buses that are added to the fleet will have bicycle racks.³

Facilities for non-motorized travelers in Alexandria include both on-street and off-street routes. Several shared-use paths are well connected to the region’s trail network. Among these, the Mount Vernon Trail is perhaps most renowned for its eighteen-mile north-south route along the Potomac River, which begins at the Theodore Roosevelt Island National Memorial in Arlington and ends at the gates to the Mount Vernon Estate. The original construction of the Mount Vernon Trail, undertook in the 1970s, was in fact championed by the late community activist and Alexandria City Council Member Ellen Pickering. The trail now receives over one million visitors each year.

Alexandria has been recognized as a Bicycle Friendly Community at the Bronze-Level by the League of American Bicyclists since 2009. The City’s recent achievements include several major trail and bridge infrastructure projects, expansion of bicycle parking, and the hiring of a full-time bicycle planner/Coordinator. Attention continues to be focused on implementation of

² Calculations based on information available from the Washington Metropolitan Transit Authority for each MetroRail Station. See station information and the Bike N Ride program for more information. http://wmata.com/getting_around/bike_ride/.
³ Carrie Sanders, Principal Transportation Planner, City of Alexandria. (Personal Communication, April, 2011).
the City’s 2008 Pedestrian and Bicycle Mobility Plan. In addition, the City Council is currently considering a pilot program to join the region’s Capital Bikeshare system.

\[\text{\textsuperscript{4}}\] To review the 2008 Pedestrian and Bicycle Mobility Plan in its entirety, or to find more information on the City of Alexandria’s transportation resources in general, see the Local Motion website.  http://alexandriava.gov/localmotion/.
II. The National Bicycle and Pedestrian Documentation Project

The Alexandria Bicycle and Pedestrian Advisory Committee (“BPAC”) chose to initiate participation in the National Bicycle and Pedestrian Documentation Project (“NBPDP”) in order to support greater understanding of non-motorized travel patterns in the community. The NBPDP is a nationwide effort that offers a standardized methodology for both data collection and analysis regarding non-motorized travel. Since it began in 2003, over 300 counts have been conducted in nearly 100 communities throughout the country.

BPAC deliberated on participation in the NBPDP during April 2011 and May 2011 Committee meetings. At the May 2011 meeting, attendees made suggestions for count locations, in accordance with NBPDP guidelines:

1) areas of high levels of non-motorized travel;
2) areas of high safety concerns;
3) areas impacted by future projects;
4) areas spread throughout the community.

From an initial list of approximately 30 locations, 10 were ultimately chosen based on volunteer availability and relative priority as assessed by BPAC.

Between the May 2011 and June 2011 meetings, BPAC solicited the community for volunteer counters. Two training sessions were offered in June 2011, and approximately 15-20 volunteers received the training. The training was mandatory for volunteer counters and sought to maximize the consistency of the counts across volunteers and locations. Volunteers were also asked to sign a waiver and release of liability prior to participating as a counter.

The times and weather conditions of the counts are described below:

3) Thursday, July 7th, 2011: 5:00pm-7:00pm (93°-95°, Mostly Sunny, No Appreciable Precipitation)
4) Saturday, July 9th, 2011: 12:00pm-2:00pm (90°-93°, Mostly Sunny, No Appreciable Precipitation)

Methodology

The counts are based on the “screenline” method of counting each traveler passing through a specified line on a given travel facility. Details on the screenlines for each location are presented below. The estimates of daily, weekly, monthly, and yearly travel presented below in the Count Results section were generated using a NBPDP extrapolation tool. Professional staff supporting the NBPDP created the tool, which uses multiplier factors that have been calibrated based on community data submissions and also takes into consideration the following factors:

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5 For more information, visit: [http://bikepeddocumentation.org/](http://bikepeddocumentation.org/).
1) time of the day.
2) day of the week.
3) month of the year.
4) type of facility.\textsuperscript{6}
5) climate zone of the community.

Notably, the extrapolations do not include any adjustment for the presence of rain or snow showers, or extreme heat, cold, or winds during the count periods.

BPAC recognizes that extrapolations based on data collected on a more continuous basis would likely have improved accuracy over the estimates presented here, which are based on volunteer manual counts. Indeed, BPAC would support the procurement of automatic counters for non-motorized travelers, as is standard in the data collection efforts regarding motorized travel on many public roadways. Nevertheless, BPAC is confident these estimates provide an accurate understanding of non-motorized travel in the City of Alexandria, and will be useful for assessing the demand for and usage of non-motorized facilities.

\textsuperscript{6} The workbook includes two types of facilities: path, and pedestrian district. Consultation with staff supporting the NBPDP confirmed that the pedestrian district facility designation is appropriate for on-street facilities in urban environments, such as those present in Alexandria.
III. Count Location Descriptions

The figure below presents the 10 count locations, along with on-street and off-street facilities available for non-motorized travelers, imposed on an aerial view of the City of Alexandria. Note Location B is divided into B1 and B2, as further detailed below.

**Figure 2: Count Locations and Non-Motorized Travel Facilities in the City of Alexandria. (Identical to Figure 1).**

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7 Geographic data were sourced from the 2009 GIS Data DVD published by the City of Alexandria for public use. [http://alexandriava.gov/GIS](http://alexandriava.gov/GIS).
To provide further context, most of the 10 locations ultimately included in the count effort were identified in the 2008 Pedestrian and Bicycle Mobility Plan as areas for improvements.

1) Location C. (BPAC Yearly Estimates: 154,155 Bicyclists; 237,575 Pedestrians)
   a. Hot spot of crash activity for both bicyclists and pedestrians. See Pedestrian Crash Density (p. 27) and Bicycle Crash Density (p. 28).
   c. On-Street Bikeways Program: Bicycle Lane (p. 41).
2) Location D. (BPAC Yearly Estimates: 202,592 Bicyclists; 280,246 Pedestrians)
   a. Hot spot of crash activity for bicyclists. See Bicycle Crash Density (p. 28).
   b. Bicycle Level of Service Grade: C (p. 29).
   c. Safe Routes to School/Access to Transit/Community Pathways Recommendation: Improve Existing Signal, Construct/Improve Bicycle Facility, Improve Existing Crosswalk (p. 35, 37, 39).
   d. On-Street Bikeways Program: Intersection Improvement (p. 41).
3) Location F. (BPAC Yearly Estimates: 130,725 Bicyclists; 70,896 Pedestrians)
4) Location G. (BPAC Yearly Estimates: 44,978 Bicyclists; 129,936 Pedestrians)
   a. Hot spot of crash activity for bicyclists. See Bicycle Crash Density (p. 28).
   b. Bicycle Level of Service Grade: D (p. 29).
   d. On-Street Bikeways Program: Intersection Improvement (p. 41).
   e. Off-Street Bikeways Program: Construct Sidewalk or Widen Existing Sidewalk (p. 43).
5) Location H. (BPAC Yearly Estimates: 55,519 Bicyclists; 114,437 Pedestrians)
   a. Hot spot of crash activity for both bicyclists and pedestrians. See Pedestrian Crash Density (p. 27) and Bicycle Crash Density (p. 28).
6) Location I. (BPAC Yearly Estimates: 38,058 Bicyclists; 28,832 Pedestrians)
   a. Bicycle Level of Service Grade: D (p. 29).
   c. On-Street Bikeways Program: Intersection Improvement (p. 41).
Location A

Located on the Mount Vernon Trail just south of the Alexandria-Arlington border. For extrapolation purposes, classified as “path.”
**Locations B1 and B2**

B1 is located on the Mount Vernon Trail just south of the Woodrow Wilson bridge/overpass. For extrapolation purposes, classified as “path.” B2 is located at the mouth of the Woodrow Wilson bridge/overpass. For extrapolation purposes, classified as “path.”
**Location C**

Located on Mount Vernon Avenue just south of the Alexandria-Arlington border. For extrapolation purposes, classified as “pedestrian district.”

**Location D**

Located at the intersection of two facilities with on-street accommodations – Commonwealth Avenue (bike lanes) and Mount Vernon Avenue (sharrows). For extrapolation purposes, classified as “pedestrian district.”
**Location E**

Located on an off-street trail between the Braddock Road and King Street MetroRail stations. For extrapolation purposes, classified as “path.”

**Location F**

Located on the Eisenhower Avenue trail. For extrapolation purposes, classified as “path.”
**Location G**

Located at the intersection of Beauregard Street and King Street on the Alexandria-Arlington border. For extrapolation purposes, classified as “pedestrian district.”

**Location H**

Located on the Holmes Run trail. For extrapolation purposes, classified as “path.” Due to a misunderstanding, counts were only conducted at this location on Saturday, July 9th, 2011.
**Location I**

Located on the sidewalk/trail at the terminus of the Eisenhower Avenue corridor and near the Van Dorn MetroRail station. For extrapolation purposes, classified as “pedestrian district.”
IV. Count Results

Tables 4-6 present the count data for each location, along with a calculation of the percent of travelers who were females and an average of the percent of travelers comprised of females over the two count periods. Total travelers do not necessarily reflect the sum of female and male travelers as the gender of all travelers could not necessarily be determined; travelers of an unknown gender were excluded from the calculation of the percent of travelers comprised of females.

Note when comparing totals for all locations between the two count periods that counts were not conducted at location H during the first count period. In addition, the “average” for location H simply reflects the single count conducted during the second count period.
Table 4. Bicyclist counts by location and gender.

<table>
<thead>
<tr>
<th></th>
<th>Female Bicyclists</th>
<th>Male Bicyclists</th>
<th>Total Bicyclists</th>
<th>Percent Female</th>
<th>Average Percent Female</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>7/7/11 7/9/11</td>
<td>7/7/11 7/9/11</td>
<td>7/7/11 7/9/11</td>
<td>7/7/11 7/9/11</td>
<td>7/7/11 7/9/11</td>
</tr>
<tr>
<td>A</td>
<td>81 232</td>
<td>287 472</td>
<td>368 708</td>
<td>22.01%</td>
<td>32.95% 27.48%</td>
</tr>
<tr>
<td>B1</td>
<td>28 161</td>
<td>107 320</td>
<td>197 482</td>
<td>20.74%</td>
<td>33.47% 27.11%</td>
</tr>
<tr>
<td>B2</td>
<td>12 41</td>
<td>40 94</td>
<td>52 137</td>
<td>23.08%</td>
<td>30.37% 26.72%</td>
</tr>
<tr>
<td>C</td>
<td>24 11</td>
<td>67 53</td>
<td>91 64</td>
<td>26.37%</td>
<td>17.19% 21.78%</td>
</tr>
<tr>
<td>D</td>
<td>29 23</td>
<td>96 50</td>
<td>127 73</td>
<td>23.20%</td>
<td>31.51% 27.35%</td>
</tr>
<tr>
<td>E</td>
<td>3 8</td>
<td>19 17</td>
<td>22 25</td>
<td>13.64%</td>
<td>32.00% 22.82%</td>
</tr>
<tr>
<td>F</td>
<td>13 16</td>
<td>64 58</td>
<td>77 74</td>
<td>16.88%</td>
<td>21.62% 19.25%</td>
</tr>
<tr>
<td>G</td>
<td>7 3</td>
<td>25 6</td>
<td>33 9</td>
<td>21.88%</td>
<td>33.33% 27.60%</td>
</tr>
<tr>
<td>H</td>
<td>6 42</td>
<td></td>
<td>49</td>
<td>12.50%</td>
<td>12.50%</td>
</tr>
<tr>
<td>I</td>
<td>4 2</td>
<td>19 12</td>
<td>23 15</td>
<td>17.39%</td>
<td>14.29% 15.84%</td>
</tr>
<tr>
<td>All Locations</td>
<td>201 503</td>
<td>724 1124</td>
<td>990 1636</td>
<td>21.73%</td>
<td>30.92% 26.32%</td>
</tr>
</tbody>
</table>

Table 5. Pedestrian counts by location and gender.

<table>
<thead>
<tr>
<th></th>
<th>Female Pedestrians</th>
<th>Male Pedestrians</th>
<th>Total Pedestrians</th>
<th>Percent Female</th>
<th>Average Percent Female</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>7/7/11 7/9/11</td>
<td>7/7/11 7/9/11</td>
<td>7/7/11 7/9/11</td>
<td>7/7/11 7/9/11</td>
<td>7/7/11 7/9/11</td>
</tr>
<tr>
<td>A</td>
<td>30 39</td>
<td>44 57</td>
<td>74 97</td>
<td>40.54%</td>
<td>40.63% 40.58%</td>
</tr>
<tr>
<td>B1</td>
<td>20 50</td>
<td>31 43</td>
<td>80 93</td>
<td>39.22%</td>
<td>53.76% 46.49%</td>
</tr>
<tr>
<td>B2</td>
<td>8 52</td>
<td>8 48</td>
<td>16 100</td>
<td>50.00%</td>
<td>52.00% 51.00%</td>
</tr>
<tr>
<td>C</td>
<td>62 32</td>
<td>84 58</td>
<td>146 90</td>
<td>42.47%</td>
<td>35.56% 39.01%</td>
</tr>
<tr>
<td>D</td>
<td>87 56</td>
<td>68 60</td>
<td>163 120</td>
<td>56.13%</td>
<td>48.28% 52.20%</td>
</tr>
<tr>
<td>E</td>
<td>56 21</td>
<td>76 34</td>
<td>132 55</td>
<td>42.42%</td>
<td>38.18% 40.30%</td>
</tr>
<tr>
<td>F</td>
<td>7 21</td>
<td>25 39</td>
<td>32 60</td>
<td>21.88%</td>
<td>35.00% 28.44%</td>
</tr>
<tr>
<td>G</td>
<td>32 12</td>
<td>54 25</td>
<td>88 37</td>
<td>37.21%</td>
<td>32.43% 34.82%</td>
</tr>
<tr>
<td>H</td>
<td>36 64</td>
<td></td>
<td>101</td>
<td>36.00%</td>
<td>36.00%</td>
</tr>
<tr>
<td>I</td>
<td>4 2</td>
<td>17 4</td>
<td>21 6</td>
<td>19.05%</td>
<td>33.33% 26.19%</td>
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<tr>
<td>All Locations</td>
<td>306 321</td>
<td>407 432</td>
<td>752 759</td>
<td>42.92%</td>
<td>42.63% 42.77%</td>
</tr>
</tbody>
</table>
Table 6. Others by location and gender.

<table>
<thead>
<tr>
<th></th>
<th>Female Others</th>
<th>Male Others</th>
<th>Total Others</th>
<th>Percent Female</th>
<th>Average Percent Female</th>
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<tbody>
<tr>
<td></td>
<td>7/7/11</td>
<td>7/9/11</td>
<td>7/7/11</td>
<td>7/9/11</td>
<td>7/7/11</td>
</tr>
<tr>
<td>A</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>B1</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>B2</td>
<td>0</td>
<td>3</td>
<td>2</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>C</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>D</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>E</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>F</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>G</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>H</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>I</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>All Locations</td>
<td>0</td>
<td>5</td>
<td>8</td>
<td>14</td>
<td>8</td>
</tr>
</tbody>
</table>

Tables 7-10 present extrapolations to daily, weekly, monthly, and annual travel estimates for each location. As described above, the extrapolations were calculated using the NBPDP Extrapolation Workbook. This workbook uses multiplier factors that take into consideration the time of the day, the day of the week, the month of the year, the type of facility, and the climate zone of the count effort. The workbook includes two types of facilities: path, and pedestrian district. Consultation with staff supporting the NBPDP confirmed that the pedestrian district facility designation is appropriate for on-street facilities in urban environments, such as those present in Alexandria. Extrapolations were calculated for each day and each location, and then averaged.

Table 7. Extrapolation to average daily travel at each location.

<table>
<thead>
<tr>
<th>Daily</th>
<th>Average Bicyclists</th>
<th>Average Pedestrians</th>
<th>Average Others</th>
<th>Average Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>3,337</td>
<td>546</td>
<td>11</td>
<td>3,893</td>
</tr>
<tr>
<td>B1</td>
<td>2,071</td>
<td>557</td>
<td>19</td>
<td>2,647</td>
</tr>
<tr>
<td>B2</td>
<td>574</td>
<td>337</td>
<td>33</td>
<td>943</td>
</tr>
<tr>
<td>C</td>
<td>582</td>
<td>885</td>
<td>15</td>
<td>1,482</td>
</tr>
<tr>
<td>D</td>
<td>751</td>
<td>1,062</td>
<td>0</td>
<td>1,812</td>
</tr>
<tr>
<td>E</td>
<td>152</td>
<td>647</td>
<td>3</td>
<td>802</td>
</tr>
<tr>
<td>F</td>
<td>494</td>
<td>286</td>
<td>0</td>
<td>780</td>
</tr>
<tr>
<td>G</td>
<td>158</td>
<td>469</td>
<td>0</td>
<td>627</td>
</tr>
<tr>
<td>H</td>
<td>271</td>
<td>558</td>
<td>6</td>
<td>835</td>
</tr>
<tr>
<td>I</td>
<td>143</td>
<td>102</td>
<td>0</td>
<td>245</td>
</tr>
</tbody>
</table>
Table 8. Extrapolation to average weekly travel at each location.

<table>
<thead>
<tr>
<th>Weekly</th>
<th>Average Bicyclists</th>
<th>Average Pedestrians</th>
<th>Average Others</th>
<th>Average Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>22,369</td>
<td>3,802</td>
<td>62</td>
<td>26,232</td>
</tr>
<tr>
<td>B1</td>
<td>13,556</td>
<td>3,928</td>
<td>124</td>
<td>17,607</td>
</tr>
<tr>
<td>B2</td>
<td>3,728</td>
<td>2,035</td>
<td>201</td>
<td>5,964</td>
</tr>
<tr>
<td>C</td>
<td>4,178</td>
<td>6,438</td>
<td>125</td>
<td>10,740</td>
</tr>
<tr>
<td>D</td>
<td>5,490</td>
<td>7,594</td>
<td>0</td>
<td>13,084</td>
</tr>
<tr>
<td>E</td>
<td>1,072</td>
<td>4,970</td>
<td>16</td>
<td>6,057</td>
</tr>
<tr>
<td>F</td>
<td>3,543</td>
<td>1,921</td>
<td>0</td>
<td>5,464</td>
</tr>
<tr>
<td>G</td>
<td>1,219</td>
<td>3,521</td>
<td>0</td>
<td>4,740</td>
</tr>
<tr>
<td>H</td>
<td>1,504</td>
<td>3,101</td>
<td>31</td>
<td>4,636</td>
</tr>
<tr>
<td>I</td>
<td>1,032</td>
<td>782</td>
<td>0</td>
<td>1,813</td>
</tr>
</tbody>
</table>

Table 9. Extrapolation to average travel for the month of July at each location.

<table>
<thead>
<tr>
<th>July</th>
<th>Average Bicyclists</th>
<th>Average Pedestrians</th>
<th>Average Others</th>
<th>Average Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>99,060</td>
<td>16,836</td>
<td>272</td>
<td>116,168</td>
</tr>
<tr>
<td>B1</td>
<td>60,031</td>
<td>17,394</td>
<td>549</td>
<td>77,974</td>
</tr>
<tr>
<td>B2</td>
<td>16,510</td>
<td>9,013</td>
<td>889</td>
<td>26,412</td>
</tr>
<tr>
<td>C</td>
<td>18,499</td>
<td>28,509</td>
<td>554</td>
<td>47,562</td>
</tr>
<tr>
<td>D</td>
<td>24,311</td>
<td>33,630</td>
<td>0</td>
<td>57,941</td>
</tr>
<tr>
<td>E</td>
<td>4,744</td>
<td>22,007</td>
<td>68</td>
<td>26,819</td>
</tr>
<tr>
<td>F</td>
<td>15,687</td>
<td>8,508</td>
<td>0</td>
<td>24,195</td>
</tr>
<tr>
<td>G</td>
<td>5,398</td>
<td>15,592</td>
<td>0</td>
<td>20,990</td>
</tr>
<tr>
<td>H</td>
<td>6,662</td>
<td>13,732</td>
<td>136</td>
<td>20,530</td>
</tr>
<tr>
<td>I</td>
<td>4,567</td>
<td>3,460</td>
<td>0</td>
<td>8,027</td>
</tr>
</tbody>
</table>
Table 10. Extrapolation to average yearly travel at each location.

<table>
<thead>
<tr>
<th>Annual</th>
<th>Average Bicyclists</th>
<th>Average Pedestrians</th>
<th>Average Others</th>
<th>Average Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>825,502</td>
<td>140,295</td>
<td>2,266</td>
<td>968,063</td>
</tr>
<tr>
<td>B1</td>
<td>500,258</td>
<td>144,949</td>
<td>4,573</td>
<td>649,779</td>
</tr>
<tr>
<td>B2</td>
<td>137,584</td>
<td>75,105</td>
<td>7,405</td>
<td>220,093</td>
</tr>
<tr>
<td>C</td>
<td>154,155</td>
<td>237,575</td>
<td>4,613</td>
<td>396,342</td>
</tr>
<tr>
<td>D</td>
<td>202,592</td>
<td>280,246</td>
<td>0</td>
<td>482,838</td>
</tr>
<tr>
<td>E</td>
<td>39,535</td>
<td>183,391</td>
<td>567</td>
<td>223,492</td>
</tr>
<tr>
<td>F</td>
<td>130,725</td>
<td>70,896</td>
<td>0</td>
<td>201,621</td>
</tr>
<tr>
<td>G</td>
<td>44,978</td>
<td>129,936</td>
<td>0</td>
<td>174,913</td>
</tr>
<tr>
<td>H</td>
<td>55,519</td>
<td>114,437</td>
<td>1,133</td>
<td>171,089</td>
</tr>
<tr>
<td>I</td>
<td>38,058</td>
<td>28,832</td>
<td>0</td>
<td>66,890</td>
</tr>
</tbody>
</table>
V. Recommendations

Based on the results of BPAC’s July 2011 NBPDP count effort, BPAC recommends:

1) Implementation of the projects outlined in the 2008 Pedestrian and Bicycle Mobility Plan, and referenced above in the Count Location Descriptions section, to improve the safety and practicality of non-motorized travel throughout Alexandria.
2) Increased connectivity and improved design surrounding the Location E trail between the King Street and Braddock Road MetroRail Stations; addition of a curb cut on the trail leading north on Braddock Road behind George Washington Middle School.
3) Improved facilities on the north end of Mount Vernon Avenue surrounding Location C in the Arlandria neighborhood, to complement those already in place further south on the Avenue, and to improve connectivity to the neighborhood’s community center, parks, farmer’s market, and nearby Four Mile Run trail in Arlington.
4) Bicycle facilities on Beauregard Street near Location G to connect to the path available on Walter Reed Drive across the jurisdictional boundary in Arlington, as planned for the reconstruction of King Street; improve the mobility opportunities for travelers to the Mark Center and the BRAC facility.
5) Improved connectivity of Eisenhower Valley and the Holmes Run Trail, as a major east-west route through Alexandria, to the destinations along Duke Street, Old Town, and Carlisle.
6) Improved connectivity of the Woodrow Wilson Bridge to the north on Washington Street.
7) Improved facilities along Eisenhower Avenue, especially west of the Holmes Run Trail intersection.

Further, BPAC finds that results of the count effort suggest:

1) Greater gender parity among pedestrians than bicyclists in Alexandria; pedestrian travel for women may, therefore, be perceived as safer and more accessible than bicycling.
2) Travel on and connecting to the Mt. Vernon Trail is very high; Alexandria should look for opportunities to improve connectivity to this corridor.
3) Lower levels of non-motorized travel in the west end of Alexandria indicate a strong need for development of an improved network of connected facilities for both pedestrians and bicyclists.

Low levels of observed non-motorized travel at certain locations do not necessarily correspond to low levels of demand, but rather help identify locations most in need of improvements. For example, Location I, with the lowest counts among all ten locations, is near the awkward narrowing and crossing of the Eisenhower Avenue trail near the Van Dorn MetroRail Station. In the future, BPAC will seek to conduct counts at locations near proposed bike share stations, as well as at locations particularly relevant to seniors, children, and mobility-challenged travelers.
VI. Concluding Remarks

BPAC wishes to acknowledge the time and dedication of the volunteer counters who made this first manual count effort possible. BPAC will be participating in September 2011 NBPDP counts, and looks forward to collaborating with members of the Alexandria community and greater metropolitan area to improve conditions for non-motorized travel.
VI. Appendices

Project Description

PROJECT STATEMENT

Greetings,

The Alexandria Bicycle and Pedestrian Advisory Committee is leading the effort for Alexandria to begin participation in the National Bicycle and Pedestrian Documentation Project. Volunteers have been trained and are conducting screenline counts of non-motorized travelers at ten locations during the following time periods in July 2011:

Thursday, July 7th: 5:00pm-7:00pm
Saturday, July 9th: 12:00pm-2:00pm

For more information, please visit: http://bikepeddocumentation.org/.

Sincerely,

Jerry King (Chair)
Jonathan Krall (Vice-Chair)
Andrea Hamre (Secretary)

Alexandria Bicycle and Pedestrian Advisory Committee

Contact:

Email: alexandriabpac@gmail.com

Website: https://sites.google.com/site/alexandriabpac/
Standard Count Form

National Bicycle and Pedestrian Documentation Project

STANDARD SCREENLINE COUNT FORM

Name: ________________________________________________
Location: ___________________________________________
Date: _______________  Weather: _______________________
Start Time: ___________  End Time: _________________

Please fill in your name, count location, date, time period, and weather conditions (fair, rainy, very cold). Count all bicyclists and pedestrians crossing your screen line under the appropriate categories.

- Count for two hours in 15 minute increments.
- Count all bicyclists, including those who ride on the sidewalk.
- Count the number of people on the bicycle, not the number of bicycles.
- Pedestrians include people in wheelchairs or others using assistive devices, children in strollers, etc.
- People using equipment such as skateboards or rollerblades should be included in the “Other” category.

<table>
<thead>
<tr>
<th>Time</th>
<th>Bicyclists</th>
<th>Pedestrians</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Female</td>
<td>Male</td>
<td>Unknown</td>
</tr>
<tr>
<td>00:00-00:15</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>00:15-00:30</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>00:30-00:45</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>00:45-01:00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>01:00-01:15</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>01:15-01:30</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>01:30-01:45</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>01:45-02:00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
OVERVIEW

- Why Are We Doing Counts?
- What Are Our Counts?
- When & Where Are Our Counts?
- How Do We Count?
- Concluding Remarks
- Acknowledgments & Special Thanks
  - Alta Planning & Design
  - Institute of Transportation Engineers
  - Portions Adopted From NBPDP Materials
WHY ARE WE DOING COUNTS?

- Limited Funding & Competing Priorities
- Data Collection Is Routine For All Other Modes
- Non-Motorized Modes Have Not Had Consistent Data Collection or Means of Analysis
- Counts Help:
  - Justify Funding
  - Measure Benefits and Costs
  - Analyze Trends
  - Understand Influences of Travel Behavior

WHY ARE WE DOING COUNTS?

- Politicians Are Accountable Stewards of Taxpayer Money (Data Helps Politicians Help Us)!
- Appeals Based On Values Alone Can Have Limitations
- You Know It, But Can You Show It?

- Collaborating With Community Partners
- Cultivating Relationships With Key Officials
- Strategic Advocacy
- Understanding the Community Context
- Leveraging Relevant Data
WHY ARE WE DOING COUNTS?
NBPDP EXAMPLE: SAN JOSE, CALIFORNIA

- Source: San Jose Department of Parks, Recreation, and Neighborhood Services
  (http://www.sjparcs.org/Trails/TrailCount.asp)

<table>
<thead>
<tr>
<th>Trail Count 2010</th>
<th>Fact Sheet</th>
<th>• Trails and Greenways presentation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trail Count 2009</td>
<td>Fact Sheet</td>
<td>• Survey questions and findings</td>
</tr>
<tr>
<td></td>
<td>Summary Report</td>
<td>• Press Release</td>
</tr>
<tr>
<td>Trail Count 2008</td>
<td>Fact Sheet</td>
<td>• Survey questions and findings</td>
</tr>
<tr>
<td></td>
<td>Summary Report</td>
<td>• VTA Count at River Oaks Parkway</td>
</tr>
<tr>
<td>Trail Count 2007</td>
<td>Fact Sheet</td>
<td>•</td>
</tr>
</tbody>
</table>

Is there value in counting the number of trail users?
Absolutely. After completion of the first Trail Count in 2007, staff was able to accomplish the following:

- Secured grant from the State of California for $700,000 awarded for construction of the Guadalupe River Trail (Woz Way to Virginia Street). State representatives reported that the Trail Count Fact Sheet influenced the grant panel's decision to award the grant.
- In discussing a $350,000 grant application, State of California (Caltrans) staff said that the Trail Count Fact Sheet data about commuting was impressive and wished other agencies gathered similar data.
- The City received a $150,000 grant from the Bay Area Ridge Trail for Peninsula Creek Trail and $123,000 from the State of California for Guadalupe/River Trail enhancements. Both applications included the Trail Count Fact Sheet.
- The City coordinated with sponsors of the San Jose Grand Prix to minimize impacts from event closures along the Guadalupe River Trail. The Trail Count Fact Sheet helped to document the negative impact of such closures to bicycle commuting.

Trail Count 2008 data supported efforts to secure $1,377,000 in grant funding.

WHAT ARE OUR COUNTS?

- Volume Estimates Suitable for Daily, Weekly, Monthly, & Annual Estimates
- Extrapolations Based on Peak Volume Counts Are Common in Traffic Engineering
- Based on a National Methodology Created by Alta Planning & Design (pro bono) and the Institute of Transportation Engineers
  - Standard Count Dates (September, January, May, and July)
  - Trainings & Forms, Locations, Time of Day, and Count Rules
  - Extrapolation Workbook
- National Effort (Over 300 Counts in Nearly 100 Communities Since NBPDP Began in 2003)
- Scalable, Flexible, & Free...and Unfunded
Sample Count Forms & Extrapolation Worksheet

STANDARD SCREENLINE COUNTFORM

Name: __________________________ Location: __________________________

Date: __________________________ Start Time: __________________________

End Time: __________________________

Weather: __________________________

Please fill in your name, count location, date, time period, and weather conditions. For rainy, snowy, etc.
Count all bicyclists and pedestrians crossing your screen line under the appropriate categories.

- Count for bicyclists in 15 minute increments.
- Count bicyclists who stop or slow down.
- Count bicyclists who make a stop at a crosswalk or other traffic control device.
- Count bicyclists who are observed riding on grass or streets.
- Pedestrians include people in wheelchairs or others using assistive devices, children in strollers, etc.
- People using equipment such as skateboards or rollerblades should be included in the “Other” category.

<table>
<thead>
<tr>
<th>Bicycles</th>
<th>Pedestrians</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>06:15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>06:30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>07:00</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Input your two-hour count total: 20

Count date: 9/21/10

Count time: Enter the hour of two-hour count period: 10:00 AM

Type: Path on PED District: Path

Climate Zone: Long Winter Short Summer Moderate Climate, or Yuma, Hi Desert, Mild Winter

Municipal Years:

[Table with data]

Daily: Change counts on the daily, weekly, monthly and annual

1/2/16

July Activity (Tuesday):

- 1/2

Weekly Activity:

- 432

Monthly Activity (September):

- 3,046

Annual Activity:

- 34,985

WHEN AND WHERE ARE OUR COUNTS

Dates Selected In Accordance With NBPD:

- Thursday, July 7th: 5:00 pm-7:00 pm
- Saturday, July 9th: 12:00 pm-2:00 pm

Locations Selected Based on NBPD Guidelines:

- High Volumes
- High Safety Concerns
- Future Facility Plans
- Geographic Diversity
- Volunteer Availability

HOW DO WE COUNT?

- Screenline Counts At A Specific Location
  - Volume Trends
  - Influential Factors
- Perpendicular Line Bisecting the Road
- Count Bicyclists, Pedestrians, & “Others” Crossing the Line In Both Directions
  - Others: Non-Motorized Individuals Using Scooters, Rollerblades, etc.
- Count Each Individual Each Time
  - Tandems, Child Carriers
- Not an “Intercept” Survey – No Need to Interview Travelers
HOW DO WE COUNT?

- Safety Is Always First
  - Count Off the Road or Trail, Not In It
  - Make Sure You Are Visible To Other Travelers
  - Share the Project Statement If Anyone Asks What You Are Doing – If You Feel Comfortable
  - Leave At Any Point If You Get Uncomfortable, Sick, or Have Another Emergency

- Items to Bring
  - Instructions, Count Forms, & Location Map
  - Clipboard & pens
  - What You Need to Be Comfortable for 2 Hours
    - Hat
    - Sunscreen
    - Jacket
    - Water & Snacks
    - Folding Chair
  - Scan Your Count Form & Email It Within 5 Days of the Counts

CONCLUDING REMARKS

- Data Helps Us Be Strategic
  - Understand Patterns
  - Measure Benefits & Costs
  - Assess Needs
  - Secure Funding

- The National Bicycle and Pedestrian Documentation Project
  - Scalable, Flexible & Free
  - Growing Nationwide Effort
  - http://bikepeddocumentaion.org/

- Thank You For Being A Part Of This Exciting Effort!

Contact:
- Andrea Hamre
  - ahamre@gmail.com