

Figure 5-8: Build Condition Intersection LOS for AM Peak Hour



Note: One- or two-way STOP-Controlled unsignalized intersections do not have an overall intersection LOS value, since the mainline through move operates freely through the intersection. Red shaded circles denote intersections/approaches operating at LOS E or F.  
 [\*] = Unsignalized intersection requires attention due to failing minor approach movements.

Figure 5-8: Build Condition Intersection LOS for AM Peak Hour (continued)



Note: One- or two-way STOP-Controlled unsignalized intersections do not have an overall intersection LOS value, since the mainline through move operates freely through the intersection. Red shaded circles denote intersections/approaches operating at LOS E or F.  
 [\*] = Unsignalized intersection requires attention due to failing minor approach movements.

Figure 5-9: Build Condition Intersection LOS for PM Peak Hour



Figure 5-9: Build Condition Intersection LOS for PM Peak Hour (continued)



Note: One- or two-way STOP-Controlled unsignalized intersections do not have an overall intersection LOS value, since the mainline through move operates freely through the intersection. Red shaded circles denote intersections/approaches operating at LOS E or F.  
 [\*] = Unsignalized intersection requires attention due to failing minor approach movements.

Table 5-20: Comparison of No-build and Build Condition Intersection AM and PM Peak Hour Operations Analysis

| #        | Intersection and Approach   | Lane Group | No-build Condition |          |                   |              |             |                 |          |                   |             |             | Build Condition |          |                   |              |             |                 |          |                   |            |             |
|----------|---|------------|--------------------|----------|-------------------|--------------|-------------|-----------------|----------|-------------------|-------------|-------------|-----------------|----------|-------------------|--------------|-------------|-----------------|----------|-------------------|------------|-------------|
|          |   |            | AM Peak Hour       |          |                   |              |             | PM Peak Hour    |          |                   |             |             | AM Peak Hour    |          |                   |              |             | PM Peak Hour    |          |                   |            |             |
|          |   |            | HCM 2000           |          | CLV               |              | Check       | HCM 2000        |          | CLV               |             | Check       | HCM 2000        |          | CLV               |              | Check       | HCM 2000        |          | CLV               |            | Check       |
|          |   |            | Delay (sec/veh)    | LOS      | Critical Lane Vol | LOS          |             | Delay (sec/veh) | LOS      | Critical Lane Vol | LOS         |             | Delay (sec/veh) | LOS      | Critical Lane Vol | LOS          |             | Delay (sec/veh) | LOS      | Critical Lane Vol | LOS        |             |
| <b>1</b> | <b>Greenbelt Road (MD 193) &amp; Cherrywood Lane/60th Avenue (Signalized)</b> |            |                    |          |                   |              |             |                 |          |                   |             |             |                 |          |                   |              |             |                 |          |                   |            |             |
|          | EB (Greenbelt Rd)   | L          | 63.2               | E        |                   | 53.0         | D           |                 |          |                   | 63.1        | E           |                 |          |                   | 53.0         | D           |                 |          |                   |            |             |
|          | EB (Greenbelt Rd)   | TR         | 8.8                | A        |                   | 13.9         | B           |                 |          |                   | 8.8         | A           |                 |          |                   | 13.9         | B           |                 |          |                   |            |             |
|          | <b>EB Overall (Greenbelt Rd)</b>  |            | <b>19.1</b>        | <b>B</b> |                   | <b>21.2</b>  | <b>C</b>    |                 |          |                   | <b>19.0</b> | <b>B</b>    |                 |          |                   | <b>21.2</b>  | <b>C</b>    |                 |          |                   |            |             |
|          | WB (Greenbelt Rd)   | L          | 64.2               | E        |                   | 67.0         | E           |                 |          |                   | 64.5        | E           |                 |          |                   | 67.1         | E           |                 |          |                   |            |             |
|          | WB (Greenbelt Rd)   | TR         | 20.6               | C        |                   | 35.7         | D           |                 |          |                   | 21.2        | C           |                 |          |                   | 35.8         | D           |                 |          |                   |            |             |
|          | <b>WB Overall (Greenbelt Rd)</b>  |            | <b>21.5</b>        | <b>C</b> |                   | <b>36.9</b>  | <b>D</b>    |                 |          |                   | <b>22.1</b> | <b>C</b>    |                 |          |                   | <b>37.0</b>  | <b>D</b>    |                 |          |                   |            |             |
|          | NB (60th Ave)   | LTR        | 74.0               | E        |                   | 132.4        | F           |                 |          |                   | 74.0        | E           |                 |          |                   | 132.4        | F           |                 |          |                   |            |             |
|          | <b>NB Overall (60th Ave)</b>  |            | <b>74.0</b>        | <b>E</b> |                   | <b>132.4</b> | <b>F</b>    |                 |          |                   | <b>74.0</b> | <b>E</b>    |                 |          |                   | <b>132.4</b> | <b>F</b>    |                 |          |                   |            |             |
|          | SB (Cherrywood Ln)  | L          | 76.7               | E        |                   | 106.8        | F           |                 |          |                   | 78.1        | E           |                 |          |                   | 138.9        | F           |                 |          |                   |            |             |
|          | SB (Cherrywood Ln)  | LT         | 76.7               | E        |                   | 108.0        | F           |                 |          |                   | 78.2        | E           |                 |          |                   | 137.8        | F           |                 |          |                   |            |             |
|          | SB (Cherrywood Ln)  | R          | 70.0               | E        |                   | 83.5         | F           |                 |          |                   | 71.2        | E           |                 |          |                   | 108.0        | F           |                 |          |                   |            |             |
|          | <b>SB Overall (Cherrywood Ln)</b>   |            | <b>71.9</b>        | <b>E</b> |                   | <b>91.0</b>  | <b>F</b>    |                 |          |                   | <b>73.2</b> | <b>E</b>    |                 |          |                   | <b>117.8</b> | <b>F</b>    |                 |          |                   |            |             |
|          | <b>Overall</b>  |            | <b>28.5</b>        | <b>C</b> | <b>1,315</b>      | <b>D</b>     | <b>Pass</b> | <b>42.2</b>     | <b>D</b> | <b>1,504</b>      | <b>E</b>    | <b>Pass</b> | <b>28.9</b>     | <b>C</b> | <b>1,335</b>      | <b>D</b>     | <b>Pass</b> | <b>48.3</b>     | <b>D</b> | <b>1,552</b>      | <b>E</b>   | <b>Pass</b> |
| <b>2</b> | <b>Cherrywood Lane &amp; Brezewood Drive (AWSC)</b>                           |            |                    |          |                   |              |             |                 |          |                   |             |             |                 |          |                   |              |             |                 |          |                   |            |             |
|          | WB (Brezewood Dr)   | LR         | 13.3               | -        |                   | 12.5         | -           |                 |          |                   | 13.4        | -           |                 |          |                   | 13.0         | -           |                 |          |                   |            |             |
|          | <b>WB Overall (Brezewood Dr)</b>  |            | <b>13.3</b>        | <b>B</b> |                   | <b>12.5</b>  | <b>B</b>    |                 |          |                   | <b>13.4</b> | <b>B</b>    |                 |          |                   | <b>13.0</b>  | <b>B</b>    |                 |          |                   |            |             |
|          | NB (Cherrywood Ln)  | T          | 11.2               | -        |                   | 12.4         | -           |                 |          |                   | 11.3        | -           |                 |          |                   | 12.9         | -           |                 |          |                   |            |             |
|          | NB (Cherrywood Ln)  | R          | 8.7                | -        |                   | 9.4          | -           |                 |          |                   | 8.7         | -           |                 |          |                   | 9.7          | -           |                 |          |                   |            |             |
|          | <b>NB Overall (Cherrywood Ln)</b>   |            | <b>10.1</b>        | <b>B</b> |                   | <b>11.1</b>  | <b>B</b>    |                 |          |                   | <b>10.2</b> | <b>B</b>    |                 |          |                   | <b>11.5</b>  | <b>B</b>    |                 |          |                   |            |             |
|          | SB (Cherrywood Ln)  | L          | 9.7                | -        |                   | 10.5         | -           |                 |          |                   | 9.7         | -           |                 |          |                   | 10.6         | -           |                 |          |                   |            |             |
|          | SB (Cherrywood Ln)  | T          | 10.8               | -        |                   | 15.1         | -           |                 |          |                   | 11.0        | -           |                 |          |                   | 21.9         | -           |                 |          |                   |            |             |
|          | <b>SB Overall (Cherrywood Ln)</b>   |            | <b>10.4</b>        | <b>B</b> |                   | <b>13.7</b>  | <b>B</b>    |                 |          |                   | <b>10.6</b> | <b>B</b>    |                 |          |                   | <b>19.0</b>  | <b>C</b>    |                 |          |                   |            |             |
|          | <b>Overall</b>  |            | <b>11.2</b>        | <b>B</b> | <b>N/A</b>        | <b>N/A</b>   | <b>Pass</b> | <b>12.5</b>     | <b>B</b> | <b>N/A</b>        | <b>N/A</b>  | <b>Pass</b> | <b>11.3</b>     | <b>B</b> | <b>N/A</b>        | <b>N/A</b>   | <b>Pass</b> | <b>15.2</b>     | <b>C</b> | <b>N/A</b>        | <b>N/A</b> | <b>Pass</b> |
| <b>3</b> | <b>Cherrywood Lane &amp; Springhill Drive (TWSC)</b>                          |            |                    |          |                   |              |             |                 |          |                   |             |             |                 |          |                   |              |             |                 |          |                   |            |             |
|          | WB (Springhill Dr)  | LR         | 16.4               | C        |                   | 128.6        | F           |                 |          |                   | 16.5        | C           |                 |          |                   | 176.5        | F           |                 |          |                   |            |             |
|          | <b>WB Overall (Springhill Dr)</b>   |            | <b>16.4</b>        | <b>C</b> |                   | <b>128.6</b> | <b>F</b>    |                 |          |                   | <b>16.5</b> | <b>C</b>    |                 |          |                   | <b>176.5</b> | <b>F</b>    |                 |          |                   |            |             |
|          | SB (Cherrywood Ln)  | L          | 8.3                | A        |                   | 8.7          | A           |                 |          |                   | 8.3         | A           |                 |          |                   | 8.7          | A           |                 |          |                   |            |             |
|          | <b>SB Overall (Cherrywood Ln)</b>   |            | <b>3.0</b>         | <b>-</b> |                   | <b>2.4</b>   | <b>-</b>    |                 |          |                   | <b>3.0</b>  | <b>-</b>    |                 |          |                   | <b>2.1</b>   | <b>-</b>    |                 |          |                   |            |             |
|          | <b>Overall</b>  |            | <b>5.2</b>         | <b>-</b> | <b>N/A</b>        | <b>N/A</b>   | <b>Pass</b> | <b>27.0</b>     | <b>-</b> | <b>N/A</b>        | <b>N/A</b>  | <b>Pass</b> | <b>5.2</b>      | <b>-</b> | <b>N/A</b>        | <b>N/A</b>   | <b>Pass</b> | <b>34.3</b>     | <b>-</b> | <b>N/A</b>        | <b>N/A</b> | <b>Pass</b> |

Table 5-20: Comparison of No-build and Build Condition Intersection AM and PM Peak Hour Operations Analysis (continued)

| #        | Intersection and Approach  | Lane Group | No-build Condition |          |                   |              |             |                 |             |                   |            |              | Build Condition |          |                   |            |             |                 |          |                   |            |             |  |  |
|----------|--|------------|--------------------|----------|-------------------|--------------|-------------|-----------------|-------------|-------------------|------------|--------------|-----------------|----------|-------------------|------------|-------------|-----------------|----------|-------------------|------------|-------------|--|--|
|          |  |            | AM Peak Hour       |          |                   |              |             | PM Peak Hour    |             |                   |            |              | AM Peak Hour    |          |                   |            |             | PM Peak Hour    |          |                   |            |             |  |  |
|          |  |            | HCM 2000           |          | CLV               |              | Check       | HCM 2000        |             | CLV               |            | Check        | HCM 2000        |          | CLV               |            | Check       | HCM 2000        |          | CLV               |            | Check       |  |  |
|          |  |            | Delay (sec/veh)    | LOS      | Critical Lane Vol | LOS          |             | Delay (sec/veh) | LOS         | Critical Lane Vol | LOS        |              | Delay (sec/veh) | LOS      | Critical Lane Vol | LOS        |             | Delay (sec/veh) | LOS      | Critical Lane Vol | LOS        |             |  |  |
| <b>4</b> | <b>Cherrywood Lane &amp; Greenbelt Metro Drive (Roundabout) <sup>a</sup></b>       |            |                    |          |                   |              |             |                 |             |                   |            |              |                 |          |                   |            |             |                 |          |                   |            |             |  |  |
|          | EB (Greenbelt Metro Dr)  | LR         | 6.1                | A        |                   | 14.6         | B           |                 | 6.2         | A                 |            | 16.5         | C               |          |                   |            |             |                 |          |                   |            |             |  |  |
|          | <b>EB Overall (Greenbelt Metro Dr)</b>   |            | <b>3.3</b>         | <b>A</b> |                   | <b>7.5</b>   | <b>A</b>    |                 | <b>3.3</b>  | <b>A</b>          |            | <b>7.9</b>   | <b>A</b>        |          |                   |            |             |                 |          |                   |            |             |  |  |
|          | NB (Cherrywood Ln)   | LT         | 11.8               | B        |                   | 14.4         | B           |                 | 11.8        | B                 |            | 15.6         | C               |          |                   |            |             |                 |          |                   |            |             |  |  |
|          | <b>NB Overall (Cherrywood Ln)</b>  |            | <b>11.8</b>        | <b>B</b> |                   | <b>14.4</b>  | <b>B</b>    |                 | <b>11.8</b> | <b>B</b>          |            | <b>15.6</b>  | <b>C</b>        |          |                   |            |             |                 |          |                   |            |             |  |  |
|          | SB (Cherrywood Ln)   | T          | 6.3                | A        |                   | 12.0         | B           |                 | 6.3         | A                 |            | 12.0         | B               |          |                   |            |             |                 |          |                   |            |             |  |  |
|          | <b>SB Overall (Cherrywood Ln)</b>  |            | <b>2.2</b>         | <b>A</b> |                   | <b>8.9</b>   | <b>A</b>    |                 | <b>2.0</b>  | <b>A</b>          |            | <b>8.9</b>   | <b>A</b>        |          |                   |            |             |                 |          |                   |            |             |  |  |
|          | <b>Overall</b>   |            | <b>6.0</b>         | <b>A</b> | <b>N/A</b>        | <b>N/A</b>   | <b>Pass</b> | <b>9.8</b>      | <b>A</b>    | <b>N/A</b>        | <b>N/A</b> | <b>Pass</b>  | <b>5.8</b>      | <b>A</b> | <b>N/A</b>        | <b>N/A</b> | <b>Pass</b> | <b>10.0</b>     | <b>B</b> | <b>N/A</b>        | <b>N/A</b> | <b>Pass</b> |  |  |
| <b>5</b> | <b>Cherrywood Lane &amp; Ivy Lane (TWSC)</b>                                       |            |                    |          |                   |              |             |                 |             |                   |            |              |                 |          |                   |            |             |                 |          |                   |            |             |  |  |
|          | EB (Cherrywood Ln)   | LTR        | 3.0                | A        |                   | 0.4          | A           |                 | 3.1         | A                 |            | 0.4          | A               |          |                   |            |             |                 |          |                   |            |             |  |  |
|          | <b>EB Overall (Cherrywood Ln)</b>  |            | <b>3.0</b>         | -        |                   | <b>0.4</b>   | -           |                 | <b>3.1</b>  | -                 |            | <b>0.4</b>   | -               |          |                   |            |             |                 |          |                   |            |             |  |  |
|          | WB (Cherrywood Ln)   | L          | 8.3                | A        |                   | 8.8          | A           |                 | 8.3         | A                 |            | 8.9          | A               |          |                   |            |             |                 |          |                   |            |             |  |  |
|          | WB (Cherrywood Ln)   | TR         | 0.0                | -        |                   | 0.0          | -           |                 | 0.0         | -                 |            | 0.0          | -               |          |                   |            |             |                 |          |                   |            |             |  |  |
|          | <b>WB Overall (Cherrywood Ln)</b>  |            | <b>0.4</b>         | -        |                   | <b>0.2</b>   | -           |                 | <b>0.4</b>  | -                 |            | <b>0.2</b>   | -               |          |                   |            |             |                 |          |                   |            |             |  |  |
|          | NB (Ivy Ln)  | LT         | 67.2               | F        |                   | ^            | F           |                 | 79.7        | F                 |            | ^            | F               |          |                   |            |             |                 |          |                   |            |             |  |  |
|          | NB (Ivy Ln)  | R          | 10.3               | B        |                   | 12.1         | B           |                 | 10.3        | B                 |            | 12.5         | B               |          |                   |            |             |                 |          |                   |            |             |  |  |
|          | <b>NB Overall (Ivy Ln)</b>   |            | <b>55.7</b>        | <b>F</b> |                   | <b>^</b>     | <b>F</b>    |                 | <b>65.7</b> | <b>F</b>          |            | <b>^</b>     | <b>F</b>        |          |                   |            |             |                 |          |                   |            |             |  |  |
|          | SB (Ivy Ln)  | LTR        | 41.0               | E        |                   | 402.7        | F           |                 | 44.7        | E                 |            | 443.6        | F               |          |                   |            |             |                 |          |                   |            |             |  |  |
|          | <b>SB Overall (Ivy Ln)</b>   |            | <b>41.0</b>        | <b>E</b> |                   | <b>402.7</b> | <b>F</b>    |                 | <b>44.7</b> | <b>E</b>          |            | <b>443.6</b> | <b>F</b>        |          |                   |            |             |                 |          |                   |            |             |  |  |
|          | <b>Overall</b>   |            | <b>6.0</b>         | -        | <b>N/A</b>        | <b>N/A</b>   | <b>Pass</b> | <b>b</b>        | -           | <b>N/A</b>        | <b>N/A</b> | <b>Pass</b>  | <b>b</b>        | -        | <b>N/A</b>        | <b>N/A</b> | <b>Pass</b> | <b>6.6</b>      | -        | <b>N/A</b>        | <b>N/A</b> | <b>Fail</b> |  |  |
| <b>6</b> | <b>Greenbelt Road (MD 193) &amp; 62 Avenue/Beltway Plaza Driveway (Signalized)</b> |            |                    |          |                   |              |             |                 |             |                   |            |              |                 |          |                   |            |             |                 |          |                   |            |             |  |  |
|          | EB (Greenbelt Rd)  | L          | 1.7                | A        |                   | 7.0          | A           |                 | 1.8         | A                 |            | 7.1          | A               |          |                   |            |             |                 |          |                   |            |             |  |  |
|          | EB (Greenbelt Rd)  | TR         | 2.6                | A        |                   | 11.3         | B           |                 | 2.7         | A                 |            | 12.2         | B               |          |                   |            |             |                 |          |                   |            |             |  |  |
|          | <b>EB Overall (Greenbelt Rd)</b>   |            | <b>2.6</b>         | <b>A</b> |                   | <b>11.2</b>  | <b>B</b>    |                 | <b>2.6</b>  | <b>A</b>          |            | <b>12.1</b>  | <b>B</b>        |          |                   |            |             |                 |          |                   |            |             |  |  |
|          | WB (Greenbelt Rd)  | L          | 4.0                | A        |                   | 24.7         | C           |                 | 4.1         | A                 |            | 25.4         | C               |          |                   |            |             |                 |          |                   |            |             |  |  |
|          | WB (Greenbelt Rd)  | T          | 7.5                | A        |                   | 18.3         | B           |                 | 7.6         | A                 |            | 18.3         | B               |          |                   |            |             |                 |          |                   |            |             |  |  |
|          | WB (Greenbelt Rd)  | R          | 4.7                | A        |                   | 14.8         | B           |                 | 4.7         | A                 |            | 14.8         | B               |          |                   |            |             |                 |          |                   |            |             |  |  |
|          | <b>WB Overall (Greenbelt Rd)</b>   |            | <b>7.2</b>         | <b>A</b> |                   | <b>17.8</b>  | <b>B</b>    |                 | <b>7.4</b>  | <b>A</b>          |            | <b>17.8</b>  | <b>B</b>        |          |                   |            |             |                 |          |                   |            |             |  |  |
|          | NB (62nd Ave)  | LTR        | 68.1               | E        |                   | 71.4         | E           |                 | 68.1        | E                 |            | 71.4         | E               |          |                   |            |             |                 |          |                   |            |             |  |  |
|          | <b>NB Overall (62nd Ave)</b>   |            | <b>68.1</b>        | <b>E</b> |                   | <b>71.4</b>  | <b>E</b>    |                 | <b>68.1</b> | <b>E</b>          |            | <b>71.4</b>  | <b>E</b>        |          |                   |            |             |                 |          |                   |            |             |  |  |
|          | SB (Beltway Plaza Drwy)  | L          | 68.2               | E        |                   | 69.8         | E           |                 | 68.2        | E                 |            | 69.8         | E               |          |                   |            |             |                 |          |                   |            |             |  |  |
|          | SB (Beltway Plaza Drwy)  | LT         | 68.3               | E        |                   | 69.5         | E           |                 | 68.3        | E                 |            | 69.5         | E               |          |                   |            |             |                 |          |                   |            |             |  |  |
|          | SB (Beltway Plaza Drwy)  | R          | 66.7               | E        |                   | 54.9         | D           |                 | 66.7        | E                 |            | 54.9         | D               |          |                   |            |             |                 |          |                   |            |             |  |  |
|          | <b>SB Overall (Beltway Plaza Drwy)</b>   |            | <b>67.8</b>        | <b>E</b> |                   | <b>67.1</b>  | <b>E</b>    |                 | <b>67.8</b> | <b>E</b>          |            | <b>67.1</b>  | <b>E</b>        |          |                   |            |             |                 |          |                   |            |             |  |  |
|          | <b>Overall</b>   |            | <b>7.5</b>         | <b>A</b> | <b>742</b>        | <b>A</b>     | <b>Pass</b> | <b>20.4</b>     | <b>C</b>    | <b>1,206</b>      | <b>C</b>   | <b>Pass</b>  | <b>7.6</b>      | <b>A</b> | <b>757</b>        | <b>A</b>   | <b>Pass</b> | <b>20.7</b>     | <b>C</b> | <b>1,220</b>      | <b>C</b>   | <b>Pass</b> |  |  |

Table 5-20: Comparison of No-build and Build Condition Intersection AM and PM Peak Hour Operations Analysis (continued)

| #        | Intersection and Approach  | Lane Group | No-build Condition |          |                   |             |             |                 |             |                   |          |             | Build Condition |          |                   |          |             |                 |          |                   |          |             |
|----------|--|------------|--------------------|----------|-------------------|-------------|-------------|-----------------|-------------|-------------------|----------|-------------|-----------------|----------|-------------------|----------|-------------|-----------------|----------|-------------------|----------|-------------|
|          |  |            | AM Peak Hour       |          |                   |             |             | PM Peak Hour    |             |                   |          |             | AM Peak Hour    |          |                   |          |             | PM Peak Hour    |          |                   |          |             |
|          |  |            | HCM 2000           |          | CLV               |             | Check       | HCM 2000        |             | CLV               |          | Check       | HCM 2000        |          | CLV               |          | Check       | HCM 2000        |          | CLV               |          | Check       |
|          |  |            | Delay (sec/veh)    | LOS      | Critical Lane Vol | LOS         |             | Delay (sec/veh) | LOS         | Critical Lane Vol | LOS      |             | Delay (sec/veh) | LOS      | Critical Lane Vol | LOS      |             | Delay (sec/veh) | LOS      | Critical Lane Vol | LOS      |             |
| <b>7</b> | <b>Kenilworth Avenue (MD 201) &amp; I-95/I-495 SB Off-ramp (Signalized)</b>            |            |                    |          |                   |             |             |                 |             |                   |          |             |                 |          |                   |          |             |                 |          |                   |          |             |
|          | EB (I-95/I-495 SB Off-ramp)  | L          | 39.7               | D        |                   | 39.7        | D           |                 | 39.7        | D                 |          | 39.7        | D               |          | 39.7              | D        |             | 39.7            | D        |                   |          |             |
|          | EB (I-95/I-495 SB Off-ramp)  | R          | 6.9                | A        |                   | 0.6         | A           |                 | 7.0         | A                 |          | 0.6         | A               |          | 7.0               | A        |             | 0.6             | A        |                   |          |             |
|          | <b>EB Overall (I-95/I-495 SB Off-ramp)</b>   |            | <b>13.8</b>        | <b>B</b> |                   | <b>14.9</b> | <b>B</b>    |                 | <b>13.9</b> | <b>B</b>          |          | <b>14.7</b> | <b>B</b>        |          | <b>14.7</b>       | <b>B</b> |             | <b>14.7</b>     | <b>B</b> |                   |          |             |
|          | NB (Kenilworth Ave)  | T          | 4.0                | A        |                   | 4.0         | A           |                 | 4.0         | A                 |          | 4.0         | A               |          | 4.0               | A        |             | 4.0             | A        |                   |          |             |
|          | <b>NB Overall (Kenilworth Ave)</b>   |            | <b>4.0</b>         | <b>A</b> |                   | <b>4.0</b>  | <b>A</b>    |                 | <b>4.0</b>  | <b>A</b>          |          | <b>4.0</b>  | <b>A</b>        |          | <b>4.0</b>        | <b>A</b> |             | <b>4.0</b>      | <b>A</b> |                   |          |             |
|          | SB (Kenilworth Ave)  | T          | 6.2                | A        |                   | 3.6         | A           |                 | 6.2         | A                 |          | 3.6         | A               |          | 6.2               | A        |             | 3.6             | A        |                   |          |             |
|          | <b>SB Overall (Kenilworth Ave)</b>   |            | <b>6.2</b>         | <b>A</b> |                   | <b>3.6</b>  | <b>A</b>    |                 | <b>6.2</b>  | <b>A</b>          |          | <b>3.6</b>  | <b>A</b>        |          | <b>6.2</b>        | <b>A</b> |             | <b>3.6</b>      | <b>A</b> |                   |          |             |
|          | <b>Overall</b>   |            | <b>9.1</b>         | <b>A</b> | <b>730</b>        | <b>A</b>    | <b>Pass</b> | <b>6.8</b>      | <b>A</b>    | <b>593</b>        | <b>A</b> | <b>Pass</b> | <b>9.1</b>      | <b>A</b> | <b>730</b>        | <b>A</b> | <b>Pass</b> | <b>6.8</b>      | <b>A</b> | <b>594</b>        | <b>A</b> | <b>Pass</b> |
| <b>8</b> | <b>Kenilworth Avenue (MD 201) &amp; I-95/I-495 NB Off-ramp (Signalized)</b>            |            |                    |          |                   |             |             |                 |             |                   |          |             |                 |          |                   |          |             |                 |          |                   |          |             |
|          | WB (I-95/I-495 NB Off-ramp)  | L          | 24.6               | C        |                   | 34.3        | C           |                 | 24.5        | C                 |          | 34.3        | C               |          | 24.5              | C        |             | 34.3            | C        |                   |          |             |
|          | WB (I-95/I-495 NB Off-ramp)  | R          | 26.3               | C        |                   | 31.1        | C           |                 | 26.2        | C                 |          | 31.1        | C               |          | 26.2              | C        |             | 31.1            | C        |                   |          |             |
|          | <b>WB Overall (I-95/I-495 NB Off-ramp)</b>   |            | <b>25.4</b>        | <b>C</b> |                   | <b>32.8</b> | <b>C</b>    |                 | <b>25.3</b> | <b>C</b>          |          | <b>32.8</b> | <b>C</b>        |          | <b>25.3</b>       | <b>C</b> |             | <b>32.8</b>     | <b>C</b> |                   |          |             |
|          | NB (Kenilworth Ave)  | T          | 11.1               | B        |                   | 5.4         | A           |                 | 11.2        | B                 |          | 5.4         | A               |          | 11.2              | B        |             | 5.4             | A        |                   |          |             |
|          | <b>NB Overall (Kenilworth Ave)</b>   |            | <b>11.1</b>        | <b>B</b> |                   | <b>5.4</b>  | <b>A</b>    |                 | <b>11.2</b> | <b>B</b>          |          | <b>5.4</b>  | <b>A</b>        |          | <b>11.2</b>       | <b>B</b> |             | <b>5.4</b>      | <b>A</b> |                   |          |             |
|          | SB (Kenilworth Ave)  | T          | 7.7                | A        |                   | 3.4         | A           |                 | 7.8         | A                 |          | 3.3         | A               |          | 7.8               | A        |             | 3.3             | A        |                   |          |             |
|          | <b>SB Overall (Kenilworth Ave)</b>   |            | <b>7.7</b>         | <b>A</b> |                   | <b>3.4</b>  | <b>A</b>    |                 | <b>7.8</b>  | <b>A</b>          |          | <b>3.3</b>  | <b>A</b>        |          | <b>7.8</b>        | <b>A</b> |             | <b>3.3</b>      | <b>A</b> |                   |          |             |
|          | <b>Overall</b>   |            | <b>16.7</b>        | <b>B</b> | <b>868</b>        | <b>A</b>    | <b>Pass</b> | <b>13.3</b>     | <b>B</b>    | <b>779</b>        | <b>A</b> | <b>Pass</b> | <b>16.7</b>     | <b>B</b> | <b>868</b>        | <b>A</b> | <b>Pass</b> | <b>13.3</b>     | <b>B</b> | <b>781</b>        | <b>A</b> | <b>Pass</b> |
| <b>9</b> | <b>Kenilworth Avenue (MD 201) &amp; Crescent Road/Maryland SHA Office (Signalized)</b> |            |                    |          |                   |             |             |                 |             |                   |          |             |                 |          |                   |          |             |                 |          |                   |          |             |
|          | EB (Maryland SHA Office)   | LTR        | 26.0               | C        |                   | 36.1        | D           |                 | 26.0        | C                 |          | 36.1        | D               |          | 26.0              | C        |             | 36.1            | D        |                   |          |             |
|          | <b>EB Overall (Maryland SHA Office)</b>  |            | <b>26.0</b>        | <b>C</b> |                   | <b>36.1</b> | <b>D</b>    |                 | <b>26.0</b> | <b>C</b>          |          | <b>36.1</b> | <b>D</b>        |          | <b>26.0</b>       | <b>C</b> |             | <b>36.1</b>     | <b>D</b> |                   |          |             |
|          | WB (Crescent Rd)   | LT         | 43.2               | D        |                   | 47.8        | D           |                 | 43.2        | D                 |          | 47.8        | D               |          | 43.2              | D        |             | 47.8            | D        |                   |          |             |
|          | WB (Crescent Rd)   | R          | 26.6               | C        |                   | 36.3        | D           |                 | 26.6        | C                 |          | 36.3        | D               |          | 26.6              | C        |             | 36.3            | D        |                   |          |             |
|          | <b>WB Overall (Crescent Rd)</b>  |            | <b>38.0</b>        | <b>D</b> |                   | <b>43.0</b> | <b>D</b>    |                 | <b>38.0</b> | <b>D</b>          |          | <b>43.0</b> | <b>D</b>        |          | <b>38.0</b>       | <b>D</b> |             | <b>43.0</b>     | <b>D</b> |                   |          |             |
|          | NB (Kenilworth Ave)  | L          | 47.4               | D        |                   | 61.5        | E           |                 | 47.3        | D                 |          | 61.5        | E               |          | 47.3              | D        |             | 61.5            | E        |                   |          |             |
|          | NB (Kenilworth Ave)  | T          | 13.3               | B        |                   | 10.4        | B           |                 | 13.4        | B                 |          | 10.4        | B               |          | 13.4              | B        |             | 10.4            | B        |                   |          |             |
|          | NB (Kenilworth Ave)  | R          | 8.5                | A        |                   | 5.9         | A           |                 | 8.6         | A                 |          | 5.9         | A               |          | 8.6               | A        |             | 5.9             | A        |                   |          |             |
|          | <b>NB Overall (Kenilworth Ave)</b>   |            | <b>13.9</b>        | <b>B</b> |                   | <b>10.2</b> | <b>B</b>    |                 | <b>14.0</b> | <b>B</b>          |          | <b>10.2</b> | <b>B</b>        |          | <b>14.0</b>       | <b>B</b> |             | <b>10.2</b>     | <b>B</b> |                   |          |             |
|          | SB (Kenilworth Ave)  | L          | 67.1               | E        |                   | 53.3        | D           |                 | 67.0        | E                 |          | 53.8        | D               |          | 67.0              | E        |             | 53.8            | D        |                   |          |             |
|          | SB (Kenilworth Ave)  | T          | 4.7                | A        |                   | 5.8         | A           |                 | 4.7         | A                 |          | 5.8         | A               |          | 4.7               | A        |             | 5.8             | A        |                   |          |             |
|          | SB (Kenilworth Ave)  | R          | 12.0               | B        |                   | 4.9         | A           |                 | 12.0        | B                 |          | 4.9         | A               |          | 12.0              | B        |             | 4.9             | A        |                   |          |             |
|          | <b>SB Overall (Kenilworth Ave)</b>   |            | <b>9.3</b>         | <b>A</b> |                   | <b>11.1</b> | <b>B</b>    |                 | <b>9.3</b>  | <b>A</b>          |          | <b>11.2</b> | <b>B</b>        |          | <b>9.3</b>        | <b>A</b> |             | <b>11.2</b>     | <b>B</b> |                   |          |             |
|          | <b>Overall</b>   |            | <b>15.1</b>        | <b>B</b> | <b>962</b>        | <b>A</b>    | <b>Pass</b> | <b>12.9</b>     | <b>B</b>    | <b>796</b>        | <b>A</b> | <b>Pass</b> | <b>15.1</b>     | <b>B</b> | <b>965</b>        | <b>A</b> | <b>Pass</b> | <b>12.9</b>     | <b>B</b> | <b>798</b>        | <b>A</b> | <b>Pass</b> |



Table 5-20: Comparison of No-build and Build Condition Intersection AM and PM Peak Hour Operations Analysis (continued)

| #         | Intersection and Approach   | Lane Group | No-build Condition |            |                   |             |             |                 |             |                   |            |             | Build Condition |             |                   |              |             |                 |          |                   |          |             |
|-----------|---|------------|--------------------|------------|-------------------|-------------|-------------|-----------------|-------------|-------------------|------------|-------------|-----------------|-------------|-------------------|--------------|-------------|-----------------|----------|-------------------|----------|-------------|
|           |   |            | AM Peak Hour       |            |                   |             |             | PM Peak Hour    |             |                   |            |             | AM Peak Hour    |             |                   |              |             | PM Peak Hour    |          |                   |          |             |
|           |   |            | HCM 2000           |            | CLV               |             | Check       | HCM 2000        |             | CLV               |            | Check       | HCM 2000        |             | CLV               |              | Check       | HCM 2000        |          | CLV               |          | Check       |
|           |   |            | Delay (sec/veh)    | LOS        | Critical Lane Vol | LOS         |             | Delay (sec/veh) | LOS         | Critical Lane Vol | LOS        |             | Delay (sec/veh) | LOS         | Critical Lane Vol | LOS          |             | Delay (sec/veh) | LOS      | Critical Lane Vol | LOS      |             |
| <b>13</b> | <b>Edmonston Road (MD 201) &amp; Powder Mill Road (Signalized)</b>            |            |                    |            |                   |             |             |                 |             |                   |            |             |                 |             |                   |              |             |                 |          |                   |          |             |
|           | EB (Powder Mill Rd)   | L          | 47.3               | D          |                   | 45.2        | D           |                 | 47.6        | D                 |            | 45.2        | D               |             |                   |              |             |                 |          |                   |          |             |
|           | EB (Powder Mill Rd)   | T          | 62.8               | E          |                   | 81.1        | F           |                 | 63.4        | E                 |            | 81.1        | F               |             |                   |              |             |                 |          |                   |          |             |
|           | EB (Powder Mill Rd)   | R          | 48.7               | D          |                   | 44.7        | D           |                 | 49.2        | D                 |            | 44.7        | D               |             |                   |              |             |                 |          |                   |          |             |
|           | <b>EB Overall (Powder Mill Rd)</b>  |            | <b>52.8</b>        | <b>D</b>   |                   | <b>60.5</b> | <b>E</b>    |                 | <b>53.3</b> | <b>D</b>          |            | <b>60.5</b> | <b>E</b>        |             |                   |              |             |                 |          |                   |          |             |
|           | WB (Powder Mill Rd)   | L          | 57.0               | E          |                   | 84.1        | F           |                 | 58.4        | E                 |            | 84.1        | F               |             |                   |              |             |                 |          |                   |          |             |
|           | WB (Powder Mill Rd)   | T          | 41.8               | D          |                   | 38.4        | D           |                 | 42.2        | D                 |            | 38.4        | D               |             |                   |              |             |                 |          |                   |          |             |
|           | WB (Powder Mill Rd)   | R          | 35.6               | D          |                   | 34.1        | C           |                 | 35.9        | D                 |            | 34.1        | C               |             |                   |              |             |                 |          |                   |          |             |
|           | <b>WB Overall (Powder Mill Rd)</b>  |            | <b>46.9</b>        | <b>D</b>   |                   | <b>53.4</b> | <b>D</b>    |                 | <b>47.7</b> | <b>D</b>          |            | <b>53.4</b> | <b>D</b>        |             |                   |              |             |                 |          |                   |          |             |
|           | NB (Edmonston Rd)   | L          | 48.5               | D          |                   | 76.7        | E           |                 | 49.8        | D                 |            | 85.4        | F               |             |                   |              |             |                 |          |                   |          |             |
|           | NB (Edmonston Rd)   | T          | 12.8               | B          |                   | 23.2        | C           |                 | 12.7        | B                 |            | 23.6        | C               |             |                   |              |             |                 |          |                   |          |             |
|           | NB (Edmonston Rd)   | R          | 8.4                | A          |                   | 12.5        | B           |                 | 8.3         | A                 |            | 12.5        | B               |             |                   |              |             |                 |          |                   |          |             |
|           | <b>NB Overall (Edmonston Rd)</b>  |            | <b>29.7</b>        | <b>C</b>   |                   | <b>41.3</b> | <b>D</b>    |                 | <b>30.3</b> | <b>C</b>          |            | <b>45.1</b> | <b>D</b>        |             |                   |              |             |                 |          |                   |          |             |
|           | SB (Edmonston Rd)   | L          | 40.5               | D          |                   | 54.5        | D           |                 | 40.6        | D                 |            | 54.7        | D               |             |                   |              |             |                 |          |                   |          |             |
|           | SB (Edmonston Rd)   | TR         | 52.5               | D          |                   | 60.4        | E           |                 | 53.1        | D                 |            | 60.4        | E               |             |                   |              |             |                 |          |                   |          |             |
|           | <b>SB Overall (Edmonston Rd)</b>  |            | <b>52.0</b>        | <b>D</b>   |                   | <b>59.8</b> | <b>E</b>    |                 | <b>52.7</b> | <b>D</b>          |            | <b>59.8</b> | <b>E</b>        |             |                   |              |             |                 |          |                   |          |             |
|           | <b>Overall</b>  |            | <b>42.5</b>        | <b>D</b>   | <b>1,593</b>      | <b>E</b>    | <b>Pass</b> | <b>50.9</b>     | <b>D</b>    | <b>1,867</b>      | <b>F</b>   | <b>Fail</b> | <b>43.2</b>     | <b>D</b>    | <b>1,595</b>      | <b>E</b>     | <b>Pass</b> | <b>52.6</b>     | <b>D</b> | <b>1,897</b>      | <b>F</b> | <b>Fail</b> |
| <b>14</b> | <b>Greenbelt Metro Drive &amp; Site North Access (Signalized)<sup>b</sup></b> |            |                    |            |                   |             |             |                 |             |                   |            |             |                 |             |                   |              |             |                 |          |                   |          |             |
|           | EB (Greenbelt Metro Dr)   | T          | N/A                | N/A        |                   | N/A         | N/A         |                 | 3.5         | A                 |            | 17.5        | B               |             |                   |              |             |                 |          |                   |          |             |
|           | <b>EB Overall (Greenbelt Metro Dr)</b>  |            | <b>N/A</b>         | <b>N/A</b> |                   | <b>N/A</b>  | <b>N/A</b>  |                 | <b>3.5</b>  | <b>A</b>          |            | <b>17.5</b> | <b>B</b>        |             |                   |              |             |                 |          |                   |          |             |
|           | WB (Greenbelt Metro Dr)   | L          | N/A                | N/A        |                   | N/A         | N/A         |                 | -           | -                 |            | -           | -               |             |                   |              |             |                 |          |                   |          |             |
|           | WB (Greenbelt Metro Dr)   | T          | N/A                | N/A        |                   | N/A         | N/A         |                 | 4.4         | A                 |            | 11.5        | B               |             |                   |              |             |                 |          |                   |          |             |
|           | <b>WB Overall (Greenbelt Metro Dr)</b>  |            | <b>N/A</b>         | <b>N/A</b> |                   | <b>N/A</b>  | <b>N/A</b>  |                 | <b>4.4</b>  | <b>A</b>          |            | <b>11.5</b> | <b>B</b>        |             |                   |              |             |                 |          |                   |          |             |
|           | NB (Site North Access)  | L          | N/A                | N/A        |                   | N/A         | N/A         |                 | 22.7        | C                 |            | 25.9        | C               |             |                   |              |             |                 |          |                   |          |             |
|           | NB (Site North Access)  | R          | N/A                | N/A        |                   | N/A         | N/A         |                 | 21.4        | C                 |            | 15.9        | B               |             |                   |              |             |                 |          |                   |          |             |
|           | <b>NB Overall (Site North Access)</b>   |            | <b>N/A</b>         | <b>N/A</b> |                   | <b>N/A</b>  | <b>N/A</b>  |                 | <b>22.4</b> | <b>C</b>          |            | <b>23.6</b> | <b>C</b>        |             |                   |              |             |                 |          |                   |          |             |
|           | <b>Overall</b>  |            | <b>N/A</b>         | <b>N/A</b> | <b>N/A</b>        | <b>N/A</b>  | <b>N/A</b>  | <b>N/A</b>      | <b>4.9</b>  | <b>A</b>          | <b>605</b> | <b>A</b>    | <b>Pass</b>     | <b>18.2</b> | <b>B</b>          | <b>1,029</b> | <b>B</b>    | <b>Pass</b>     |          |                   |          |             |

Table 5-20: Comparison of No-build and Build Condition Intersection AM and PM Peak Hour Operations Analysis (continued)

| #         | Intersection and Approach  | Lane Group | No-build Condition |          |                   |             |             |                 |          |                   |             |             | Build Condition |             |                   |            |             |                 |          |                   |            |             |
|-----------|--|------------|--------------------|----------|-------------------|-------------|-------------|-----------------|----------|-------------------|-------------|-------------|-----------------|-------------|-------------------|------------|-------------|-----------------|----------|-------------------|------------|-------------|
|           |  |            | AM Peak Hour       |          |                   |             |             | PM Peak Hour    |          |                   |             |             | AM Peak Hour    |             |                   |            |             | PM Peak Hour    |          |                   |            |             |
|           |  |            | HCM 2000           |          | CLV               |             | Check       | HCM 2000        |          | CLV               |             | Check       | HCM 2000        |             | CLV               |            | Check       | HCM 2000        |          | CLV               |            | Check       |
|           |  |            | Delay (sec/veh)    | LOS      | Critical Lane Vol | LOS         |             | Delay (sec/veh) | LOS      | Critical Lane Vol | LOS         |             | Delay (sec/veh) | LOS         | Critical Lane Vol | LOS        |             | Delay (sec/veh) | LOS      | Critical Lane Vol | LOS        |             |
| <b>15</b> | <b>Greenbelt Station Bus Bays/Greenbelt Metro Drive &amp; Greenbelt Station Parkway (Signalized)</b> |            |                    |          |                   |             |             |                 |          |                   |             |             |                 |             |                   |            |             |                 |          |                   |            |             |
|           | EB (Greenbelt Sta Bus Bays)  | LT         | 75.7               | E        |                   | 54.0        | D           |                 |          |                   | 75.7        | E           |                 | 54.0        | D                 |            |             |                 |          |                   |            |             |
|           | EB (Greenbelt Sta Bus Bays)  | R          | -                  | -        |                   | -           | -           |                 |          |                   | -           | -           |                 | -           | -                 |            |             |                 |          |                   |            |             |
|           | <b>EB Overall (Greenbelt Sta Bus Bays)</b>   |            | <b>75.7</b>        | <b>E</b> |                   | <b>54.0</b> | <b>D</b>    |                 |          |                   | <b>75.7</b> | <b>E</b>    |                 | <b>54.0</b> | <b>D</b>          |            |             |                 |          |                   |            |             |
|           | WB (Greenbelt Metro Dr)  | L          | 56.6               | E        |                   | 45.2        | D           |                 |          |                   | 54.4        | D           |                 | 40.9        | D                 |            |             |                 |          |                   |            |             |
|           | WB (Greenbelt Metro Dr)  | T          | 35.7               | D        |                   | 31.7        | C           |                 |          |                   | 33.1        | C           |                 | 30.5        | C                 |            |             |                 |          |                   |            |             |
|           | WB (Greenbelt Metro Dr)  | R          | 36.0               | D        |                   | 31.5        | C           |                 |          |                   | 33.8        | C           |                 | 36.5        | D                 |            |             |                 |          |                   |            |             |
|           | <b>WB Overall (Greenbelt Metro Dr)</b>   |            | <b>52.1</b>        | <b>D</b> |                   | <b>41.6</b> | <b>D</b>    |                 |          |                   | <b>49.4</b> | <b>D</b>    |                 | <b>37.8</b> | <b>D</b>          |            |             |                 |          |                   |            |             |
|           | NB (Greenbelt Sta Pkwy)  | L          | -                  | -        |                   | -           | -           |                 |          |                   | -           | -           |                 | -           | -                 |            |             |                 |          |                   |            |             |
|           | NB (Greenbelt Sta Pkwy)  | T          | 14.3               | B        |                   | 8.4         | A           |                 |          |                   | 16.2        | B           |                 | 11.1        | B                 |            |             |                 |          |                   |            |             |
|           | NB (Greenbelt Sta Pkwy)  | R          | 13.8               | B        |                   | 21.4        | C           |                 |          |                   | 24.2        | C           |                 | 18.6        | B                 |            |             |                 |          |                   |            |             |
|           | <b>NB Overall (Greenbelt Sta Pkwy)</b>   |            | <b>14.0</b>        | <b>B</b> |                   | <b>16.2</b> | <b>B</b>    |                 |          |                   | <b>19.9</b> | <b>B</b>    |                 | <b>15.8</b> | <b>B</b>          |            |             |                 |          |                   |            |             |
|           | <b>Overall</b>   |            | <b>31.4</b>        | <b>C</b> | <b>644</b>        | <b>A</b>    | <b>Pass</b> | <b>23.3</b>     | <b>C</b> | <b>603</b>        | <b>A</b>    | <b>Pass</b> | <b>34.3</b>     | <b>C</b>    | <b>682</b>        | <b>A</b>   | <b>Pass</b> | <b>25.2</b>     | <b>C</b> | <b>813</b>        | <b>A</b>   | <b>Pass</b> |
| <b>16</b> | <b>Greenbelt Station Parkway &amp; North Core Development/Site Northwest Access (Signalized)</b>     |            |                    |          |                   |             |             |                 |          |                   |             |             |                 |             |                   |            |             |                 |          |                   |            |             |
|           | EB (North Core Dev)  | L          | 69.2               | E        |                   | 42.1        | D           |                 |          |                   | 69.5        | E           |                 | 30.2        | C                 |            |             |                 |          |                   |            |             |
|           | EB (North Core Dev)  | TR         | 66.5               | E        |                   | 35.0        | C           |                 |          |                   | 65.7        | E           |                 | 26.0        | C                 |            |             |                 |          |                   |            |             |
|           | <b>EB Overall (North Core Dev)</b>   |            | <b>68.8</b>        | <b>E</b> |                   | <b>40.7</b> | <b>D</b>    |                 |          |                   | <b>68.8</b> | <b>E</b>    |                 | <b>29.4</b> | <b>C</b>          |            |             |                 |          |                   |            |             |
|           | WB (Site Northwest Access)   | LTR (AM)   | -                  | -        |                   | -           | -           |                 |          |                   | 63.0        | E           |                 | -           | -                 |            |             |                 |          |                   |            |             |
|           | WB (Site Northwest Access)   | LT (PM)    | -                  | -        |                   | -           | -           |                 |          |                   | -           | -           |                 | -           | -                 |            |             |                 |          |                   |            |             |
|           | WB (Site Northwest Access)   | R (PM)     | -                  | -        |                   | -           | -           |                 |          |                   | -           | -           |                 | 54.7        | D                 |            |             |                 |          |                   |            |             |
|           | <b>WB Overall (Site Northwest Access)</b>  |            | <b>-</b>           | <b>-</b> |                   | <b>-</b>    | <b>-</b>    |                 |          |                   | <b>63.0</b> | <b>E</b>    |                 | <b>54.7</b> | <b>D</b>          |            |             |                 |          |                   |            |             |
|           | NB (Greenbelt Sta Pkwy)  | L          | 3.9                | A        |                   | 3.6         | A           |                 |          |                   | 3.0         | A           |                 | 6.9         | A                 |            |             |                 |          |                   |            |             |
|           | NB (Greenbelt Sta Pkwy)  | TR         | 2.2                | A        |                   | 3.4         | A           |                 |          |                   | 2.9         | A           |                 | 6.7         | A                 |            |             |                 |          |                   |            |             |
|           | <b>NB Overall (Greenbelt Sta Pkwy)</b>   |            | <b>2.7</b>         | <b>A</b> |                   | <b>3.4</b>  | <b>A</b>    |                 |          |                   | <b>2.9</b>  | <b>A</b>    |                 | <b>6.7</b>  | <b>A</b>          |            |             |                 |          |                   |            |             |
|           | SB (Greenbelt Sta Pkwy)  | TR         | 0.1                | A        |                   | 0.1         | A           |                 |          |                   | 0.1         | A           |                 | 0.1         | A                 |            |             |                 |          |                   |            |             |
|           | <b>SB Overall (Greenbelt Sta Pkwy)</b>   |            | <b>0.1</b>         | <b>A</b> |                   | <b>0.1</b>  | <b>A</b>    |                 |          |                   | <b>0.1</b>  | <b>A</b>    |                 | <b>0.1</b>  | <b>A</b>          |            |             |                 |          |                   |            |             |
|           | <b>Overall</b>   |            | <b>5.4</b>         | <b>A</b> | <b>600</b>        | <b>A</b>    | <b>Pass</b> | <b>11.0</b>     | <b>B</b> | <b>460</b>        | <b>A</b>    | <b>Pass</b> | <b>5.7</b>      | <b>A</b>    | <b>976</b>        | <b>A</b>   | <b>Pass</b> | <b>18.3</b>     | <b>B</b> | <b>952</b>        | <b>A</b>   | <b>Pass</b> |
| <b>17</b> | <b>Greenbelt Station Parkway &amp; Residential Access to 500 Units (TWSC)</b>                        |            |                    |          |                   |             |             |                 |          |                   |             |             |                 |             |                   |            |             |                 |          |                   |            |             |
|           | EB (Residential Access)  | R          | 9.8                | A        |                   | 9.3         | A           |                 |          |                   | 10.0        | A           |                 | 9.3         | A                 |            |             |                 |          |                   |            |             |
|           | <b>EB Overall (Residential Access)</b>   |            | <b>9.8</b>         | <b>A</b> |                   | <b>9.3</b>  | <b>A</b>    |                 |          |                   | <b>10.0</b> | <b>A</b>    |                 | <b>9.3</b>  | <b>A</b>          |            |             |                 |          |                   |            |             |
|           | <b>Overall</b>   |            | <b>0.6</b>         | <b>-</b> | <b>N/A</b>        | <b>N/A</b>  | <b>Pass</b> | <b>0.2</b>      | <b>-</b> | <b>N/A</b>        | <b>N/A</b>  | <b>Pass</b> | <b>0.5</b>      | <b>-</b>    | <b>N/A</b>        | <b>N/A</b> | <b>Pass</b> | <b>0.2</b>      | <b>-</b> | <b>N/A</b>        | <b>N/A</b> | <b>Pass</b> |

Table 5-20: Comparison of No-build and Build Condition Intersection AM and PM Peak Hour Operations Analysis (continued)

| #         | Intersection and Approach  | Lane Group | No-build Condition |          |                   |             |             |                 |              |                   |            |             |                 |          | Build Condition   |            |             |                 |          |                   |              |             |  |  |  |  |
|-----------|--|------------|--------------------|----------|-------------------|-------------|-------------|-----------------|--------------|-------------------|------------|-------------|-----------------|----------|-------------------|------------|-------------|-----------------|----------|-------------------|--------------|-------------|--|--|--|--|
|           |  |            | AM Peak Hour       |          |                   |             |             |                 | PM Peak Hour |                   |            |             |                 |          | AM Peak Hour      |            |             |                 |          |                   | PM Peak Hour |             |  |  |  |  |
|           |  |            | HCM 2000           |          | CLV               |             | Check       | HCM 2000        |              | CLV               |            | Check       | HCM 2000        |          | CLV               |            | Check       | HCM 2000        |          | CLV               |              | Check       |  |  |  |  |
|           |  |            | Delay (sec/veh)    | LOS      | Critical Lane Vol | LOS         |             | Delay (sec/veh) | LOS          | Critical Lane Vol | LOS        |             | Delay (sec/veh) | LOS      | Critical Lane Vol | LOS        |             | Delay (sec/veh) | LOS      | Critical Lane Vol | LOS          |             |  |  |  |  |
| <b>18</b> | <b>Greenbelt Station Parkway &amp; I-95/I-495 Off-ramps/Site South Access/Kiss &amp; Ride (Signalized)</b> |            |                    |          |                   |             |             |                 |              |                   |            |             |                 |          |                   |            |             |                 |          |                   |              |             |  |  |  |  |
|           | EB (I-95 Off-ramps)  | L          | 71.7               | E        |                   | 44.8        | D           |                 | 282.5        | F                 |            | 46.0        | D               |          |                   |            |             |                 |          |                   |              |             |  |  |  |  |
|           | EB (I-95 Off-ramps)  | LTR        | 56.3               | E        |                   | 31.2        | C           |                 | 204.4        | F                 |            | 31.2        | C               |          |                   |            |             |                 |          |                   |              |             |  |  |  |  |
|           | <b>EB Overall (I-95 Off-Ramps)</b>   |            | <b>61.7</b>        | <b>E</b> |                   | <b>36.1</b> | <b>D</b>    |                 | <b>230.3</b> | <b>F</b>          |            | <b>36.5</b> | <b>D</b>        |          |                   |            |             |                 |          |                   |              |             |  |  |  |  |
|           | EB (Kiss and Ride)   | L          | 55.9               | E        |                   | 37.5        | D           |                 | 57.9         | E                 |            | 38.2        | D               |          |                   |            |             |                 |          |                   |              |             |  |  |  |  |
|           | <b>EB Overall (Kiss and Ride)</b>  |            | <b>55.9</b>        | <b>E</b> |                   | <b>37.5</b> | <b>D</b>    |                 | <b>57.9</b>  | <b>E</b>          |            | <b>38.2</b> | <b>D</b>        |          |                   |            |             |                 |          |                   |              |             |  |  |  |  |
|           | WB (Site South Access)   | R          | 37.0               | D        |                   | 35.7        | D           |                 | 42.2         | D                 |            | 35.7        | D               |          |                   |            |             |                 |          |                   |              |             |  |  |  |  |
|           | <b>WB Overall (Site South Access)</b>  |            | <b>37.0</b>        | <b>D</b> |                   | <b>35.7</b> | <b>D</b>    |                 | <b>42.2</b>  | <b>D</b>          |            | <b>35.7</b> | <b>D</b>        |          |                   |            |             |                 |          |                   |              |             |  |  |  |  |
|           | NB (Greenbelt Sta Pkwy)  | L          | 81.8               | F        |                   | 33.4        | C           |                 | 79.5         | E                 |            | 33.5        | C               |          |                   |            |             |                 |          |                   |              |             |  |  |  |  |
|           | NB (Greenbelt Sta Pkwy)  | T          | 30.9               | C        |                   | 23.5        | C           |                 | 39.2         | D                 |            | 23.7        | C               |          |                   |            |             |                 |          |                   |              |             |  |  |  |  |
|           | <b>NB Overall (Greenbelt Sta Pkwy)</b>   |            | <b>32.7</b>        | <b>C</b> |                   | <b>24.3</b> | <b>C</b>    |                 | <b>40.5</b>  | <b>D</b>          |            | <b>24.4</b> | <b>C</b>        |          |                   |            |             |                 |          |                   |              |             |  |  |  |  |
|           | SB (Greenbelt Sta Pkwy)  | L          | 2.9                | A        |                   | 84.5        | F           |                 | 51.5         | D                 |            | 84.5        | F               |          |                   |            |             |                 |          |                   |              |             |  |  |  |  |
|           | SB (Greenbelt Sta Pkwy)  | TR         | 6.6                | A        |                   | 76.4        | E           |                 | 10.1         | B                 |            | 76.3        | E               |          |                   |            |             |                 |          |                   |              |             |  |  |  |  |
|           | <b>SB Overall (Greenbelt Sta Pkwy)</b>   |            | <b>5.7</b>         | <b>A</b> |                   | <b>77.7</b> | <b>E</b>    |                 | <b>22.7</b>  | <b>C</b>          |            | <b>77.5</b> | <b>E</b>        |          |                   |            |             |                 |          |                   |              |             |  |  |  |  |
|           | <b>Overall</b>   |            | <b>40.0</b>        | <b>D</b> | <b>950</b>        | <b>A</b>    | <b>Pass</b> | <b>36.9</b>     | <b>D</b>     | <b>1,103</b>      | <b>B</b>   | <b>Pass</b> | <b>141.0</b>    | <b>F</b> | <b>1,514</b>      | <b>E</b>   | <b>Fail</b> | <b>37.1</b>     | <b>D</b> | <b>1,129</b>      | <b>B</b>     | <b>Pass</b> |  |  |  |  |
| <b>19</b> | <b>Greenbelt Station Parkway &amp; WMATA Garage (Signalized)</b>   |            |                    |          |                   |             |             |                 |              |                   |            |             |                 |          |                   |            |             |                 |          |                   |              |             |  |  |  |  |
|           | EB (WMATA Garage)  | L          | 76.3               | E        |                   | 51.0        | D           |                 | 76.3         | E                 |            | 51.0        | D               |          |                   |            |             |                 |          |                   |              |             |  |  |  |  |
|           | EB (WMATA Garage)  | R          | 72.4               | E        |                   | 37.8        | D           |                 | 72.4         | E                 |            | 37.8        | D               |          |                   |            |             |                 |          |                   |              |             |  |  |  |  |
|           | <b>EB Overall (WMATA Garage)</b>   |            | <b>74.9</b>        | <b>E</b> |                   | <b>49.3</b> | <b>D</b>    |                 | <b>74.9</b>  | <b>E</b>          |            | <b>49.3</b> | <b>D</b>        |          |                   |            |             |                 |          |                   |              |             |  |  |  |  |
|           | NB (Greenbelt Sta Pkwy)  | LT         | 65.7               | E        |                   | 51.5        | D           |                 | 63.4         | E                 |            | 51.4        | D               |          |                   |            |             |                 |          |                   |              |             |  |  |  |  |
|           | NB (Greenbelt Sta Pkwy)  | TR         | 3.0                | A        |                   | 4.6         | A           |                 | 4.1          | A                 |            | 4.6         | A               |          |                   |            |             |                 |          |                   |              |             |  |  |  |  |
|           | <b>NB Overall (Greenbelt Sta Pkwy)</b>   |            | <b>34.7</b>        | <b>C</b> |                   | <b>28.3</b> | <b>C</b>    |                 | <b>33.8</b>  | <b>C</b>          |            | <b>28.2</b> | <b>C</b>        |          |                   |            |             |                 |          |                   |              |             |  |  |  |  |
|           | SB (Greenbelt Sta Pkwy)  | T          | 18.8               | B        |                   | 20.5        | C           |                 | 21.0         | C                 |            | 20.5        | C               |          |                   |            |             |                 |          |                   |              |             |  |  |  |  |
|           | SB (Greenbelt Sta Pkwy)  | R          | 38.5               | D        |                   | 12.9        | B           |                 | 41.2         | D                 |            | 12.9        | B               |          |                   |            |             |                 |          |                   |              |             |  |  |  |  |
|           | <b>SB Overall (Greenbelt Sta Pkwy)</b>   |            | <b>25.5</b>        | <b>C</b> |                   | <b>20.3</b> | <b>C</b>    |                 | <b>27.9</b>  | <b>C</b>          |            | <b>20.3</b> | <b>C</b>        |          |                   |            |             |                 |          |                   |              |             |  |  |  |  |
|           | <b>Overall</b>   |            | <b>31.4</b>        | <b>C</b> | <b>429</b>        | <b>A</b>    | <b>Pass</b> | <b>27.8</b>     | <b>C</b>     | <b>524</b>        | <b>A</b>   | <b>Pass</b> | <b>32.0</b>     | <b>C</b> | <b>480</b>        | <b>A</b>   | <b>Pass</b> | <b>27.8</b>     | <b>C</b> | <b>524</b>        | <b>A</b>     | <b>Pass</b> |  |  |  |  |
| <b>20</b> | <b>Greenbelt Station Parkway &amp; Residential Access to 300 Units (TWSC)</b>                              |            |                    |          |                   |             |             |                 |              |                   |            |             |                 |          |                   |            |             |                 |          |                   |              |             |  |  |  |  |
|           | EB (Residential Access)  | LR         | 21.1               | C        |                   | 20.8        | C           |                 | 24.4         | C                 |            | 20.9        | C               |          |                   |            |             |                 |          |                   |              |             |  |  |  |  |
|           | <b>EB Overall (Residential Access)</b>   |            | <b>21.1</b>        | <b>C</b> |                   | <b>20.8</b> | <b>C</b>    |                 | <b>24.4</b>  | <b>C</b>          |            | <b>20.9</b> | <b>C</b>        |          |                   |            |             |                 |          |                   |              |             |  |  |  |  |
|           | NB (Greenbelt Sta Pkwy)  | LT         | 0.2                | A        |                   | 0.8         | A           |                 | 0.2          | A                 |            | 0.7         | A               |          |                   |            |             |                 |          |                   |              |             |  |  |  |  |
|           | <b>NB Overall (Greenbelt Sta Pkwy)</b>   |            | <b>0.1</b>         | <b>-</b> |                   | <b>0.3</b>  | <b>-</b>    |                 | <b>0.1</b>   | <b>-</b>          |            | <b>0.3</b>  | <b>-</b>        |          |                   |            |             |                 |          |                   |              |             |  |  |  |  |
|           | <b>Overall</b>   |            | <b>1.5</b>         | <b>-</b> | <b>N/A</b>        | <b>N/A</b>  | <b>Pass</b> | <b>0.6</b>      | <b>-</b>     | <b>N/A</b>        | <b>N/A</b> | <b>Pass</b> | <b>1.6</b>      | <b>-</b> | <b>N/A</b>        | <b>N/A</b> | <b>Pass</b> | <b>0.6</b>      | <b>-</b> | <b>N/A</b>        | <b>N/A</b>   | <b>Pass</b> |  |  |  |  |

**Table 5-20: Comparison of No-build and Build Condition Intersection AM and PM Peak Hour Operations Analysis (continued)**

| #         | Intersection and Approach   | Lane Group | No-build Condition |          |                   |             |             |                 |          |                   |             |             | Build Condition |          |                   |             |             |                 |          |                   |          |             |
|-----------|---|------------|--------------------|----------|-------------------|-------------|-------------|-----------------|----------|-------------------|-------------|-------------|-----------------|----------|-------------------|-------------|-------------|-----------------|----------|-------------------|----------|-------------|
|           |   |            | AM Peak Hour       |          |                   |             |             | PM Peak Hour    |          |                   |             |             | AM Peak Hour    |          |                   |             |             | PM Peak Hour    |          |                   |          |             |
|           |   |            | HCM 2000           |          | CLV               |             | Check       | HCM 2000        |          | CLV               |             | Check       | HCM 2000        |          | CLV               |             | Check       | HCM 2000        |          | CLV               |          | Check       |
|           |   |            | Delay (sec/veh)    | LOS      | Critical Lane Vol | LOS         |             | Delay (sec/veh) | LOS      | Critical Lane Vol | LOS         |             | Delay (sec/veh) | LOS      | Critical Lane Vol | LOS         |             | Delay (sec/veh) | LOS      | Critical Lane Vol | LOS      |             |
| <b>21</b> | <b>Greenbelt Road (MD 193) &amp; Greenbelt Station Parkway (Signalized)</b> |            |                    |          |                   |             |             |                 |          |                   |             |             |                 |          |                   |             |             |                 |          |                   |          |             |
|           | EB (Greenbelt Rd)   | L          | 63.6               | E        |                   | 70.0        | E           |                 |          |                   | 67.5        | E           |                 |          |                   | 70.0        | E           |                 |          |                   |          |             |
|           | EB (Greenbelt Rd)   | T          | 3.2                | A        |                   | 8.0         | A           |                 |          |                   | 3.3         | A           |                 |          |                   | 8.0         | A           |                 |          |                   |          |             |
|           | <b>EB Overall (Greenbelt Rd)</b>  |            | <b>11.5</b>        | <b>B</b> |                   | <b>12.6</b> | <b>B</b>    |                 |          |                   | <b>14.0</b> | <b>B</b>    |                 |          |                   | <b>12.7</b> | <b>B</b>    |                 |          |                   |          |             |
|           | WB (Greenbelt Rd)   | T          | 3.6                | A        |                   | 4.9         | A           |                 |          |                   | 3.5         | A           |                 |          |                   | 5.1         | A           |                 |          |                   |          |             |
|           | WB (Greenbelt Rd)   | R          | 0.1                | A        |                   | 1.8         | A           |                 |          |                   | 0.3         | A           |                 |          |                   | 1.9         | A           |                 |          |                   |          |             |
|           | <b>WB Overall (Greenbelt Rd)</b>  |            | <b>3.2</b>         | <b>A</b> |                   | <b>4.5</b>  | <b>A</b>    |                 |          |                   | <b>3.2</b>  | <b>A</b>    |                 |          |                   | <b>4.6</b>  | <b>A</b>    |                 |          |                   |          |             |
|           | SB (Greenbelt Sta Pkwy)   | L          | 67.1               | E        |                   | 59.9        | E           |                 |          |                   | 65.8        | E           |                 |          |                   | 59.8        | E           |                 |          |                   |          |             |
|           | SB (Greenbelt Sta Pkwy)   | R          | 46.0               | D        |                   | 47.4        | D           |                 |          |                   | 44.6        | D           |                 |          |                   | 47.3        | D           |                 |          |                   |          |             |
|           | <b>SB Overall (Greenbelt Sta Pkwy)</b>                                      |            | <b>57.5</b>        | <b>E</b> |                   | <b>54.1</b> | <b>D</b>    |                 |          |                   | <b>56.2</b> | <b>E</b>    |                 |          |                   | <b>54.0</b> | <b>D</b>    |                 |          |                   |          |             |
|           | <b>Overall</b>  |            | <b>11.1</b>        | <b>B</b> | <b>988</b>        | <b>A</b>    | <b>Pass</b> | <b>12.7</b>     | <b>B</b> | <b>1,100</b>      | <b>B</b>    | <b>Pass</b> | <b>11.7</b>     | <b>B</b> | <b>1,020</b>      | <b>B</b>    | <b>Pass</b> | <b>12.7</b>     | <b>B</b> | <b>1,101</b>      | <b>B</b> | <b>Pass</b> |

Notes:

AWSC = All-way STOP-Controlled intersection

EB = Eastbound, WB = Westbound, NB= Northbound, SB = Southbound

LTR = left / through / right lanes

LOS = Level of Service

TWSC = Two-way STOP-Controlled unsignalized intersection (TWSC intersections do not have an overall LOS)

Delay is Measured in Seconds Per Vehicle.

Red cells denote intersections or approaches operating at unacceptable conditions.

<sup>a</sup> Highway Capacity Manual was unable to report accurate delay using default gap acceptance values.

<sup>a</sup> Highway Capacity Software 2010 Roundabout results

<sup>b</sup> Intersection would be included under the Build Condition, but was included as part of the No-build Condition design provided by Renard Development Company, LLC.

## 5.8.6 Build Condition Queuing Analysis

Synchro™ was used to calculate the 50th percentile queue lengths and SimTraffic™ was used to calculate the 95th percentile queue lengths. The SimTraffic simulations have a statistical accuracy of plus or minus 5.0 percent error for the AM and PM peak hour simulations.

### 5.8.6.1 *Signalized Intersection Operations Analysis*

Based on the Synchro™ and SimTraffic™ analysis, the following signalized intersection approaches would experience failing queue lengths in Synchro™ or SimTraffic™ (queue exceeds available lane storage). The lane group within the approach that would be operating under unacceptable conditions is noted in parentheses

- Greenbelt Road (MD 193) and Cherrywood Lane/60th Avenue (Intersection #1)
  - Southbound Cherrywood Lane (all movements) during the PM peak hour
- Kenilworth Avenue/Edmonston Road (MD 201) and Cherrywood Lane (Intersection #11)
  - Southbound Edmonston Road (right turns) during the AM peak hour
- Edmonston Road (MD 201) and Sunnyside Avenue (Intersection #12)
  - Eastbound Sunnyside Avenue (right turns) and southbound Edmonston Road (right turns and through movements) during the AM peak hour
  - Eastbound Sunnyside Avenue (all movements), northbound Edmonston Road (all movements) and southbound Edmonston Road (all movements) during the PM peak hour
- Edmonston Road (MD 201) and Powder Mill Road (Intersection #13)
  - Northbound Edmonston Road (left turns) during the PM peak hour
- Greenbelt Metro Drive and Site North Access (unsignalized in No-build) (Intersection #14)
  - Eastbound Greenbelt Metro Drive (through movements) and northbound site north access (left turns) during the PM peak hour
- Greenbelt Station Bus Bays/Greenbelt Metro Drive and Greenbelt Station Boulevard (Intersection #15)
  - Westbound Greenbelt Metro Drive (left turns) during the AM peak hour
- Greenbelt Station Parkway and North Core Development/Site Northwest Access (Intersection #16)
  - Westbound site northwest access (PM right turns) during the PM peak hour
- Greenbelt Station Parkway and I-95/I-495 Off-ramps/Site South Access/Kiss & Ride (Intersection #18)
  - Eastbound Kiss & Ride (left turns) and eastbound I-95 off ramps (all movements) during the AM peak hour
- Greenbelt Station Parkway and WMATA Garage (Intersection #19)
  - Eastbound WMATA garage (left turns) during the PM peak hour
- Greenbelt Road (MD 193) and Greenbelt Station Parkway (Intersection #21)
  - Eastbound Greenbelt Road (left turns), westbound Greenbelt Road (right turns) and southbound Greenbelt Station Parkway (right turns) during the PM peak hour

### 5.8.6.2 *Unsignalized Intersection Operations Analysis*

Four of the six unsignalized intersections would not experience failing queue lengths for the 95th percentile. The intersection of Cherrywood Lane and Ivy Lane (Intersection #5) would experience 95th percentile failing queues on southbound Ivy Lane (combined left, through, and right movements) during the PM peak hour, and the intersection of Cherrywood Lane and Greenbelt Metro Drive would experience 95th percentile failing queues on northbound Cherrywood Lane (combined left and through movements) during the PM peak hour.

### 5.8.6.3 Complete Intersection Queuing Analysis

This section summarizes the differences in queuing impacts between the Build Condition and the No-build Condition by quantifying the change in intersection queuing failures. Following the summary, this section also includes the complete results of the queuing analysis.

Based on the Synchro™ and SimTraffic™ analysis, 10 signalized and 2 unsignalized intersections would experience queuing lengths that would exceed the available storage capacity. The remaining intersections in the study area would provide sufficient storage for the anticipated demand. Compared to the No-build Condition, the Build Condition would have no change in the number of intersections with failing queues during the AM peak hour and three more intersections would have failing queues during the PM peak hour. In the AM peak hour in the No-build Condition, there would be four intersections with a failing queue approach compared with four in the Build Condition, an increase of zero. In the PM peak hour in the No-build Condition, there would be six intersections with a failing queue approach compared with nine in the Build Condition, an increase of 3.

Table 5-21 provides a summary of the number of intersections that meet the following criteria for approach lane groups in a queue that would change between the No-build and the Build Conditions:

**Table 5-21: Queuing Summary Comparing No-build Condition to Build Condition**

| Type of Change Between Conditions                      | AM        | PM        |
|--|-----------|-----------|
| New Failing Movement                                   | 0         | 3         |
| Additional Failing Movement                            | 1         | 1         |
| No Change  | 20        | 17        |
| Fewer Failing Movements                                | 0         | 0         |
| No Failing Movements                                   | 0         | 0         |
| <b>Total Signalized and Unsignalized Intersections</b> | <b>21</b> | <b>21</b> |

The results of the No-build Condition compared to the Build Condition queuing analysis for both signalized and unsignalized intersections are presented in table 5-22. Note that the percentile values are expressed in feet, and a car occupies about 25 linear feet of roadway, including the space between cars.

Table 5-22: Comparison of No-build to Build Condition Queuing Analysis

| #        | Intersection and Approach   | Lane Group | Turning Bay/Link Length (feet) | No-build Condition     |                        |                        |                        | Build Condition        |                        |                        |                        |
|----------|---|------------|--------------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|
|          |   |            |                                | AM Peak                |                        | PM Peak                |                        | AM Peak                |                        | PM Peak                |                        |
|          |   |            |                                | 50th Percentile (feet) | 95th Percentile (feet) |
| <b>1</b> | <b>Greenbelt Road (MD 193) &amp; Cherrywood Lane/60th Avenue (Signalized)</b> |            |                                |                        |                        |                        |                        |                        |                        |                        |                        |
|          | EB (Greenbelt Rd)   | L          | 350                            | 132                    | 165                    | 240                    | 250                    | 132                    | 161                    | 240                    | 264                    |
|          | EB (Greenbelt Rd)   | TR         | 1,584                          | 148                    | 128                    | 373                    | 294                    | 148                    | 134                    | 373                    | 307                    |
|          | WB (Greenbelt Rd)   | L          | 200                            | 43                     | 126                    | 68                     | 137                    | 43                     | 128                    | 69                     | 141                    |
|          | WB (Greenbelt Rd)   | TR         | 1,336                          | 598                    | 324                    | 208                    | 296                    | 626                    | 336                    | 208                    | 301                    |
|          | NB (60th Ave)   | LTR        | 320                            | 132                    | 217                    | 154                    | #357                   | 132                    | 205                    | 154                    | 319                    |
|          | SB (Cherrywood Ln)  | L          | 350                            | 74                     | 112                    | 172                    | 254                    | 76                     | 112                    | ~204                   | #403                   |
|          | SB (Cherrywood Ln)  | LT         | 1,300                          | 75                     | 134                    | 178                    | 315                    | 77                     | 132                    | ~210                   | 621                    |
|          | SB (Cherrywood Ln)  | R          | 1,300                          | 252                    | 259                    | 653                    | 529                    | 258                    | 250                    | ~796                   | 693                    |
| <b>2</b> | <b>Cherrywood Lane &amp; Breezewood Drive (AWSC)</b>                          |            |                                |                        |                        |                        |                        |                        |                        |                        |                        |
|          | WB (Breezewood Dr)  | LR         | 573                            | -                      | 86                     | -                      | 76                     | -                      | 83                     | -                      | 77                     |
|          | NB (Cherrywood Ln)  | T          | 1,300                          | -                      | 120                    | -                      | 162                    | -                      | 119                    | -                      | 156                    |
|          | NB (Cherrywood Ln)  | R          | 1,300                          | -                      | 81                     | -                      | 113                    | -                      | 80                     | -                      | 116                    |
|          | SB (Cherrywood Ln)  | L          | 175                            | -                      | 57                     | -                      | 65                     | -                      | 57                     | -                      | 66                     |
|          | SB (Cherrywood Ln)  | T          | 2,394                          | -                      | 73                     | -                      | 85                     | -                      | 73                     | -                      | 99                     |
| <b>3</b> | <b>Cherrywood Lane &amp; Springhill Drive (TWSC)</b>                          |            |                                |                        |                        |                        |                        |                        |                        |                        |                        |
|          | WB (Springhill Dr)  | LR         | 620                            | -                      | 90                     | -                      | 189                    | -                      | 86                     | -                      | 246                    |
|          | NB (Cherrywood Ln)  | TR         | 2,394                          | -                      | -                      | -                      | 3                      | -                      | 2                      | -                      | 2                      |
|          | SB (Cherrywood Ln)  | L          | 350                            | -                      | 53                     | -                      | 68                     | -                      | 52                     | -                      | 72                     |
| <b>4</b> | <b>Cherrywood Lane &amp; Greenbelt Metro Drive (Roundabout)</b>               |            |                                |                        |                        |                        |                        |                        |                        |                        |                        |
|          | EB (Greenbelt Metro Dr)   | L          | 449                            | -                      | 59                     | -                      | 109                    | -                      | 55                     | -                      | 192                    |
|          | EB (Greenbelt Metro Dr)   | R          | 250                            | -                      | 25                     | -                      | 43                     | 0                      | 18                     | -                      | 104                    |
|          | NB (Cherrywood Ln)  | LT         | 111                            | -                      | 92                     | -                      | 107                    | -                      | 94                     | -                      | #118                   |
|          | SB (Cherrywood Ln)  | T          | 1,451                          | -                      | 42                     | -                      | 83                     | 0                      | 43                     | -                      | 86                     |
|          | SB (Cherrywood Ln)  | R          | 200                            | -                      | 13                     | -                      | 10                     | -                      | 16                     | -                      | 11                     |
| <b>5</b> | <b>Cherrywood Lane &amp; Ivy Lane (TWSC)</b>                                  |            |                                |                        |                        |                        |                        |                        |                        |                        |                        |
|          | EB (Cherrywood Ln)  | LTR        | 1,451                          | -                      | 156                    | -                      | 45                     | -                      | 162                    | -                      | 43                     |
|          | WB (Cherrywood Ln)  | L          | 219                            | -                      | 35                     | -                      | 23                     | -                      | 34                     | -                      | 23                     |
|          | WB (Cherrywood Ln)  | TR         | 219                            | -                      | 12                     | -                      | 9                      | -                      | 12                     | -                      | 5                      |
|          | NB (Ivy Ln)   | LT         | 485                            | -                      | 81                     | -                      | 131                    | -                      | 85                     | -                      | 130                    |
|          | NB (Ivy Ln)   | R          | 485                            | -                      | 38                     | -                      | 53                     | -                      | 37                     | -                      | 52                     |
|          | SB (Ivy Ln)   | LTR        | 223                            | -                      | 66                     | -                      | #287                   | -                      | 59                     | -                      | #288                   |

Table 5-22: Comparison of No-build to Build Condition Queuing Analysis (continued)

| #         | Intersection and Approach  | Lane Group | Turning Bay/Link Length (feet) | No-build Condition     |                        |                        |                        | Build Condition        |                        |                        |                        |
|-----------|--|------------|--------------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|
|           |  |            |                                | AM Peak                |                        | PM Peak                |                        | AM Peak                |                        | PM Peak                |                        |
|           |  |            |                                | 50th Percentile (feet) | 95th Percentile (feet) |
| <b>6</b>  | <b>Greenbelt Road (MD 193) &amp; 62 Avenue/Beltway Plaza Driveway (Signalized)</b>     |            |                                |                        |                        |                        |                        |                        |                        |                        |                        |
|           | EB (Greenbelt Rd)  | L          | 250                            | 0                      | 27                     | 9                      | 63                     | 0                      | 25                     | 10                     | 68                     |
|           | EB (Greenbelt Rd)  | TR         | 1,336                          | 63                     | 56                     | 511                    | 221                    | 64                     | 49                     | 526                    | 229                    |
|           | WB (Greenbelt Rd)  | L          | 250                            | 9                      | 53                     | 19                     | 123                    | 9                      | 52                     | 19                     | 106                    |
|           | WB (Greenbelt Rd)  | T          | 1,038                          | 190                    | 168                    | 373                    | 291                    | 197                    | 167                    | 375                    | 287                    |
|           | WB (Greenbelt Rd)  | R          | 1,038                          | 0                      | 39                     | 3                      | 96                     | 0                      | 36                     | 3                      | 103                    |
|           | NB (62th Ave)  | LTR        | 697                            | 25                     | 96                     | 115                    | 202                    | 25                     | 93                     | 115                    | 205                    |
|           | SB (Beltway Plaza Drwy)  | L          | 350                            | 16                     | 14                     | 173                    | 238                    | 16                     | 7                      | 173                    | 251                    |
|           | SB (Beltway Plaza Drwy)  | LT         | 472                            | 17                     | 69                     | 172                    | 268                    | 17                     | 65                     | 172                    | 272                    |
|           | SB (Beltway Plaza Drwy)  | R          | 350                            | 0                      | 23                     | 0                      | 51                     | 0                      | 22                     | 0                      | 50                     |
| <b>7</b>  | <b>Kenilworth Avenue (MD 201) &amp; I-95/I-495 SB Off-ramp (Signalized)</b>            |            |                                |                        |                        |                        |                        |                        |                        |                        |                        |
|           | EB (I-95/I-495 SB Off-ramp)  | L          | 531                            | 112                    | 300                    | 97                     | 211                    | 112                    | 303                    | 97                     | 209                    |
|           | EB (I-95/I-495 SB Off-ramp)  | R          | 736                            | 0                      | 394                    | 0                      | 2                      | 0                      | 337                    | 0                      | -                      |
|           | NB (Kenilworth Ave)  | T          | 1,263                          | 46                     | 90                     | 66                     | 116                    | 47                     | 89                     | 66                     | 117                    |
|           | SB (Kenilworth Ave)  | T          | 574                            | 229                    | 180                    | 56                     | 115                    | 229                    | 179                    | 57                     | 118                    |
| <b>8</b>  | <b>Kenilworth Avenue (MD 201) &amp; I-95/I-495 NB Off-ramp (Signalized)</b>            |            |                                |                        |                        |                        |                        |                        |                        |                        |                        |
|           | WB (I-95/I-495 NB Off-ramp)  | L          | 885                            | 223                    | 245                    | 160                    | 222                    | 223                    | 244                    | 160                    | 228                    |
|           | WB (I-95/I-495 NB Off-ramp)  | R          | 835                            | 217                    | 152                    | 61                     | 96                     | 217                    | 155                    | 61                     | 89                     |
|           | NB (Kenilworth Ave)  | T          | 345                            | 116                    | 131                    | 49                     | 94                     | 119                    | 132                    | 49                     | 101                    |
|           | SB (Kenilworth Ave)  | T          | 199                            | 56                     | 154                    | 77                     | 129                    | 56                     | 156                    | 78                     | 131                    |
| <b>9</b>  | <b>Kenilworth Avenue (MD 201) &amp; Crescent Road/Maryland SHA Office (Signalized)</b> |            |                                |                        |                        |                        |                        |                        |                        |                        |                        |
|           | EB (Maryland SHA Office)   | LTR        | 250                            | 1                      | 36                     | 3                      | 48                     | 1                      | 38                     | 3                      | 48                     |
|           | WB (Crescent Rd)   | LT         | 441                            | 168                    | 254                    | 79                     | 145                    | 168                    | 263                    | 79                     | 149                    |
|           | WB (Crescent Rd)   | R          | 250                            | 0                      | 133                    | 0                      | 71                     | 0                      | 135                    | 0                      | 78                     |
|           | NB (Kenilworth Ave)  | L          | 250                            | 28                     | 85                     | 9                      | 36                     | 28                     | 86                     | 9                      | 40                     |
|           | NB (Kenilworth Ave)  | T          | 286                            | 234                    | 281                    | 117                    | 160                    | 234                    | 282                    | 117                    | 162                    |
|           | NB (Kenilworth Ave)  | R          | 250                            | 9                      | 114                    | 2                      | 35                     | 9                      | 122                    | 2                      | 43                     |
|           | SB (Kenilworth Ave)  | L          | 300                            | 64                     | 110                    | 128                    | 201                    | 64                     | 110                    | 131                    | 201                    |
|           | SB (Kenilworth Ave)  | T          | 793                            | 45                     | 156                    | 60                     | 446                    | 45                     | 155                    | 60                     | 452                    |
|           | SB (Kenilworth Ave)  | R          | R                              | 0                      | 10                     | 0                      | 194                    | 0                      | 11                     | 0                      | 185                    |
| <b>10</b> | <b>Kenilworth Avenue (MD 201) &amp; Ivy Lane (Signalized)</b>                          |            |                                |                        |                        |                        |                        |                        |                        |                        |                        |
|           | EB (Ivy Ln)  | R          | -                              | 0                      | -                      | 0                      | -                      | 0                      | -                      | 0                      | -                      |
|           | NB (Kenilworth Ave)  | L          | 547                            | 88                     | 134                    | 21                     | 59                     | 87                     | 136                    | 21                     | 59                     |
|           | NB (Kenilworth Ave)  | T          | -                              | 45                     | 64                     | 29                     | -                      | 45                     | 110                    | 29                     | -                      |
|           | SB (Kenilworth Ave)  | T          | 1,198                          | 4                      | 93                     | 15                     | 101                    | 4                      | 96                     | 16                     | 108                    |
|           | SB (Kenilworth Ave)  | R          | -                              | 0                      | -                      | 0                      | -                      | 0                      | -                      | 0                      | -                      |

Table 5-22: Comparison of No-build to Build Condition Queuing Analysis (continued)

| #  | Intersection and Approach | Lane Group | Turning Bay/Link Length (feet) | No-build Condition     |                        |                        |                        | Build Condition        |                        |                        |                        |
|--|---------------------------|------------|--------------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|
|  |                           |            |                                | AM Peak                |                        | PM Peak                |                        | AM Peak                |                        | PM Peak                |                        |
|  |                           |            |                                | 50th Percentile (feet) | 95th Percentile (feet) |
| <b>11 Kenilworth Avenue/Edmonston Road (MD 201) &amp; Cherrywood Lane (Signalized)</b> |                           |            |                                |                        |                        |                        |                        |                        |                        |                        |                        |
|  | EB (Cherrywood Ln)        | L          | 777                            | 68                     | 120                    | 129                    | 165                    | 69                     | 115                    | 139                    | 177                    |
|  | EB (Cherrywood Ln)        | R          | 1,304                          | 0                      | 65                     | 0                      | 200                    | 0                      | 62                     | 0                      | 194                    |
|  | NB (Kenilworth Ave)       | L          | 750                            | 81                     | 367                    | 18                     | 148                    | 81                     | 391                    | 15                     | 154                    |
|  | NB (Kenilworth Ave)       | T          | 1,198                          | 2                      | 59                     | 6                      | 76                     | 2                      | 66                     | 6                      | 69                     |
|  | SB (Edmonston Rd)         | T          | 594                            | 307                    | 301                    | 212                    | 204                    | 311                    | 306                    | 217                    | 198                    |
|  | SB (Edmonston Rd)         | R          | 250                            | 31                     | #265                   | 0                      | 89                     | 46                     | #285                   | 0                      | 83                     |
| <b>12 Edmonston Road (MD 201) &amp; Sunnyside Avenue (Signalized)</b>                  |                           |            |                                |                        |                        |                        |                        |                        |                        |                        |                        |
|  | EB (Sunnyside Ave)        | L          | 965                            | 182                    | 555                    | 320                    | #1234                  | 182                    | 484                    | 320                    | #1222                  |
|  | EB (Sunnyside Ave)        | R          | 350                            | 332                    | #421                   | 455                    | #425                   | 342                    | #421                   | 455                    | #447                   |
|  | NB (Edmonston Rd)         | L          | 450                            | 362                    | 387                    | 268                    | #602                   | 378                    | 406                    | 268                    | #605                   |
|  | NB (Edmonston Rd)         | T          | 1,381                          | 249                    | 259                    | 809                    | #1865                  | 250                    | 267                    | 876                    | #1905                  |
|  | SB (Edmonston Rd)         | T          | 1,554                          | 1336                   | #1629                  | 1058                   | #1726                  | 1442                   | #1942                  | 1058                   | #1647                  |
|  | SB (Edmonston Rd)         | R          | 250                            | 23                     | #293                   | 14                     | #336                   | 25                     | #310                   | 14                     | #337                   |
| <b>13 Edmonston Road (MD 201) &amp; Powder Mill Road (Signalized)</b>                  |                           |            |                                |                        |                        |                        |                        |                        |                        |                        |                        |
|  | EB (Powder Mill Rd)       | L          | 250                            | 43                     | 124                    | 414                    | 237                    | 44                     | 123                    | 79                     | 243                    |
|  | EB (Powder Mill Rd)       | T          | 903                            | 244                    | 269                    | 0                      | 457                    | 245                    | 298                    | 414                    | 496                    |
|  | EB (Powder Mill Rd)       | R          | 500                            | 0                      | 83                     | 0                      | 154                    | 0                      | 96                     | 0                      | 191                    |
|  | WB (Powder Mill Rd)       | L          | 250                            | 114                    | 156                    | 74                     | 119                    | 114                    | 150                    | 74                     | 111                    |
|  | WB (Powder Mill Rd)       | T          | 699                            | 176                    | 214                    | 129                    | 163                    | 176                    | 212                    | 129                    | 171                    |
|  | WB (Powder Mill Rd)       | R          | 100                            | 0                      | 100                    | 0                      | 62                     | 0                      | 96                     | 0                      | 65                     |
|  | NB (Edmonston Rd)         | L          | 400                            | 513                    | 364                    | ~615                   | 324                    | 523                    | 370                    | ~679                   | 333                    |
|  | NB (Edmonston Rd)         | T          | 640                            | 274                    | 246                    | 19                     | 297                    | 274                    | 257                    | 578                    | 296                    |
|  | NB (Edmonston Rd)         | R          | 275                            | 0                      | 20                     | 64                     | 96                     | 0                      | 28                     | 19                     | 96                     |
|  | SB (Edmonston Rd)         | L          | 275                            | 21                     | 104                    | 0                      | 140                    | 21                     | 76                     | 64                     | 132                    |
|  | SB (Edmonston Rd)         | TR         | 822                            | 324                    | 301                    | 0                      | 310                    | 332                    | 307                    | 345                    | 300                    |
| <b>14 Greenbelt Metro Drive &amp; Site North Access (Signalized) <sup>a</sup></b>      |                           |            |                                |                        |                        |                        |                        |                        |                        |                        |                        |
|  | EB (Greenbelt Metro Dr)   | T          | 216                            | N/A                    | N/A                    | N/A                    | N/A                    | 41                     | 75                     | 215                    | #283                   |
|  | WB (Greenbelt Metro Dr)   | L          | -                              | N/A                    | N/A                    | N/A                    | N/A                    | -                      | -                      | -                      | -                      |
|  | WB (Greenbelt Metro Dr)   | T          | 244                            | N/A                    | N/A                    | N/A                    | N/A                    | 82                     | 124                    | 95                     | 149                    |
|  | NB (Site North Access)    | L          | 234                            | -                      | -                      | -                      | -                      | 10                     | 51                     | 163                    | #245                   |
|  | NB (Site North Access)    | R          | 234                            | N/A                    | N/A                    | N/A                    | N/A                    | 0                      | 32                     | 0                      | 115                    |

Table 5-22: Comparison of No-build to Build Condition Queuing Analysis (continued)

| #   | Intersection and Approach   | Lane Group | Turning Bay/Link Length (feet) | No-build Condition     |                        |                        |                        | Build Condition        |                        |                        |                        |
|---|-----------------------------|------------|--------------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|
|   |                             |            |                                | AM Peak                |                        | PM Peak                |                        | AM Peak                |                        | PM Peak                |                        |
|   |                             |            |                                | 50th Percentile (feet) | 95th Percentile (feet) |
| <b>15 Greenbelt Station Bus Bays/Greenbelt Metro Drive &amp; Greenbelt Station Parkway (Signalized)</b>       |                             |            |                                |                        |                        |                        |                        |                        |                        |                        |                        |
|   | EB (Greenbelt Sta Bus Bays) | LT         | 216                            | 22                     | 59                     | 16                     | 54                     | 22                     | 60                     | 16                     | 58                     |
|   | EB (Greenbelt Sta Bus Bays) | R          | -                              | -                      | -                      | -                      | -                      | -                      | -                      | -                      | -                      |
|   | WB (Greenbelt Metro Dr)     | L          | 366                            | 412                    | #446                   | 169                    | 250                    | 442                    | #465                   | 163                    | 253                    |
|   | WB (Greenbelt Metro Dr)     | T          | 366                            | 14                     | 45                     | 15                     | 57                     | 14                     | 41                     | 14                     | 55                     |
|   | WB (Greenbelt Metro Dr)     | R          | 275                            | 0                      | -                      | 0                      | -                      | 0                      | -                      | 60                     | 114                    |
|   | NB (Greenbelt Sta Pkwy)     | L          | 250                            | -                      | -                      | 0                      | 4                      | -                      | -                      | 0                      | 2                      |
|   | NB (Greenbelt Sta Pkwy)     | T          | 243                            | 100                    | 102                    | 50                     | 84                     | 129                    | -                      | 64                     | -                      |
|   | NB (Greenbelt Sta Pkwy)     | R          | 243                            | 31                     | -                      | 12                     | 11                     | 45                     | 98                     | 30                     | 97                     |
| <b>16 Greenbelt Station Parkway &amp; North Core Development/Site Northwest Access (Signalized)</b>           |                             |            |                                |                        |                        |                        |                        |                        |                        |                        |                        |
|   | EB (North Core Dev)         | L          | 179                            | 38                     | 80                     | 121                    | 164                    | 38                     | 85                     | 103                    | 176                    |
|   | EB (North Core Dev)         | TR         | 179                            | 0                      | 36                     | 0                      | 63                     | 0                      | 36                     | 0                      | 100                    |
|   | WB (Site Northwest Access)  | LTR (AM)   | -                              | -                      | -                      | -                      | -                      | 0                      | 53                     | -                      | -                      |
|   | WB (Site Northwest Access)  | LT (PM)    | -                              | -                      | -                      | -                      | -                      | -                      | -                      | -                      | -                      |
|   | WB (Site Northwest Access)  | R (PM)     | -                              | -                      | -                      | -                      | -                      | -                      | -                      | 267                    | #265                   |
|   | NB (Greenbelt Sta Pkwy)     | L          | 505                            | 28                     | 197                    | 33                     | 131                    | 56                     | 183                    | 44                     | 137                    |
|   | NB (Greenbelt Sta Pkwy)     | TR         | 505                            | 28                     | 107                    | 67                     | 228                    | 78                     | 166                    | 87                     | 206                    |
|   | SB (Greenbelt Sta Pkwy)     | TR         | 266                            | 0                      | 22                     | 0                      | 13                     | 0                      | 23                     | 0                      | 13                     |
| <b>17 Greenbelt Station Parkway &amp; Residential Access to 500 Units (TWSC)</b>                              |                             |            |                                |                        |                        |                        |                        |                        |                        |                        |                        |
|   | EB (Residential Access)     | R          | 174                            | -                      | 59                     | -                      | 49                     | -                      | 63                     | -                      | 51                     |
|   | NB (Greenbelt Sta Pkwy)     | T          | 465                            | -                      | 3                      | -                      | 302                    | -                      | 7                      | -                      | 229                    |
| <b>18 Greenbelt Station Parkway &amp; I-95/I-495 Off-ramps/Site South Access/Kiss &amp; Ride (Signalized)</b> |                             |            |                                |                        |                        |                        |                        |                        |                        |                        |                        |
|   | EB (I-95 Off-ramps)         | L          | 229                            | 238                    | 223                    | 187                    | 134                    | ~797                   | #2534                  | 196                    | 164                    |
|   | EB (I-95 Off-ramps)         | LTR        | 229                            | 129                    | 222                    | 21                     | 153                    | ~666                   | #2456                  | 30                     | 155                    |
|   | EB (Kiss and Ride)          | L          | 188                            | 229                    | #258                   | 116                    | 174                    | 229                    | #262                   | 117                    | 179                    |
|   | WB (Site South Access)      | R          | 407                            | 6                      | 27                     | 118                    | 160                    | 7                      | 25                     | 118                    | 176                    |
|   | NB (Greenbelt Sta Pkwy)     | L          | 375                            | 24                     | 59                     | 35                     | 76                     | 24                     | 56                     | 35                     | 78                     |
|   | NB (Greenbelt Sta Pkwy)     | T          | 530                            | 325                    | 86                     | 110                    | 87                     | 356                    | 87                     | 111                    | 88                     |
|   | SB (Greenbelt Sta Pkwy)     | L          | 400                            | 0                      | 120                    | 0                      | 54                     | 176                    | 172                    | 0                      | 62                     |
|   | SB (Greenbelt Sta Pkwy)     | TR         | 465                            | 0                      | 73                     | 28                     | 93                     | 3                      | 77                     | 28                     | 83                     |

**Table 5-22: Comparison of No-build to Build Condition Queuing Analysis (continued)**

| #  | Intersection and Approach | Lane Group | Turning Bay/Link Length (feet) | No-build Condition     |                        |                        |                        | Build Condition        |                        |                        |                        |
|--|---------------------------|------------|--------------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|
|  |                           |            |                                | AM Peak                |                        | PM Peak                |                        | AM Peak                |                        | PM Peak                |                        |
|  |                           |            |                                | 50th Percentile (feet) | 95th Percentile (feet) |
| <b>19 Greenbelt Station Parkway &amp; WMATA Garage (Signalized)</b>              |                           |            |                                |                        |                        |                        |                        |                        |                        |                        |                        |
|  | EB (WMATA Garage)         | L          | 150                            | 7                      | 30                     | 100                    | #158                   | 7                      | 29                     | 100                    | #162                   |
|  | EB (WMATA Garage)         | R          | 290                            | 0                      | 24                     | 0                      | 63                     | 0                      | 23                     | 0                      | 85                     |
|  | NB (Greenbelt Sta Pkwy)   | LT         | 330                            | 358                    | 183                    | 157                    | 80                     | 409                    | 176                    | 157                    | 81                     |
|  | NB (Greenbelt Sta Pkwy)   | TR         | 330                            | 4                      | 145                    | 48                     | 99                     | 4                      | 140                    | 48                     | 88                     |
|  | SB (Greenbelt Sta Pkwy)   | T          | 162                            | 141                    | 68                     | 248                    | 152                    | 161                    | 58                     | 240                    | 155                    |
|  | SB (Greenbelt Sta Pkwy)   | R          | 162                            | 23                     | 14                     | 0                      | 2                      | 32                     | 11                     | 0                      | 2                      |
| <b>20 Greenbelt Station Parkway &amp; Residential Access to 300 Units (TWSC)</b> |                           |            |                                |                        |                        |                        |                        |                        |                        |                        |                        |
|  | EB (Residential Access)   | LR         | 224                            | -                      | 64                     | -                      | 44                     | -                      | 60                     | -                      | 42                     |
|  | NB (Greenbelt Sta Pkwy)   | LT         | 345                            | -                      | 0                      | -                      | 0                      | -                      | 0                      | -                      | 0                      |
|  | SB (Greenbelt Sta Pkwy)   | TR         | 350                            | -                      | 5                      | -                      | 6                      | -                      | -                      | -                      | 5                      |
| <b>21 Greenbelt Road (MD 193) &amp; Greenbelt Station Parkway (Signalized)</b>   |                           |            |                                |                        |                        |                        |                        |                        |                        |                        |                        |
|  | EB (Greenbelt Rd)         | L          | 67                             | 95                     | 144                    | 97                     | #142                   | 124                    | 180                    | 98                     | #144                   |
|  | EB (Greenbelt Rd)         | T          | 1,008                          | 84                     | 95                     | 360                    | 233                    | 84                     | 89                     | 360                    | 227                    |
|  | WB (Greenbelt Rd)         | T          | 1,584                          | 117                    | 130                    | 165                    | 199                    | 116                    | 213                    | 173                    | 198                    |
|  | WB (Greenbelt Rd)         | R          | 150                            | 0                      | 71                     | 19                     | #167                   | 2                      | 73                     | 20                     | #177                   |
|  | SB (Greenbelt Sta Pkwy)   | L          | 524                            | 115                    | 162                    | 125                    | 185                    | 115                    | 151                    | 125                    | 191                    |
|  | SB (Greenbelt Sta Pkwy)   | R          | 225                            | 165                    | 209                    | 184                    | #242                   | 167                    | 208                    | 185                    | #235                   |

Notes:

~ 50th percentile volume exceeds capacity, queue is theoretically infinite.

# 95th percentile volume exceeds capacity, queue may be longer.

m Volume for 95th percentile queue is metered by upstream signal. Due to upstream metering, the 95th percentile queue may be less than the 50th percentile queue.

AWSC = All-way STOP-Controlled intersection

EB = Eastbound, WB = Westbound, NB= Northbound, SB = Southbound

LTR = left / through / right lanes

TWSC = Two-way STOP-Controlled intersection

Red cells denote approaches and lane groups whose queuing length exceeds capacity.

<sup>a</sup> Intersection would be included under the Build Condition, but was included as part of the No-build Condition design provided by Renard Development Company, LLC.

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## 5.8.7 Overall Traffic Assessment

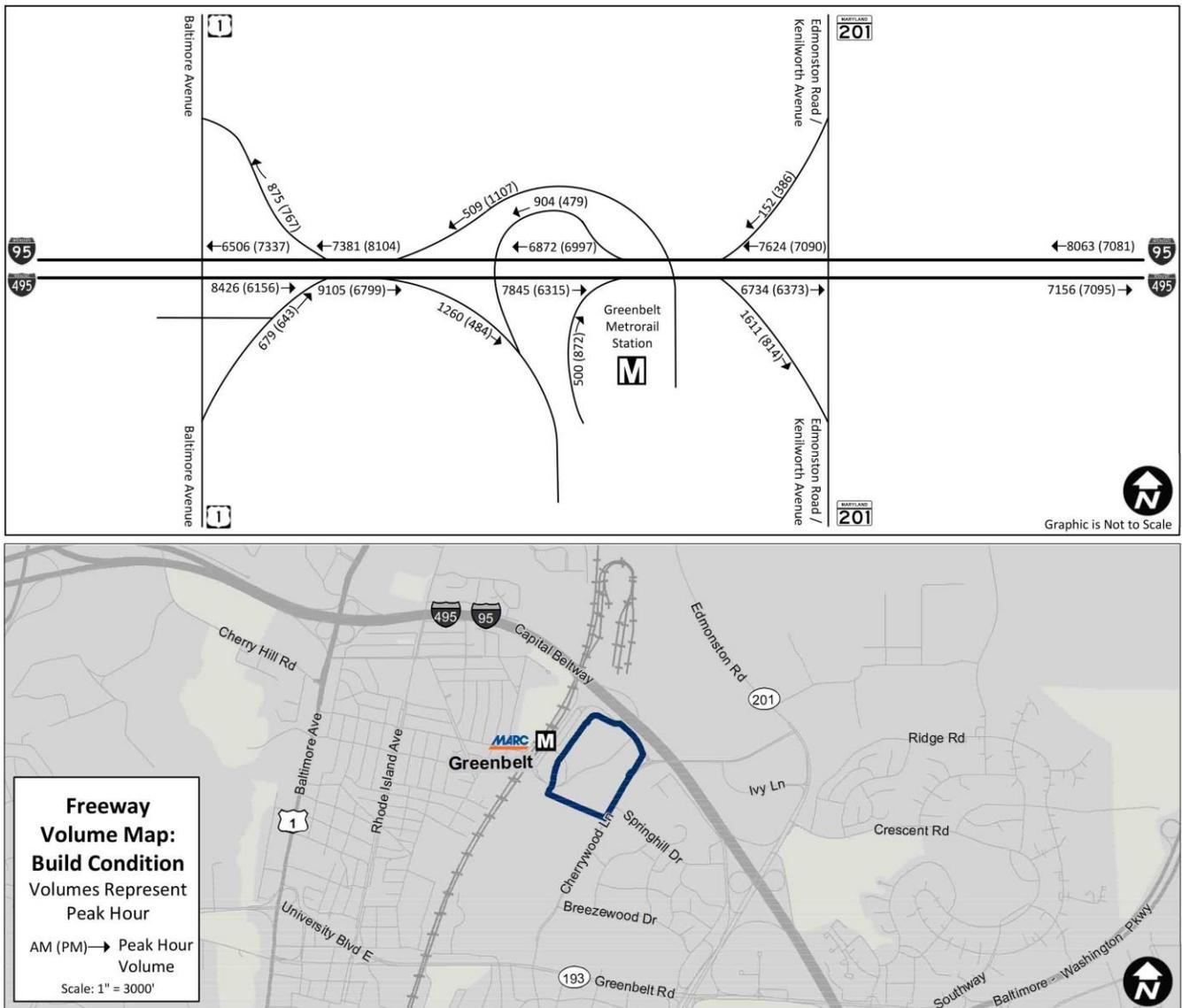
Overall, the PM peak hour would experience isolated intersection impacts at the Edmonston Road (MD 201) at Powder Mill Road, Edmonston Road (MD 201) and Sunnyside Avenue, and Cherrywood Lane and Ivy Lane intersection (Ivy Lane approaches only). Together these conditions would result in direct, long-term, adverse impacts at intersections.

Because the intersections along Edmonston Road at Sunnyside Avenue and Powder Mill Road are forecasted to be failing during the No-build Condition, adding construction-related trips along this route caused by trucks, employees, and equipment would result in isolated impacts. These conditions would result in direct, short-term, adverse impacts during the construction period.

## 5.8.8 Build Condition Freeway Volumes

Although freeway analysis was not performed for the Build Condition, freeway ramp volumes are included in [figure 5-10](#) to allow a comparison to the Existing Condition, No-build Condition, and Build with Mitigation Condition freeway ramp volumes presented in [Sections 3.7, 4.8, and 6.6](#), respectively. Full analysis of the freeway volumes is included in the Build with Mitigation Condition in [Section 6.6](#).

**Figure 5-10: Build Condition Freeway Volumes**



## 5.9 Transportation Demand Management

TDM is a set of strategies, programs, services, and physical elements that influence travel behavior by mode, frequency, time, route, or trip length in order to help achieve highly efficient and sustainable use of transportation facilities (DDOT 2010, p.5). TDM measures for the Greenbelt Build with Mitigation Condition would be developed as part of the Final EIS if the Greenbelt site is chosen as the preferred consolidation location for the FBI HQ. The TDM measures would encourage the reduction of SOV trips by “focusing the demand for transportation services on alternative modes and providing the public with the incentives as well as information to use these alternatives.”

The introduction of TDM measures would serve to ensure the transportation mode splits planned in this study were achieved as well as serve to mitigate travel mode, frequency, time, route, and/or trip length associated with future trips of the consolidated FBI HQ.

## 6.0 Mitigation Measures

To reduce impacts on the transportation system caused as a result of the proposed action—consolidation of the FBI HQ at the Greenbelt site, mitigation measures are recommended in this section for each mode of transportation analyzed. Also included is a sample of Transportation Demand Management (TDM) measures to encourage non-SOV travel. Overall, the Greenbelt site requires moderate mitigation to reduce direct impacts of the proposed action.

### 6.1 Pedestrian Network

No pedestrian mitigation is necessary under the Greenbelt Build with Mitigation Condition because any pedestrian improvements outside of the Greenbelt site would be built as part of the Greenbelt Station development project.

When compared to the Build Condition, there would be no difference in the long-term or short-term pedestrian network impacts under the Build with Mitigation Condition, because the recommended mitigation measures would not change the proposed pedestrian network. Therefore, under the Build with Mitigation Condition, there would continue to be direct, long-term, beneficial impacts to the pedestrian network and no measureable direct, short-term impacts to the pedestrian network because of construction.

### 6.2 Bicycles

No mitigation is recommended for the bicycle network in the study area. The site currently has adequate bicycle facilities on Greenbelt Metro Drive and Cherrywood Lane, along with a connection to Lackawanna Street on the west side of the Greenbelt Metro Station. The proposed bicycle lanes on Greenbelt Station Parkway, to be built as part of the No-build Condition, would augment the existing network of bicycle facilities around the site.

When compared to the Build Condition, there would be no difference in the long-term or short-term bicycle network impacts under the Build with Mitigation Condition, because the recommended mitigation measures would not change the proposed bicycle network. Therefore, under the Build with Mitigation Condition, there would continue to be no measurable direct, long-term or short-term impacts to the study area bicycle network from the proposed action or from construction, respectively.

### 6.3 Public Transit

No public transit mitigation is necessary under the Greenbelt Build with Mitigation Condition.

When compared to the Build Condition, there would be no difference in long-term public transit capacity impacts under the Build with Mitigation Condition. Therefore, there would continue to be no measureable direct, long-term impacts to public transit capacity. However, the bus operation delays along Edmonston Road (three bus routes) would be improved resulting in direct, long-term beneficial impacts. During construction, when compared to the Build Condition, there would be worse public transit impacts under the Build with Mitigation Condition, changing from direct, short-term, adverse impacts to direct, short-term, major adverse impacts caused by construction vehicles blocking some or all of the lanes on the road and intermittent road closures along Edmonston Road and 60th Avenue.

### 6.4 Parking

As mentioned in the Build Condition section, parking impacts would largely be addressed through development and implementation of a Transportation Management Plan (TMP), which would include preferred strategies for discouraging employees from parking on local streets. Because the TMP would be implemented as part of the

Build Condition, there would be no changes in parking impacts between the Build and Build with Mitigation Conditions.

When compared to the Build Condition, there would be no change in long-term parking impacts; therefore there would continue to be no measurable direct, long-term impacts to parking. Compared to the Build Condition, there would be no difference in the short-term construction parking impacts under the Build with Mitigation Condition. There would continue to be no measurable direct, short-term parking impacts because the recommended mitigation measures would not impact parking during the construction period.

## 6.5 Truck Access

No mitigation is recommended for truck access. Note that the Build Condition includes proper signing and communication of truck access restrictions to alleviate impacts to truck access.

When compared to the Build Condition, there would be no difference in the long-term or short-term truck access impacts under the Build with Mitigation Condition, because the measures would not change the truck access conditions. Therefore, there would continue to be no measurable direct, long-term or short-term truck access impacts during operation of the facility or during construction, respectively.

## 6.6 Traffic Analysis

### 6.6.1 Development of Mitigated Network

Based on the Build Condition traffic operations and queuing analysis, most of the intersections would not fail (defined in the [Section 3.7.1, Existing Condition](#) section) or require mitigation; therefore a second DTA was not necessary. In addition, the principal decision point would be at the Greenbelt Station Parkway and I-95 off-ramp where FBI inbound vehicles would either drive straight into the Site South Access or turn left and enter through the Site Northwest Access. The DTA provided a balanced vehicle flow between the two ECFs and would be initially used to measure the ECF queuing impacts.

### 6.6.2 Recommended Mitigation Measures

Based on the DTA results from the Build Condition, the resulting traffic volumes were entered into Synchro™ to determine the study area intersection operations and queuing. Each intersection that had LOS degradation from a passing LOS (A-D) to a failing LOS (E or F) by lane group (right turns, through movements, or left turns) when compared to the No-build Condition was mitigated by one of the following methods:

- Optimizing the existing traffic signal (change the amount of seconds of green to each approach)
- Coordinating a corridor of traffic signals
- Revising the existing lane geometry (number of right versus through versus left-turning lanes)
- Adding new turning lanes
- Adding through lanes

Because M-NCPPC requires each intersection to be analyzed based on the CLV method, each of the intersection geometry and Build with Mitigation vehicle volumes were entered into the CLV worksheet to ensure the proposed recommended mitigation also resulted in a passing CLV LOS. Similar to the HCM method, M-NCPPC requires that failing intersections be improved to better condition than the No-build Condition (the difference between the failing CLV and mitigated CLV must be reduced by at least 150 percent of the delta between the failing CLV and No-build CLV).

A list of mitigation measures was developed through an iterative process of testing the different improvement strategies, starting with optimizing the traffic signals and progressing to adding lanes if warranted. The recommended roadway improvements include external roadway mitigation measures that support the revised Greenbelt conceptual site plan. If implemented, the external roadway mitigations would improve the traffic operations at all study area intersections to a passing LOS (both HCM-based and CLV-based) or, if failing, would be equal to or better than the No-build Condition operations. The recommended mitigations would also result in no vehicle queues beyond the available storage capacity, or if beyond the storage capacity, would be no greater than 150 feet longer than the queues measured for the No-build Condition. An acceptable queue length increase is not cited in the VDOT Traffic Impact Analysis Regulations; therefore, the 150 feet is referenced from the DDOT Comprehensive Transportation Review Requirements guidance and provides a reasonable increase (approximately 6 vehicles or less) (DDOT 2012).

Table 6-1 shows the locations of the mitigation measures. Figure 6-1 shows the locations of the mitigation measures, figure 6-2 shows the lane geometry with the mitigation in place, and figure 6-3 shows the AM peak hour inbound and PM peak hour outbound FBI vehicle trip paths.

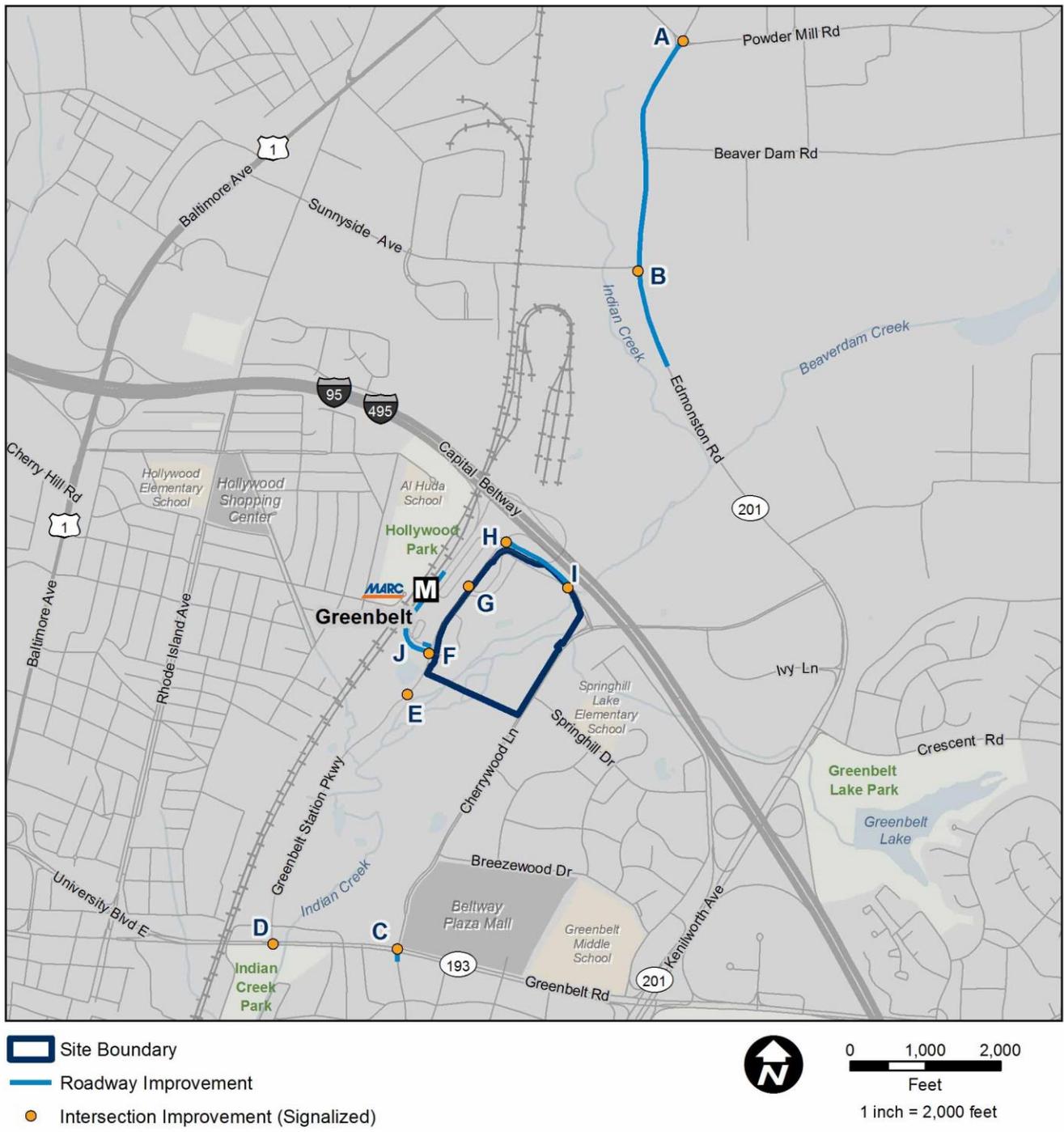
**Table 6-1: Recommended Mitigation Measures**

| Map ID   | Mitigation   | Strip Land Taking (Approximate Linear Feet) |
|----------|--|---|
| <b>A</b> | <b>Edmonston Road (MD 201) and Powder Mill Road</b>  |   |
|          | <ul style="list-style-type: none"> <li>For the Edmonston Road northbound approach, create a new 400-foot left-turn lane and lengthen the right turn-lane by 50 feet resulting in a 325-foot right-tune lane, resulting in two left-turn lanes, one through lane, and one right-turn lane.</li> <li>Extend the existing northbound left-turn lane back to the previous intersection at Sunnyside Road resulting in widening the northbound direction by one lane.</li> <li>Add a second departing lane totaling approximately 700 feet along westbound Powder Mill Road resulting in two westbound travel lanes for 700 feet,</li> <li>Optimize the traffic signal for AM and PM peak periods.</li> </ul> | 3,100                                       |
| <b>B</b> | <b>Edmonston Road (MD 201) and Sunnyside Road</b>  |   |
|          | <ul style="list-style-type: none"> <li>For the Edmonston Road northbound approach, create a new through lane extending back 450 feet to match the left-turn lane distance resulting in one left-turn lane and two through lanes.</li> <li>For the Edmonston Road southbound approach, create a new through lane extending back 600 feet resulting in two through lanes and one right-turn lane.</li> <li>Add a second departing lane totaling approximately 1,500 feet along southbound Edmonston Road resulting in two southbound travel lanes for 1,500 feet.</li> <li>Optimize the traffic signal for AM and PM peak periods.</li> </ul>  | 2,550                                       |
| <b>C</b> | <b>Greenbelt Road (MD 193) and Cherrywood Lane/60th Avenue</b>   |   |
|          | <ul style="list-style-type: none"> <li>For the 60th Avenue northbound approach, create a new 120-foot lane resulting in one left-turn lane and one shared through/right turn lane.</li> <li>Optimize the traffic signal for AM and PM peak periods and coordinate timings with nearby key intersections for AM and PM peak periods.</li> </ul>   | None  |

**Table 6-1: Recommended Mitigation Measures (continued)**

| Map ID   | Mitigation  | Strip Land Taking (Approximate Linear Feet) |
|----------|---|---|
| <b>D</b> | <b>Greenbelt Road (MD 193) and Greenbelt Station Parkway</b>  |   |
|          | <ul style="list-style-type: none"> <li>Coordinate timings with nearby key intersections for the AM peak period.</li> </ul>  | None  |
| <b>E</b> | <b>Greenbelt Station Parkway and WMATA Garage</b>   |   |
|          | <ul style="list-style-type: none"> <li>Optimize the traffic signal for AM and PM peak periods and coordinate timings with nearby key intersections for AM and PM peak periods.</li> </ul>   | None  |
| <b>F</b> | <b>Greenbelt Station Parkway and I-95/I-495 off-ramp/Site South Access</b>  |   |
|          | <ul style="list-style-type: none"> <li>For the Greenbelt Metro Station Kiss &amp; Ride approach, revise the planned roadway improvement design to include a second lane totaling 200 feet (50 feet more if space exists).</li> <li>Optimize the traffic signal for AM and PM peak periods and coordinate timings with nearby key intersections for AM and PM peak periods.</li> </ul>                 | None  |
| <b>G</b> | <b>Greenbelt Station Parkway and North Core Mixed Use/Site Northwest Access</b>   |   |
|          | <ul style="list-style-type: none"> <li>Optimize the traffic signal for AM and PM peak periods and coordinate timings with nearby key intersections for AM and PM peak periods.</li> </ul>   | None  |
| <b>H</b> | <b>Greenbelt Station Parkway and Greenbelt Metro Drive</b>  |   |
|          | <ul style="list-style-type: none"> <li>Optimize the traffic signal for AM and PM peak periods and coordinate timings with nearby key intersections for AM and PM peak periods.</li> </ul>   | None  |
| <b>I</b> | <b>Greenbelt Metro Drive and Site North Access</b>  |   |
|          | <ul style="list-style-type: none"> <li>Install a traffic signal.</li> <li>Add a second departing lane approximately 500 feet along westbound Greenbelt Metro Drive connecting into the left-turn lane at the next intersection.</li> <li>Optimize the traffic signal for AM and PM peak periods.</li> </ul>   | None  |
| <b>J</b> | <b>I-95/I-495 off-ramp from the Interstates to Greenbelt Station Parkway</b>  |   |
|          | <ul style="list-style-type: none"> <li>Revise the planned roadway improvement design to stripe the exit ramp for the right lane to lead directly into the WMATA Garage, the center lane to lead to the right lane at the Greenbelt Station Parkway intersection, and the left lane to service the Kiss &amp; Ride and center and left lanes at the Greenbelt Station Parkway intersection.</li> </ul> | None  |

**Figure 6-1: Build with Mitigation Condition Improvement Locations**



Sources:  
ESRI (2013), GSA (2013)  
Prince George's County (2013)

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Figure 6-2: Build with Mitigation Condition Lane Geometry

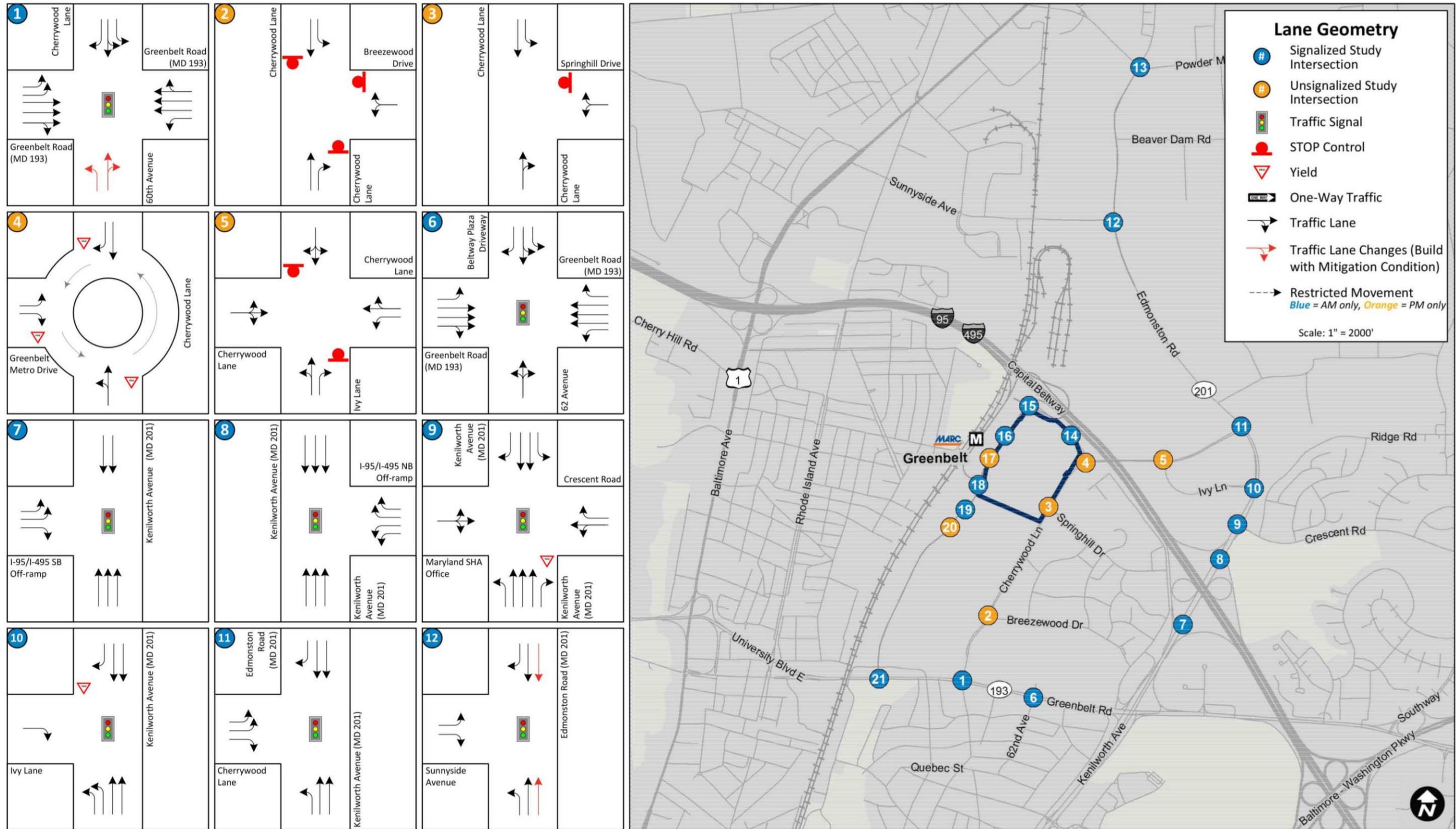
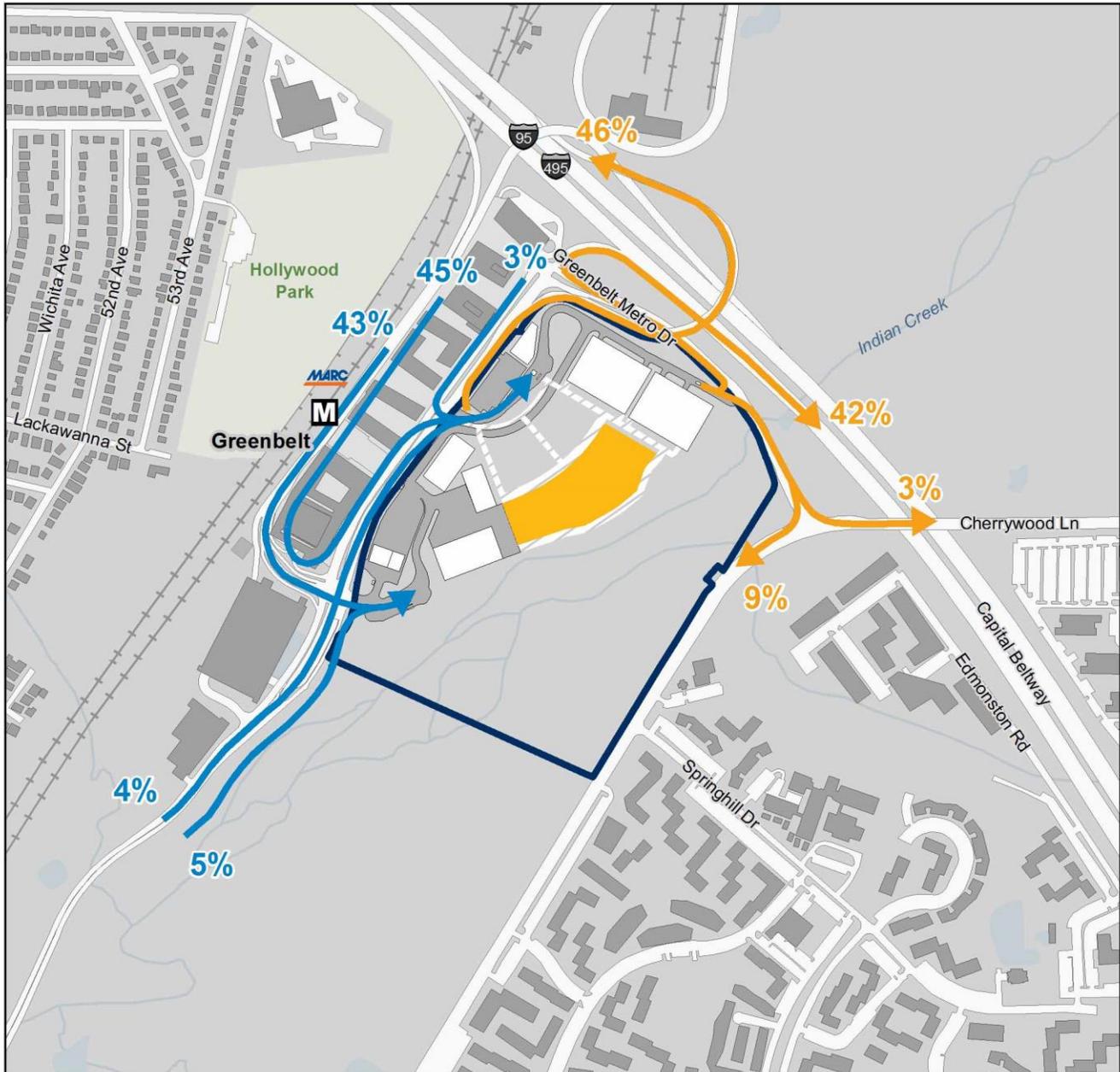


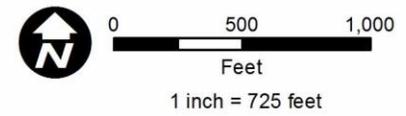
Figure 6-2: Build with Mitigation Condition Lane Geometry (continued)



**Figure 6-3: AM Peak Hour Inbound and PM Peak Hour Outbound FBI Vehicle Trip Paths**



- Site Boundary
- Buildable Area
- Inbound (AM)
- Proposed Structures
- Outbound (PM)
- Proposed Roads and Hardscape
- Sidewalk



Sources:  
ESRI (2013), GSA (2013)  
Prince George's County (2013)

### 6.6.3 Land Use Impact Summary

This section references the Prince George's County internet-based PGAtlas tool to provide an estimate of property impacts (M-NCPPC 2012b). Several of the proposed recommended mitigation measures might require property strip takings at two intersections: Edmonston Road at Sunnyside Avenue and Edmonston Road and Powder Mill Road. The Edmonston Road and Sunnyside Avenue intersection mitigation measures would impact the northbound direction beginning 450 feet south of the intersection and continuing 2,950 feet north leading into the intersection at Powder Mill Road. Measures would also include a new lane added to the southbound direction beginning 600 feet north of the intersection and continuing 2,100 feet south.

The Edmonston Road at Powder Mill Road mitigation measures would impact the northbound approach and westbound departing segments. The northbound approach impact would include 400 feet as part of second left-turn lane, and the westbound departing segment would include a 200-foot stretch where the county right-of-way ownership line narrows bordering on the edge of the existing pavement.

There would be four parcels impacted, all tax-exempt-status properties. One property is privately owned, and the other three properties are federally owned. Note that these potential impacts are based on conceptual roadway changes. During the design phase, the property impacts would be more defined to identify the total square acres impacted and design measures that could be employed to lessen the impact, such as narrowing travel lanes or shifting the roadway alignment.

### 6.6.4 Intersection Operations Analysis

Synchro™ was used to calculate the vehicle delay and LOS operation based on the HCM 2000 method for each study area intersection. Custom designed Excel sheets were used to calculate the LOS operation based on the CLV method. Based on the Synchro™ and CLV-based Excel worksheet analysis,

#### 6.6.4.1 *Signalized Intersection Operations Analysis*

Based on the Synchro™ and CLV-based Excel worksheet analysis, all but one signalized study area intersection would operate at acceptable overall conditions during the morning and afternoon peak hours. The following intersection in the study area would operate with overall unacceptable conditions, which include LOS E or LOS F using HCM 2000 method or LOS F using the CLV method:

- Edmonston Road (MD 201) and Powder Mill Road (Intersection #13) would operate at CLV F during the PM peak hour

***Note that the Build with Mitigation Condition would result in a better operate than the No-build Condition. The Build with Mitigation Condition CLV would decrease when compared to the No-build Condition CLV by a CLV of 224, a 12 percent decrease.***

Compared to No-build Condition, one fewer intersection would fail overall, resulting in one failure in the PM peak hour. Based on the Synchro™ analysis, there would be no signalized intersection that would have lane groups or overall approaches with LOS degradation from an acceptable condition (LOS A through LOS D) to an unacceptable condition (LOS E or LOS F) when compared to the No-build Condition during the morning or afternoon peak hours.

#### 6.6.4.2 *Unsignalized Intersection Operations Analysis*

Based on the Synchro™ analysis, the following two unsignalized intersections would have lane groups or overall approaches with LOS degradation from an acceptable condition (LOS A through LOS D) to an unacceptable

condition (LOS E or LOS F) when compared to the No-build Condition during the morning or afternoon peak hours:

- Cherrywood Lane and Springhill Drive (Intersection #3) would result in the Springhill Drive (minor approach) operating at a worse LOS F than the No-build Condition (average control delay would increase by 47.9 seconds)

***Note that this intersection was analyzed using the CLV method and resulted in a CLV of 893; therefore, the intersection does not require further study (based on the Prince George's County Guidelines outlining a second test for HCM-based failing unsignalized intersection approaches where the CLV-based method should be analyzed to determine if the results are less than CLV of 1,150).***

- Cherrywood Lane and Ivy Lane (Intersection #5) would result in the Ivy Lane (minor approach) operating at a worse LOS F than the No-build Condition (average control delay would increase by 40.9 seconds)

***Note that this intersection was analyzed using the CLV method and resulted in a CLV of 1,115; therefore, the intersection does not require further study (based on the Prince George's County Guidelines outlining a second test for HCM-based failing unsignalized intersection approaches where the CLV-based method should be analyzed to determine if the results are less than a CLV of 1,150).***

- Note that the minor street failing traffic operations are due to the proposed Capital Office Park development located north of Cherrywood Lane, which elevated the operations from passing during the Existing Condition to failing operations during the No-build Condition.

#### 6.6.4.3 Complete Intersection Operations Analysis

The average LOS for the various approaches to the intersections and the overall intersection LOS grades for the Build with Mitigation Condition are depicted in figures 6-4 and 6-5 for the AM and PM peak hours, respectively. Table 6-1 shows the results of the LOS capacity analysis and the intersection projected delay under the No-build Condition compared to the Build with Mitigation Condition during the AM and PM peak hours.

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Figure 6-4: Build with Mitigation Condition Intersection LOS for AM Peak Hour



Figure 6-4: Build with Mitigation Condition Intersection LOS for AM Peak Hour (continued)



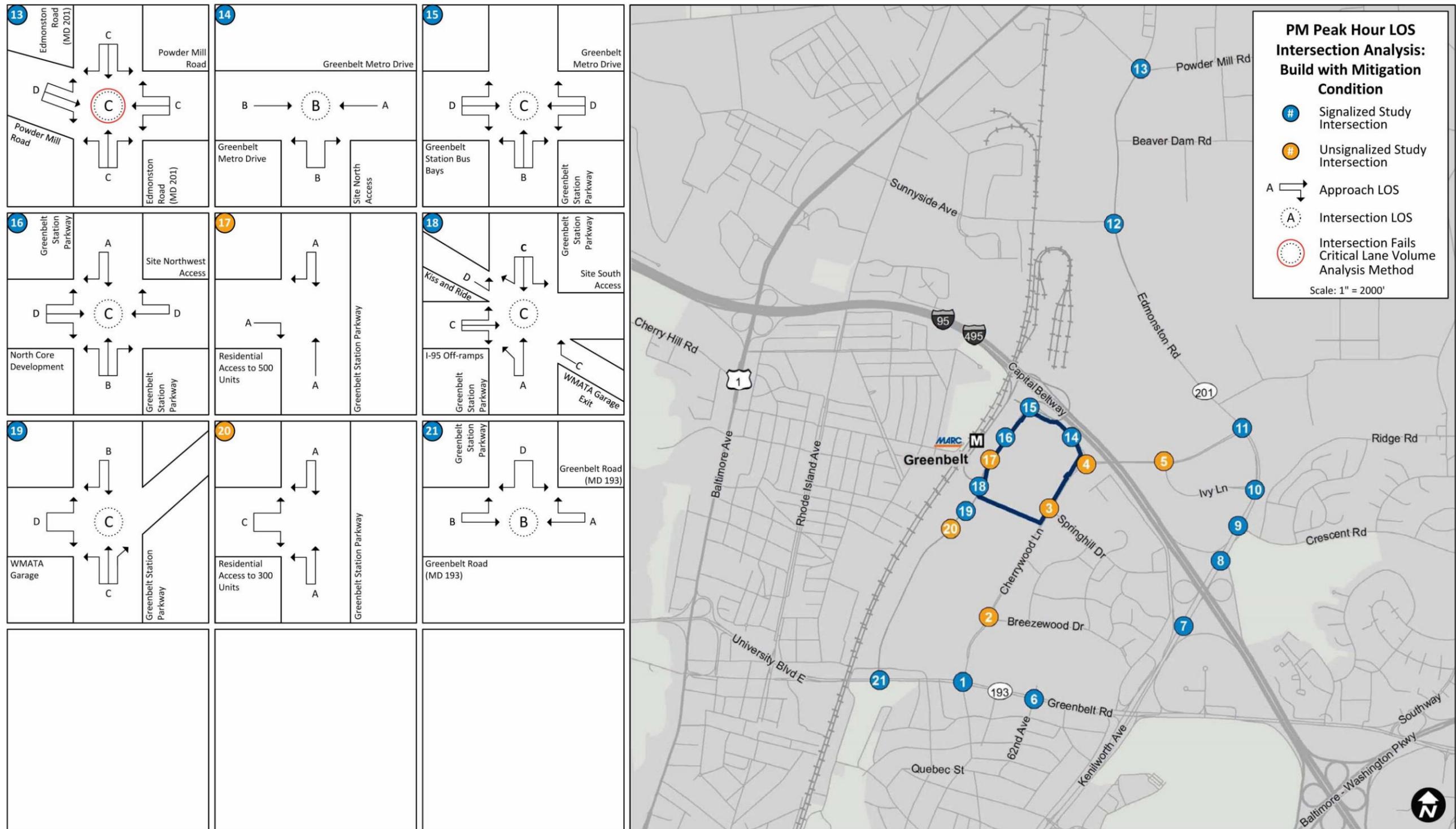
Note: One- or two-way STOP-Controlled unsignalized intersections do not have an overall intersection LOS value, since the mainline through move operates freely through the intersection. Red shaded circles denote intersections/approaches operating at LOS E or F.  
 [\*] = Unsignalized intersection requires attention due to failing minor approach movements.

Figure 6-5: Build with Mitigation Condition Intersection LOS for PM Peak Hour



Note: One- or two-way STOP-Controlled unsignalized intersections do not have an overall intersection LOS value, since the mainline through move operates freely through the intersection. Red shaded circles denote intersections/approaches operating at LOS E or F. [\*] = Unsignalized intersection requires attention due to failing minor approach movements.

Figure 6-5: Build with Mitigation Condition Intersection LOS for PM Peak Hour (continued)



Note: One- or two-way STOP-Controlled unsignalized intersections do not have an overall intersection LOS value, since the mainline through move operates freely through the intersection. Red shaded circles denote intersections/approaches operating at LOS E or F.  
 [\*] = Unsignalized intersection requires attention due to failing minor approach movements.

Table 6-1: Comparison of No-build and Build with Mitigation Condition Intersection AM and PM Peak Hour Operations Analysis

| #        | Intersection and Approach   | Lane Group | No-build Condition |          |                   |              |             |                 |             |                   |            |              | Build with Mitigation Condition |          |                   |            |             |                 |          |                   |            |             |  |
|----------|---|------------|--------------------|----------|-------------------|--------------|-------------|-----------------|-------------|-------------------|------------|--------------|---------------------------------|----------|-------------------|------------|-------------|-----------------|----------|-------------------|------------|-------------|--|
|          |   |            | AM Peak Hour       |          |                   |              |             | PM Peak Hour    |             |                   |            |              | AM Peak Hour                    |          |                   |            |             | PM Peak Hour    |          |                   |            |             |  |
|          |   |            | HCM 2000           |          | CLV               |              | Check       | HCM 2000        |             | CLV               |            | Check        | HCM 2000                        |          | CLV               |            | Check       | HCM 2000        |          | CLV               |            | Check       |  |
|          |   |            | Delay (sec/veh)    | LOS      | Critical Lane Vol | LOS          |             | Delay (sec/veh) | LOS         | Critical Lane Vol | LOS        |              | Delay (sec/veh)                 | LOS      | Critical Lane Vol | LOS        |             | Delay (sec/veh) | LOS      | Critical Lane Vol | LOS        |             |  |
| <b>1</b> | <b>Greenbelt Road (MD 193) &amp; Cherrywood Lane/60th Avenue (Signalized)</b> |            |                    |          |                   |              |             |                 |             |                   |            |              |                                 |          |                   |            |             |                 |          |                   |            |             |  |
|          | EB (Greenbelt Rd)   | L          | 63.2               | E        |                   | 53.0         | D           |                 | 59.4        | E                 |            | 44.9         | D                               |          |                   |            |             |                 |          |                   |            |             |  |
|          | EB (Greenbelt Rd)   | TR         | 8.8                | A        |                   | 13.9         | B           |                 | 7.5         | A                 |            | 16.5         | B                               |          |                   |            |             |                 |          |                   |            |             |  |
|          | <b>EB Overall (Greenbelt Rd)</b>  |            | <b>19.1</b>        | <b>B</b> |                   | <b>21.2</b>  | <b>C</b>    |                 | <b>17.3</b> | <b>B</b>          |            | <b>21.8</b>  | <b>C</b>                        |          |                   |            |             |                 |          |                   |            |             |  |
|          | WB (Greenbelt Rd)   | L          | 64.2               | E        |                   | 67.0         | E           |                 | 64.6        | E                 |            | 56.6         | E                               |          |                   |            |             |                 |          |                   |            |             |  |
|          | WB (Greenbelt Rd)   | TR         | 20.6               | C        |                   | 35.7         | D           |                 | 19.8        | B                 |            | 40.7         | D                               |          |                   |            |             |                 |          |                   |            |             |  |
|          | <b>WB Overall (Greenbelt Rd)</b>  |            | <b>21.5</b>        | <b>C</b> |                   | <b>36.9</b>  | <b>D</b>    |                 | <b>20.7</b> | <b>C</b>          |            | <b>41.3</b>  | <b>D</b>                        |          |                   |            |             |                 |          |                   |            |             |  |
|          | NB (60th Ave)   | L          | -                  | -        |                   | -            | -           |                 | 71.6        | E                 |            | 78.3         | E                               |          |                   |            |             |                 |          |                   |            |             |  |
|          | NB (60th Ave)   | LTR/TR     | 74.0               | E        |                   | 132.4        | F           |                 | 70.3        | E                 |            | 93.9         | F                               |          |                   |            |             |                 |          |                   |            |             |  |
|          | <b>NB Overall (60th Ave)</b>  |            | <b>74.0</b>        | <b>E</b> |                   | <b>132.4</b> | <b>F</b>    |                 | <b>70.8</b> | <b>E</b>          |            | <b>88.6</b>  | <b>F</b>                        |          |                   |            |             |                 |          |                   |            |             |  |
|          | SB (Cherrywood Ln)  | L          | 76.7               | E        |                   | 106.8        | F           |                 | 71.5        | E                 |            | 102.7        | F                               |          |                   |            |             |                 |          |                   |            |             |  |
|          | SB (Cherrywood Ln)  | LT         | 76.7               | E        |                   | 108.0        | F           |                 | 71.8        | E                 |            | 102.9        | F                               |          |                   |            |             |                 |          |                   |            |             |  |
|          | SB (Cherrywood Ln)  | R          | 70.0               | E        |                   | 83.5         | F           |                 | 69.4        | E                 |            | 77.1         | E                               |          |                   |            |             |                 |          |                   |            |             |  |
|          | <b>SB Overall (Cherrywood Ln)</b>   |            | <b>71.9</b>        | <b>E</b> |                   | <b>91.0</b>  | <b>F</b>    |                 | <b>70.0</b> | <b>E</b>          |            | <b>85.4</b>  | <b>F</b>                        |          |                   |            |             |                 |          |                   |            |             |  |
|          | <b>Overall</b>  |            | <b>28.5</b>        | <b>C</b> | <b>1,315</b>      | <b>D</b>     | <b>Pass</b> | <b>42.2</b>     | <b>D</b>    | <b>1,504</b>      | <b>E</b>   | <b>Pass</b>  | <b>27.1</b>                     | <b>C</b> | <b>1,283</b>      | <b>C</b>   | <b>Pass</b> | <b>42.4</b>     | <b>D</b> | <b>1,501</b>      | <b>E</b>   | <b>Pass</b> |  |
| <b>2</b> | <b>Cherrywood Lane &amp; Breezewood Drive (AWSC)</b>                          |            |                    |          |                   |              |             |                 |             |                   |            |              |                                 |          |                   |            |             |                 |          |                   |            |             |  |
|          | WB (Breezewood Dr)  | LR         | 13.3               | -        |                   | 12.5         | -           |                 | 13.4        | -                 |            | 13.0         | -                               |          |                   |            |             |                 |          |                   |            |             |  |
|          | <b>WB Overall (Breezewood Dr)</b>   |            | <b>13.3</b>        | <b>B</b> |                   | <b>12.5</b>  | <b>B</b>    |                 | <b>13.4</b> | <b>B</b>          |            | <b>13.0</b>  | <b>B</b>                        |          |                   |            |             |                 |          |                   |            |             |  |
|          | NB (Cherrywood Ln)  | T          | 11.2               | -        |                   | 12.4         | -           |                 | 11.3        | -                 |            | 12.9         | -                               |          |                   |            |             |                 |          |                   |            |             |  |
|          | NB (Cherrywood Ln)  | R          | 8.7                | -        |                   | 9.4          | -           |                 | 8.7         | -                 |            | 9.7          | -                               |          |                   |            |             |                 |          |                   |            |             |  |
|          | <b>NB Overall (Cherrywood Ln)</b>   |            | <b>10.1</b>        | <b>B</b> |                   | <b>11.1</b>  | <b>B</b>    |                 | <b>10.2</b> | <b>B</b>          |            | <b>11.5</b>  | <b>B</b>                        |          |                   |            |             |                 |          |                   |            |             |  |
|          | SB (Cherrywood Ln)  | L          | 9.7                | -        |                   | 10.5         | -           |                 | 9.7         | -                 |            | 10.6         | -                               |          |                   |            |             |                 |          |                   |            |             |  |
|          | SB (Cherrywood Ln)  | T          | 10.8               | -        |                   | 15.1         | -           |                 | 11.0        | -                 |            | 21.9         | -                               |          |                   |            |             |                 |          |                   |            |             |  |
|          | <b>SB Overall (Cherrywood Ln)</b>   |            | <b>10.4</b>        | <b>B</b> |                   | <b>13.7</b>  | <b>B</b>    |                 | <b>10.6</b> | <b>B</b>          |            | <b>19.0</b>  | <b>C</b>                        |          |                   |            |             |                 |          |                   |            |             |  |
|          | <b>Overall</b>  |            | <b>11.2</b>        | <b>B</b> | <b>N/A</b>        | <b>N/A</b>   | <b>Pass</b> | <b>12.5</b>     | <b>B</b>    | <b>N/A</b>        | <b>N/A</b> | <b>Pass</b>  | <b>11.3</b>                     | <b>B</b> | <b>N/A</b>        | <b>N/A</b> | <b>Pass</b> | <b>15.2</b>     | <b>C</b> | <b>N/A</b>        | <b>N/A</b> | <b>Pass</b> |  |
| <b>3</b> | <b>Cherrywood Lane &amp; Springhill Drive (TWSC)</b>                          |            |                    |          |                   |              |             |                 |             |                   |            |              |                                 |          |                   |            |             |                 |          |                   |            |             |  |
|          | WB (Springhill Dr)  | LR         | 16.4               | C        |                   | 128.6        | F           |                 | 16.5        | C                 |            | 176.5        | F                               |          |                   |            |             |                 |          |                   |            |             |  |
|          | <b>WB Overall (Springhill Dr)</b>   |            | <b>16.4</b>        | <b>C</b> |                   | <b>128.6</b> | <b>F</b>    |                 | <b>16.5</b> | <b>C</b>          |            | <b>176.5</b> | <b>F</b>                        |          |                   |            |             |                 |          |                   |            |             |  |
|          | SB (Cherrywood Ln)  | L          | 8.3                | A        |                   | 8.7          | A           |                 | 8.3         | A                 |            | 8.7          | A                               |          |                   |            |             |                 |          |                   |            |             |  |
|          | <b>SB Overall (Cherrywood Ln)</b>   |            | <b>3.0</b>         | <b>-</b> |                   | <b>2.4</b>   | <b>-</b>    |                 | <b>3.0</b>  | <b>-</b>          |            | <b>2.1</b>   | <b>-</b>                        |          |                   |            |             |                 |          |                   |            |             |  |
|          | <b>Overall</b>  |            | <b>5.2</b>         | <b>-</b> | <b>N/A</b>        | <b>N/A</b>   | <b>Pass</b> | <b>27.0</b>     | <b>-</b>    | <b>N/A</b>        | <b>N/A</b> | <b>Pass</b>  | <b>5.2</b>                      | <b>-</b> | <b>N/A</b>        | <b>N/A</b> | <b>Pass</b> | <b>34.3</b>     | <b>-</b> | <b>N/A</b>        | <b>N/A</b> | <b>Pass</b> |  |

Table 6-1: Comparison of No-build and Build with Mitigation Condition Intersection AM and PM Peak Hour Operations Analysis (continued)

| #        | Intersection and Approach  | Lane Group | No-build Condition |          |                   |              |             |                 |             |                   |            |              | Build with Mitigation Condition |          |                   |            |             |                 |          |                   |            |             |
|----------|--|------------|--------------------|----------|-------------------|--------------|-------------|-----------------|-------------|-------------------|------------|--------------|---------------------------------|----------|-------------------|------------|-------------|-----------------|----------|-------------------|------------|-------------|
|          |  |            | AM Peak Hour       |          |                   |              |             | PM Peak Hour    |             |                   |            |              | AM Peak Hour                    |          |                   |            |             | PM Peak Hour    |          |                   |            |             |
|          |  |            | HCM 2000           |          | CLV               |              | Check       | HCM 2000        |             | CLV               |            | Check        | HCM 2000                        |          | CLV               |            | Check       | HCM 2000        |          | CLV               |            | Check       |
|          |  |            | Delay (sec/veh)    | LOS      | Critical Lane Vol | LOS          |             | Delay (sec/veh) | LOS         | Critical Lane Vol | LOS        |              | Delay (sec/veh)                 | LOS      | Critical Lane Vol | LOS        |             | Delay (sec/veh) | LOS      | Critical Lane Vol | LOS        |             |
| <b>4</b> | <b>Cherrywood Lane &amp; Greenbelt Metro Drive (Roundabout) <sup>a</sup></b>       |            |                    |          |                   |              |             |                 |             |                   |            |              |                                 |          |                   |            |             |                 |          |                   |            |             |
|          | EB (Greenbelt Metro Dr)  | LR         | 6.1                | A        |                   | 14.6         | B           |                 | 6.2         | A                 |            | 16.5         | C                               |          |                   |            |             |                 |          |                   |            |             |
|          | <b>EB Overall (Greenbelt Metro Dr)</b>   |            | <b>3.3</b>         | <b>A</b> |                   | <b>7.5</b>   | <b>A</b>    |                 | <b>3.3</b>  | <b>A</b>          |            | <b>7.9</b>   | <b>A</b>                        |          |                   |            |             |                 |          |                   |            |             |
|          | NB (Cherrywood Ln)   | LT         | 11.8               | B        |                   | 14.4         | B           |                 | 11.8        | B                 |            | 15.6         | C                               |          |                   |            |             |                 |          |                   |            |             |
|          | <b>NB Overall (Cherrywood Ln)</b>  |            | <b>11.8</b>        | <b>B</b> |                   | <b>14.4</b>  | <b>B</b>    |                 | <b>11.8</b> | <b>B</b>          |            | <b>15.6</b>  | <b>C</b>                        |          |                   |            |             |                 |          |                   |            |             |
|          | SB (Cherrywood Ln)   | T          | 6.3                | A        |                   | 12.0         | B           |                 | 6.3         | A                 |            | 12.0         | B                               |          |                   |            |             |                 |          |                   |            |             |
|          | <b>SB Overall (Cherrywood Ln)</b>  |            | <b>2.2</b>         | <b>A</b> |                   | <b>8.9</b>   | <b>A</b>    |                 | <b>2.0</b>  | <b>A</b>          |            | <b>8.9</b>   | <b>A</b>                        |          |                   |            |             |                 |          |                   |            |             |
|          | <b>Overall</b>   |            | <b>6.0</b>         | <b>A</b> | <b>N/A</b>        | <b>N/A</b>   | <b>Pass</b> | <b>9.8</b>      | <b>A</b>    | <b>N/A</b>        | <b>N/A</b> | <b>Pass</b>  | <b>5.8</b>                      | <b>A</b> | <b>N/A</b>        | <b>N/A</b> | <b>Pass</b> | <b>10.0</b>     | <b>B</b> | <b>N/A</b>        | <b>N/A</b> | <b>Pass</b> |
| <b>5</b> | <b>Cherrywood Lane &amp; Ivy Lane (TWSC)</b>                                       |            |                    |          |                   |              |             |                 |             |                   |            |              |                                 |          |                   |            |             |                 |          |                   |            |             |
|          | EB (Cherrywood Ln)   | LTR        | 3.0                | A        |                   | 0.4          | A           |                 | 3.1         | A                 |            | 0.4          | A                               |          |                   |            |             |                 |          |                   |            |             |
|          | <b>EB Overall (Cherrywood Ln)</b>  |            | <b>3.0</b>         | -        |                   | <b>0.4</b>   | -           |                 | <b>3.1</b>  | -                 |            | <b>0.4</b>   | -                               |          |                   |            |             |                 |          |                   |            |             |
|          | WB (Cherrywood Ln)   | L          | 8.3                | A        |                   | 8.8          | A           |                 | 8.3         | A                 |            | 8.9          | A                               |          |                   |            |             |                 |          |                   |            |             |
|          | WB (Cherrywood Ln)   | TR         | 0.0                | -        |                   | 0.0          | -           |                 | 0.0         | -                 |            | 0.0          | -                               |          |                   |            |             |                 |          |                   |            |             |
|          | <b>WB Overall (Cherrywood Ln)</b>  |            | <b>0.4</b>         | -        |                   | <b>0.2</b>   | -           |                 | <b>0.4</b>  | -                 |            | <b>0.2</b>   | -                               |          |                   |            |             |                 |          |                   |            |             |
|          | NB (Ivy Ln)  | LT         | 67.2               | F        |                   | ^            | F           |                 | 79.7        | F                 |            | ^            | F                               |          |                   |            |             |                 |          |                   |            |             |
|          | NB (Ivy Ln)  | R          | 10.3               | B        |                   | 12.1         | B           |                 | 10.3        | B                 |            | 12.5         | B                               |          |                   |            |             |                 |          |                   |            |             |
|          | <b>NB Overall (Ivy Ln)</b>   |            | <b>55.7</b>        | <b>F</b> |                   | <b>^</b>     | <b>F</b>    |                 | <b>65.7</b> | <b>F</b>          |            | <b>^</b>     | <b>F</b>                        |          |                   |            |             |                 |          |                   |            |             |
|          | SB (Ivy Ln)  | LTR        | 41.0               | E        |                   | 402.7        | F           |                 | 44.7        | E                 |            | 443.6        | F                               |          |                   |            |             |                 |          |                   |            |             |
|          | <b>SB Overall (Ivy Ln)</b>   |            | <b>41.0</b>        | <b>E</b> |                   | <b>402.7</b> | <b>F</b>    |                 | <b>44.7</b> | <b>E</b>          |            | <b>443.6</b> | <b>F</b>                        |          |                   |            |             |                 |          |                   |            |             |
|          | <b>Overall</b>   |            | <b>6.0</b>         | -        | <b>N/A</b>        | <b>N/A</b>   | <b>Pass</b> | <b>^</b>        | -           | <b>N/A</b>        | <b>N/A</b> | <b>Fail</b>  | <b>6.6</b>                      | -        | <b>N/A</b>        | <b>N/A</b> | <b>Pass</b> | <b>^</b>        | -        | <b>N/A</b>        | <b>N/A</b> | <b>Fail</b> |
| <b>6</b> | <b>Greenbelt Road (MD 193) &amp; 62 Avenue/Beltway Plaza Driveway (Signalized)</b> |            |                    |          |                   |              |             |                 |             |                   |            |              |                                 |          |                   |            |             |                 |          |                   |            |             |
|          | EB (Greenbelt Rd)  | L          | 1.7                | A        |                   | 7.0          | A           |                 | 2.7         | A                 |            | 8.3          | A                               |          |                   |            |             |                 |          |                   |            |             |
|          | EB (Greenbelt Rd)  | TR         | 2.6                | A        |                   | 11.3         | B           |                 | 3.5         | A                 |            | 22.2         | C                               |          |                   |            |             |                 |          |                   |            |             |
|          | <b>EB Overall (Greenbelt Rd)</b>   |            | <b>2.6</b>         | <b>A</b> |                   | <b>11.2</b>  | <b>B</b>    |                 | <b>3.5</b>  | <b>A</b>          |            | <b>22.0</b>  | <b>C</b>                        |          |                   |            |             |                 |          |                   |            |             |
|          | WB (Greenbelt Rd)  | L          | 4.0                | A        |                   | 24.7         | C           |                 | 4.1         | A                 |            | 25.4         | C                               |          |                   |            |             |                 |          |                   |            |             |
|          | WB (Greenbelt Rd)  | T          | 7.5                | A        |                   | 18.3         | B           |                 | 7.6         | A                 |            | 18.3         | B                               |          |                   |            |             |                 |          |                   |            |             |
|          | WB (Greenbelt Rd)  | R          | 4.7                | A        |                   | 14.8         | B           |                 | 4.7         | A                 |            | 14.8         | B                               |          |                   |            |             |                 |          |                   |            |             |
|          | <b>WB Overall (Greenbelt Rd)</b>   |            | <b>7.2</b>         | <b>A</b> |                   | <b>17.8</b>  | <b>B</b>    |                 | <b>7.4</b>  | <b>A</b>          |            | <b>17.8</b>  | <b>B</b>                        |          |                   |            |             |                 |          |                   |            |             |
|          | NB (62th Ave)  | LTR        | 68.1               | E        |                   | 71.4         | E           |                 | 68.1        | E                 |            | 71.4         | E                               |          |                   |            |             |                 |          |                   |            |             |
|          | <b>NB Overall (62th Ave)</b>   |            | <b>68.1</b>        | <b>E</b> |                   | <b>71.4</b>  | <b>E</b>    |                 | <b>68.1</b> | <b>E</b>          |            | <b>71.4</b>  | <b>E</b>                        |          |                   |            |             |                 |          |                   |            |             |
|          | SB (Beltway Plaza Drwy)  | L          | 68.2               | E        |                   | 69.8         | E           |                 | 68.2        | E                 |            | 69.8         | E                               |          |                   |            |             |                 |          |                   |            |             |
|          | SB (Beltway Plaza Drwy)  | LT         | 68.3               | E        |                   | 69.5         | E           |                 | 68.3        | E                 |            | 69.5         | E                               |          |                   |            |             |                 |          |                   |            |             |
|          | SB (Beltway Plaza Drwy)  | R          | 66.7               | E        |                   | 54.9         | D           |                 | 66.7        | E                 |            | 54.9         | D                               |          |                   |            |             |                 |          |                   |            |             |
|          | <b>SB Overall (Beltway Plaza Drwy)</b>   |            | <b>67.8</b>        | <b>E</b> |                   | <b>67.1</b>  | <b>E</b>    |                 | <b>67.8</b> | <b>E</b>          |            | <b>67.1</b>  | <b>E</b>                        |          |                   |            |             |                 |          |                   |            |             |
|          | <b>Overall</b>   |            | <b>7.5</b>         | <b>A</b> | <b>742</b>        | <b>A</b>     | <b>Pass</b> | <b>20.4</b>     | <b>C</b>    | <b>1,206</b>      | <b>C</b>   | <b>Pass</b>  | <b>7.9</b>                      | <b>A</b> | <b>757</b>        | <b>A</b>   | <b>Pass</b> | <b>25.4</b>     | <b>C</b> | <b>1,220</b>      | <b>C</b>   | <b>Pass</b> |

Table 6-1: Comparison of No-build and Build with Mitigation Condition Intersection AM and PM Peak Hour Operations Analysis (continued)

| #        | Intersection and Approach  | Lane Group | No-build Condition |          |                   |             |             |                 |             |                   |          |             | Build with Mitigation Condition |          |                   |          |             |                 |          |                   |          |             |
|----------|--|------------|--------------------|----------|-------------------|-------------|-------------|-----------------|-------------|-------------------|----------|-------------|---------------------------------|----------|-------------------|----------|-------------|-----------------|----------|-------------------|----------|-------------|
|          |  |            | AM Peak Hour       |          |                   |             |             | PM Peak Hour    |             |                   |          |             | AM Peak Hour                    |          |                   |          |             | PM Peak Hour    |          |                   |          |             |
|          |  |            | HCM 2000           |          | CLV               |             | Check       | HCM 2000        |             | CLV               |          | Check       | HCM 2000                        |          | CLV               |          | Check       | HCM 2000        |          | CLV               |          | Check       |
|          |  |            | Delay (sec/veh)    | LOS      | Critical Lane Vol | LOS         |             | Delay (sec/veh) | LOS         | Critical Lane Vol | LOS      |             | Delay (sec/veh)                 | LOS      | Critical Lane Vol | LOS      |             | Delay (sec/veh) | LOS      | Critical Lane Vol | LOS      |             |
| <b>7</b> | <b>Kenilworth Avenue (MD 201) &amp; I-95/I-495 SB Off-ramp (Signalized)</b>            |            |                    |          |                   |             |             |                 |             |                   |          |             |                                 |          |                   |          |             |                 |          |                   |          |             |
|          | EB (I-95/I-495 SB Off-ramp)  | L          | 39.7               | D        |                   | 39.7        | D           |                 | 39.7        | D                 |          | 39.7        | D                               |          | 39.7              | D        |             | 39.7            | D        |                   |          |             |
|          | EB (I-95/I-495 SB Off-ramp)  | R          | 6.9                | A        |                   | 0.6         | A           |                 | 7.0         | A                 |          | 0.6         | A                               |          | 0.6               | A        |             | 0.6             | A        |                   |          |             |
|          | <b>EB Overall (I-95/I-495 SB Off-ramp)</b>   |            | <b>13.8</b>        | <b>B</b> |                   | <b>14.9</b> | <b>B</b>    |                 | <b>13.9</b> | <b>B</b>          |          | <b>14.7</b> | <b>B</b>                        |          | <b>14.7</b>       | <b>B</b> |             | <b>14.7</b>     | <b>B</b> |                   |          |             |
|          | NB (Kenilworth Ave)  | T          | 4.0                | A        |                   | 4.0         | A           |                 | 4.0         | A                 |          | 4.0         | A                               |          | 4.0               | A        |             | 4.0             | A        |                   |          |             |
|          | <b>NB Overall (Kenilworth Ave)</b>   |            | <b>4.0</b>         | <b>A</b> |                   | <b>4.0</b>  | <b>A</b>    |                 | <b>4.0</b>  | <b>A</b>          |          | <b>4.0</b>  | <b>A</b>                        |          | <b>4.0</b>        | <b>A</b> |             | <b>4.0</b>      | <b>A</b> |                   |          |             |
|          | SB (Kenilworth Ave)  | T          | 6.2                | A        |                   | 3.6         | A           |                 | 6.2         | A                 |          | 3.6         | A                               |          | 3.6               | A        |             | 3.6             | A        |                   |          |             |
|          | <b>SB Overall (Kenilworth Ave)</b>   |            | <b>6.2</b>         | <b>A</b> |                   | <b>3.6</b>  | <b>A</b>    |                 | <b>6.2</b>  | <b>A</b>          |          | <b>3.6</b>  | <b>A</b>                        |          | <b>3.6</b>        | <b>A</b> |             | <b>3.6</b>      | <b>A</b> |                   |          |             |
|          | <b>Overall</b>   |            | <b>9.1</b>         | <b>A</b> | <b>730</b>        | <b>A</b>    | <b>Pass</b> | <b>6.8</b>      | <b>A</b>    | <b>593</b>        | <b>A</b> | <b>Pass</b> | <b>9.1</b>                      | <b>A</b> | <b>730</b>        | <b>A</b> | <b>Pass</b> | <b>6.8</b>      | <b>A</b> | <b>594</b>        | <b>A</b> | <b>Pass</b> |
| <b>8</b> | <b>Kenilworth Avenue (MD 201) &amp; I-95/I-495 NB Off-ramp (Signalized)</b>            |            |                    |          |                   |             |             |                 |             |                   |          |             |                                 |          |                   |          |             |                 |          |                   |          |             |
|          | WB (I-95/I-495 NB Off-ramp)  | L          | 24.6               | C        |                   | 34.3        | C           |                 | 24.5        | C                 |          | 34.3        | C                               |          | 34.3              | C        |             | 34.3            | C        |                   |          |             |
|          | WB (I-95/I-495 NB Off-ramp)  | R          | 26.3               | C        |                   | 31.1        | C           |                 | 26.2        | C                 |          | 31.1        | C                               |          | 31.1              | C        |             | 31.1            | C        |                   |          |             |
|          | <b>WB Overall (I-95/I-495 NB Off-ramp)</b>   |            | <b>25.4</b>        | <b>C</b> |                   | <b>32.8</b> | <b>C</b>    |                 | <b>25.3</b> | <b>C</b>          |          | <b>32.8</b> | <b>C</b>                        |          | <b>32.8</b>       | <b>C</b> |             | <b>32.8</b>     | <b>C</b> |                   |          |             |
|          | NB (Kenilworth Ave)  | T          | 11.1               | B        |                   | 5.4         | A           |                 | 11.2        | B                 |          | 5.4         | A                               |          | 5.4               | A        |             | 5.4             | A        |                   |          |             |
|          | <b>NB Overall (Kenilworth Ave)</b>   |            | <b>11.1</b>        | <b>B</b> |                   | <b>5.4</b>  | <b>A</b>    |                 | <b>11.2</b> | <b>B</b>          |          | <b>5.4</b>  | <b>A</b>                        |          | <b>5.4</b>        | <b>A</b> |             | <b>5.4</b>      | <b>A</b> |                   |          |             |
|          | SB (Kenilworth Ave)  | T          | 7.7                | A        |                   | 3.4         | A           |                 | 7.8         | A                 |          | 3.3         | A                               |          | 3.3               | A        |             | 3.3             | A        |                   |          |             |
|          | <b>SB Overall (Kenilworth Ave)</b>   |            | <b>7.7</b>         | <b>A</b> |                   | <b>3.4</b>  | <b>A</b>    |                 | <b>7.8</b>  | <b>A</b>          |          | <b>3.3</b>  | <b>A</b>                        |          | <b>3.3</b>        | <b>A</b> |             | <b>3.3</b>      | <b>A</b> |                   |          |             |
|          | <b>Overall</b>   |            | <b>16.7</b>        | <b>B</b> | <b>868</b>        | <b>A</b>    | <b>Pass</b> | <b>13.3</b>     | <b>B</b>    | <b>779</b>        | <b>A</b> | <b>Pass</b> | <b>16.7</b>                     | <b>B</b> | <b>868</b>        | <b>A</b> | <b>Pass</b> | <b>13.3</b>     | <b>B</b> | <b>781</b>        | <b>A</b> | <b>Pass</b> |
| <b>9</b> | <b>Kenilworth Avenue (MD 201) &amp; Crescent Road/Maryland SHA Office (Signalized)</b> |            |                    |          |                   |             |             |                 |             |                   |          |             |                                 |          |                   |          |             |                 |          |                   |          |             |
|          | EB (Maryland SHA Office)   | LTR        | 26.0               | C        |                   | 36.1        | D           |                 | 26.0        | C                 |          | 36.1        | D                               |          | 36.1              | D        |             | 36.1            | D        |                   |          |             |
|          | <b>EB Overall (Maryland SHA Office)</b>  |            | <b>26.0</b>        | <b>C</b> |                   | <b>36.1</b> | <b>D</b>    |                 | <b>26.0</b> | <b>C</b>          |          | <b>36.1</b> | <b>D</b>                        |          | <b>36.1</b>       | <b>D</b> |             | <b>36.1</b>     | <b>D</b> |                   |          |             |
|          | WB (Crescent Rd)   | LT         | 43.2               | D        |                   | 47.8        | D           |                 | 43.2        | D                 |          | 47.8        | D                               |          | 47.8              | D        |             | 47.8            | D        |                   |          |             |
|          | WB (Crescent Rd)   | R          | 26.6               | C        |                   | 36.3        | D           |                 | 26.6        | C                 |          | 36.3        | D                               |          | 36.3              | D        |             | 36.3            | D        |                   |          |             |
|          | <b>WB Overall (Crescent Rd)</b>  |            | <b>38.0</b>        | <b>D</b> |                   | <b>43.0</b> | <b>D</b>    |                 | <b>38.0</b> | <b>D</b>          |          | <b>43.0</b> | <b>D</b>                        |          | <b>43.0</b>       | <b>D</b> |             | <b>43.0</b>     | <b>D</b> |                   |          |             |
|          | NB (Kenilworth Ave)  | L          | 47.4               | D        |                   | 61.5        | E           |                 | 47.3        | D                 |          | 61.5        | E                               |          | 61.5              | E        |             | 61.5            | E        |                   |          |             |
|          | NB (Kenilworth Ave)  | T          | 13.3               | B        |                   | 10.4        | B           |                 | 13.4        | B                 |          | 10.4        | B                               |          | 10.4              | B        |             | 10.4            | B        |                   |          |             |
|          | NB (Kenilworth Ave)  | R          | 8.5                | A        |                   | 5.9         | A           |                 | 8.6         | A                 |          | 5.9         | A                               |          | 5.9               | A        |             | 5.9             | A        |                   |          |             |
|          | <b>NB Overall (Kenilworth Ave)</b>   |            | <b>13.9</b>        | <b>B</b> |                   | <b>10.2</b> | <b>B</b>    |                 | <b>14.0</b> | <b>B</b>          |          | <b>10.2</b> | <b>B</b>                        |          | <b>10.2</b>       | <b>B</b> |             | <b>10.2</b>     | <b>B</b> |                   |          |             |
|          | SB (Kenilworth Ave)  | L          | 67.1               | E        |                   | 53.3        | D           |                 | 67.0        | E                 |          | 53.8        | D                               |          | 53.8              | D        |             | 53.8            | D        |                   |          |             |
|          | SB (Kenilworth Ave)  | T          | 4.7                | A        |                   | 5.8         | A           |                 | 4.7         | A                 |          | 5.8         | A                               |          | 5.8               | A        |             | 5.8             | A        |                   |          |             |
|          | SB (Kenilworth Ave)  | R          | 12.0               | B        |                   | 4.9         | A           |                 | 12.0        | B                 |          | 4.9         | A                               |          | 4.9               | A        |             | 4.9             | A        |                   |          |             |
|          | <b>SB Overall (Kenilworth Ave)</b>   |            | <b>9.3</b>         | <b>A</b> |                   | <b>11.1</b> | <b>B</b>    |                 | <b>9.3</b>  | <b>A</b>          |          | <b>11.2</b> | <b>B</b>                        |          | <b>11.2</b>       | <b>B</b> |             | <b>11.2</b>     | <b>B</b> |                   |          |             |
|          | <b>Overall</b>   |            | <b>15.1</b>        | <b>B</b> | <b>962</b>        | <b>A</b>    | <b>Pass</b> | <b>12.9</b>     | <b>B</b>    | <b>796</b>        | <b>A</b> | <b>Pass</b> | <b>15.1</b>                     | <b>B</b> | <b>965</b>        | <b>A</b> | <b>Pass</b> | <b>12.9</b>     | <b>B</b> | <b>798</b>        | <b>A</b> | <b>Pass</b> |

Table 6-1: Comparison of No-build and Build with Mitigation Condition Intersection AM and PM Peak Hour Operations Analysis (continued)

| #         | Intersection and Approach   | Lane Group | No-build Condition |          |                   |             |             |                 |             |                   |          |             | Build with Mitigation Condition |          |                   |          |             |                 |          |                   |          |             |  |  |
|-----------|---|------------|--------------------|----------|-------------------|-------------|-------------|-----------------|-------------|-------------------|----------|-------------|---------------------------------|----------|-------------------|----------|-------------|-----------------|----------|-------------------|----------|-------------|--|--|
|           |   |            | AM Peak Hour       |          |                   |             |             | PM Peak Hour    |             |                   |          |             | AM Peak Hour                    |          |                   |          |             | PM Peak Hour    |          |                   |          |             |  |  |
|           |   |            | HCM 2000           |          | CLV               |             | Check       | HCM 2000        |             | CLV               |          | Check       | HCM 2000                        |          | CLV               |          | Check       | HCM 2000        |          | CLV               |          | Check       |  |  |
|           |   |            | Delay (sec/veh)    | LOS      | Critical Lane Vol | LOS         |             | Delay (sec/veh) | LOS         | Critical Lane Vol | LOS      |             | Delay (sec/veh)                 | LOS      | Critical Lane Vol | LOS      |             | Delay (sec/veh) | LOS      | Critical Lane Vol | LOS      |             |  |  |
| <b>10</b> | <b>Kenilworth Avenue (MD 201) &amp; Ivy Lane (Signalized)</b>                       |            |                    |          |                   |             |             |                 |             |                   |          |             |                                 |          |                   |          |             |                 |          |                   |          |             |  |  |
|           | EB (Ivy Ln)   | R          | 0.1                | A        |                   | 0.7         | A           |                 | 0.1         | A                 |          | 0.8         | A                               |          |                   |          |             |                 |          |                   |          |             |  |  |
|           | <b>EB Overall (Ivy Ln)</b>  |            | <b>0.1</b>         | <b>A</b> |                   | <b>0.7</b>  | <b>A</b>    |                 | <b>0.1</b>  | <b>A</b>          |          | <b>0.8</b>  | <b>A</b>                        |          |                   |          |             |                 |          |                   |          |             |  |  |
|           | NB (Kenilworth Ave)   | L          | 18.6               | B        |                   | 25.8        | C           |                 | 18.6        | B                 |          | 25.8        | C                               |          |                   |          |             |                 |          |                   |          |             |  |  |
|           | NB (Kenilworth Ave)   | T          | 0.3                | A        |                   | 0.2         | A           |                 | 0.3         | A                 |          | 0.2         | A                               |          |                   |          |             |                 |          |                   |          |             |  |  |
|           | <b>NB Overall (Kenilworth Ave)</b>  |            | <b>3.4</b>         | <b>A</b> |                   | <b>1.7</b>  | <b>A</b>    |                 | <b>3.4</b>  | <b>A</b>          |          | <b>1.7</b>  | <b>A</b>                        |          |                   |          |             |                 |          |                   |          |             |  |  |
|           | SB (Kenilworth Ave)   | T          | 0.7                | A        |                   | 1.2         | A           |                 | 0.7         | A                 |          | 1.2         | A                               |          |                   |          |             |                 |          |                   |          |             |  |  |
|           | SB (Kenilworth Ave)   | R          | 0.0                | A        |                   | 0.0         | A           |                 | 0.0         | A                 |          | 0.0         | A                               |          |                   |          |             |                 |          |                   |          |             |  |  |
|           | <b>SB Overall (Kenilworth Ave)</b>  |            | <b>0.7</b>         | <b>A</b> |                   | <b>1.2</b>  | <b>A</b>    |                 | <b>0.7</b>  | <b>A</b>          |          | <b>1.2</b>  | <b>A</b>                        |          |                   |          |             |                 |          |                   |          |             |  |  |
|           | <b>Overall</b>  |            | <b>2.3</b>         | <b>A</b> | <b>784</b>        | <b>A</b>    | <b>Pass</b> | <b>1.3</b>      | <b>A</b>    | <b>761</b>        | <b>A</b> | <b>Pass</b> | <b>2.3</b>                      | <b>A</b> | <b>784</b>        | <b>A</b> | <b>Pass</b> | <b>1.3</b>      | <b>A</b> | <b>761</b>        | <b>A</b> | <b>Pass</b> |  |  |
| <b>11</b> | <b>Kenilworth Avenue/Edmonston Road (MD 201) &amp; Cherrywood Lane (Signalized)</b> |            |                    |          |                   |             |             |                 |             |                   |          |             |                                 |          |                   |          |             |                 |          |                   |          |             |  |  |
|           | EB (Cherrywood Ln)  | L          | 46.7               | D        |                   | 39.4        | D           |                 | 46.8        | D                 |          | 39.8        | D                               |          |                   |          |             |                 |          |                   |          |             |  |  |
|           | EB (Cherrywood Ln)  | R          | 40.7               | D        |                   | 33.8        | C           |                 | 40.7        | D                 |          | 33.3        | C                               |          |                   |          |             |                 |          |                   |          |             |  |  |
|           | <b>EB Overall (Cherrywood Ln)</b>   |            | <b>45.7</b>        | <b>D</b> |                   | <b>37.5</b> | <b>D</b>    |                 | <b>45.8</b> | <b>D</b>          |          | <b>37.6</b> | <b>D</b>                        |          |                   |          |             |                 |          |                   |          |             |  |  |
|           | NB (Kenilworth Ave)   | L          | 27.0               | C        |                   | 13.8        | B           |                 | 27.6        | C                 |          | 14.0        | B                               |          |                   |          |             |                 |          |                   |          |             |  |  |
|           | NB (Kenilworth Ave)   | T          | 1.1                | A        |                   | 1.2         | A           |                 | 1.1         | A                 |          | 1.3         | A                               |          |                   |          |             |                 |          |                   |          |             |  |  |
|           | <b>NB Overall (Kenilworth Ave)</b>  |            | <b>11.1</b>        | <b>B</b> |                   | <b>3.5</b>  | <b>A</b>    |                 | <b>11.5</b> | <b>B</b>          |          | <b>3.6</b>  | <b>A</b>                        |          |                   |          |             |                 |          |                   |          |             |  |  |
|           | SB (Edmonston Rd)   | T          | 22.6               | C        |                   | 13.9        | B           |                 | 23.0        | C                 |          | 14.3        | B                               |          |                   |          |             |                 |          |                   |          |             |  |  |
|           | SB (Edmonston Rd)   | R          | 17.5               | B        |                   | 10.0        | B           |                 | 18.5        | B                 |          | 10.3        | B                               |          |                   |          |             |                 |          |                   |          |             |  |  |
|           | <b>SB Overall (Edmonston Rd)</b>  |            | <b>21.2</b>        | <b>C</b> |                   | <b>13.2</b> | <b>B</b>    |                 | <b>21.7</b> | <b>C</b>          |          | <b>13.6</b> | <b>B</b>                        |          |                   |          |             |                 |          |                   |          |             |  |  |
|           | <b>Overall</b>  |            | <b>18.8</b>        | <b>B</b> | <b>1,212</b>      | <b>C</b>    | <b>Pass</b> | <b>14.7</b>     | <b>B</b>    | <b>990</b>        | <b>A</b> | <b>Pass</b> | <b>19.2</b>                     | <b>B</b> | <b>1,221</b>      | <b>C</b> | <b>Pass</b> | <b>15.2</b>     | <b>B</b> | <b>1,008</b>      | <b>B</b> | <b>Pass</b> |  |  |
| <b>12</b> | <b>Edmonston Road (MD 201) &amp; Sunnyside Avenue (Signalized)</b>                  |            |                    |          |                   |             |             |                 |             |                   |          |             |                                 |          |                   |          |             |                 |          |                   |          |             |  |  |
|           | EB (Sunnyside Ave)  | L          | 108.9              | F        |                   | 113.0       | F           |                 | 36.3        | D                 |          | 57.3        | E                               |          |                   |          |             |                 |          |                   |          |             |  |  |
|           | EB (Sunnyside Ave)  | R          | 66.9               | E        |                   | 62.0        | E           |                 | 23.6        | C                 |          | 32.5        | C                               |          |                   |          |             |                 |          |                   |          |             |  |  |
|           | <b>EB Overall (Sunnyside Ave)</b>   |            | <b>77.9</b>        | <b>E</b> |                   | <b>80.1</b> | <b>F</b>    |                 | <b>27.0</b> | <b>C</b>          |          | <b>41.2</b> | <b>D</b>                        |          |                   |          |             |                 |          |                   |          |             |  |  |
|           | NB (Edmonston Rd)   | L          | 102.8              | F        |                   | 98.0        | F           |                 | 19.1        | B                 |          | 27.8        | C                               |          |                   |          |             |                 |          |                   |          |             |  |  |
|           | NB (Edmonston Rd)   | T          | 4.4                | A        |                   | 18.3        | B           |                 | 3.8         | A                 |          | 8.3         | A                               |          |                   |          |             |                 |          |                   |          |             |  |  |
|           | <b>NB Overall (Edmonston Rd)</b>  |            | <b>29.6</b>        | <b>C</b> |                   | <b>33.3</b> | <b>C</b>    |                 | <b>7.7</b>  | <b>A</b>          |          | <b>11.9</b> | <b>B</b>                        |          |                   |          |             |                 |          |                   |          |             |  |  |
|           | SB (Edmonston Rd)   | T          | 41.1               | D        |                   | 48.1        | D           |                 | 16.2        | B                 |          | 24.4        | C                               |          |                   |          |             |                 |          |                   |          |             |  |  |
|           | SB (Edmonston Rd)   | R          | 5.0                | A        |                   | 3.8         | A           |                 | 3.7         | A                 |          | 4.7         | A                               |          |                   |          |             |                 |          |                   |          |             |  |  |
|           | <b>SB Overall (Edmonston Rd)</b>  |            | <b>35.6</b>        | <b>D</b> |                   | <b>41.4</b> | <b>D</b>    |                 | <b>14.3</b> | <b>B</b>          |          | <b>21.4</b> | <b>C</b>                        |          |                   |          |             |                 |          |                   |          |             |  |  |
|           | <b>Overall</b>  |            | <b>40.1</b>        | <b>D</b> | <b>1,486</b>      | <b>E</b>    | <b>Pass</b> | <b>46.7</b>     | <b>D</b>    | <b>1,692</b>      | <b>F</b> | <b>Fail</b> | <b>13.8</b>                     | <b>B</b> | <b>1,015</b>      | <b>B</b> | <b>Pass</b> | <b>21.7</b>     | <b>C</b> | <b>1,188</b>      | <b>C</b> | <b>Pass</b> |  |  |

Table 6-1: Comparison of No-build and Build with Mitigation Condition Intersection AM and PM Peak Hour Operations Analysis (continued)

| #         | Intersection and Approach   | Lane Group | No-build Condition |            |                   |             |             |                 |             |                   |            |             | Build with Mitigation Condition |             |                   |              |             |                 |          |                   |          |             |
|-----------|---|------------|--------------------|------------|-------------------|-------------|-------------|-----------------|-------------|-------------------|------------|-------------|---------------------------------|-------------|-------------------|--------------|-------------|-----------------|----------|-------------------|----------|-------------|
|           |   |            | AM Peak Hour       |            |                   |             |             | PM Peak Hour    |             |                   |            |             | AM Peak Hour                    |             |                   |              |             | PM Peak Hour    |          |                   |          |             |
|           |   |            | HCM 2000           |            | CLV               |             | Check       | HCM 2000        |             | CLV               |            | Check       | HCM 2000                        |             | CLV               |              | Check       | HCM 2000        |          | CLV               |          | Check       |
|           |   |            | Delay (sec/veh)    | LOS        | Critical Lane Vol | LOS         |             | Delay (sec/veh) | LOS         | Critical Lane Vol | LOS        |             | Delay (sec/veh)                 | LOS         | Critical Lane Vol | LOS          |             | Delay (sec/veh) | LOS      | Critical Lane Vol | LOS      |             |
| <b>13</b> | <b>Edmonston Road (MD 201) &amp; Powder Mill Road (Signalized)</b>            |            |                    |            |                   |             |             |                 |             |                   |            |             |                                 |             |                   |              |             |                 |          |                   |          |             |
|           | EB (Powder Mill Rd)   | L          | 47.3               | D          |                   | 45.2        | D           |                 | 31.8        | C                 |            | 27.0        | C                               |             |                   |              |             |                 |          |                   |          |             |
|           | EB (Powder Mill Rd)   | T          | 62.8               | E          |                   | 81.1        | F           |                 | 38.0        | D                 |            | 47.5        | D                               |             |                   |              |             |                 |          |                   |          |             |
|           | EB (Powder Mill Rd)   | R          | 48.7               | D          |                   | 44.7        | D           |                 | 38.6        | D                 |            | 29.7        | C                               |             |                   |              |             |                 |          |                   |          |             |
|           | <b>EB Overall (Powder Mill Rd)</b>  |            | <b>52.8</b>        | <b>D</b>   |                   | <b>60.5</b> | <b>E</b>    |                 | <b>38.0</b> | <b>D</b>          |            | <b>37.1</b> | <b>D</b>                        |             |                   |              |             |                 |          |                   |          |             |
|           | WB (Powder Mill Rd)   | L          | 57.0               | E          |                   | 84.1        | F           |                 | 25.7        | C                 |            | 27.1        | C                               |             |                   |              |             |                 |          |                   |          |             |
|           | WB (Powder Mill Rd)   | T          | 41.8               | D          |                   | 38.4        | D           |                 | 25.3        | C                 |            | 21.0        | C                               |             |                   |              |             |                 |          |                   |          |             |
|           | WB (Powder Mill Rd)   | R          | 35.6               | D          |                   | 34.1        | C           |                 | 21.6        | C                 |            | 18.6        | B                               |             |                   |              |             |                 |          |                   |          |             |
|           | <b>WB Overall (Powder Mill Rd)</b>  |            | <b>46.9</b>        | <b>D</b>   |                   | <b>53.4</b> | <b>D</b>    |                 | <b>25.1</b> | <b>C</b>          |            | <b>22.8</b> | <b>C</b>                        |             |                   |              |             |                 |          |                   |          |             |
|           | NB (Edmonston Rd)   | L          | 48.5               | D          |                   | 76.7        | E           |                 | 18.7        | B                 |            | 29.5        | C                               |             |                   |              |             |                 |          |                   |          |             |
|           | NB (Edmonston Rd)   | T          | 12.8               | B          |                   | 23.2        | C           |                 | 16.5        | B                 |            | 26.3        | C                               |             |                   |              |             |                 |          |                   |          |             |
|           | NB (Edmonston Rd)   | R          | 8.4                | A          |                   | 12.5        | B           |                 | 10.5        | B                 |            | 11.2        | B                               |             |                   |              |             |                 |          |                   |          |             |
|           | <b>NB Overall (Edmonston Rd)</b>  |            | <b>29.7</b>        | <b>C</b>   |                   | <b>41.3</b> | <b>D</b>    |                 | <b>17.2</b> | <b>B</b>          |            | <b>25.2</b> | <b>C</b>                        |             |                   |              |             |                 |          |                   |          |             |
|           | SB (Edmonston Rd)   | L          | 40.5               | D          |                   | 54.5        | D           |                 | 24.3        | C                 |            | 53.0        | D                               |             |                   |              |             |                 |          |                   |          |             |
|           | SB (Edmonston Rd)   | TR         | 52.5               | D          |                   | 60.4        | E           |                 | 30.0        | C                 |            | 23.5        | C                               |             |                   |              |             |                 |          |                   |          |             |
|           | <b>SB Overall (Edmonston Rd)</b>  |            | <b>52.0</b>        | <b>D</b>   |                   | <b>59.8</b> | <b>E</b>    |                 | <b>29.8</b> | <b>C</b>          |            | <b>26.4</b> | <b>C</b>                        |             |                   |              |             |                 |          |                   |          |             |
|           | <b>Overall</b>  |            | <b>42.5</b>        | <b>D</b>   | <b>1,593</b>      | <b>E</b>    | <b>Pass</b> | <b>50.9</b>     | <b>D</b>    | <b>1,867</b>      | <b>F</b>   | <b>Fail</b> | <b>26.3</b>                     | <b>C</b>    | <b>1,348</b>      | <b>D</b>     | <b>Pass</b> | <b>28.3</b>     | <b>C</b> | <b>1,643</b>      | <b>F</b> | <b>Fail</b> |
| <b>14</b> | <b>Greenbelt Metro Drive &amp; Site North Access (Signalized)<sup>b</sup></b> |            |                    |            |                   |             |             |                 |             |                   |            |             |                                 |             |                   |              |             |                 |          |                   |          |             |
|           | EB (Greenbelt Metro Dr)   | T          | N/A                | N/A        |                   | N/A         | N/A         |                 | 3.3         | A                 |            | 11.0        | B                               |             |                   |              |             |                 |          |                   |          |             |
|           | <b>EB Overall (Greenbelt Metro Dr)</b>  |            | <b>N/A</b>         | <b>N/A</b> |                   | <b>N/A</b>  | <b>N/A</b>  |                 | <b>3.3</b>  | <b>A</b>          |            | <b>11.0</b> | <b>B</b>                        |             |                   |              |             |                 |          |                   |          |             |
|           | WB (Greenbelt Metro Dr)   | L          | N/A                | N/A        |                   | N/A         | N/A         |                 | -           | -                 |            | -           | -                               |             |                   |              |             |                 |          |                   |          |             |
|           | WB (Greenbelt Metro Dr)   | T          | N/A                | N/A        |                   | N/A         | N/A         |                 | 4.3         | A                 |            | 7.5         | A                               |             |                   |              |             |                 |          |                   |          |             |
|           | <b>WB Overall (Greenbelt Metro Dr)</b>  |            | <b>N/A</b>         | <b>N/A</b> |                   | <b>N/A</b>  | <b>N/A</b>  |                 | <b>4.3</b>  | <b>A</b>          |            | <b>7.5</b>  | <b>A</b>                        |             |                   |              |             |                 |          |                   |          |             |
|           | NB (Site North Access)  | L          | N/A                | N/A        |                   | N/A         | N/A         |                 | 21.8        | C                 |            | 19.6        | B                               |             |                   |              |             |                 |          |                   |          |             |
|           | NB (Site North Access)  | R          | N/A                | N/A        |                   | N/A         | N/A         |                 | 21.3        | C                 |            | 16.8        | B                               |             |                   |              |             |                 |          |                   |          |             |
|           | <b>NB Overall (Site North Access)</b>   |            | <b>N/A</b>         | <b>N/A</b> |                   | <b>N/A</b>  | <b>N/A</b>  |                 | <b>21.7</b> | <b>C</b>          |            | <b>19.0</b> | <b>B</b>                        |             |                   |              |             |                 |          |                   |          |             |
|           | <b>Overall</b>  |            | <b>N/A</b>         | <b>N/A</b> | <b>N/A</b>        | <b>N/A</b>  | <b>N/A</b>  | <b>N/A</b>      | <b>4.7</b>  | <b>A</b>          | <b>605</b> | <b>A</b>    | <b>Pass</b>                     | <b>12.9</b> | <b>B</b>          | <b>1,029</b> | <b>B</b>    | <b>Pass</b>     |          |                   |          |             |

Table 6-1: Comparison of No-build and Build with Mitigation Condition Intersection AM and PM Peak Hour Operations Analysis (continued)

| #         | Intersection and Approach  | Lane Group | No-build Condition |          |                   |             |             |                 |             |                   |            |             | Build with Mitigation Condition |          |                   |            |             |                 |          |                   |            |             |
|-----------|--|------------|--------------------|----------|-------------------|-------------|-------------|-----------------|-------------|-------------------|------------|-------------|---------------------------------|----------|-------------------|------------|-------------|-----------------|----------|-------------------|------------|-------------|
|           |  |            | AM Peak Hour       |          |                   |             |             | PM Peak Hour    |             |                   |            |             | AM Peak Hour                    |          |                   |            |             | PM Peak Hour    |          |                   |            |             |
|           |  |            | HCM 2000           |          | CLV               |             | Check       | HCM 2000        |             | CLV               |            | Check       | HCM 2000                        |          | CLV               |            | Check       | HCM 2000        |          | CLV               |            | Check       |
|           |  |            | Delay (sec/veh)    | LOS      | Critical Lane Vol | LOS         |             | Delay (sec/veh) | LOS         | Critical Lane Vol | LOS        |             | Delay (sec/veh)                 | LOS      | Critical Lane Vol | LOS        |             | Delay (sec/veh) | LOS      | Critical Lane Vol | LOS        |             |
| <b>15</b> | <b>Greenbelt Station Bus Bays/Greenbelt Metro Drive &amp; Greenbelt Station Parkway (Signalized)</b> |            |                    |          |                   |             |             |                 |             |                   |            |             |                                 |          |                   |            |             |                 |          |                   |            |             |
|           | EB (Greenbelt Sta Bus Bays)  | LT         | 75.7               | E        |                   | 54.0        | D           |                 | 76.9        | E                 |            | 54.0        | D                               |          |                   |            |             |                 |          |                   |            |             |
|           | EB (Greenbelt Sta Bus Bays)  | R          | -                  | -        |                   | -           | -           |                 | -           | -                 |            | -           | -                               |          |                   |            |             |                 |          |                   |            |             |
|           | <b>EB Overall (Greenbelt Sta Bus Bays)</b>   |            | <b>75.7</b>        | <b>E</b> |                   | <b>54.0</b> | <b>D</b>    |                 | <b>76.9</b> | <b>E</b>          |            | <b>54.0</b> | <b>D</b>                        |          |                   |            |             |                 |          |                   |            |             |
|           | WB (Greenbelt Metro Dr)  | L          | 56.6               | E        |                   | 45.2        | D           |                 | 36.2        | D                 |            | 39.4        | D                               |          |                   |            |             |                 |          |                   |            |             |
|           | WB (Greenbelt Metro Dr)  | T          | 35.7               | D        |                   | 31.7        | C           |                 | 21.3        | C                 |            | 29.9        | C                               |          |                   |            |             |                 |          |                   |            |             |
|           | WB (Greenbelt Metro Dr)  | R          | 36.0               | D        |                   | 31.5        | C           |                 | 21.7        | C                 |            | 36.8        | D                               |          |                   |            |             |                 |          |                   |            |             |
|           | <b>WB Overall (Greenbelt Metro Dr)</b>   |            | <b>52.1</b>        | <b>D</b> |                   | <b>41.6</b> | <b>D</b>    |                 | <b>32.6</b> | <b>C</b>          |            | <b>37.4</b> | <b>D</b>                        |          |                   |            |             |                 |          |                   |            |             |
|           | NB (Greenbelt Sta Pkwy)  | L          | -                  | -        |                   | -           | -           |                 | -           | -                 |            | -           | -                               |          |                   |            |             |                 |          |                   |            |             |
|           | NB (Greenbelt Sta Pkwy)  | T          | 14.3               | B        |                   | 8.4         | A           |                 | 17.5        | B                 |            | 8.4         | A                               |          |                   |            |             |                 |          |                   |            |             |
|           | NB (Greenbelt Sta Pkwy)  | R          | 13.8               | B        |                   | 21.4        | C           |                 | 22.5        | C                 |            | 13.0        | B                               |          |                   |            |             |                 |          |                   |            |             |
|           | <b>NB Overall (Greenbelt Sta Pkwy)</b>   |            | <b>14.0</b>        | <b>B</b> |                   | <b>16.2</b> | <b>B</b>    |                 | <b>19.8</b> | <b>B</b>          |            | <b>11.3</b> | <b>B</b>                        |          |                   |            |             |                 |          |                   |            |             |
|           | <b>Overall</b>   |            | <b>31.4</b>        | <b>C</b> | <b>644</b>        | <b>A</b>    | <b>Pass</b> | <b>23.3</b>     | <b>C</b>    | <b>603</b>        | <b>A</b>   | <b>Pass</b> | <b>26.6</b>                     | <b>C</b> | <b>682</b>        | <b>A</b>   | <b>Pass</b> | <b>22.4</b>     | <b>C</b> | <b>813</b>        | <b>A</b>   | <b>Pass</b> |
| <b>16</b> | <b>Greenbelt Station Parkway &amp; North Core Development/Site Northwest Access (Signalized)</b>     |            |                    |          |                   |             |             |                 |             |                   |            |             |                                 |          |                   |            |             |                 |          |                   |            |             |
|           | EB (North Core Dev)  | L          | 69.2               | E        |                   | 42.1        | D           |                 | 45.9        | D                 |            | 42.2        | D                               |          |                   |            |             |                 |          |                   |            |             |
|           | EB (North Core Dev)  | TR         | 66.5               | E        |                   | 35.0        | C           |                 | 43.2        | D                 |            | 35.1        | D                               |          |                   |            |             |                 |          |                   |            |             |
|           | <b>EB Overall (North Core Dev)</b>   |            | <b>68.8</b>        | <b>E</b> |                   | <b>40.7</b> | <b>D</b>    |                 | <b>45.5</b> | <b>D</b>          |            | <b>40.8</b> | <b>D</b>                        |          |                   |            |             |                 |          |                   |            |             |
|           | WB (Site Northwest Access)   | LTR (AM)   | -                  | -        |                   | -           | -           |                 | 47.0        | D                 |            | -           | -                               |          |                   |            |             |                 |          |                   |            |             |
|           | WB (Site Northwest Access)   | TR (PM)    | -                  | -        |                   | -           | -           |                 | -           | -                 |            | 48.2        | D                               |          |                   |            |             |                 |          |                   |            |             |
|           | WB (Site Northwest Access)   | R (PM)     | -                  | -        |                   | -           | -           |                 | -           | -                 |            | 50.6        | D                               |          |                   |            |             |                 |          |                   |            |             |
|           | <b>WB Overall (Site Northwest Access)</b>  |            | <b>-</b>           | <b>-</b> |                   | <b>-</b>    | <b>-</b>    |                 | <b>47.0</b> | <b>D</b>          |            | <b>49.4</b> | <b>D</b>                        |          |                   |            |             |                 |          |                   |            |             |
|           | NB (Greenbelt Sta Pkwy)  | L          | 3.9                | A        |                   | 3.6         | A           |                 | 4.6         | A                 |            | 11.9        | B                               |          |                   |            |             |                 |          |                   |            |             |
|           | NB (Greenbelt Sta Pkwy)  | TR         | 2.2                | A        |                   | 3.4         | A           |                 | 2.6         | A                 |            | 11.0        | B                               |          |                   |            |             |                 |          |                   |            |             |
|           | <b>NB Overall (Greenbelt Sta Pkwy)</b>   |            | <b>2.7</b>         | <b>A</b> |                   | <b>3.4</b>  | <b>A</b>    |                 | <b>2.9</b>  | <b>A</b>          |            | <b>11.1</b> | <b>B</b>                        |          |                   |            |             |                 |          |                   |            |             |
|           | SB (Greenbelt Sta Pkwy)  | TR         | 0.1                | A        |                   | 0.1         | A           |                 | 0.2         | A                 |            | 7.8         | A                               |          |                   |            |             |                 |          |                   |            |             |
|           | <b>SB Overall (Greenbelt Sta Pkwy)</b>   |            | <b>0.1</b>         | <b>A</b> |                   | <b>0.1</b>  | <b>A</b>    |                 | <b>0.2</b>  | <b>A</b>          |            | <b>7.8</b>  | <b>A</b>                        |          |                   |            |             |                 |          |                   |            |             |
|           | <b>Overall</b>   |            | <b>5.4</b>         | <b>A</b> | <b>600</b>        | <b>A</b>    | <b>Pass</b> | <b>11.0</b>     | <b>B</b>    | <b>460</b>        | <b>A</b>   | <b>Pass</b> | <b>4.7</b>                      | <b>A</b> | <b>976</b>        | <b>A</b>   | <b>Pass</b> | <b>22.5</b>     | <b>C</b> | <b>952</b>        | <b>A</b>   | <b>Pass</b> |
| <b>17</b> | <b>Greenbelt Station Parkway &amp; Residential Access to 500 Units (TWSC)</b>                        |            |                    |          |                   |             |             |                 |             |                   |            |             |                                 |          |                   |            |             |                 |          |                   |            |             |
|           | EB (Residential Access)  | R          | 9.8                | A        |                   | 9.3         | A           |                 | 10.0        | A                 |            | 9.3         | A                               |          |                   |            |             |                 |          |                   |            |             |
|           | <b>EB Overall (Residential Access)</b>   |            | <b>9.8</b>         | <b>A</b> |                   | <b>9.3</b>  | <b>A</b>    |                 | <b>10.0</b> | <b>A</b>          |            | <b>9.3</b>  | <b>A</b>                        |          |                   |            |             |                 |          |                   |            |             |
|           | <b>Overall</b>   |            | <b>0.6</b>         | <b>-</b> | <b>N/A</b>        | <b>N/A</b>  | <b>Pass</b> | <b>0.2</b>      | <b>-</b>    | <b>N/A</b>        | <b>N/A</b> | <b>Pass</b> | <b>0.5</b>                      | <b>-</b> | <b>N/A</b>        | <b>N/A</b> | <b>Pass</b> | <b>0.2</b>      | <b>-</b> | <b>N/A</b>        | <b>N/A</b> | <b>Pass</b> |

Table 6-1: Comparison of No-build and Build with Mitigation Condition Intersection AM and PM Peak Hour Operations Analysis (continued)

| #         | Intersection and Approach  | Lane Group | No-build Condition |          |                   |             |             |                 |             |                   |          |             |                 | Build with Mitigation Condition |                   |          |             |                 |              |                   |          |             |  |  |
|-----------|--|------------|--------------------|----------|-------------------|-------------|-------------|-----------------|-------------|-------------------|----------|-------------|-----------------|---------------------------------|-------------------|----------|-------------|-----------------|--------------|-------------------|----------|-------------|--|--|
|           |  |            | AM Peak Hour       |          |                   |             |             | PM Peak Hour    |             |                   |          |             |                 | AM Peak Hour                    |                   |          |             |                 | PM Peak Hour |                   |          |             |  |  |
|           |  |            | HCM 2000           |          | CLV               |             | Check       | HCM 2000        |             | CLV               |          | Check       | HCM 2000        |                                 | CLV               |          | Check       | HCM 2000        |              | CLV               |          | Check       |  |  |
|           |  |            | Delay (sec/veh)    | LOS      | Critical Lane Vol | LOS         |             | Delay (sec/veh) | LOS         | Critical Lane Vol | LOS      |             | Delay (sec/veh) | LOS                             | Critical Lane Vol | LOS      |             | Delay (sec/veh) | LOS          | Critical Lane Vol | LOS      |             |  |  |
| <b>18</b> | <b>Greenbelt Station Parkway &amp; I-95/I-495 Off-ramps/Site South Access/Kiss &amp; Ride (Signalized)</b> |            |                    |          |                   |             |             |                 |             |                   |          |             |                 |                                 |                   |          |             |                 |              |                   |          |             |  |  |
|           | EB (I-95 Off-ramps)  | L          | 71.7               | E        |                   | 44.8        | D           |                 | 49.2        | D                 |          | 38.7        | D               |                                 |                   |          |             |                 |              |                   |          |             |  |  |
|           | EB (I-95 Off-ramps)  | LTR        | 56.3               | E        |                   | 31.2        | C           |                 | 35.8        | D                 |          | 29.2        | C               |                                 |                   |          |             |                 |              |                   |          |             |  |  |
|           | <b>EB Overall (I-95 Off-Ramps)</b>   |            | <b>61.7</b>        | <b>E</b> |                   | <b>36.1</b> | <b>D</b>    |                 | <b>40.2</b> | <b>D</b>          |          | <b>32.6</b> | <b>C</b>        |                                 |                   |          |             |                 |              |                   |          |             |  |  |
|           | EB (Kiss and Ride)   | L          | 55.9               | E        |                   | 37.5        | D           |                 | 55.6        | E                 |          | 43.8        | D               |                                 |                   |          |             |                 |              |                   |          |             |  |  |
|           | <b>EB Overall (Kiss and Ride)</b>  |            | <b>55.9</b>        | <b>E</b> |                   | <b>37.5</b> | <b>D</b>    |                 | <b>55.6</b> | <b>E</b>          |          | <b>43.8</b> | <b>D</b>        |                                 |                   |          |             |                 |              |                   |          |             |  |  |
|           | WB (Site South Access)   | R          | 37.0               | D        |                   | 35.7        | D           |                 | 22.9        | C                 |          | 20.6        | C               |                                 |                   |          |             |                 |              |                   |          |             |  |  |
|           | <b>WB Overall (Site South Access)</b>  |            | <b>37.0</b>        | <b>D</b> |                   | <b>35.7</b> | <b>D</b>    |                 | <b>22.9</b> | <b>C</b>          |          | <b>20.6</b> | <b>C</b>        |                                 |                   |          |             |                 |              |                   |          |             |  |  |
|           | NB (Greenbelt Sta Pkwy)  | L          | 81.8               | F        |                   | 33.4        | C           |                 | 13.4        | B                 |          | 8.2         | A               |                                 |                   |          |             |                 |              |                   |          |             |  |  |
|           | NB (Greenbelt Sta Pkwy)  | T          | 30.9               | C        |                   | 23.5        | C           |                 | 20.8        | C                 |          | 9.2         | A               |                                 |                   |          |             |                 |              |                   |          |             |  |  |
|           | <b>NB Overall (Greenbelt Sta Pkwy)</b>   |            | <b>32.7</b>        | <b>C</b> |                   | <b>24.3</b> | <b>C</b>    |                 | <b>20.6</b> | <b>C</b>          |          | <b>9.2</b>  | <b>A</b>        |                                 |                   |          |             |                 |              |                   |          |             |  |  |
|           | SB (Greenbelt Sta Pkwy)  | L          | 2.9                | A        |                   | 84.5        | F           |                 | 53.4        | D                 |          | 1.0         | A               |                                 |                   |          |             |                 |              |                   |          |             |  |  |
|           | SB (Greenbelt Sta Pkwy)  | TR         | 6.6                | A        |                   | 76.4        | E           |                 | 14.1        | B                 |          | 36.4        | D               |                                 |                   |          |             |                 |              |                   |          |             |  |  |
|           | <b>SB Overall (Greenbelt Sta Pkwy)</b>   |            | <b>5.7</b>         | <b>A</b> |                   | <b>77.7</b> | <b>E</b>    |                 | <b>26.2</b> | <b>C</b>          |          | <b>30.9</b> | <b>C</b>        |                                 |                   |          |             |                 |              |                   |          |             |  |  |
|           | <b>Overall</b>   |            | <b>40.0</b>        | <b>D</b> | <b>950</b>        | <b>A</b>    | <b>Pass</b> | <b>36.9</b>     | <b>D</b>    | <b>1,103</b>      | <b>B</b> | <b>Pass</b> | <b>34.8</b>     | <b>C</b>                        | <b>1,420</b>      | <b>D</b> | <b>Pass</b> | <b>24.7</b>     | <b>C</b>     | <b>1,056</b>      | <b>B</b> | <b>Pass</b> |  |  |
| <b>19</b> | <b>Greenbelt Station Parkway &amp; WMATA Garage (Signalized)</b>   |            |                    |          |                   |             |             |                 |             |                   |          |             |                 |                                 |                   |          |             |                 |              |                   |          |             |  |  |
|           | EB (WMATA Garage)  | L          | 76.3               | E        |                   | 51.0        | D           |                 | 64.6        | E                 |          | 51.0        | D               |                                 |                   |          |             |                 |              |                   |          |             |  |  |
|           | EB (WMATA Garage)  | R          | 72.4               | E        |                   | 37.8        | D           |                 | 49.1        | D                 |          | 37.8        | D               |                                 |                   |          |             |                 |              |                   |          |             |  |  |
|           | <b>EB Overall (WMATA Garage)</b>   |            | <b>74.9</b>        | <b>E</b> |                   | <b>49.3</b> | <b>D</b>    |                 | <b>59.0</b> | <b>E</b>          |          | <b>49.3</b> | <b>D</b>        |                                 |                   |          |             |                 |              |                   |          |             |  |  |
|           | NB (Greenbelt Sta Pkwy)  | LT         | 65.7               | E        |                   | 51.5        | D           |                 | 41.4        | D                 |          | 50.4        | D               |                                 |                   |          |             |                 |              |                   |          |             |  |  |
|           | NB (Greenbelt Sta Pkwy)  | TR         | 3.0                | A        |                   | 4.6         | A           |                 | 2.0         | A                 |          | 4.6         | A               |                                 |                   |          |             |                 |              |                   |          |             |  |  |
|           | <b>NB Overall (Greenbelt Sta Pkwy)</b>   |            | <b>34.7</b>        | <b>C</b> |                   | <b>28.3</b> | <b>C</b>    |                 | <b>21.7</b> | <b>C</b>          |          | <b>27.7</b> | <b>C</b>        |                                 |                   |          |             |                 |              |                   |          |             |  |  |
|           | SB (Greenbelt Sta Pkwy)  | T          | 18.8               | B        |                   | 20.5        | C           |                 | 17.4        | B                 |          | 19.3        | B               |                                 |                   |          |             |                 |              |                   |          |             |  |  |
|           | SB (Greenbelt Sta Pkwy)  | R          | 38.5               | D        |                   | 12.9        | B           |                 | 24.1        | C                 |          | 13.0        | B               |                                 |                   |          |             |                 |              |                   |          |             |  |  |
|           | <b>SB Overall (Greenbelt Sta Pkwy)</b>   |            | <b>25.5</b>        | <b>C</b> |                   | <b>20.3</b> | <b>C</b>    |                 | <b>19.7</b> | <b>B</b>          |          | <b>19.2</b> | <b>B</b>        |                                 |                   |          |             |                 |              |                   |          |             |  |  |
|           | <b>Overall</b>   |            | <b>31.4</b>        | <b>C</b> | <b>429</b>        | <b>A</b>    | <b>Pass</b> | <b>27.8</b>     | <b>C</b>    | <b>524</b>        | <b>A</b> | <b>Pass</b> | <b>21.3</b>     | <b>C</b>                        | <b>480</b>        | <b>A</b> | <b>Pass</b> | <b>27.1</b>     | <b>C</b>     | <b>524</b>        | <b>A</b> | <b>Pass</b> |  |  |

**Table 6-1: Comparison of No-build and Build with Mitigation Condition Intersection AM and PM Peak Hour Operations Analysis (continued)**

| #         | Intersection and Approach   | Lane Group | No-build Condition |          |                   |             |          |                 |             |                   |          |             | Build with Mitigation Condition |          |                   |          |       |                 |          |                   |          |       |
|-----------|---|------------|--------------------|----------|-------------------|-------------|----------|-----------------|-------------|-------------------|----------|-------------|---------------------------------|----------|-------------------|----------|-------|-----------------|----------|-------------------|----------|-------|
|           |   |            | AM Peak Hour       |          |                   |             |          | PM Peak Hour    |             |                   |          |             | AM Peak Hour                    |          |                   |          |       | PM Peak Hour    |          |                   |          |       |
|           |   |            | HCM 2000           |          | CLV               |             | Check    | HCM 2000        |             | CLV               |          | Check       | HCM 2000                        |          | CLV               |          | Check | HCM 2000        |          | CLV               |          | Check |
|           |   |            | Delay (sec/veh)    | LOS      | Critical Lane Vol | LOS         |          | Delay (sec/veh) | LOS         | Critical Lane Vol | LOS      |             | Delay (sec/veh)                 | LOS      | Critical Lane Vol | LOS      |       | Delay (sec/veh) | LOS      | Critical Lane Vol | LOS      |       |
| <b>20</b> | <b>Greenbelt Station Parkway &amp; Residential Access to 300 Units (TWSC)</b> |            |                    |          |                   |             |          |                 |             |                   |          |             |                                 |          |                   |          |       |                 |          |                   |          |       |
|           | EB (Residential Access)   | LR         | 21.1               | C        |                   | 20.8        | C        |                 | 24.4        | C                 |          | 20.9        | C                               |          |                   |          |       |                 |          |                   |          |       |
|           | <b>EB Overall (Residential Access)</b>  |            | <b>21.1</b>        | <b>C</b> |                   | <b>20.8</b> | <b>C</b> |                 | <b>24.4</b> | <b>C</b>          |          | <b>20.9</b> | <b>C</b>                        |          |                   |          |       |                 |          |                   |          |       |
|           | NB (Greenbelt Sta Pkwy)   | LT         | 0.2                | A        |                   | 0.8         | A        |                 | 0.2         | A                 |          | 0.7         | A                               |          |                   |          |       |                 |          |                   |          |       |
|           | <b>NB Overall (Greenbelt Sta Pkwy)</b>  |            | <b>0.1</b>         | -        |                   | <b>0.3</b>  | -        |                 | <b>0.1</b>  | -                 |          | <b>0.3</b>  | -                               |          |                   |          |       |                 |          |                   |          |       |
|           | <b>Overall</b>  |            | <b>1.5</b>         | -        | N/A               | N/A         | Pass     | <b>0.6</b>      | -           | N/A               | N/A      | Pass        | <b>1.6</b>                      | -        | N/A               | N/A      | Pass  | <b>0.6</b>      | -        | N/A               | N/A      | Pass  |
| <b>21</b> | <b>Greenbelt Road (MD 193) &amp; Greenbelt Station Parkway (Signalized)</b>   |            |                    |          |                   |             |          |                 |             |                   |          |             |                                 |          |                   |          |       |                 |          |                   |          |       |
|           | EB (Greenbelt Rd)   | L          | 63.6               | E        |                   | 70.0        | E        |                 | 67.5        | E                 |          | 70.0        | E                               |          |                   |          |       |                 |          |                   |          |       |
|           | EB (Greenbelt Rd)   | T          | 3.2                | A        |                   | 8.0         | A        |                 | 3.3         | A                 |          | 8.0         | A                               |          |                   |          |       |                 |          |                   |          |       |
|           | <b>EB Overall (Greenbelt Rd)</b>  |            | <b>11.5</b>        | <b>B</b> |                   | <b>12.6</b> | <b>B</b> |                 | <b>14.0</b> | <b>B</b>          |          | <b>12.7</b> | <b>B</b>                        |          |                   |          |       |                 |          |                   |          |       |
|           | WB (Greenbelt Rd)   | T          | 3.6                | A        |                   | 4.9         | A        |                 | 4.7         | A                 |          | 6.5         | A                               |          |                   |          |       |                 |          |                   |          |       |
|           | WB (Greenbelt Rd)   | R          | 0.1                | A        |                   | 1.8         | A        |                 | 0.7         | A                 |          | 1.7         | A                               |          |                   |          |       |                 |          |                   |          |       |
|           | <b>WB Overall (Greenbelt Rd)</b>  |            | <b>3.2</b>         | <b>A</b> |                   | <b>4.5</b>  | <b>A</b> |                 | <b>4.3</b>  | <b>A</b>          |          | <b>5.8</b>  | <b>A</b>                        |          |                   |          |       |                 |          |                   |          |       |
|           | SB (Greenbelt Sta Pkwy)   | L          | 67.1               | E        |                   | 59.9        | E        |                 | 68.2        | E                 |          | 59.8        | E                               |          |                   |          |       |                 |          |                   |          |       |
|           | SB (Greenbelt Sta Pkwy)   | R          | 46.0               | D        |                   | 47.4        | D        |                 | 48.3        | D                 |          | 47.3        | D                               |          |                   |          |       |                 |          |                   |          |       |
|           | <b>SB Overall (Greenbelt Sta Pkwy)</b>  |            | <b>57.5</b>        | <b>E</b> |                   | <b>54.1</b> | <b>D</b> |                 | <b>59.2</b> | <b>E</b>          |          | <b>54.0</b> | <b>D</b>                        |          |                   |          |       |                 |          |                   |          |       |
|           | <b>Overall</b>  |            | <b>11.1</b>        | <b>B</b> | <b>988</b>        | <b>A</b>    | Pass     | <b>12.7</b>     | <b>B</b>    | <b>1,100</b>      | <b>B</b> | Pass        | <b>12.6</b>                     | <b>B</b> | <b>1,020</b>      | <b>B</b> | Pass  | <b>13.2</b>     | <b>B</b> | <b>1,101</b>      | <b>B</b> | Pass  |

Notes:

AWSC = All-way STOP-Controlled intersection

EB = Eastbound, WB = Westbound, NB= Northbound, SB = Southbound

LTR = left / through / right lanes

LTR/LTR = No-build/Build with Mitigation

LOS = Level of Service

TWSC = Two-way STOP-Controlled unsignalized intersection (TWSC intersections do not have an overall LOS)

Delay is Measured in Seconds Per Vehicle.

Red cells denote intersections or approaches operating at unacceptable conditions.

<sup>^</sup> Highway Capacity Manual was unable to report accurate delay using default gap acceptance values.

<sup>a</sup> Highway Capacity Software 2010 Roundabout results

<sup>b</sup> Signalized intersection would be part of the Build with Mitigation Condition, but was included as part of the No-build Condition provided by Renard Development Company, LLC.

## 6.6.5 Queuing Analysis

Synchro™ was used to calculate the 50th percentile queue lengths, and SimTraffic™ was used to calculate the 95th percentile queue lengths. The SimTraffic simulations have a statistical error of plus or minus 3.1 percent for the AM peak hour and 5.0 percent for the PM peak hour simulations. Based on the Synchro™ and SimTraffic™ analysis, there would be no signalized intersection approaches that would experience failing queue lengths in excess of 150 feet of the No-build Condition length.

### 6.6.5.1 *Unsignalized Queuing Analysis*

Based on the Synchro™ and SimTraffic™ analysis, there would be no unsignalized intersection approaches that would experience failing queue lengths in excess of 150 feet of the No-build Condition length.

### 6.6.5.2 *Complete Intersection Queuing Analysis*

The results of the No-build Condition compared with the Build with Mitigation Condition queuing analysis for both signalized and unsignalized intersections are presented in [table 6-2](#). Note that the percentile values are expressed in feet, and a car occupies about 25 linear feet of roadway, including the space between cars.

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**Table 6-2: Comparison of No-build and Build with Mitigation Condition Queuing Analysis**

| #        | Intersection and Approach   | Lane Group | Turning Bay/Link Length (feet) | No-build Condition     |                        |                        |                        | Build with Mitigation  |                        |                        |                        |
|----------|---|------------|--------------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|
|          |   |            |                                | AM Peak                |                        | PM Peak                |                        | AM Peak                |                        | PM Peak                |                        |
|          |   |            |                                | 50th Percentile (feet) | 95th Percentile (feet) |
| <b>1</b> | <b>Greenbelt Road (MD 193) &amp; Cherrywood Lane/60th Avenue (Signalized)</b> |            |                                |                        |                        |                        |                        |                        |                        |                        |                        |
|          | EB (Greenbelt Rd)   | L          | 350                            | 132                    | 165                    | 240                    | 250                    | 130                    | 164                    | 221                    | 255                    |
|          | EB (Greenbelt Rd)   | TR         | 1,584                          | 148                    | 128                    | 373                    | 294                    | 134                    | 126                    | 427                    | 379                    |
|          | WB (Greenbelt Rd)   | L          | 200                            | 43                     | 126                    | 68                     | 137                    | 43                     | 129                    | 57                     | 172                    |
|          | WB (Greenbelt Rd)   | TR         | 1,334                          | 598                    | 324                    | 208                    | 296                    | 601                    | 327                    | 251                    | 405                    |
|          | NB (60th Ave)   | L          | 318                            | -                      | -                      | -                      | -                      | 55                     | 102                    | 54                     | 101                    |
|          | NB (60th Ave)   | LTR/TR     | 318                            | 132                    | 217                    | 154                    | #357                   | 71                     | 135                    | 92                     | 229                    |
|          | SB (Cherrywood Ln)  | L          | 350                            | 74                     | 112                    | 172                    | 254                    | 75                     | 107                    | 194                    | 271                    |
|          | SB (Cherrywood Ln)  | LT         | 1,300                          | 75                     | 134                    | 178                    | 315                    | 76                     | 132                    | 198                    | 399                    |
|          | SB (Cherrywood Ln)  | R          | 1,300                          | 252                    | 259                    | 653                    | 529                    | 292                    | 238                    | 674                    | 697                    |
| <b>2</b> | <b>Cherrywood Lane &amp; Breezewood Drive (AWSC)</b>                          |            |                                |                        |                        |                        |                        |                        |                        |                        |                        |
|          | WB (Breezewood Dr)  | LR         | 573                            | -                      | 86                     | -                      | 76                     | -                      | 82                     | -                      | 77                     |
|          | NB (Cherrywood Ln)  | T          | 1,300                          | -                      | 120                    | -                      | 162                    | -                      | 131                    | -                      | 150                    |
|          | NB (Cherrywood Ln)  | R          | 1,300                          | -                      | 81                     | -                      | 113                    | -                      | 84                     | -                      | 107                    |
|          | SB (Cherrywood Ln)  | L          | 175                            | -                      | 57                     | -                      | 65                     | -                      | 54                     | -                      | 65                     |
|          | SB (Cherrywood Ln)  | T          | 2,394                          | -                      | 73                     | -                      | 85                     | -                      | 72                     | -                      | 98                     |
| <b>3</b> | <b>Cherrywood Lane &amp; Springhill Drive (TWSC)</b>                          |            |                                |                        |                        |                        |                        |                        |                        |                        |                        |
|          | WB (Springhill Dr)  | LR         | 620                            | -                      | 90                     | -                      | 189                    | -                      | 84                     | -                      | 207                    |
|          | NB (Cherrywood Ln)  | TR         | 2,394                          | -                      | -                      | -                      | 3                      | -                      | -                      | -                      | 3                      |
|          | SB (Cherrywood Ln)  | L          | 350                            | -                      | 53                     | -                      | 68                     | -                      | 52                     | -                      | 67                     |
| <b>4</b> | <b>Cherrywood Lane &amp; Greenbelt Metro Drive (Roundabout)</b>               |            |                                |                        |                        |                        |                        |                        |                        |                        |                        |
|          | EB (Greenbelt Metro Dr)   | L          | 449                            | -                      | 59                     | -                      | 109                    | -                      | 59                     | -                      | 187                    |
|          | EB (Greenbelt Metro Dr)   | R          | 250                            | -                      | 25                     | -                      | 43                     | 0                      | 20                     | -                      | 89                     |
|          | NB (Cherrywood Ln)  | LT         | 1,081                          | -                      | 92                     | -                      | 107                    | -                      | 104                    | -                      | 128                    |
|          | SB (Cherrywood Ln)  | T          | 1,451                          | -                      | 42                     | -                      | 83                     | 0                      | 41                     | -                      | 80                     |
|          | SB (Cherrywood Ln)  | R          | 200                            | -                      | 13                     | -                      | 10                     | -                      | 20                     | -                      | 7                      |
| <b>5</b> | <b>Cherrywood Lane &amp; Ivy Lane (TWSC)</b>                                  |            |                                |                        |                        |                        |                        |                        |                        |                        |                        |
|          | EB (Cherrywood Ln)  | LTR        | 1,451                          | -                      | 156                    | -                      | 45                     | -                      | 159                    | -                      | 50                     |
|          | WB (Cherrywood Ln)  | L          | 219                            | -                      | 35                     | -                      | 23                     | -                      | 35                     | -                      | 24                     |
|          | WB (Cherrywood Ln)  | TR         | 219                            | -                      | 12                     | -                      | 9                      | -                      | 13                     | -                      | 6                      |
|          | NB (Ivy Ln)   | LT         | 485                            | -                      | 81                     | -                      | 131                    | -                      | 82                     | -                      | 146                    |
|          | NB (Ivy Ln)   | R          | 485                            | -                      | 38                     | -                      | 53                     | -                      | 37                     | -                      | 54                     |
|          | SB (Ivy Ln)   | LTR        | 223                            | -                      | 66                     | -                      | #287                   | -                      | 69                     | -                      | #279                   |

**Table 6-2: Comparison of No-build and Build with Mitigation Condition Queuing Analysis (continued)**

| #         | Intersection and Approach  | Lane Group | Turning Bay/Link Length (feet) | No-build Condition     |                        |                        |                        | Build with Mitigation  |                        |                        |                        |
|-----------|--|------------|--------------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|
|           |  |            |                                | AM Peak                |                        | PM Peak                |                        | AM Peak                |                        | PM Peak                |                        |
|           |  |            |                                | 50th Percentile (feet) | 95th Percentile (feet) |
| <b>6</b>  | <b>Greenbelt Road (MD 193) &amp; 62 Avenue/Beltway Plaza Driveway (Signalized)</b>     |            |                                |                        |                        |                        |                        |                        |                        |                        |                        |
|           | EB (Greenbelt Rd)  | L          | 250                            | 0                      | 27                     | 9                      | 63                     | 1                      | 25                     | 12                     | 96                     |
|           | EB (Greenbelt Rd)  | TR         | 1,334                          | 63                     | 56                     | 511                    | 221                    | 64                     | 57                     | 676                    | 398                    |
|           | WB (Greenbelt Rd)  | L          | 250                            | 9                      | 53                     | 19                     | 123                    | 9                      | 55                     | 19                     | 104                    |
|           | WB (Greenbelt Rd)  | T          | 1,038                          | 190                    | 168                    | 373                    | 291                    | 197                    | 176                    | 375                    | 286                    |
|           | WB (Greenbelt Rd)  | R          | 1,038                          | 0                      | 39                     | 3                      | 96                     | 0                      | 34                     | 3                      | 99                     |
|           | NB (62th Ave)  | LTR        | 697                            | 25                     | 96                     | 115                    | 202                    | 25                     | 100                    | 115                    | 194                    |
|           | SB (Beltway Plaza Drwy)  | L          | 350                            | 16                     | 14                     | 173                    | 238                    | 16                     | 10                     | 173                    | 243                    |
|           | SB (Beltway Plaza Drwy)  | LT         | 472                            | 17                     | 69                     | 172                    | 268                    | 17                     | 67                     | 172                    | 277                    |
|           | SB (Beltway Plaza Drwy)  | R          | 350                            | 0                      | 23                     | 0                      | 51                     | 0                      | 22                     | 0                      | 73                     |
| <b>7</b>  | <b>Kenilworth Avenue (MD 201) &amp; I-95/I-495 SB Off-ramp (Signalized)</b>            |            |                                |                        |                        |                        |                        |                        |                        |                        |                        |
|           | EB (I-95/I-495 SB Off-ramp)  | L          | 531                            | 112                    | 300                    | 97                     | 211                    | 112                    | 288                    | 97                     | 202                    |
|           | EB (I-95/I-495 SB Off-ramp)  | R          | 736                            | 0                      | 394                    | 0                      | 2                      | 0                      | 316                    | 0                      | -                      |
|           | NB (Kenilworth Ave)  | T          | 1,263                          | 46                     | 90                     | 66                     | 116                    | 47                     | 91                     | 66                     | 118                    |
|           | SB (Kenilworth Ave)  | T          | 574                            | 229                    | 180                    | 56                     | 115                    | 229                    | 171                    | 57                     | 119                    |
| <b>8</b>  | <b>Kenilworth Avenue (MD 201) &amp; I-95/I-495 NB Off-ramp (Signalized)</b>            |            |                                |                        |                        |                        |                        |                        |                        |                        |                        |
|           | WB (I-95/I-495 NB Off-ramp)  | L          | 885                            | 223                    | 245                    | 160                    | 222                    | 223                    | 246                    | 160                    | 226                    |
|           | WB (I-95/I-495 NB Off-ramp)  | R          | 835                            | 217                    | 152                    | 61                     | 96                     | 217                    | 153                    | 61                     | 88                     |
|           | NB (Kenilworth Ave)  | T          | 345                            | 116                    | 131                    | 49                     | 94                     | 119                    | 140                    | 49                     | 96                     |
|           | SB (Kenilworth Ave)  | T          | 199                            | 56                     | 154                    | 77                     | 129                    | 56                     | 154                    | 78                     | 134                    |
| <b>9</b>  | <b>Kenilworth Avenue (MD 201) &amp; Crescent Road/Maryland SHA Office (Signalized)</b> |            |                                |                        |                        |                        |                        |                        |                        |                        |                        |
|           | EB (Maryland SHA Office)   | LTR        | 250                            | 1                      | 36                     | 3                      | 48                     | 1                      | 39                     | 3                      | 47                     |
|           | WB (Crescent Rd)   | LT         | 441                            | 168                    | 254                    | 79                     | 145                    | 168                    | 245                    | 79                     | 139                    |
|           | WB (Crescent Rd)   | R          | 250                            | 0                      | 133                    | 0                      | 71                     | 0                      | 129                    | 0                      | 69                     |
|           | NB (Kenilworth Ave)  | L          | 250                            | 28                     | 85                     | 9                      | 36                     | 28                     | 86                     | 9                      | 36                     |
|           | NB (Kenilworth Ave)  | T          | 286                            | 234                    | 281                    | 117                    | 160                    | 234                    | 282                    | 117                    | 163                    |
|           | NB (Kenilworth Ave)  | R          | 250                            | 9                      | 114                    | 2                      | 35                     | 9                      | 119                    | 2                      | 41                     |
|           | SB (Kenilworth Ave)  | L          | 300                            | 64                     | 110                    | 128                    | 201                    | 64                     | 111                    | 131                    | 205                    |
|           | SB (Kenilworth Ave)  | T          | 793                            | 45                     | 156                    | 60                     | 446                    | 45                     | 160                    | 60                     | 524                    |
|           | SB (Kenilworth Ave)  | R          | 793                            | 0                      | 10                     | 0                      | 194                    | 0                      | 10                     | 0                      | 224                    |
| <b>10</b> | <b>Kenilworth Avenue (MD 201) &amp; Ivy Lane (Signalized)</b>                          |            |                                |                        |                        |                        |                        |                        |                        |                        |                        |
|           | EB (Ivy Ln)  | R          | -                              | 0                      | -                      | 0                      | -                      | 0                      | -                      | 0                      | -                      |
|           | NB (Kenilworth Ave)  | L          | 547                            | 88                     | 134                    | 21                     | 59                     | 87                     | 139                    | 21                     | 58                     |
|           | NB (Kenilworth Ave)  | T          | -                              | 45                     | 64                     | 29                     | -                      | 45                     | 73                     | 29                     | -                      |
|           | SB (Kenilworth Ave)  | T          | 1,198                          | 4                      | 93                     | 15                     | 101                    | 4                      | 85                     | 16                     | 102                    |
|           | SB (Kenilworth Ave)  | R          | -                              | 0                      | -                      | 0                      | -                      | 0                      | -                      | 0                      | -                      |

Table 6-2: Comparison of No-build and Build with Mitigation Condition Queuing Analysis (continued)

| #  | Intersection and Approach | Lane Group | Turning Bay/Link Length (feet) | No-build Condition     |                        |                        |                        | Build with Mitigation  |                        |                        |                        |
|--|---------------------------|------------|--------------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|
|  |                           |            |                                | AM Peak                |                        | PM Peak                |                        | AM Peak                |                        | PM Peak                |                        |
|  |                           |            |                                | 50th Percentile (feet) | 95th Percentile (feet) |
| <b>11 Kenilworth Avenue/Edmonston Road (MD 201) &amp; Cherrywood Lane (Signalized)</b> |                           |            |                                |                        |                        |                        |                        |                        |                        |                        |                        |
|  | EB (Cherrywood Ln)        | L          | 777                            | 68                     | 120                    | 129                    | 165                    | 69                     | 125                    | 139                    | 176                    |
|  | EB (Cherrywood Ln)        | R          | 1,304                          | 0                      | 65                     | 0                      | 200                    | 0                      | 61                     | 0                      | 198                    |
|  | NB (Kenilworth Ave)       | L          | 750                            | 81                     | 367                    | 18                     | 148                    | 81                     | 374                    | 15                     | 146                    |
|  | NB (Kenilworth Ave)       | T          | 1,198                          | 2                      | 59                     | 6                      | 76                     | 2                      | 56                     | 6                      | 79                     |
|  | SB (Edmonston Rd)         | T          | 594                            | 307                    | 301                    | 212                    | 204                    | 311                    | 281                    | 217                    | 192                    |
|  | SB (Edmonston Rd)         | R          | 250                            | 31                     | #265                   | 0                      | 89                     | 46                     | 248                    | 0                      | 78                     |
| <b>12 Edmonston Road (MD 201) &amp; Sunnyside Avenue (Signalized)</b>                  |                           |            |                                |                        |                        |                        |                        |                        |                        |                        |                        |
|  | EB (Sunnyside Ave)        | L          | 953                            | 182                    | 555                    | 320                    | #1234                  | 71                     | 127                    | 231                    | 658                    |
|  | EB (Sunnyside Ave)        | R          | 350                            | 332                    | #421                   | 455                    | #425                   | 151                    | 238                    | 290                    | #434                   |
|  | NB (Edmonston Rd)         | L          | 450                            | 362                    | 387                    | 268                    | #602                   | 71                     | 180                    | 73                     | 251                    |
|  | NB (Edmonston Rd)         | T          | 964                            | 249                    | 259                    | 809                    | #1865                  | 70                     | 110                    | 222                    | 199                    |
|  | SB (Edmonston Rd)         | T          | 1,076                          | 1336                   | #1629                  | 1058                   | #1726                  | 242                    | 233                    | 336                    | 360                    |
|  | SB (Edmonston Rd)         | R          | 250                            | 23                     | #293                   | 14                     | #336                   | 0                      | 103                    | 0                      | 243                    |
| <b>13 Edmonston Road (MD 201) &amp; Powder Mill Road (Signalized)</b>                  |                           |            |                                |                        |                        |                        |                        |                        |                        |                        |                        |
|  | EB (Powder Mill Rd)       | L          | 250                            | 43                     | 124                    | 414                    | 237                    | 28                     | 70                     | 50                     | 202                    |
|  | EB (Powder Mill Rd)       | T          | 639                            | 244                    | 269                    | 0                      | 457                    | 158                    | 230                    | 261                    | 386                    |
|  | EB (Powder Mill Rd)       | R          | 500                            | 0                      | 83                     | 0                      | 154                    | 67                     | 110                    | 72                     | 101                    |
|  | WB (Powder Mill Rd)       | L          | 250                            | 114                    | 156                    | 74                     | 119                    | 69                     | 141                    | 43                     | 102                    |
|  | WB (Powder Mill Rd)       | T          | 693                            | 176                    | 214                    | 129                    | 163                    | 106                    | 193                    | 76                     | 145                    |
|  | WB (Powder Mill Rd)       | R          | 100                            | 0                      | 100                    | 0                      | 62                     | 0                      | 90                     | 0                      | 43                     |
|  | NB (Edmonston Rd)         | L          | 541                            | 513                    | 364                    | ~615                   | 324                    | 114                    | 172                    | 123                    | 205                    |
|  | NB (Edmonston Rd)         | T          | 641                            | 274                    | 246                    | 19                     | 297                    | 246                    | 274                    | 445                    | 458                    |
|  | NB (Edmonston Rd)         | R          | 325                            | 0                      | 20                     | 64                     | 96                     | 0                      | 35                     | 0                      | 271                    |
|  | SB (Edmonston Rd)         | L          | 275                            | 21                     | 104                    | 0                      | 140                    | 12                     | 63                     | 39                     | 107                    |
|  | SB (Edmonston Rd)         | TR         | 806                            | 324                    | 301                    | 0                      | 310                    | 192                    | 250                    | 174                    | 225                    |
| <b>14 Greenbelt Metro Drive &amp; Site North Access (Signalized) <sup>a</sup></b>      |                           |            |                                |                        |                        |                        |                        |                        |                        |                        |                        |
|  | EB (Greenbelt Metro Dr)   | T          | 368                            | N/A                    | N/A                    | N/A                    | N/A                    | 39                     | 87                     | 137                    | 283                    |
|  | WB (Greenbelt Metro Dr)   | L          | -                              | N/A                    | N/A                    | N/A                    | N/A                    | -                      | -                      | -                      | -                      |
|  | WB (Greenbelt Metro Dr)   | T          | 237                            | N/A                    | N/A                    | N/A                    | N/A                    | 78                     | 131                    | 61                     | 138                    |
|  | NB (Site North Access)    | L          | 232                            | -                      | -                      | -                      | -                      | 5                      | 36                     | 62                     | 157                    |
|  | NB (Site North Access)    | R          | 232                            | N/A                    | N/A                    | N/A                    | N/A                    | 0                      | 33                     | 0                      | 107                    |

Table 6-2: Comparison of No-build and Build with Mitigation Condition Queuing Analysis (continued)

| #   | Intersection and Approach   | Lane Group | Turning Bay/Link Length (feet) | No-build Condition     |                        |                        |                        | Build with Mitigation  |                        |                        |                        |
|---|-----------------------------|------------|--------------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|
|   |                             |            |                                | AM Peak                |                        | PM Peak                |                        | AM Peak                |                        | PM Peak                |                        |
|   |                             |            |                                | 50th Percentile (feet) | 95th Percentile (feet) |
| <b>15 Greenbelt Station Bus Bays/Greenbelt Metro Drive &amp; Greenbelt Station Parkway (Signalized)</b>       |                             |            |                                |                        |                        |                        |                        |                        |                        |                        |                        |
|   | EB (Greenbelt Sta Bus Bays) | LT         | 216                            | 22                     | 59                     | 16                     | 54                     | 14                     | 51                     | 16                     | 60                     |
|   | EB (Greenbelt Sta Bus Bays) | R          | -                              | -                      | -                      | -                      | -                      | -                      | -                      | -                      | -                      |
|   | WB (Greenbelt Metro Dr)     | L          | 366                            | 412                    | #446                   | 169                    | 250                    | 278                    | 362                    | 163                    | 250                    |
|   | WB (Greenbelt Metro Dr)     | T          | 366                            | 14                     | 45                     | 15                     | 57                     | 9                      | 38                     | 14                     | 54                     |
|   | WB (Greenbelt Metro Dr)     | R          | 275                            | 0                      | -                      | 0                      | -                      | 0                      | -                      | 73                     | 119                    |
|   | NB (Greenbelt Sta Pkwy)     | L          | 250                            | -                      | -                      | 0                      | 4                      | -                      | -                      | 0                      | 4                      |
|   | NB (Greenbelt Sta Pkwy)     | T          | 243                            | 100                    | 102                    | 50                     | 84                     | 69                     | -                      | 61                     | 88                     |
|   | NB (Greenbelt Sta Pkwy)     | R          | 243                            | 31                     | -                      | 12                     | 11                     | 22                     | 112                    | 22                     | 31                     |
| <b>16 Greenbelt Station Parkway &amp; North Core Development/Site Northwest Access (Signalized)</b>           |                             |            |                                |                        |                        |                        |                        |                        |                        |                        |                        |
|   | EB (North Core Dev)         | L          | 179                            | 38                     | 80                     | 121                    | 164                    | 24                     | 67                     | 122                    | 160                    |
|   | EB (North Core Dev)         | TR         | 179                            | 0                      | 36                     | 0                      | 63                     | 0                      | 35                     | 0                      | 114                    |
|   | WB (Site Northwest Access)  | LTR (AM)   | -                              | -                      | -                      | -                      | -                      | 0                      | 48                     | -                      | -                      |
|   | WB (Site Northwest Access)  | TR (PM)    | -                              | -                      | -                      | -                      | -                      | -                      | -                      | -                      | 218                    |
|   | WB (Site Northwest Access)  | R (PM)     | -                              | -                      | -                      | -                      | -                      | -                      | -                      | 86                     | 202                    |
|   | NB (Greenbelt Sta Pkwy)     | L          | 505                            | 28                     | 197                    | 33                     | 131                    | 48                     | 149                    | 63                     | 200                    |
|   | NB (Greenbelt Sta Pkwy)     | TR         | 505                            | 28                     | 107                    | 67                     | 228                    | 65                     | 143                    | 136                    | 305                    |
|   | SB (Greenbelt Sta Pkwy)     | TR         | 266                            | 0                      | 22                     | 0                      | 13                     | 0                      | 17                     | 0                      | 83                     |
| <b>17 Greenbelt Station Parkway &amp; Residential Access to 500 Units (TWSC)</b>                              |                             |            |                                |                        |                        |                        |                        |                        |                        |                        |                        |
|   | EB (Residential Access)     | R          | 174                            | -                      | 59                     | -                      | 49                     | -                      | 78                     | -                      | 49                     |
|   | SB (Greenbelt Sta Pkwy)     | T          | -                              | -                      | -                      | -                      | -                      | -                      | 5                      | -                      | -                      |
|   | NB (Greenbelt Sta Pkwy)     | T          | 459                            | -                      | 3                      | -                      | 302                    | -                      | -                      | -                      | 65                     |
| <b>18 Greenbelt Station Parkway &amp; I-95/I-495 Off-ramps/Site South Access/Kiss &amp; Ride (Signalized)</b> |                             |            |                                |                        |                        |                        |                        |                        |                        |                        |                        |
|   | EB (I-95 Off-ramps)         | L          | 188                            | 238                    | 223                    | 187                    | 134                    | 360                    | 422                    | 195                    | 149                    |
|   | EB (I-95 Off-ramps)         | LTR        | 188                            | 129                    | 222                    | 21                     | 153                    | 321                    | 470                    | 30                     | 132                    |
|   | EB (Kiss and Ride)          | L          | 160                            | 229                    | #258                   | 116                    | 174                    | 85                     | #217                   | 62                     | 110                    |
|   | WB (Site South Access)      | R          | 402                            | 6                      | 27                     | 118                    | 160                    | 4                      | 25                     | 90                     | 154                    |
|   | NB (Greenbelt Sta Pkwy)     | L          | 375                            | 24                     | 59                     | 35                     | 76                     | 10                     | 47                     | 7                      | 56                     |
|   | NB (Greenbelt Sta Pkwy)     | T          | 530                            | 325                    | 86                     | 110                    | 87                     | 220                    | 88                     | 58                     | 93                     |
|   | SB (Greenbelt Sta Pkwy)     | L          | 400                            | 0                      | 120                    | 0                      | 54                     | ~120                   | 345                    | 0                      | 38                     |
|   | SB (Greenbelt Sta Pkwy)     | TR         | 459                            | 0                      | 73                     | 28                     | 93                     | 0                      | 192                    | 15                     | 69                     |

**Table 6-2: Comparison of No-build and Build with Mitigation Condition Queuing Analysis (continued)**

| #  | Intersection and Approach | Lane Group | Turning Bay/Link Length (feet) | No-build Condition     |                        |                        |                        | Build with Mitigation  |                        |                        |                        |
|--|---------------------------|------------|--------------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|
|  |                           |            |                                | AM Peak                |                        | PM Peak                |                        | AM Peak                |                        | PM Peak                |                        |
|  |                           |            |                                | 50th Percentile (feet) | 95th Percentile (feet) |
| <b>19 Greenbelt Station Parkway &amp; WMATA Garage (Signalized)</b>              |                           |            |                                |                        |                        |                        |                        |                        |                        |                        |                        |
|  | EB (WMATA Garage)         | L          | 150                            | 7                      | 30                     | 100                    | #158                   | 4                      | 28                     | 100                    | #162                   |
|  | EB (WMATA Garage)         | R          | 290                            | 0                      | 24                     | 0                      | 63                     | 0                      | 22                     | 0                      | 83                     |
|  | NB (Greenbelt Sta Pkwy)   | LT         | 330                            | 358                    | 183                    | 157                    | 80                     | 237                    | 142                    | 158                    | 87                     |
|  | NB (Greenbelt Sta Pkwy)   | TR         | 330                            | 4                      | 145                    | 48                     | 99                     | 0                      | 109                    | 48                     | 90                     |
|  | SB (Greenbelt Sta Pkwy)   | T          | 162                            | 141                    | 68                     | 248                    | 152                    | 112                    | 55                     | 220                    | #177                   |
|  | SB (Greenbelt Sta Pkwy)   | R          | 162                            | 23                     | 14                     | 0                      | 2                      | 15                     | 13                     | 0                      | 2                      |
| <b>20 Greenbelt Station Parkway &amp; Residential Access to 300 Units (TWSC)</b> |                           |            |                                |                        |                        |                        |                        |                        |                        |                        |                        |
|  | EB (Residential Access)   | LR         | 224                            | -                      | 64                     | -                      | 44                     | -                      | 60                     | -                      | 45                     |
|  | NB (Greenbelt Sta Pkwy)   | LT         | 345                            | -                      | 0                      | -                      | 0                      | -                      | 0                      | -                      | 0                      |
|  | SB (Greenbelt Sta Pkwy)   | TR         | 350                            | -                      | 5                      | -                      | 6                      | -                      | 2                      | -                      | 8                      |
| <b>21 Greenbelt Road (MD 193) &amp; Greenbelt Station Parkway (Signalized)</b>   |                           |            |                                |                        |                        |                        |                        |                        |                        |                        |                        |
|  | EB (Greenbelt Rd)         | L          | 57                             | 95                     | 144                    | 97                     | #142                   | 124                    | 169                    | 98                     | #151                   |
|  | EB (Greenbelt Rd)         | T          | 1,008                          | 84                     | 95                     | 360                    | 233                    | 84                     | 106                    | 360                    | 242                    |
|  | WB (Greenbelt Rd)         | T          | 1,584                          | 117                    | 130                    | 165                    | 199                    | 114                    | 121                    | 200                    | 196                    |
|  | WB (Greenbelt Rd)         | R          | 150                            | 0                      | 71                     | 19                     | #167                   | 11                     | 52                     | 18                     | #178                   |
|  | SB (Greenbelt Sta Pkwy)   | L          | 524                            | 115                    | 162                    | 125                    | 185                    | 109                    | 143                    | 125                    | 198                    |
|  | SB (Greenbelt Sta Pkwy)   | R          | 225                            | 165                    | 209                    | 184                    | #242                   | 145                    | 204                    | 185                    | #238                   |

Notes:

~ 50th percentile volume exceeds capacity, queue is theoretically infinite.

# 95th percentile volume exceeds capacity, queue may be longer.

m Volume for 95th percentile queue is metered by upstream signal. Due to upstream metering, the 95th percentile queue may be less than the 50th percentile queue.

AWSC = All-way STOP-Controlled intersection

EB = Eastbound, WB = Westbound, NB= Northbound, SB = Southbound

LTR = left / through / right lanes

TWSC = Two-way STOP-Controlled intersection

Red cells denote approaches and lane groups whose queuing length exceeds capacity.

<sup>a</sup> Signalized intersection would be part of the Build with Mitigation Condition, but was included as part of the No-build Condition provided by Renard Development Company, LLC.

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## 6.6.6 Recommend Traffic Mitigation

Recommended traffic mitigation measures were developed to address the substantial traffic impacts caused by the addition of the Consolidated FBI HQ in Greenbelt. These included traffic signal optimization, road widening, lane geometry improvements at intersections, installation of new traffic signals, lane striping adjustments. If implemented, the recommended traffic mitigation measures would maintain acceptable traffic flow conditions based on the Greenbelt Site Transportation Agreement. The following recommendations in **table 6-3** are provided to mitigate the proposed traffic impacts of the Greenbelt Build Condition:

**Table 6-3: Recommended Traffic Mitigation**

| Impact   | Mitigation  |
|--|---|
| To improve traffic operations along Greenbelt Station Parkway and Greenbelt Road the traffic signals would be optimized and/or coordinated                                       | Optimize the traffic signals at the following locations: <ul style="list-style-type: none"> <li>○ Greenbelt Road (MD 193) and Greenbelt Station Parkway intersection</li> <li>○ Greenbelt Station Parkway and WMATA Garage intersection</li> <li>○ Greenbelt Station Parkway and North Core Mixed Use/Site Northwest Access intersection</li> <li>○ Greenbelt Station Parkway and Greenbelt Metro Drive intersection</li> </ul> |
| To improve traffic operations along the Edmonston Road corridor widen the road, change the intersection geometry including new turn lanes (optimize traffic signal if warranted) | Widen the road along Edmonston Road between Powder Mill Road and 1,500 feet south of Sunnyside Road and change the lane geometry at the following locations: <ul style="list-style-type: none"> <li>○ Edmonston Road (MD 201) and Powder Mill Road intersection</li> <li>○ Edmonston Road (MD 201) and Sunnyside Road intersection</li> </ul>   |
| To improve traffic operations at isolated locations change the intersection geometry and optimize traffic signal if warranted  | Change the intersection geometry at the following locations: <ul style="list-style-type: none"> <li>○ Greenbelt Road (MD 193) and Cherrywood Lane/60th Avenue intersection</li> <li>○ Greenbelt Station Parkway and I-95/I-495 off-ramp/Site South Access intersection</li> </ul>   |
| To improve traffic operations at isolated locations install new traffic signals  | Install a new traffic signal at Greenbelt Metro Drive and Site North Access intersection  |
| To improve traffic operations along ramp connecting the Interstate to the planned WMATA garage and Greenbelt Station Parkway   | Revise the lane striping plane along I-95/I-495 off-ramp from the Interstates to Greenbelt Station Parkway to provide one lane that leads directly to the WMATA garage  |

The mitigation measures were developed to ensure the intersections would operate in a safe manner for all modes. This included assigning adequate pedestrian crossing times for any signalized intersection that required a change in the number of approach lanes and recommending non-motorized bridges to ensure bicycle and pedestrians can safely cross when an at grade crossing would not be safely accommodated. It is assumed that all planned roadway improvements and mitigation would follow the American Association of State Highway

Transportation Officials, Maryland SHA, M-NCPPC, and Prince George's County requirements to ensure all vehicle, bicycle, and pedestrian movements are designed to the latest safety standards.

Overall, the study area would experience isolated intersection improvements, specifically along Edmonston Road. These improvements would result in changing the impacts from direct, long-term, adverse impacts to direct, long-term, beneficial impacts because the operations would improve to a better operation than the No-build Condition. In addition to these impacts, there would be two failing Interstate facilities: one would be caused by the volume of vehicles added to the I-95/I-495 northbound off-ramp to Landover Road during the AM peak hour, and the second would be caused by the volume of vehicles added to the I-95/I-495 southbound on-ramp from Arena Drive during the PM peak hour. These area-wide impacts would result in direct, long-term, major adverse impacts due to the regional nature of the Interstate system (see Section 6.6.7.3 for further information).

The construction impacts would change from direct, short-term, adverse impacts under the Build Condition to direct, short-term, major adverse impacts under the Build with Mitigation Condition during the construction period. This change in impact level reflects the short-term impacts from adding construction-related trips caused by trucks, employees, and equipment as well as intermittent lane or road closures at the Greenbelt site and locations where the roadway improvements would occur.

## 6.6.7 Freeway Analysis Summary

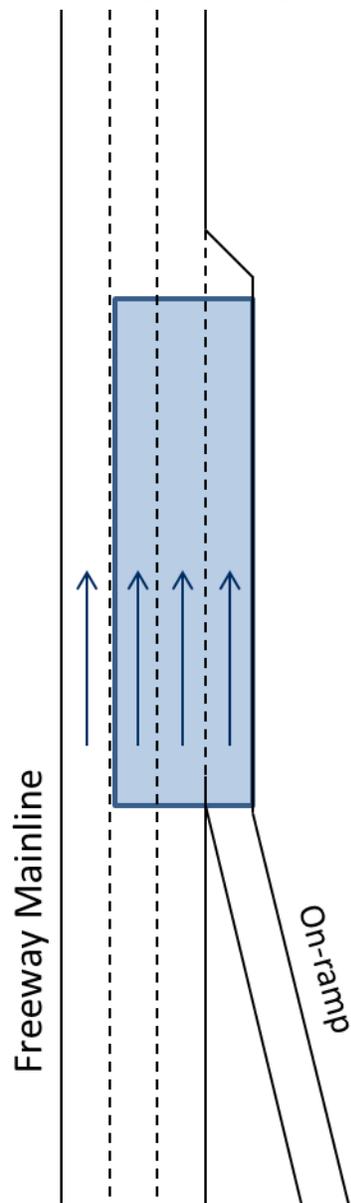
The *Highway Capacity Software* (HCS) Version 6.65 was used to determine the Interstate operations for these key on- and off-ramps. The HCS modules follow the HCM uninterrupted flow procedures called freeways. The Interstate system is a network of signed roadways that crisscross the country from coast to coast (east-west) and border to border (north-south) and operate as freeways or uninterrupted vehicle flow. Interrupted vehicle flow refers to the roadways with traffic signals, stop signs, and roundabouts. Based on the proposed FBI trip distribution, 86 percent of forecasted FBI vehicle trips would use the Interstate system (I-95/I-495) to access the proposed site. Because the interstate system is vital to serving the Greenbelt site, the Interstates were evaluated to determine whether or not the added vehicle trips would cause any failing interstate facilities.

Based on the agreed Greenbelt Site Transportation Agreement ([Appendix C1](#)), the evaluated Interstate facilities focused on the peak direction only and at the primary off-ramps serving the inbound forecasted FBI vehicle trips during the AM peak hour and the on-ramps serving the outbound forecasted FBI vehicle trips during the PM peak hour.

### 6.6.7.1 Freeway Facilities Types Studied

Several freeway facility types were evaluated, including merge and weave designs. In total, the analysis included the evaluation of one merge and four weave facilities. Merge facilities represent an on-ramp to the freeway. Weave facilities represent an on-ramp followed by an off-ramp that share the same lane and are spaced close enough to create a crisscross vehicle pattern caused by vehicles entering the freeway, potentially blocking vehicles exiting the freeway or vice versa. The vehicle volumes combined with the distance between the on- and off-ramps help determine whether or not a facility qualifies as a weave or two separate merge and diverge areas (HCM, Equation 12-4; TRB 2010). [Figure 6-6](#) illustrates a typical merge facility, and [figure 6-7](#) illustrates a typical weave facility.

Figure 6-6: Typical Merge Facility



Legend

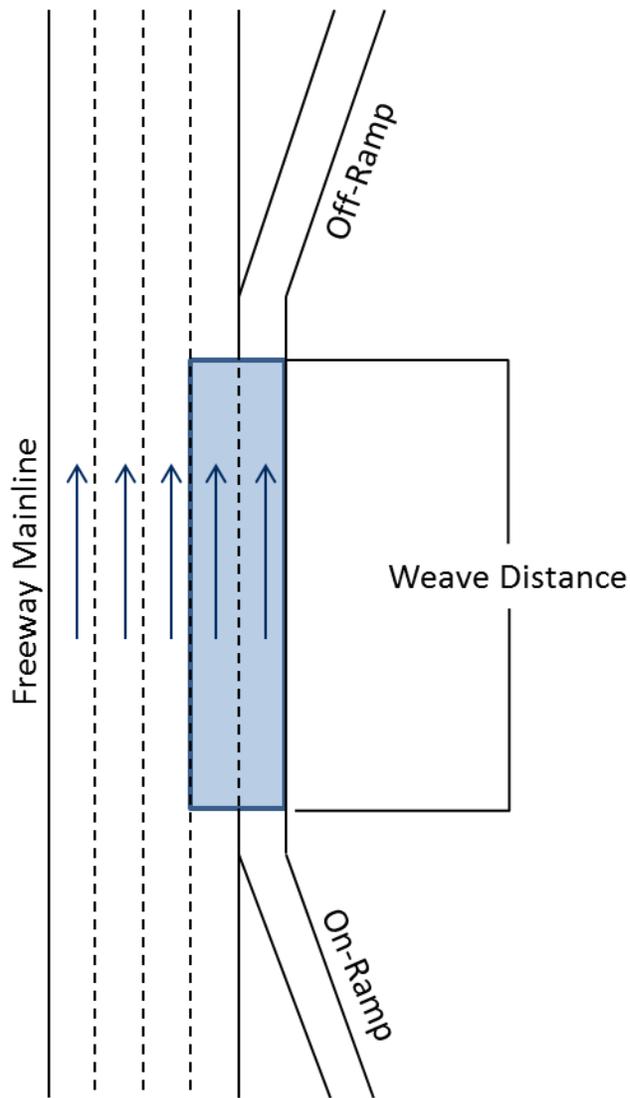
Analyzed Area



Direction of Travel



**Figure 6-7: Typical Weave Facility**



**Legend**

- Analyzed Area 
- Direction of Travel 

Freeway facilities are evaluated based on the density of vehicles. The higher the density, the slower the vehicles travel, and the worse the operations. Based on the vehicle density, the HCM provides LOS equivalents to represent the driver's perception of the facility operation. [Table 6-4](#) contains the HCM freeway LOS.

**Table 6-4: HCM Weaving Segments, Merge, and Diverge Facilities Level of Service**

| LOS | Density<br>(passenger cars/mile/lane) | Description                            |
|-----|---------------------------------------|--|
| A   | Less than or equal to 10              | Passing operation                      |
| B   | >10-20                                |  |
| C   | >20-28                                |  |
| D   | >28-35                                |  |
| E   | >35                                   | Unstable conditions                    |
| F   | Demand Exceeds Capacity               | Above capacity and unstable conditions |

Source: TRB (2010)

All Interstate facilities were evaluated based on a PHF of 0.92 (ratio of the 60-minute volume divided by 4 times the highest 15-minute volume), the lowest accepted by VDOT's *Traffic Impact Analysis Regulations* to be consistent for all three sites and provide a conservative value for the analysis of future facilities (VDOT 2012). This is also the same PHF used to evaluate all intersection facilities within the study area.

#### 6.6.7.2 Freeway Facilities Evaluated

The following facilities were evaluated:

##### AM Peak Hour Inbound Flows

- Weave Section: I-95/I-495 northbound between Kenilworth Avenue (MD 201) and Greenbelt Station Parkway/Greenbelt Metro Station
- Weave Section: I-95/I-495 southbound between U.S. Route 1 and Greenbelt Station Parkway/Greenbelt Metro Station

##### PM Peak Hour Inbound Flows

- Weave Section: I-95/I-495 northbound between Greenbelt Station Parkway and U.S. Route 1
- Weave Section: I-95/I-495 southbound between Greenbelt Station Parkway and Kenilworth Avenue (MD 201)
- Ramp Merge: I-95/I-495 northbound from Greenbelt Station Parkway/Greenbelt Metro Station (**No-build comparison due to failing Build Condition**)

#### I-95/I-495 Northbound between Kenilworth Avenue (MD 201) and Greenbelt Station Parkway/Greenbelt Metro Station

This facility is a five-lane facility along the freeway mainline with four through lanes and one lane serving the on- and -off ramps. There is a 2,785-foot distance between the on- and off- ramps and two maneuvering lanes (minimum number of lanes in use to either enter or exit the freeway).

#### I-95/495 Southbound between U.S. Route 1 and Greenbelt Station Parkway/Greenbelt Metro Station

This facility is a five-lane facility along the freeway mainline with four through lanes and one lane serving the on- and off-ramps. There is a 3,500-foot distance between the on- and off-ramps and two maneuvering lanes (minimum number of lanes in use to either enter or exit the freeway).

I-95/495 Northbound between Greenbelt Station Parkway/Greenbelt Metro Station and U.S. Route 1

This facility is a five-lane facility along the freeway mainline with four through lanes and one lane serving the on- and -off ramps. There is a 4,500-foot distance between the on- and off- ramps and two maneuvering lanes (minimum number of lanes in use to either enter or exit the freeway).

I-95/I-495 Southbound between Greenbelt Station Parkway/Greenbelt Metro Station and Kenilworth Avenue (MD 201)

This facility is a five-lane facility along the freeway mainline with four through lanes and one lane serving the on- and off-ramps. There is a 3,500-foot distance between the on- and off-ramps and two maneuvering lanes (minimum number of lanes in use to either enter or exit the freeway).

I-95/I-495 Northbound from Greenbelt Station Parkway/Greenbelt Metro Station (No-build Condition only as comparison to failing Build Condition weave facility)

This facility is a five-lane facility with four through lanes and one lane serving the on-ramp. There is a 1,000-foot deceleration lane serving the on-ramp. Based on the HCM (equation 12-4; TRB 2010) the vehicle volume entering, exiting, and remaining on the freeway determines the maximum distance for a facility to be considered a weave facility. Because the vehicle volume between Greenbelt Station Parkway/Greenbelt Metro Station and the downstream off-ramp to U.S. Route 1 result in weave distance shorter than the actual distance, this facility does not qualify to be analyzed as a weave facility and must be analyzed as a merge facility.

**6.6.7.3 Freeway Analysis**

Based on the analysis performed using HCS, two Interstate facilities are projected to fail. During the AM peak hour, the weave facility serving FBI vehicle trips from I-95 from the north to Greenbelt Station Parkway/Greenbelt Metro Station would result in a failing freeway facility (LOS F). During the PM peak hour, the weave facility serving FBI vehicle trips to I-95 to the north would result in a failing freeway facility (LOS E). **Table 6-5** contains the Build with Mitigation Condition HCS freeway analysis.

**Table 6-5: Build with Mitigation Condition Freeway Analysis**

| Freeway Analysis   | Facility Type | Density (pc/mi/ln) | LOS | Check |
|--|---------------|--------------------|-----|-------|
| I-95/I-495 Northbound between Kenilworth Avenue (MD 201) and Greenbelt Station Parkway/Greenbelt Metro Station (AM only) | Weave         | 30.7               | D   | Pass  |
| I-95/I-495 Southbound between U.S. Route 1 and Greenbelt Station Parkway/Greenbelt Metro Station (AM only)               | Weave         | 44.5               | F   | Fail  |
| I-95/I-495 Northbound between Greenbelt Station Parkway/Greenbelt Metro Station and U.S. Route 1 (PM only)               | Weave         | 38.0               | E   | Fail  |
| I-95/I-495 Southbound between Greenbelt Station Parkway/Greenbelt Metro Station and Kenilworth Avenue (MD 201) (PM only) | Weave         | 32.8               | D   | Pass  |

Notes: LOS = Level of Service; Density = Passenger cars per mile per lane (pc/mi/ln)

If any of the Interstate facilities failed, an additional test was agreed based on the Greenbelt Site Transportation Agreement to determine if the difference in vehicle density between the No-build Condition and Build Condition was greater than 5 percent. This would confirm that the forecasted FBI vehicle trips significantly contributed to the

failing of the facilities. Based on the additional analysis, the failing Interstate facilities would contribute more than 5 percent to vehicle density, thus both facilities would be impacted by the addition of forecasted FBI vehicle trips. It should be noted that this analysis followed the Maryland SHA future planned designs for the I-95/I-495 corridor between U.S. Route 1 and Kenilworth Avenue (MD 201). Based on a conversation with Maryland SHA, the Maryland SHA analysis performed indicated that the facilities with failing LOS would be expected to fail in the future; however, the average speed through the corridor would be expected to be 30 mph and thus acceptable (Maryland SHA 2015b). **Table 6-6** contains the Build with Mitigation Condition additional freeway analysis.

**Table 6-6: Build with Mitigation Condition Freeway Analysis**

| Additional Freeway Analysis  | Condition             | Density (pc/mi/ln) | Density Difference | AM Check |
|--|-----------------------|--------------------|--------------------|----------|
| I-95/I-495 Southbound between U.S. Route 1 and Greenbelt Station Parkway/Greenbelt Metro Station_(AM only) | No-build              | 39.7               | 12.1%              | Fail     |
|  | Build with Mitigation | 44.5               |                    |          |
| I-95/I-495 Northbound between Greenbelt Station Parkway/Greenbelt Metro Station and U.S. Route 1 (PM only) | No-build              | 29.0 <sup>a</sup>  | 31.0%              | Fail     |
|  | Build with Mitigation | 38.0               |                    |          |

<sup>a</sup> Represents a Merge Facility

Notes: Density = Passenger cars per mile per lane (pc/mi/ln)

## 6.6.8 Entry Control Facility Summary

The ECF analysis was performed once the complete set of external roadway mitigation was established. All mitigation measures were coded into TransModeler™, and the several scenarios were tested to determine the minimum number of lanes capable of handling the AM peak hour forecasted FBI vehicle trips. It was determined that three lanes at the Site South Access and three lanes at the Site Northwest Access were required to handle the forecasted demand. This resulted in the following breakdown of vehicles between the two ECFs:

- South Entrance from Frontier Drive Extension: 491 vehicles or 48 percent
- East Entrance from Metropolitan Center Drive: 530 vehicles or 52 percent

Following the process to ensure statistical accuracy for the simulations, TransModeler™ was used to run 25 simulations for each scenario to calculate the standard deviation based on the VHT metric. **Appendix C10** contains the statistical results for determining the minimum number of TransModeler™ simulations required to be within plus or minus 2 percent at the 95th percentile confidence interval. Following the statistical procedure, the following three scenarios were completed:

- Site South Access and Greenbelt Station Parkway and Site Northwest Access and Greenbelt Station Parkway traffic signal controlled
  1. Two lanes at the Site South Access and two lanes at the Site Northwest Access
  2. Three lanes at the Site South Access and two lanes at the Site Northwest Access
  3. Three lanes at the Site South Access and three lanes at the Site Northwest Access

The first and third scenarios relied on the inbound FBI vehicle trip volume from each origin to the two ECFs calculated using the TransModeler™ DTA process. Because the distance between the two ECFs to the decision point is too short for vehicles to decide whether to use the Site South Access or Site Northwest Access, the DTA was unable to properly balance the FBI vehicle volumes between the two ECFs. Therefore, the second scenario required a manual adjustment to the inbound FBI vehicle trip volume to balance the volumes between the two

ECFs based on an imbalance in the number of lanes (three in the Site South Access and two in the Site Northwest Access). A total of 50 vehicles (30 from I-95/I-495 North and 20 from I-95/I-495 South) were shifted from the Site Northwest Access to the Site South Access to account for the higher capacity available at the Site South Access.

Based on the analysis, a minimum of three lanes for both ECFs would be required for the average queue length for all lanes exceeding the average available space for all lanes. The second scenario was close, but the average queue length for all lanes still exceeded the average capacity by 17 feet for the Site South Access and 12 feet for the Site Northwest Access. Two lanes for both ECFs resulted in substantial queues for both facilities. [Table 6-7](#) contains the ECF results.

Table 6-7: ECF Results

| Entrance              | Lanes   | Two and Two Lanes  |                 |               |               |           | Three and Two Lanes |                 |               |               |           | Three and Three Lanes |                 |               |               |           |
|-----------------------|---------|--------------------|-----------------|---------------|---------------|-----------|---------------------|-----------------|---------------|---------------|-----------|-----------------------|-----------------|---------------|---------------|-----------|
|                       |         | Vehicles Processed | Proposed Length | Average Queue | Maximum Queue | Pass/Fail | Vehicles Processed  | Proposed Length | Average Queue | Maximum Queue | Pass/Fail | Vehicles Processed    | Proposed Length | Average Queue | Maximum Queue | Pass/Fail |
|                       |         | Vehicles           | Feet            |               | Vehicles      |           | Feet                |                 | Vehicles      | Feet          |           |                       |                 |               |               |           |
| Site South Access     | 1       | 218                | 295             | 285           | 1,155         | Fail      | 203                 | 295             | 129           | 388           | Fail      | 152                   | 295             | 64            | 208           | Pass      |
|                       | 2       | 217                | 305             | 352           | 2,043         | Fail      | 211                 | 305             | 131           | 291           | Pass      | 187                   | 305             | 74            | 181           | Pass      |
|                       | 3       |                    |                 |               |               |           | 211                 | 315             | 132           | 272           | Pass      | 194                   | 315             | 81            | 193           | Pass      |
|                       | Average |                    | 300             |               |               | 1,599     | Fail                |                 | 300           |               | 317       | Fail                  |                 | 300           |               | 194       |
| Site Northwest Access | 1       | 209                | 480             | 334           | 754           | Fail      | 211                 | 480             | 231           | 575           | Fail      | 157                   | 480             | 69            | 199           | Pass      |
|                       | 2       | 217                | 495             | 361           | 849           | Fail      | 212                 | 495             | 213           | 423           | Pass      | 175                   | 170             | 77            | 207           | Pass      |
|                       | 3       |                    |                 |               |               |           |                     |                 |               |               |           | 200                   | 495             | 118           | 266           | Pass      |
|                       | Average |                    | 488             |               |               | 802       | Fail                |                 | 488           |               | 499       | Fail                  |                 | 382           |               | 224       |

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### 6.6.9 Signal Warrant Analysis Summary

A signal warrant analysis is a quantitative assessment based on traffic volumes and established standards to determine whether or not installing a traffic signal at a specific intersection is justified or warranted. A signal warrant analysis was conducted following the guidelines from the *2009 Manual on Uniform Traffic Control Devices* (MUTCD) (FHWA 2012). To be consistent for all three proposed alternative sites, the Virginia Supplement to the 2009 MUTCD, 2011 Edition guidelines were also employed (VDOT 2011). Combining both methods provides an analysis of two signal warrants per intersection: an average daily traffic (ADT) warrant and a peak hour warrant.

The ADT warrant (following the Virginia guidelines) compares a forecasted ADT volume for the intersection to minimum established ADTs based on the number of lanes along the two intersecting roadways. The forecasted intersection ADT is calculated by applying a 10 percent factor to the AM peak hour forecasted volumes (highest left-turn volume). The volumes are then compared to several tables in the VDOT MUTCD Supplement. The first table in the VDOT MUTCD Supplement contains the urban area minimum vehicle volumes to qualify the intersection; the second table in the VDOT MUTCD Supplement contains the urban area interruption of continuous traffic vehicle volumes to qualify the intersection. Both tables also contain 80th percentile volumes for both cases, which is used in urban areas. Based on the ADT warrant analysis, the Greenbelt Metro Drive and Site North Access that could benefit from a traffic signal would not meet all the ADT warrants. **Table 6-8** contains the ADT warrant summary.

**Table 6-8: ADT Warrant Analysis**

| Warrant  | Forecasted ADT | Warrant Minimum Limit | Warrant Check |
|--|----------------|-----------------------|---------------|
| <b>Greenbelt Metro Drive and Site North Access</b> |                |                       |               |
| Warrant 1A – Minimum Vehicular Volume              | 14,980         | 8,000                 | Meets         |
| Warrant 1B – Interruption of Continuous Traffic    | 14,980         | 12,000                | Meets         |
| Warrant 1C – Combination of 1A and 1B (80%)        | 14,980         | 6,400                 | Meets         |
|  | 14,980         | 9,600                 | Meets         |

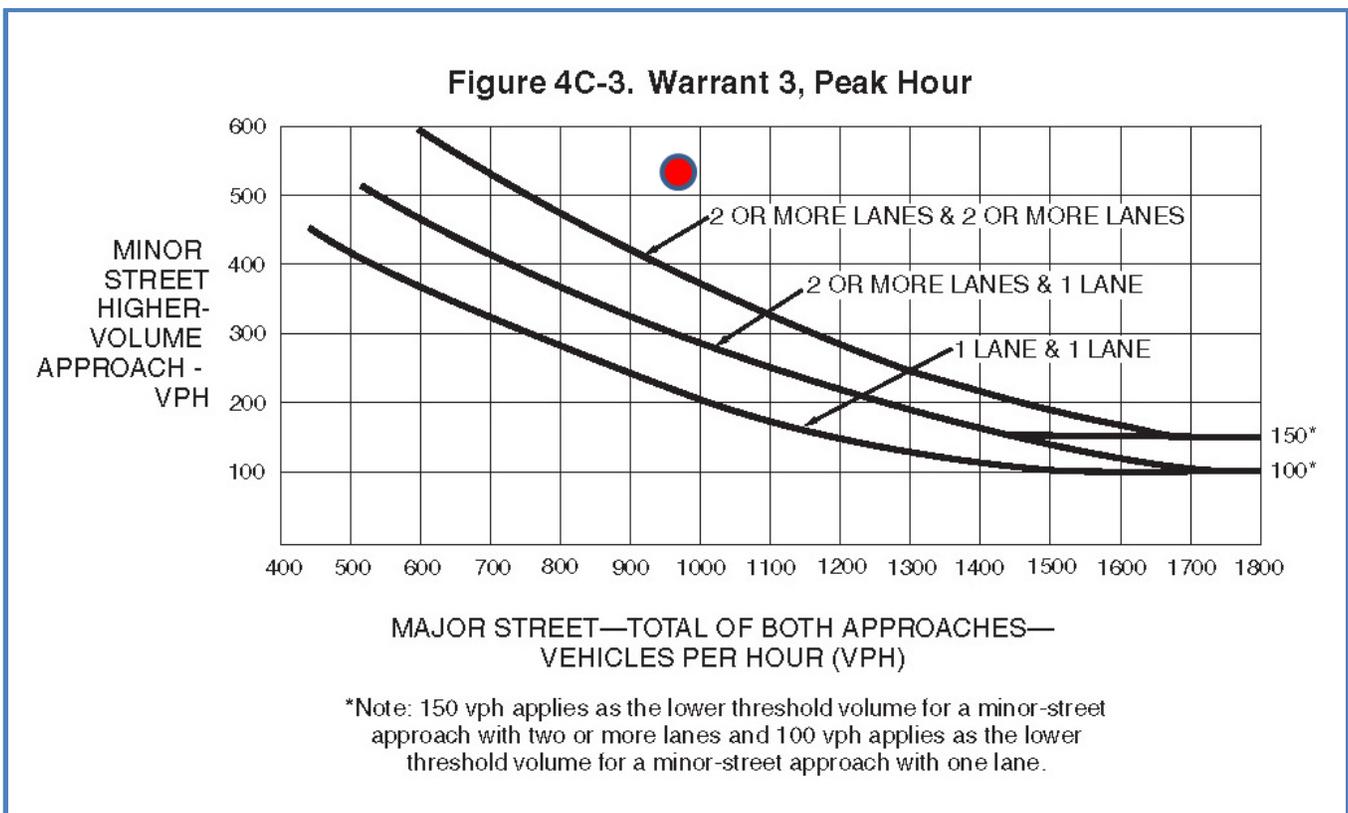
The peak hour warrant following the MUTCD requires two categorical tests. If either of the categorical tests passes, then the intersection meets the warrant. The first category includes three tests: a test of the intersection delay under STOP-sign control, a test of the minor street vehicle volume, and a test of the total intersection volume. The intersection delay test determines if the intersection is under a STOP-control, the delay for the minor-street would exceed five vehicle-hours (number of vehicles in queue times approach vehicle delay) for two lanes. The minor street vehicle volume test determines whether or not the vehicle volume exceeds 150 vehicles for two lanes. The third test of the total intersection volume examines if the total volume entering the intersection exceeds 650 vehicles for a three lane approach. The second categorical test includes one test based on a plotted chart published in the MUTCD (figure 4C-3; FHWA 2012). The chart plots the highest minor street approach volume against the total major street approach volumes. If the plotted point for the highest minor street approach falls higher than the appropriate curve (based on number of lanes for the major and minor approaches), the peak hour warrant is met.

Based on the peak hour warrant analysis, the intersection would meet the warrant. The intersection meets all parts of the peak hour warrant except for the total stopping time; however, as long as the intersection meets the second category, the warrant is met. **Table 6-9** contains the peak hour warrant analysis results. **Figure 6-8** shows the MUTCD plotted graph with the intersection point plotted.

**Table 6-9: Peak Hour Warrant Analysis**

| Warrant  | Forecasted Values | Warrant Minimum Limit | Category Check | Overall Check |
|--|-------------------|-----------------------|----------------|---------------|
| <b>Greenbelt Metro Drive and Site North Access</b> |                   |                       |                |               |
| Warrant 3A1 – Total Stopping Time                  | 2.5 hours         | 4 hours               | <b>Fails</b>   |               |
| Warrant 3A2 – Minor Street Volume                  | 522 vehicles      | 150 vehicles          | <b>Meets</b>   |               |
| Warrant 3A3 – Total Entering Volume                | 1,498 vehicles    | 650 vehicles          | <b>Meets</b>   |               |
| Warrant 3B – Plotted Point on Curve                | See figure 6-8    |                       | <b>Meets</b>   | <b>Meets</b>  |

**Figure 6-8: MUTCD Warrant 3B - Peak Hour Warrant with Intersection Point Plotted**



## 6.7 Overall Summary

The following summarizes the conclusions of the transportation evaluation:

A total of 3,296 AM peak hour and 3,047 PM peak hour person trips are projected to be added to all modes of transportation. Total Metro transit trips are projected to be 1,742 trips in the AM peak hour and 1,610 trips in the PM peak hour. Total vehicle trips are projected to be 1,100 trips in the AM peak hour and 1,016 trips in the PM peak hour. The remaining trips would be commuter rail, bicycle, or walking trips.

The pedestrian network would expand under the No-build Condition with the inclusion of Greenbelt Station Parkway providing a new connection between the Greenbelt Metro Station and Greenbelt Road serving North and South Core developments. The inclusion of the Greenbelt site would allow for the same connections as the No-build Condition. It is assumed that all sidewalk curb ramps located adjacent to the parcel would be constructed to ADA compliance.

The bicycle network would expand with the inclusion of Greenbelt Station Parkway providing a new connection between the Greenbelt Metro Station and Greenbelt Road serving the North and South Core developments. The inclusion of the Greenbelt site would not change the bicycle connections. These new connections would provide for an interconnected bicycle network linking all proposed bicycle facilities in the study area and would encourage bicycle use to access to the Greenbelt site.

The transit network (Metrorail and Metrobus) would not be affected by the Greenbelt Site. The Greenbelt Metro Station and all bus service would operate below capacity with the addition of the forecasted background growth and transit trips. It is assumed that WMATA would follow their long-term plan to address growth-related capacity issues for both bus and rail operations.

Parking availability would remain the same because the Greenbelt site would accommodate all parking needs onsite and implement a robust Transportation Management Plan to discourage employees from seeking alternative parking options in the nearby neighborhoods.

Truck access would be designed to accommodate the Greenbelt site from the Greenbelt Station Parkway site south access. This plan is not the official plan, but a plan to evaluate as part of the EIS. The Greenbelt Station Parkway site south access would operate as a truck only access point during off-peak hours because it would be assumed that all truck deliveries would be scheduled during the off-peak hours.

The traffic operations at two intersections (Edmonson Road at Powder Mill Road and Kenilworth Avenue at I-95/I-495 Southbound off-ramp) currently operates at an unacceptable level of service under the Existing Condition. Once the background growth, planned developments, and planned improvements are added (No-build Condition), the same intersection would continue to fail. There are a number of planned roadway improvements within the Springfield site study area to compensate for the vehicle trips added from the background growth.

The addition of the Greenbelt site to the traffic network would result in three intersections operating at an unacceptable level of service. These three failing intersections would experience equal or better operations than the No-build Condition as a result of recommended mitigation that include new turning lanes, extended turning lane lengths, and new travel lanes. Overall, the roadway non-Interstate network would operate much better and experience shorter queues with the addition of the recommended mitigation when compared to the No-build Condition.

There are forecasted to be two failing Interstate facilities that directly serve access between the Capital Beltway and the Greenbelt site. The Maryland SHA is working to determine the best course of action to address these issues. It is assumed, at a minimum, there will be required changes to the Interstate ramps along the Capital Beltway between the U.S. Route 1 and Baltimore Washington Memorial Parkway Interchanges.

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## 8.0 Acronyms and Abbreviations

### A

|             |                                 |
|-------------|---------------------------------|
| <b>AADT</b> | Annual average daily traffic    |
| <b>ADA</b>  | Americans with Disabilities Act |
| <b>ADT</b>  | Average daily traffic           |
| <b>ATR</b>  | Automated Traffic Recorder      |
| <b>AWSC</b> | All-way STOP-Controlled         |

### C

|             |                                   |
|-------------|-----------------------------------|
| <b>CEQ</b>  | Council on Environmental Quality  |
| <b>CFR</b>  | Code of Federal Regulations       |
| <b>CLV</b>  | Critical Lane Volume              |
| <b>CMRT</b> | Central Maryland Regional Transit |
| <b>CUP</b>  | Central Utility Plant             |

### D

|             |                                       |
|-------------|---------------------------------------|
| <b>DDOT</b> | District Department of Transportation |
| <b>DOT</b>  | Department of Transportation          |
| <b>DTA</b>  | dynamic traffic assignment            |

### E

|            |                                |
|------------|--------------------------------|
| <b>ECF</b> | Entry Control Facility         |
| <b>EIS</b> | Environmental Impact Statement |

### F

|             |                                 |
|-------------|---------------------------------|
| <b>FBI</b>  | Federal Bureau of Investigation |
| <b>FHWA</b> | Federal Highway Administration  |

### G

|            |                                 |
|------------|---------------------------------|
| <b>GIS</b> | Geographic Information Systems  |
| <b>GSA</b> | General Services Administration |
| <b>GSF</b> | Gross Square Feet               |

## **H**

**HCM** Highway Capacity Manual  
**HCS** Highway Capacity Software  
**HQ** Headquarters

## **I**

**ISC** Interagency Security Committee  
**ITE** Institute of Transportation Engineers

## **J**

**JEH** J. Edgar Hoover

## **L**

**LOS** Level of Service

## **M**

**MARC** Maryland Area Regional Commuter  
**MEV** million entering vehicles  
**M-NCPPC** Maryland National Capital Park and Planning Commission  
**mph** miles per hour

**Maryland SHA** State Highway Administration

**MTA** Maryland Transit Administration

**MUTCD** Manual on Uniform Traffic Control Devices

**MWCOG** Metropolitan Washington Council of Governments

## **N**

**NCHRP** National Cooperative Highway Research Program

**NCPC** National Capital Planning Commission

**NCR** National Capital Region

**NEPA** National Environmental Policy Act

**NFPA** National Fire Protection Association

## **O**

**OPO** Old Post Office

## **P**

**PHF** peak hour factor

## **R**

**RDF** Remote Delivery Facility

**RFDS** Reasonably Foreseeable Development Scenario

## **S**

**SDDCTEA** Surface Deployment and Distribution Command Transportation Engineering Agency

**SF** Square Foot

**SMA** Sectional Map Amendment

**SOV** Single Occupant Vehicle

## **T**

**TAZ** Transportation Analysis Zone

**TDM** Travel Demand Management

**TIA** Transportation Impact Assessment

**TIP** Transportation Improvement Program

**TMP** Transportation Management Plan

**TRB** Transportation Research Board

**TWSC** Two-way STOP-Controlled

## **U**

**UMD** University of Maryland

**U.S.** United States

**USDA** U.S. Department of Agriculture

**USDOJ** U.S. Department of Justice

**V**

**v/c** volume-to-capacity ratio

**VC** Visitor Center

**VDOT** Virginia Department of Transportation

**VHT** Vehicle hours of travel

**W**

**WMATA** Washington Metropolitan Area Transit Authority