## Appendix F:

**Cost Estimate** 

| Roadway Cost Estimate Sheet, By Sabra, Wang & Associates, Ir                   | nc.                     |   |          |              |                   |               |                        |
|--|-------------------------|---|----------|--------------|-------------------|---------------|------------------------|
| Date:<br>Route:<br>Job Description:  |                         | 10-Oct-14<br>MD 108<br>Pedestrian and Bike Improvements |          |              |                   |               | Howard<br>-            |
| Improvement Type:  |                         | sidewalk/sidepa   | ath      |              | Distric<br>Prepar | t:<br>ed By:  | 4<br>SWA               |
|  |                         |   | _        |              | Engine            |               | BJW                    |
|  | Categ. Code N           |   | Quant.   | Unit         |                   | Price (\$)    | Total (\$)             |
| Category 1:  |                         | Preliminary   | 15% 0    | of Categ. (2 | 2,4,5,6)          |               | \$101,493.00           |
| Category 2:  | 20000                   | Grading   |          |              |                   |               |                        |
| Removal of Existing Combination Curb and Gutter                                | 210011                  | Ordanig   | 120      | LF           | \$                | 8.50          | \$1,020.00             |
| <b>G</b>   |                         |   |          |              |                   |               |                        |
|  |                         |   |          |              | Subto             | tal, Categ 2: | \$1,020.00             |
| Category 3:  | 30000                   | Drainage  |          |              |                   |               |                        |
|  |                         |   |          |              |                   |               |                        |
|  |                         |   |          |              | Subtot            | al, Categ 3 : | \$0.00                 |
|  |                         |   | 10% o    | of Categ. (2 |                   | ,             | \$67,662.00            |
| Category 4:  | 40000                   | Structures  |          |              |                   |               |                        |
|  |                         |   |          |              |                   |               |                        |
| 0-1  | <b>5</b> 0000           | Destru  |          |              | Subtot            | al, Categ 4 : | \$0.00                 |
| Category 5:  | 50000                   | Paving  |          |              |                   |               |                        |
| 12 Inch White Lead Free Reflective Thermoplastic Pavement Marking              | 585405                  |   | 1,400    | LF           | \$                | 5.00          | \$7,000.00             |
| ·  |                         |   | ,        |              |                   |               |                        |
|  |                         |   |          |              |                   |               |                        |
|  |                         |   |          |              |                   |               |                        |
|  |                         |   |          |              |                   |               |                        |
|  |                         |   |          |              | Subtot            | al, Categ. 5: | \$7,000.00             |
| Category 6:  | 60000                   | Shoulder  |          |              | •                 |               |                        |
| Standard Type A Combination Curb and Gutter 5 Inch Mix No. 2 Concrete Sidewalk | 634300<br>655105        |   | 120<br>- | LF<br>SF     | \$<br>\$          | 30.00<br>8.00 | \$3,600.00<br>\$0.00   |
| 5 inch Mix No. 2 Concrete Sidewark<br>10 feet wide asphalt path                | 655105                  |   | 5,000    | SF<br>LF     | э<br>\$           | 125.00        | \$0.00<br>\$625,000.00 |
| ADA pedestrian ramps   | 600000                  |   | 40       | EA           | \$                | 1,000.00      | \$40,000.00            |
|  |                         |   |          |              | Subtot            | al, Categ. 6: | \$668,600.00           |
| Category 7:  | 70000                   | Landscaping   | 10% of   | f Category   | 2,4,5,6           |               | \$67,662.00            |
| Category 8:  | 80000                   | Traffic   |          |              |                   |               |                        |
| Pedestrian CPS/APS Pole & Button   | 811001                  |   | 4        | EA           | \$                | 1,250.00      | \$5,000.00             |
| Aluminum Sheet Signs   | 816001                  |   | 40       | SF           | \$                | 35.00         | \$1,400.00             |
|  |                         |   |          |              | Subtot            | al, Categ 8 : | \$6,400.00             |
| Category 9:  | 90000                   | Utilities   | 0% of    | Category     | 2,4,5,6           |               | \$0.00                 |
|  |                         |   |          |              |                   |               |                        |
|  |                         |   |          |              |                   |               |                        |
|  | Sub-Total Categories    | 2456  |          |              | 9                 | ubtotal       | \$676,620              |
|  | Sub-Total All Categ     |   |          |              |                   | Subtotal      | \$919,837              |
|  | Contingency (109        |   |          |              | _                 | ubtotal       | \$91,984               |
|  | Net Roadway Cos         |   |          |              |                   |               | \$1,011,821            |
|  | P.E. Cost at 10%        |   |          |              |                   |               | \$101,182              |
|  | Total Cost Rang         | \$1,021,019 to  |          |              | to                | \$1,113,003   |                        |
| Remarks: (Cost doesn't include Right-of-Way and Undeground Utilitiesbut        | maybe covered under Con | tingency)   |          |              |                   |               |                        |
| Area of Base Widening (Length X Width) in feet x 1/9= Square Yard (            | SY) = 9,200             |   |          |              |                   |               |                        |
| RCCP Area (Length X Width) in Feet x 1/9= Square Yard (SY)                     |                         |   |          |              |                   |               |                        |
| Tool Aloa (Longar A Widen) in 1 BELA 1/3- Squale Talu (ST)                     |                         |   |          |              |                   |               |                        |
|  |                         |   |          |              |                   |               |                        |
|  |                         |   |          |              |                   |               |                        |
|  |                         |   |          |              |                   |               |                        |
|  |                         |   |          |              |                   |               |                        |

Graded Aggregate Sub-base (Under Roadway, Sidewalk, and CC & G)--in Square Yard (SY)

| Pedestrian and I  Categ. Code N  20000 210011 210025 30000 | 10-Oct-14 MD 108 Bike Improvement sidewalk/sidepa   | Quant. 15% c  | Unit of Categ. (2)  LF CY  | Count<br>Project<br>District<br>Prepa<br>Engin<br>Uni<br>,4,5,6) | ct Area (SF):<br>ct:<br>red By:  | Howard - 4 SWA BJW Total (\$) \$172,821.30 \$1,020.00 \$4,500.00 \$5,520.00  |
|--|---|---|--|--|--|--|
| 20000<br>210011<br>210025<br>30000                         | Bike Improvement sidewalk/sidepa  Io.  Preliminary  Grading  Drainage   | Quant. 15% c  | Unit of Categ. (2)  LF CY  | Project<br>District<br>Prepa<br>Engin<br>Uni<br>,4,5,6)          | ct Area (SF):<br>ct:<br>ct:<br>cred By:<br>eeer:<br>it Price (\$)<br>8.50<br>18.00<br>otal, Categ 2:   | - 4<br>SWA<br>BJW<br>Total (\$)<br>\$172,821.30<br>\$1,020.00<br>\$4,500.00<br>\$5,520.00  |
| 20000<br>210011<br>210025<br>30000                         | Io. Preliminary Grading Drainage  | Quant. 15% c  | Unit of Categ. (2)  LF CY  | Distric<br>Prepa<br>Engin<br>Uni<br>,4,5,6)                      | et: ired By: eer: it Price (\$)  8.50 18.00 otal, Categ 2:   | SWA<br>BJW<br>Total (\$)<br>\$172,821.3(<br>\$1,020.00<br>\$4,500.00<br>\$5,520.00   |
| 20000<br>210011<br>210025<br>30000                         | Preliminary Grading Drainage  | Quant.<br>15% c   | of Categ. (2<br>LF<br>CY   | Prepa<br>Engin<br>Uni<br>,4,5,6)                                 | ered By: eeer: it Price (\$)  8.50 18.00 otal, Categ 2:  | SWA<br>BJW<br>Total (\$)<br>\$172,821.30<br>\$1,020.00<br>\$4,500.00<br>\$5,520.00   |
| 20000<br>210011<br>210025<br>30000                         | Preliminary<br>Grading<br>Drainage  | 15% c   | of Categ. (2<br>LF<br>CY   | Engin<br>Uni<br>,4,5,6)  | 8.50<br>18.00<br>18.00   | BJW<br>Total (\$)<br>\$172,821.30<br>\$1,020.00<br>\$4,500.00<br>\$5,520.00  |
| 20000<br>210011<br>210025<br>30000                         | Preliminary<br>Grading<br>Drainage  | 15% c   | of Categ. (2<br>LF<br>CY   | Uni<br>(,4,5,6)<br>\$<br>\$<br>Subto                             | 8.50<br>18.00<br>otal, Categ 2:  | Total (\$)<br>\$172,821.30<br>\$1,020.00<br>\$4,500.00<br>\$5,520.00   |
| 20000<br>210011<br>210025<br>30000                         | Preliminary<br>Grading<br>Drainage  | 15% c   | of Categ. (2<br>LF<br>CY   | \$<br>\$<br>\$<br>Subto  | 8.50<br>18.00<br>otal, Categ 2:  | \$1,020.00<br>\$4,500.00<br>\$5,520.00   |
| 210011<br>210025<br>30000                                  | Grading  Drainage   | 120<br>250  | LF<br>CY   | \$<br>\$<br>Subto  | 18.00<br>otal, Categ 2:  | \$1,020.00<br>\$4,500.00<br>\$5,520.00   |
| 210011<br>210025<br>30000                                  | Drainage  | 250   | CY   | \$<br>Subto  | 18.00<br>otal, Categ 2:  | \$4,500.00<br>\$5,520.00   |
| 210025<br>30000  |   | 250   | CY   | \$<br>Subto  | 18.00<br>otal, Categ 2:  | \$4,500.00<br>\$5,520.00   |
| 30000  |   |   |  | Subto  | otal, Categ 2:   | \$5,520.00   |
|  |   | 20% c   | of Caton (2  |  |  |  |
|  |   | 20% c   | of Caton (2  | Subto  | ital Categ 3 ·   | \$0.00   |
| 40000  | Structures  | 20% c   | of Caton (a  | Subto  | tal Cated 3  | \$0.00   |
| 40000  | Structures  | 20% 0   | f Caton (a   | Subic  |  | \$0.00   |
| 40000  | Structures  |   | i caleg. (2  | ,4,5,6)  | iai, Galey 3 .   | \$230,428.40   |
|  |   | _   |  |  |  |  |
|  |   | 1,560   | SF   |  | \$125.00<br>otal. Categ 4 :  | \$195,000.00<br>\$195,000.00   |
| 50000  | Paving  |   |  |  | , 5  | , ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,  |
| 504206   |   | 80  | TONS   |  | 92   | \$7,360.00   |
| 504210   |   | 250   | TONS   |  | 73   | \$18,250.00  |
|  |   | 3,100   | LF   | \$   | 5.00   | \$15,500.00  |
|  |   | 900   | SF   | \$   | 5.00   | \$4,500.00   |
|  |   | 4,500   | SF   | \$   | 16.00  | \$72,000.00  |
|  |   | 2   | EA   | \$   | 250.00   | \$500.00   |
|  |   | 64  | LF   | \$   | 8.00   | \$512.00   |
|  |   |   |  | Subto  | otal, Categ. 5:  | \$118,622.00   |
| 60000  | Shoulder  |   |  |  |  |  |
| 634300   |   | 700   | LF   | \$   | 30.00  | \$21,000.00  |
| 655105   |   | 14,500  | SF   | \$   | 8.00   | \$116,000.00   |
| 655105   |   | 5,000   | LF   | \$   | 125.00   | \$625,000.00   |
| 600000   |   | 71  | EA   |  | 1,000.00   | \$71,000.00  |
|  |   |   |  | Subto  | otal, Categ. 6:  | \$833,000.00   |
| 70000  | Landscaping   | 10% o   | f Category   | 2,4,5,6  |  | \$115,214.20   |
| 80000  | Traffic   |   |  |  |  |  |
| 811001   |   | 4   | EA   | \$   | 1,250.00   | \$5,000.00   |
| 816001   |   | 20  | SF   | \$   | 35.00  | \$700.00   |
|  |   | 1   |  |  |  | \$150,000.00   |
|  |   | 1   | EA   |  |  | \$250,000.00   |
| 90000  | Utilities   | 0% of   | Catagory   |  | ital, Categ 8 :  | \$405,700.00<br>\$0.00   |
| 30000  | Othities  |   |  | 2,4,5,0  | 10000  | \$10,000.00  |
|  |   | '   | LA   | Subto  |  | \$10,000.00  |
|  |   |   |  |  | ,  | , ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,  |
| Sub-Total Categories                                       | 2,4,5,6   |   |  |  | Subtotal   | \$1,152,142  |
| -  |   |   |  |  |  | \$2,076,306  |
|  |   |   |  |  | \$415,261  |  |
|  |   |   |  | Juliotai   | \$2,491,567  |  |
| •  |   |   |  |  | \$498,313  |  |
|  |   | \$2,574,61  | 9 to   |  | \$2,989,880  |  |
|  | \·/   |   | 72,017,01  |  |  | Ψ2,000,000   |
|  | 5   |   |  |  |  |  |
| )  | 504206<br>504210<br>60000<br>634300<br>655105<br>655105<br>600000<br>70000<br>80000<br>811001<br>816001<br>90000<br>Sub-Total Categories<br>Sub-Total All Categories<br>Contingency (20%<br>Net Roadway Cos<br>P.E. Cost at 20% | 60000 Shoulder 634300 655105 655105 655105 600000 Traffic 811001 816001 Utilities  Sub-Total Categories 2,4,5,6 Sub-Total All Categories Contingency (20%) Net Roadway Cost (\$) P.E. Cost at 20%  Total Cost Range (\$) e covered under Contingency) | Sub-Total Categories 2,4,5,6   Sub-Total Categories Contingency (20%)   Paving   80   80   250   3,100   900   4,500   2   64   60000   Shoulder   634300   700   655105   14,500   655105   5,000   600000   71   70000   Landscaping   10% or 70000   Landscaping   10% or 70000   1   1   1   1   1   1   1   1   1 | \$0000 Paving \$04206  | Subto   Subt | Subtotal, Categ 4 :     Subtotal, Categ 4 :     Subtotal, Categ 4 :     Subtotal   Categ 4 :     Subtotal   Categ 4 :     Subtotal   Categ 4 :     Subtotal   Categ 5 :   Subtotal   Categ 7 :   Subtotal   Categ 7 :   Subtotal   Categ 9 :   Subtotal   Subtotal   Categ 9 :   Subtotal   S |

RCCP Area (Length X Width) in Feet x 1/9= Square Yard (SY)

Graded Aggregate Sub-base (Under Roadway, Sidewalk, and CC & G)--in Square Yard (SY)

| Data  |                          | 10 0-4 4 4     |             |               | Comt                            | ant No.         |              |
|---|--------------------------|----------------|-------------|---------------|---------------------------------|-----------------|--------------|
| Date:   |                          | 10-Oct-14      |             |               |                                 | act No.:        |              |
| Route:  |                          | MD 108         |             | County:       |                                 |                 | Howard       |
| Job Description:  | Utlim                    | ate Roadway V  | •           |               | Project Area (SF):<br>District: |                 | -            |
| mprovement Type:  |                          | sidewalk/sidep | ath         |               |                                 |                 | 4            |
|   |                          |                |             |               |                                 | red By:         | SWA          |
|   |                          |                |             |               | Engineer:                       |                 | BJW          |
|   | Categ. Code No           |                | Quant.      | Unit          | Uni                             | t Price (\$)    | Total (\$)   |
| Category 1:   |                          | Preliminary    | 15% c       | of Categ. (2, |                                 | ` ,             | \$228,154.80 |
|   |                          | -              |             |               | •                               |                 |              |
| Category 2:   | 20000                    | Grading        |             |               |                                 |                 |              |
| Removal of Existing Combination Curb and Gutter                   | 210011                   | 0.449          | 120         | LF            | \$                              | 8.50            | \$1,020.00   |
| Removal of Existing Pavement                                      | 210011                   |                | 250         | CY            |                                 |                 |              |
| 9   |                          |                |             |               | \$                              | 18.00           | \$4,500.00   |
| Class I Excavation  | 201030                   |                | 1,400       | CY            | \$                              | 15.00           | \$21,000.00  |
| Select Borrow   | 202050                   |                | 1,100       | CY            | \$                              | 20.00           | \$22,000.00  |
|   |                          |                |             |               | Subto                           | otal, Categ 2:  | \$48,520.00  |
| Category 3:   | 30000                    | Drainage       |             |               |                                 |                 |              |
|   |                          |                |             |               | Subto                           | tal, Categ 3 :  | \$0.00       |
|   |                          |                | 20% 0       | of Categ. (2, |                                 | ital, Categ 5 . | \$304,206.40 |
| Category 4:   | 40000                    | Structures     |             | _             |                                 |                 |              |
| variable height retaining wall                                    |                          |                | 1,560       | SF            |                                 | \$125.00        | \$195,000.00 |
|   |                          |                |             |               | Subto                           | tal, Categ 4:   | \$195,000.00 |
| Category 5:   | 50000                    | Paving         |             |               |                                 |                 |              |
| 1.5" Hot mix Asphalt Superpave (12.5mm) for surface               | 504206                   | _              | 500         | TONS          | \$                              | 92.00           | \$46,000.00  |
| HMA Base  | 504210                   |                | 1,500       | TONS          | \$                              | 73.00           | \$109,500.00 |
| GASB and compaction/rolling                                       | 001210                   |                | 3,400       | SY            | \$                              | 40.00           | \$136,000.00 |
| 12 Inch White Lead Free Reflective Thermoplastic Pavement Marking |                          |                | 3,100       | LF            | \$                              | 5.00            | \$15,500.00  |
| ·   |                          |                |             | SF            | \$                              | 5.00            |              |
| Green Bike Box asphalt surface treatment                          |                          |                | 900         | SF            |                                 |                 | \$4,500.00   |
| Stamped asphalt crosswalk treatment                               |                          |                | 4,500       |               | \$                              | 16.00           | \$72,000.00  |
| Thermoplastic bike markings                                       |                          |                | 2           | EA            | \$                              | 250.00          | \$500.00     |
| 12 Inch White Lead Free Reflective Thermoplastic Pavement Marking |                          |                | 64          | LF            | \$                              | 8.00            | \$512.00     |
|   |                          |                |             |               | Subto                           | tal, Categ. 5:  | \$384,512.00 |
| Category 6:   | 60000                    | Shoulder       |             |               |                                 |                 |              |
| Standard Type A Combination Curb and Gutter                       | 634300                   |                | 2,700       | LF            | \$                              | 30.00           | \$81,000.00  |
| 5 Inch Mix No. 2 Concrete Sidewalk                                | 655105                   |                | 14,500      | SF            | \$                              | 8.00            | \$116,000.00 |
| 10 feet wide asphalt path   | 655105                   |                | 5,000       | LF            | \$                              | 125.00          | \$625,000.00 |
|   |                          |                | 71          | EA            | \$                              |                 |              |
| ADA pedestrian ramps  | 600000                   |                | 7 1         | EA            |                                 | 1,000.00        | \$71,000.00  |
|   |                          |                |             |               |                                 | tal, Categ. 6:  | \$893,000.00 |
| Category 7:   | 70000                    | Landscaping    | 10% o       | f Category 2  | 2,4,5,6                         |                 | \$152,103.20 |
| Category 8:   | 80000                    | Traffic        |             |               |                                 |                 |              |
| Pedestrian CPS/APS Pole & Button                                  | 811001                   |                | 4           | EA            | \$                              | 1,250.00        | \$5,000.00   |
| Aluminum Sheet Signs  | 816001                   |                | 20          | SF            | \$                              | 35.00           | \$700.00     |
| New pedestrian crossing signal                                    |                          |                | 1           | EA            | \$                              | 150,000.00      | \$150,000.00 |
| signal rebuild  |                          |                | 2           | EA            | \$                              | 150,000.00      | \$300,000.00 |
| 4-Leg Intersection Fully Actuated Traffic Signal                  |                          |                | 1           | EA            | \$                              | 250,000.00      | \$250,000.00 |
| - Log moreostion i uny Actuateu Trame Signal                      |                          |                | '           | LA            |                                 | tal, Categ 8 :  | \$705,700.00 |
| Cotogony 0.   | 00000                    | Hillition      | 450/        | f Cotomon (   |                                 | nai, Caley o :  |              |
| Category 9:   | 90000                    | Utilities      |             | f Category 2  | 2,4,5,6                         |                 | \$228,154.80 |
| Relocate water line and fire hydrant                              |                          |                | 1           | EA            |                                 | 10000           | \$10,000.00  |
|   |                          |                |             |               | Subto                           | tal, Categ 8 :  | \$238,154.80 |
|   | Sub-Total Categories 2   | 456            |             |               |                                 | Subtotal        | \$1,521,032  |
|   | Sub-Total All Categories |                |             |               |                                 |                 |              |
|   | · ·                      |                |             |               | Subtotal \$3,139,35             |                 |              |
|   | Contingency (30%)        |                |             |               |                                 | Subtotal        | \$941,805    |
|   | Net Roadway Cost (       |                |             |               |                                 | \$4,081,157     |              |
|   | P.E. Cost at 20%         |                |             |               |                                 |                 | \$816,231    |
|   | Maintenance of Traffic ( |                |             |               |                                 | \$408,116       |              |
|   |                          |                | \$4,363,698 | 8 to          |                                 | \$5,305,504     |              |
|   | Total Cost Range         |                |             | 34.30.3.047   |                                 |                 |              |

RCCP Area (Length X Width) in Feet x 1/9= Square Yard (SY)

Graded Aggregate Sub-base (Under Roadway, Sidewalk, and CC & G)--in Square Yard (SY)