

Visited = [ ]

Unvisited = [A, B, C, D, E, F, G]

Current =

| Node                    | Distance ( $g(n)$ ) | Heuristic ( $h(n)$ ) | f(n) | Previous Node |
|-------------------------|---------------------|----------------------|------|---------------|
| A - Washington DC       | 0                   | 97                   | 97   |               |
| B - Culpeper, VA        | $\infty$            | 71                   |      |               |
| C - Fredericksburg, VA  | $\infty$            | 46                   |      |               |
| D - Waldorf, MD         | $\infty$            | 80                   |      |               |
| E - Tappahannock, VA    | $\infty$            | 41                   |      |               |
| F - Charlottesville, VA | $\infty$            | 66                   |      |               |
| G - Richmond            | $\infty$            | 0                    |      |               |

Visited = [ ]

Unvisited = [B, C, D, E, F, G]

Current = A

| Node                    | Distance ( $g(n)$ ) | Heuristic ( $h(n)$ ) | f(n) | Previous Node |
|-------------------------|---------------------|----------------------|------|---------------|
| A - Washington DC       | 0                   | 97                   | 97   |               |
| B - Culpeper, VA        | 70                  | 71                   | 141  | A             |
| C - Fredericksburg, VA  | 54                  | 46                   | 100  | A             |
| D - Waldorf, MD         | 27                  | 80                   | 107  | A             |
| E - Tappahannock, VA    | $\infty$            | 41                   |      |               |
| F - Charlottesville, VA | $\infty$            | 66                   |      |               |
| G - Richmond            | $\infty$            | 0                    |      |               |

Visited = [A]

Unvisited = [B, D, E, F, G]

Current = C

| Node                    | Distance ( $g(n)$ ) | Heuristic ( $h(n)$ ) | $f(n)$ | Previous Node |
|-------------------------|---------------------|----------------------|--------|---------------|
| A - Washington DC       | 0                   | 97                   | 97     |               |
| B - Culpeper, VA        | 70                  | 71                   | 141    | A             |
| C - Fredericksburg, VA  | 54                  | 46                   | 100    | A             |
| D - Waldorf, MD         | 27                  | 80                   | 107    | A             |
| E - Tappahannock, VA    | 101                 | 41                   | 142    | C             |
| F - Charlottesville, VA | $\infty$            | 66                   |        |               |
| G - Richmond            | 114                 | 0                    | 114    | C             |

Visited = [A, C]

Unvisited = [B, E, F, G]

Current = D

| Node                    | Distance ( $g(n)$ ) | Heuristic ( $h(n)$ ) | $f(n)$ | Previous Node |
|-------------------------|---------------------|----------------------|--------|---------------|
| A - Washington DC       | 0                   | 97                   | 97     |               |
| B - Culpeper, VA        | 70                  | 71                   | 141    | A             |
| C - Fredericksburg, VA  | 54                  | 46                   | 100    | A             |
| D - Waldorf, MD         | 27                  | 80                   | 107    | A             |
| E - Tappahannock, VA    | 101                 | 41                   | 142    | C             |
| F - Charlottesville, VA | $\infty$            | 66                   |        |               |
| G - Richmond            | 114                 | 0                    | 114    | C             |

Visited = [A, C, D]  
 Unvisited = [B, E, F]  
 Current = G

| Node                    | Distance ( $g(n)$ ) | Heuristic ( $h(n)$ ) | f(n) | Previous Node |
|-------------------------|---------------------|----------------------|------|---------------|
| A - Washington DC       | 0                   | 97                   | 97   |               |
| B - Culpeper, VA        | 70                  | 71                   | 141  | A             |
| C - Fredericksburg, VA  | 54                  | 46                   | 100  | A             |
| D - Waldorf, MD         | 27                  | 80                   | 107  | A             |
| E - Tappahannock, VA    | 101                 | 41                   | 142  | C             |
| F - Charlottesville, VA | 184                 | 66                   | 250  | G             |
| G - Richmond            | 114                 | 0                    | 114  | C             |

Visited = [A, C, D, G]  
 Unvisited = [E, F]  
 Current = B

| Node                    | Distance ( $g(n)$ ) | Heuristic ( $h(n)$ ) | f(n) | Previous Node |
|-------------------------|---------------------|----------------------|------|---------------|
| A - Washington DC       | 0                   | 97                   | 97   |               |
| B - Culpeper, VA        | 70                  | 71                   | 141  | A             |
| C - Fredericksburg, VA  | 54                  | 46                   | 100  | A             |
| D - Waldorf, MD         | 27                  | 80                   | 107  | A             |
| E - Tappahannock, VA    | 101                 | 41                   | 142  | C             |
| F - Charlottesville, VA | 115                 | 66                   | 181  | B             |
| G - Richmond            | 114                 | 0                    | 114  | C             |

Visited = [A, C, D, G, B]

Unvisited = [F]

Current = E

| Node                    | Distance ( $g(n)$ ) | Heuristic ( $h(n)$ ) | $f(n)$ | Previous Node |
|-------------------------|---------------------|----------------------|--------|---------------|
| A - Washington DC       | 0                   | 97                   | 97     |               |
| B - Culpeper, VA        | 70                  | 71                   | 141    | A             |
| C - Fredericksburg, VA  | 54                  | 46                   | 100    | A             |
| D - Waldorf, MD         | 27                  | 80                   | 107    | A             |
| E - Tappahannock, VA    | 101                 | 41                   | 142    | C             |
| F - Charlottesville, VA | 115                 | 66                   | 181    | B             |
| G - Richmond            | 114                 | 0                    | 114    | C             |

Visited = [A, C, D, G, B, E]

Unvisited = []

Current = F

| Node                    | Distance ( $g(n)$ ) | Heuristic ( $h(n)$ ) | $f(n)$ | Previous Node |
|-------------------------|---------------------|----------------------|--------|---------------|
| A - Washington DC       | 0                   | 97                   | 97     |               |
| B - Culpeper, VA        | 70                  | 71                   | 141    | A             |
| C - Fredericksburg, VA  | 54                  | 46                   | 100    | A             |
| D - Waldorf, MD         | 27                  | 80                   | 107    | A             |
| E - Tappahannock, VA    | 101                 | 41                   | 142    | C             |
| F - Charlottesville, VA | 115                 | 66                   | 181    | B             |
| G - Richmond            | 114                 | 0                    | 114    | C             |

Thus the shortest path from A (DC) to G (Richmond) is  $A \rightarrow C \rightarrow G$