

**APPENDIX A**  
**CAPITAL COST ESTIMATE**

**Southern Maryland Transit Corridor Preservation Study  
Light Rail Transit (LRT)  
Capital Cost Estimate (Base Cost & Contingency)  
(2009 Dollars in Millions)**

CAT No.	Description	Geographic Segments					Maintenance Facility	Vehicles	Alternative Total
		DeMarr Rd to Sub-Station Rd	Sub-Station Rd to County Border	County Border to Brandywine Rd	Brandywine Rd to Allentown Rd	Allentown Rd to Branch Ave Metro			
		1	2	3	4	5			
	Length (Mile):	5.35	0.55	3.08	7.68	2.01			18.67
	Number of Stations:	3	0	1	4	1			9
	Number of Revenue Vehicles:							33	33
<b>10</b>	<b>GUIDEWAY &amp; TRACK ELEMENTS</b>								
10.01	Guideway: At-grade exclusive right-of-way	\$17.21	\$1.29	\$7.58	\$18.41	\$1.12			\$45.61
10.02	Guideway: At-grade semi-exclusive (allows cross-traffic)	\$0.20	\$0.20	\$0.75	\$0.29	\$0.09			\$1.52
10.03	Guideway: At-grade in mixed traffic	\$0.00	\$0.00	\$0.00	\$0.00	\$1.83			\$1.83
10.04	Guideway: Aerial structure	\$0.00	\$0.62	\$1.44	\$30.42	\$0.00			\$32.48
10.05	Guideway: Built-up fill	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00			\$0.00
10.06	Guideway: Underground cut & cover	\$0.00	\$0.00	\$81.65	\$0.00	\$0.00			\$81.65
10.07	Guideway: Underground tunnel	\$0.00	\$0.00	\$0.00	\$0.00	\$164.19			\$164.19
10.08	Guideway: Retained cut or fill	\$2.17	\$0.99	\$0.22	\$10.97	\$0.00			\$14.35
10.09	Track: Direct fixation	\$0.00	\$0.08	\$3.86	\$4.11	\$7.53			\$15.60
10.10	Track: Embedded	\$0.36	\$0.36	\$0.68	\$0.52	\$2.95			\$4.87
10.11	Track: Ballasted	\$19.60	\$1.84	\$8.62	\$25.54	\$1.24			\$56.83
10.12	Track: Special (switches, turnouts)	\$2.39	\$0.27	\$1.58	\$3.62	\$1.46			\$9.33
10.13	Track: Vibration and noise dampening	\$1.16	\$0.11	\$0.51	\$1.51	\$0.07			\$3.36
	<b>Subtotal Category 10</b>	<b>\$43.10</b>	<b>\$5.75</b>	<b>\$106.88</b>	<b>\$95.40</b>	<b>\$180.48</b>			<b>\$431.61</b>
<b>20</b>	<b>STATIONS, STOPS, TERMINALS, INTERMODAL</b>								
20.01	At-grade station, stop, shelter, mall, terminal, platform	\$5.07	\$0.00	\$1.69	\$5.07	\$1.69			\$13.52
20.02	Aerial station, stop, shelter, mall, terminal, platform	\$0.00	\$0.00	\$0.00	\$23.49	\$0.00			\$23.49
20.03	Underground station, stop, shelter, mall, terminal, platform	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00			\$0.00
20.04	Other stations, landings, terminals: Intermodal, ferry, trolley, etc.	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00			\$0.00
20.05	Joint development	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00			\$0.00
20.06	Automobile parking multi-story structure	\$39.70	\$0.00	\$0.00	\$0.00	\$0.00			\$39.70
20.07	Elevators, escalators	\$0.00	\$0.00	\$0.00	\$0.85	\$0.00			\$0.85
	<b>Subtotal Category 20</b>	<b>\$44.77</b>	<b>\$0.00</b>	<b>\$1.69</b>	<b>\$29.41</b>	<b>\$1.69</b>			<b>\$77.56</b>
<b>30</b>	<b>SUPPORT FACILITIES: YARDS, SHOPS, ADMIN. BLDGS</b>								
30.01	Administration Building: Office, sales, storage, revenue counting						\$0.00		\$0.00
30.02	Light Maintenance Facility						\$0.00		\$0.00
30.03	Heavy Maintenance Facility						\$47.39		\$47.39
30.04	Storage or Maintenance of Way Building						\$0.00		\$0.00
30.05	Yard and Yard Track						\$16.72		\$16.72
	<b>Subtotal Category 30</b>						<b>\$64.10</b>		<b>\$64.10</b>
<b>40</b>	<b>SITWORK &amp; SPECIAL CONDITIONS</b>								
40.01	Demolition, Clearing, Earthwork	\$4.00	\$0.41	\$2.30	\$5.75	\$1.51			\$13.98
40.02	Site Utilities, Utility Relocation	\$7.01	\$0.73	\$4.03	\$10.07	\$2.65			\$24.49
40.03	Haz. mat'l, contam'd soil removal/mitigation, ground water treatments	\$2.13	\$0.22	\$1.22	\$3.06	\$0.80			\$7.44
40.04	Environmental mitigation, e.g. wetlands, historic/archeologic, parks	\$2.20	\$0.23	\$1.27	\$3.16	\$0.83			\$7.69
40.05	Site structures including retaining walls, sound walls	\$0.44	\$0.00	\$0.00	\$0.00	\$0.00			\$0.44
40.06	Pedestrian / bike access and accommodation, landscaping	\$1.41	\$0.14	\$0.82	\$2.31	\$0.55			\$5.23
40.07	Automobile, bus, van accessways including roads, parking lots	\$9.65	\$0.00	\$1.29	\$0.00	\$0.00			\$10.94
40.08	Temporary Facilities and other indirect costs during construction	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00			\$0.00
	<b>Subtotal Category 40</b>	<b>\$26.85</b>	<b>\$1.73</b>	<b>\$10.92</b>	<b>\$24.35</b>	<b>\$6.35</b>			<b>\$70.20</b>

Southern Maryland Transit Corridor Preservation Study  
 Light Rail Transit (LRT)  
 Capital Cost Estimate (Base Cost & Contingency)  
 (2009 Dollars in Millions)

CAT No.	Description	Geographic Segments					Maintenance Facility	Vehicles	Alternative Total
		DeMarr Rd to Sub-Station Rd	Sub-Station Rd to County Border	County Border to Brandywine Rd	Brandywine Rd to Allentown Rd	Allentown Rd to Branch Ave Metro			
		1	2	3	4	5			
<b>50 SYSTEMS</b>									
50.01	Train control and signals	\$11.33	\$1.17	\$6.50	\$16.26	\$4.28			\$39.54
50.02	Traffic signals and crossing protection	\$1.55	\$1.09	\$0.64	\$1.29	\$0.21			\$4.78
50.03	Traction power supply: substations	\$6.39	\$1.60	\$4.79	\$9.58	\$3.19			\$25.56
50.04	Traction power distribution: catenary and third rail	\$10.07	\$1.04	\$5.78	\$14.46	\$3.81			\$35.16
50.05	Communications	\$3.61	\$0.27	\$1.82	\$5.07	\$1.32			\$12.09
50.06	Fare collection system and equipment	\$1.58	\$0.00	\$0.53	\$2.11	\$0.53			\$4.75
50.07	Central Control	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00			\$0.00
	<b>Subtotal Category 50</b>	<b>\$34.52</b>	<b>\$5.16</b>	<b>\$20.07</b>	<b>\$48.77</b>	<b>\$13.33</b>			<b>\$121.86</b>
	<b>Subtotal Construction Costs</b>	<b>\$149.24</b>	<b>\$12.65</b>	<b>\$139.57</b>	<b>\$197.93</b>	<b>\$201.85</b>	<b>\$64.10</b>		<b>\$765.34</b>
<b>60 ROW, LAND, EXISTING IMPROVEMENTS</b>									
60.01	Purchase or lease of real estate	\$88.30	\$7.04	\$23.98	\$45.81	\$7.39			\$172.53
	<b>Subtotal Right-of-Way</b>	<b>\$88.30</b>	<b>\$7.04</b>	<b>\$23.98</b>	<b>\$45.81</b>	<b>\$7.39</b>			<b>\$172.53</b>
<b>70 VEHICLES</b>									
70.01	Light Rail							\$130.86	\$130.86
	<b>Subtotal Vehicles</b>							<b>\$130.86</b>	<b>\$130.86</b>
<b>80 PROFESSIONAL SERVICES</b>									
80.01	Preliminary Engineering	4.0%	\$5.97	\$0.51	\$5.58	\$7.92	\$8.07	\$2.56	\$28.05
80.02	Final Design	6.0%	\$8.95	\$0.76	\$8.37	\$11.88	\$12.11	\$3.85	\$42.07
80.03	Project Management for Design and Construction	5.0%	\$7.46	\$0.63	\$6.98	\$9.90	\$10.09	\$3.21	\$35.06
80.04	Construction Administration & Management	8.0%	\$11.94	\$1.01	\$11.17	\$15.83	\$16.15	\$5.13	\$56.10
80.05	Insurance	2.0%	\$2.98	\$0.25	\$2.79	\$3.96	\$4.04	\$1.28	\$14.02
80.06	Legal; Permits; Review Fees by other agencies, cities, etc.	3.0%	\$4.48	\$0.38	\$4.19	\$5.94	\$6.06	\$1.92	\$21.04
80.07	Surveys, Testing, Investigation, Inspection	3.0%	\$4.48	\$0.38	\$4.19	\$5.94	\$6.06	\$1.92	\$21.04
80.08	Start up	1.0%	\$1.49	\$0.13	\$1.40	\$1.98	\$2.02	\$0.64	\$7.01
	<b>Subtotal Professional Services</b>	<b>LS</b>	<b>\$47.76</b>	<b>\$4.05</b>	<b>\$44.66</b>	<b>\$63.34</b>	<b>\$64.59</b>	<b>\$20.51</b>	<b>\$244.91</b>
<b>90 UNALLOCATED CONTINGENCY</b>									
90.01	Categories 10 - 50	5.0%	\$7.46	\$0.63	\$6.98	\$9.90	\$10.09	\$3.21	\$38.27
90.02	Categories 60 - 80	2.0%	\$2.72	\$0.22	\$1.37	\$2.18	\$1.44	\$0.41	\$10.97
	<b>Subtotal Unallocated Contingency</b>		<b>\$10.18</b>	<b>\$0.85</b>	<b>\$8.35</b>	<b>\$12.08</b>	<b>\$11.53</b>	<b>\$3.62</b>	<b>\$49.23</b>
<b>Project Total</b>			<b>\$295.48</b>	<b>\$24.60</b>	<b>\$216.57</b>	<b>\$319.16</b>	<b>\$285.37</b>	<b>\$88.23</b>	<b>\$1,362.88</b>

**Southern Maryland Transit Corridor Preservation Study**  
**Bus Rapid Transit (BRT)**  
**Capital Cost Estimate (Base Cost & Contingency)**  
**(2009 Dollars in Millions)**

CAT No.	Description	Geographic Segments					Maintenance Facility	Vehicles	Alternative Total
		DeMarr Rd to Sub-Station Rd	Sub-Station Rd to County Border	County Border to Brandywine Rd	Brandywine Rd to Allentown Rd	Allentown Rd to Branch Ave Metro			
		1	2	3	4	5			
	Length (Mile):	5.35	0.55	3.08	7.68	2.01			18.67
	Number of Stations:	3	0	1	4	1			9
	Number of Revenue Vehicles:							65	65
<b>10</b>	<b>GUIDEWAY &amp; TRACK ELEMENTS</b>								
10.01	Guideway: At-grade exclusive right-of-way	\$21.48	\$1.61	\$9.45	\$22.98	\$1.40			\$56.92
10.02	Guideway: At-grade semi-exclusive (allows cross-traffic)	\$0.29	\$0.29	\$0.55	\$0.42	\$0.13			\$1.67
10.03	Guideway: At-grade in mixed traffic	\$0.00	\$0.00	\$0.00	\$0.00	\$1.26			\$1.26
10.04	Guideway: Aerial structure	\$0.00	\$0.55	\$1.29	\$31.66	\$0.00			\$33.50
10.05	Guideway: Built-up fill	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00			\$0.00
10.06	Guideway: Underground cut & cover	\$0.00	\$0.00	\$81.65	\$0.00	\$0.00			\$81.65
10.07	Guideway: Underground tunnel	\$0.00	\$0.00	\$0.00	\$0.00	\$198.46			\$198.46
10.08	Guideway: Retained cut or fill	\$2.44	\$1.12	\$0.43	\$16.98	\$0.00			\$20.98
10.09	Track: Direct fixation (NOT USED)	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00			\$0.00
10.10	Track: Embedded (NOT USED)	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00			\$0.00
10.11	Track: Ballasted (NOT USED)	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00			\$0.00
10.12	Track: Special (switches, turnouts) (NOT USED)	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00			\$0.00
10.13	Track: Vibration and noise dampening (NOT USED)	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00			\$0.00
	<b>Subtotal Category 10</b>	<b>\$24.22</b>	<b>\$3.57</b>	<b>\$93.37</b>	<b>\$72.04</b>	<b>\$201.24</b>			<b>\$394.44</b>
<b>20</b>	<b>STATIONS, STOPS, TERMINALS, INTERMODAL</b>								
20.01	At-grade station, stop, shelter, mall, terminal, platform	\$5.07	\$0.00	\$1.69	\$5.07	\$1.69			\$13.52
20.02	Aerial station, stop, shelter, mall, terminal, platform	\$0.00	\$0.00	\$0.00	\$23.49	\$0.00			\$23.49
20.03	Underground station, stop, shelter, mall, terminal, platform	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00			\$0.00
20.04	Other stations, landings, terminals: Intermodal, ferry, trolley, etc.	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00			\$0.00
20.05	Joint development	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00			\$0.00
20.06	Automobile parking multi-story structure	\$39.70	\$0.00	\$0.00	\$0.00	\$0.00			\$39.70
20.07	Elevators, escalators	\$0.00	\$0.00	\$0.00	\$0.85	\$0.00			\$0.85
	<b>Subtotal Category 20</b>	<b>\$44.77</b>	<b>\$0.00</b>	<b>\$1.69</b>	<b>\$29.41</b>	<b>\$1.69</b>			<b>\$77.56</b>
<b>30</b>	<b>SUPPORT FACILITIES: YARDS, SHOPS, ADMIN. BLDGS</b>								
30.01	Administration Building: Office, sales, storage, revenue counting						\$0.00		\$0.00
30.02	Light Maintenance Facility						\$0.00		\$0.00
30.03	Heavy Maintenance Facility						\$23.99		\$23.99
30.04	Storage or Maintenance of Way Building						\$0.00		\$0.00
30.05	Yard and Yard Track						\$0.00		\$0.00
	<b>Subtotal Category 30</b>						<b>\$23.99</b>		<b>\$23.99</b>
<b>40</b>	<b>SITWORK &amp; SPECIAL CONDITIONS</b>								
40.01	Demolition, Clearing, Earthwork	\$4.00	\$0.41	\$2.30	\$5.75	\$1.51			\$13.98
40.02	Site Utilities, Utility Relocation	\$7.01	\$0.73	\$4.03	\$10.07	\$2.65			\$24.49
40.03	Haz. mat'l, contam'd soil removal/mitigation, ground water treatments	\$2.13	\$0.22	\$1.22	\$3.06	\$0.80			\$7.44
40.04	Environmental mitigation, e.g. wetlands, historic/archeologic, parks	\$2.20	\$0.23	\$1.27	\$3.16	\$0.83			\$7.69
40.05	Site structures including retaining walls, sound walls	\$0.44	\$0.00	\$1.29	\$0.00	\$0.00			\$1.72
40.06	Pedestrian / bike access and accommodation, landscaping	\$1.41	\$0.14	\$0.82	\$2.31	\$0.53			\$5.21
40.07	Automobile, bus, van accessways including roads, parking lots	\$9.65	\$0.00	\$0.00	\$0.00	\$0.00			\$9.65
40.08	Temporary Facilities and other indirect costs during construction	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00			\$0.00
	<b>Subtotal Category 40</b>	<b>\$26.85</b>	<b>\$1.73</b>	<b>\$10.92</b>	<b>\$24.35</b>	<b>\$6.33</b>			<b>\$70.19</b>

**Southern Maryland Transit Corridor Preservation Study**  
**Bus Rapid Transit (BRT)**  
**Capital Cost Estimate (Base Cost & Contingency)**  
**(2009 Dollars in Millions)**

CAT No.	Description	Geographic Segments					Maintenance Facility	Vehicles	Alternative Total
		DeMarr Rd to Sub-Station Rd	Sub-Station Rd to County Border	County Border to Brandywine Rd	Brandywine Rd to Allentown Rd	Allentown Rd to Branch Ave Metro			
		1	2	3	4	5			
<b>50 SYSTEMS</b>									
50.01	Train control and signals (NOT USED)	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00			\$0.00
50.02	Traffic signals and crossing protection	\$1.55	\$1.09	\$0.64	\$1.29	\$0.21			\$4.78
50.03	Traction power supply: substations (NOT USED)	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00			\$0.00
50.04	Traction power distribution: catenary and third rail (NOT USED)	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00			\$0.00
50.05	Communications	\$2.77	\$0.27	\$1.54	\$3.96	\$1.04			\$9.59
50.06	Fare collection system and equipment	\$1.58	\$0.00	\$0.53	\$2.11	\$0.53			\$4.75
50.07	Central Control	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00			\$0.00
	<b>Subtotal Category 50</b>	<b>\$5.90</b>	<b>\$1.35</b>	<b>\$2.71</b>	<b>\$7.37</b>	<b>\$1.78</b>			<b>\$19.11</b>
	<b>Subtotal Construction Costs</b>	<b>\$101.74</b>	<b>\$6.66</b>	<b>\$108.70</b>	<b>\$133.16</b>	<b>\$211.03</b>	<b>\$23.99</b>		<b>\$585.27</b>
<b>60 ROW, LAND, EXISTING IMPROVEMENTS</b>									
60.01	Purchase or lease of real estate	\$88.30	\$7.04	\$23.98	\$45.81	\$7.39			\$172.53
	<b>Subtotal Right-of-Way</b>	<b>\$88.30</b>	<b>\$7.04</b>	<b>\$23.98</b>	<b>\$45.81</b>	<b>\$7.39</b>			<b>\$172.53</b>
<b>70 VEHICLES</b>									
70.01	Light Rail							\$47.29	\$47.29
	<b>Subtotal Vehicles</b>							<b>\$47.29</b>	<b>\$47.29</b>
<b>80 PROFESSIONAL SERVICES</b>									
80.01	Preliminary Engineering	4.0%	\$4.07	\$0.27	\$4.35	\$5.33	\$8.44	\$0.96	\$23.41
80.02	Final Design	6.0%	\$6.10	\$0.40	\$6.52	\$7.99	\$12.66	\$1.44	\$35.12
80.03	Project Management for Design and Construction	5.0%	\$5.09	\$0.33	\$5.43	\$6.66	\$10.55	\$1.20	\$29.26
80.04	Construction Administration & Management	8.0%	\$8.14	\$0.53	\$8.70	\$10.65	\$16.88	\$1.92	\$46.82
80.05	Insurance	2.0%	\$2.03	\$0.13	\$2.17	\$2.66	\$4.22	\$0.48	\$11.71
80.06	Legal; Permits; Review Fees by other agencies, cities, etc.	3.0%	\$3.05	\$0.20	\$3.26	\$3.99	\$6.33	\$0.72	\$17.56
80.07	Surveys, Testing, Investigation, Inspection	3.0%	\$3.05	\$0.20	\$3.26	\$3.99	\$6.33	\$0.72	\$17.56
80.08	Start up	1.0%	\$1.02	\$0.07	\$1.09	\$1.33	\$2.11	\$0.24	\$5.85
	<b>Subtotal Professional Services</b>	<b>LS</b>	<b>\$32.56</b>	<b>\$2.13</b>	<b>\$34.78</b>	<b>\$42.61</b>	<b>\$67.53</b>	<b>\$7.68</b>	<b>\$187.29</b>
<b>90 UNALLOCATED CONTINGENCY</b>									
90.01	Categories 10 - 50	5.0%	\$5.09	\$0.33	\$5.43	\$6.66	\$10.55	\$1.20	\$29.26
90.02	Categories 60 - 80	2.0%	\$2.42	\$0.18	\$1.18	\$1.77	\$1.50	\$0.15	\$8.14
	<b>Subtotal Unallocated Contingency</b>		<b>\$7.50</b>	<b>\$0.52</b>	<b>\$6.61</b>	<b>\$8.43</b>	<b>\$12.05</b>	<b>\$1.35</b>	<b>\$37.41</b>
<b>Project Total</b>			<b>\$230.10</b>	<b>\$16.35</b>	<b>\$174.07</b>	<b>\$230.01</b>	<b>\$298.00</b>	<b>\$33.01</b>	<b>\$1,029.79</b>