

A. Input Data

This appendix presents the process and data used to develop the IMPLAN Input/Output analyses. This workbook presents the time-series data calculation on the various MDOT surface programs in the study by Cambridge Systematics and EDR Group covering 2007 through 2011. All dollar figures are expressed in year 2011 dollars. A complete set of input data and a description of the data processing steps taken are provided for each of the major spending categories:

- Transit Capital Program (Maryland's and MDOT's WMATA contribution);
- SHA Capital Program;
- Transit Operations and Maintenance Programs (Maryland's and MDOT's WMATA contribution); and
- SHA Operations and Maintenance Program.

Each is presented in turn below.

A.1 MTA CAPITAL PROGRAM

MTA provided a time series of capital expenditures stratified major program category (Metro, light rail, etc.) and a summary of functional category (e.g., planning, engineering, etc.). These data are shown in Table B.1.

Table A.1 Distribution of MTA Capital Expenditures by Major Program and Functional Category
2011 Dollars, in Thousands

Agency	FY 07	FY 08	FY 09	FY 10	FY 11	Total
New MARC Vehicles	\$0	\$29,458	\$43,640	\$18,095	\$2,320	\$93,512
Used MARC Vehicles	\$0	\$0	\$23,133	\$940	\$0	\$24,073
New Buses	\$2,299	\$2,219	\$28,421	\$65,419	\$35,945	\$134,303
Mobility Vehicles	\$2,892	\$5,552	\$5,248	\$5,544	\$4,800	\$24,037
Lots Vehicles	\$7,101	\$3,374	\$16,091	\$15,722	\$21,430	\$63,718
Total Rolling Stock	\$12,293	\$40,603	\$116,533	\$105,720	\$64,495	\$339,644
Total Rolling Stock + ARRA Funds	\$12,293	\$40,603	\$118,145	\$120,495	\$77,251	\$368,787
Capital Equipment + ARRA Funds	\$15,252	\$10,449	\$6,502	\$3,374	\$2,101	\$37,677
Other Capital Expenditures + ARRA Funds	\$127,755	\$146,523	\$139,494	\$212,222	\$298,147	\$924,141
Total + ARRA Funds	\$155,299	\$197,575	\$264,141	\$336,091	\$377,499	\$1,330,605
Planning/Engineering	\$0	\$0	\$0	\$0	\$0	\$5,545

Source: MTA.

A.2 WMATA CAPITAL EXPENDITURES

Annual capital contributions from MDOT as well as direct Federal contributions are stratified by functional categories: 1) Infrastructure Renewal programs; 2) Capital Initiatives; 3) Business Improvements; and 4) Program management. (Table B.2). Right-of-way expenditures are considered as transfers and are not included in the benefits estimation.

Table A.2 Maryland's Capital Support for WMATA by Program and Functional Category
 2011 Dollars, in Thousands

WMATA Capital Detail						
A. Infrastructure Renewal Program	FY 07	FY 08	FY 09	FY 10	FY 11	Total
Rolling Stock Bus	\$6,474	\$5,259	\$19,280	\$24,322	\$78,606	\$133,941
Rolling Stock Rail	\$141	\$562	\$1,141	\$1,012	\$0	\$2,857
Passenger Facilities	\$12,764	\$14,077	\$6,932	\$15,827	\$22,048	\$71,647
Maintenance Facilities	\$6,038	\$6,831	\$4,121	\$4,938	\$15,509	\$37,436
Systems	\$6,988	\$11,549	\$5,239	\$9,301	\$0	\$33,077
Track and Structures	\$9,214	\$9,197	\$7,921	\$8,869	\$15,788	\$50,989
Info Technology	\$3,537	\$5,100	\$5,183	\$5,187	\$15,425	\$34,432
Preventative Maintenance	\$8,477	\$6,547	\$4,837	\$9,067	\$21,936	\$50,864
Urgent Capital Needs	\$0	\$0	\$5,295	\$10,899	\$0	\$16,194
<i>Subtotal</i>	\$53,632	\$59,124	\$59,949	\$89,422	\$169,311	\$431,438
B. Eight-Car Train Capital Initiative						
Rail Cars	\$28,632	\$30,667	\$1,720	\$1,516	\$0	\$62,535
Facilities	\$28,712	\$12,454	\$1,261	\$3,159	\$810	\$46,396
Systems	\$23,209	\$15,409	\$6,261	\$1,782	\$0	\$46,661
<i>Subtotal</i>	\$80,553	\$58,529	\$9,242	\$6,458	\$810	\$155,592
C. Bus Improvement Capital Initiative						
Buses	\$3,878	\$381	\$2	\$0	\$0	\$4,261
Garage	\$3,712	\$5,869	\$928	\$322	\$0	\$10,831
Customer Facilities	\$3,199	\$1,497	\$664	\$995	\$0	\$6,354
<i>Subtotal</i>	\$10,789	\$7,746	\$1,594	\$1,317	\$0	\$21,446
D. Program Management						
Program Management and Support	\$2,290	\$3,008	\$3,303	\$4,552	\$699	\$13,852
Total	\$147,263	\$128,407	\$74,089	\$101,748	\$170,820	\$622,328

Source: WMATA.

A.3 SHA CAPITAL EXPENDITURES

Expenditures are summarized by fund (Table B.3) and by year (Table B.4) and do not contain right-of-way (ROW).

Table A.3 SHA Expenditures by Fund and Functional Area
2011 Dollars, in Thousands

Fund	Planning/Engineering	Construction	Total
Primary Roads	\$52,117	\$309,200	\$361,317
Secondary Roads	\$11,252	\$244,457	\$255,709
Interstate	\$22,643	\$196,108	\$218,751
Woodrow Wilson Bridge	\$32,432	\$314,014	\$346,445
Environmental Preservation	\$9,841	\$14,899	\$24,740
Enhancements	\$2,839	\$45,297	\$48,136
Noise Barriers	\$4,698	\$23,218	\$27,915
Rest Areas and Info Centers	\$2,771	\$13,444	\$16,215
Access Controls	\$0	\$1,154	\$1,154
Crash Prevention	\$701	\$23,309	\$24,009
Pilot Program	\$0	\$378	\$378
Guardrail End Treatment	\$129	\$23,921	\$24,050
ADA Retrofit	\$390	\$24,924	\$25,313
Communication	\$9	\$1,009	\$1,018
Capital Equipment	\$2,587	\$29,341	\$31,928
Statewide Planning and Research	\$88,448	\$7,790	\$96,238
Environmental Compliance	\$8,319	\$12,595	\$20,915
Drainage	\$23,995	\$38,238	\$62,233
Emergency	\$491	\$4,225	\$4,716
Safety and Spot Improvement	\$40,197	\$135,587	\$175,784
Resurfacing and Rehabilitation	\$56,893	\$624,577	\$681,470
Pedestrian Access to Transit	\$80	\$1,900	\$1,980
Sidewalks	\$274	\$6,477	\$6,751
Bridge Replacement/Rehabilitation	\$65,739	\$307,019	\$372,758
Commuter Action Improvements	\$2,733	\$4,950	\$7,683
TMDL Compliance	\$122	\$184	\$306
Urban Street Reconstruction	\$6	\$380	\$386
Community Safety and Enhancements	\$1,086	\$124,029	\$125,115
Traffic Management	\$92,584	\$94,646	\$187,230
C.H.A.R.T.	\$42,401	\$15,144	\$57,545
Intersection Capacity Improvements	\$7,962	\$48,911	\$56,873

Fund	Planning/Engineering	Construction	Total
Bicycle Retrofit	\$242	\$3,648	\$3,890
Facilities	\$0	\$0	\$109,463
Reimbursables	\$0	\$0	\$136,977
Truck Weight	\$0	\$0	\$12,190
Major IT Capital	\$0	\$0	\$29,811
Total	\$573,981	\$2,694,971	\$3,557,394

Source: SHA.

Table A.4 SHA Expenditures by Fund (Excludes ROW Purchases)
2011 Dollars, in Thousands

Fund	2007	2008	2009	2010	2011	Total
Primary Roads	\$105,280	\$108,648	\$64,956	\$41,412	\$41,021	\$361,317
Secondary Roads	\$65,213	\$61,695	\$56,135	\$42,007	\$30,658	\$255,709
Interstate	\$53,096	\$61,691	\$46,499	\$31,572	\$25,893	\$218,751
Woodrow Wilson Bridge	\$188,108	\$110,691	\$37,135	\$9,046	\$1,466	\$346,445
Environmental Preservation	\$4,987	\$5,573	\$4,108	\$5,194	\$4,878	\$24,740
Enhancements	\$11,503	\$10,535	\$9,877	\$8,758	\$7,463	\$48,136
Noise Barriers	\$7,036	\$5,086	\$7,992	\$4,642	\$3,160	\$27,915
Rest Areas and Info Centers	\$1,491	\$999	\$4,115	\$8,999	\$612	\$16,215
Access Controls	\$1,123	\$9	\$23	\$0	\$0	\$1,154
Crash Prevention	\$6,499	\$3,457	\$5,149	\$5,401	\$3,503	\$24,009
Pilot Program	\$378	\$0	\$0	\$0	\$0	\$378
Guardrail End Treatment	\$4,336	\$3,038	\$3,955	\$9,796	\$2,927	\$24,050
ADA Retrofit	\$2,317	\$4,929	\$4,469	\$7,665	\$5,933	\$25,313
Communication	\$0	\$0	\$0	\$0	\$1,018	\$1,018
Capital Equipment	\$9,074	\$8,630	\$1	\$4,559	\$9,664	\$31,928
Statewide Planning and Research	\$18,493	\$20,072	\$22,110	\$17,596	\$17,968	\$96,238
Environmental Compliance	\$2,411	\$4,449	\$6,139	\$4,193	\$3,723	\$20,915
Drainage	\$11,939	\$12,079	\$15,167	\$9,822	\$13,226	\$62,233
Emergency	\$3,133	\$327	-\$141	\$490	\$906	\$4,716
Safety and Spot Improvement	\$41,885	\$36,084	\$35,359	\$28,826	\$33,631	\$175,784
Resurfacing and Rehabilitation	\$173,300	\$127,607	\$139,665	\$137,844	\$103,053	\$681,470
Pedestrian Access to Transit	\$0	\$0	\$0	\$0	\$1,980	\$1,980
Sidewalks	\$2,006	\$2,061	\$1,747	\$418	\$518	\$6,751
Bridge Replacement/Rehabilitation	\$82,254	\$78,683	\$68,025	\$65,233	\$78,563	\$372,758
Commuter Action Improvements	\$1,189	\$1,465	\$1,817	\$1,829	\$1,383	\$7,683
TMDL Compliance	\$0	\$0	\$0	\$0	\$306	\$306

Fund	2007	2008	2009	2010	2011	Total
Urban Street Reconstruction	\$60	\$149	\$21	\$81	\$76	\$386
Community Safety And Enhancements	\$29,301	\$36,740	\$30,344	\$19,635	\$9,095	\$125,115
Traffic Management	\$39,498	\$37,965	\$39,669	\$32,399	\$37,699	\$187,230
C.H.A.R.T.	\$13,822	\$9,690	\$11,032	\$8,903	\$14,099	\$57,545
Intersection Capacity Improvements	\$21,171	\$15,236	\$8,980	\$6,706	\$4,779	\$56,873
Bicycle Retrofit	\$1,340	\$746	\$751	\$487	\$566	\$3,890
Facilities	\$36,551	\$27,110	\$25,485	\$9,517	\$10,800	\$109,463
Reimbursables	\$18,494	\$29,091	\$34,839	\$29,153	\$25,400	\$136,977
Truck Weight	\$4,158	\$1,668	\$2,559	\$2,404	\$1,400	\$12,190
Major IT Capital	\$4,661	\$7,038	\$6,779	\$5,710	\$5,623	\$29,811
Total	\$966,108	\$833,239	\$694,761	\$560,297	\$502,989	\$3,557,394

Source: SHA.

A.4 MTA MAINTENANCE AND OPERATIONS

MTA maintenance and operations expenditures are stratified by salary compensation, other contract services, and other operating costs (Table B.5).

**Table A.5 MTA Operating/Maintenance Expenditures from Service Category
2011 Dollars, in Thousands**

Program	2007	2008	2009	2010	2011	Total
Salaries, Wages, and Fringe Benefits	\$262,077	\$263,077	\$262,958	\$273,227	\$292,416	\$1,353,754
Technical and Special Fees	\$1,784	\$1,625	\$1,103	\$1,184	\$967	\$6,662
Communications	\$1,739	\$1,229	\$1,290	\$1,113	\$1,366	\$6,737
Travel	\$693	\$744	\$434	\$381	\$549	\$2,801
Utilities	\$14,850	\$14,057	\$15,682	\$12,444	\$11,630	\$68,663
Motor Vehicle Operations	\$51,384	\$64,712	\$67,330	\$65,951	\$59,011	\$308,388
Contractual Services	\$145,138	\$158,901	\$179,672	\$185,321	\$180,259	\$849,290
Supplies and Materials	\$7,323	\$8,564	\$7,675	\$7,698	\$7,826	\$39,086
Equipment – Replacement	\$294	\$372	\$210	\$206	\$319	\$1,401
Equipment – Additional	\$576	\$874	\$388	\$435	\$488	\$2,761
Grants, Subsidies and Contributions	\$59,491	\$58,661	\$58,143	\$57,586	\$58,847	\$292,729
Fixed Charges	\$8,282	\$7,457	\$8,166	\$5,855	\$8,240	\$37,999
Land and Structures	\$11	\$85	\$152	\$0	\$0	\$247
Total	\$553,641	\$580,357	\$603,202	\$611,399	\$621,917	\$2,970,517

Source: MTA.

A.5 MARYLAND CONTRIBUTION TO WMATA MAINTENANCE AND OPERATIONS

Determine the “normalized” distribution of WMATA expenditures by functional categories, from the current year budget (Table B.6).

Assume that Maryland fares and operating subsidies account for roughly 37 percent of WMATA expenditures, and distribute the Maryland portion of annual expenditures by non-labor functional categories (Table B.7).

Table A.6 Share of WMATA’s Total Operations Expenditures by Category
 2011 Dollars, in Thousands

O&M Category	2007	2008	2009	2010	2011	Total	Percent of Total
Personnel (Payroll)	\$910,467	\$913,017	\$955,196	\$969,638	\$1,007,300	\$4,755,617	72%
Services	\$116,375	\$127,946	\$155,628	\$170,304	\$177,700	\$747,953	11%
Materials and Supplies	\$74,294	\$83,156	\$83,946	\$82,592	\$71,000	\$394,987	6%
Fuel and Propulsion Power	\$80,672	\$78,444	\$100,812	\$88,273	\$85,500	\$433,701	7%
Utilities	\$35,100	\$37,781	\$45,043	\$36,924	\$33,600	\$188,449	3%
Casualty and Liability	\$13,938	\$18,362	\$28,166	\$27,917	\$42,400	\$130,782	2%
Leases and Rentals	\$6,512	\$5,309	\$4,276	\$4,412	\$0	\$20,510	0%
Miscellaneous	\$4,498	\$4,173	\$3,659	\$3,712	\$0	\$16,042	0%
Reimbursements/ Other	-\$26,334	-\$50,347	-\$3,543	-\$3,913	\$0	-\$84,137	-1%
Total	\$1,215,522	\$1,217,841	\$1,373,183	\$1,379,859	\$1,417,500	\$6,603,904	100%

Source: WMATA.

Table A.7 Use of Maryland Support for WMATA Operating Budget, Using the FY 2011 Budget Profile
 2011 Dollars, in Thousands

O&M Category	2007	2008	2009	2010	2011	Total	Percent of Total
Personnel (Payroll)	\$323,747	\$373,252	\$341,907	\$334,963	\$376,872	\$1,750,741	72%
Services	\$41,381	\$52,306	\$55,706	\$58,832	\$66,485	\$274,710	11%
Materials and Supplies	\$26,418	\$33,995	\$30,048	\$28,531	\$26,564	\$145,556	6%
Fuel and Propulsion Power	\$28,686	\$32,069	\$36,085	\$30,494	\$31,989	\$159,323	7%
Utilities	\$12,481	\$15,445	\$16,123	\$12,756	\$12,571	\$69,376	3%

O&M Category	2007	2008	2009	2010	2011	Total	Percent of Total
Casualty and Liability	\$4,956	\$7,506	\$10,082	\$9,644	\$15,864	\$48,052	2%
Leases and Rentals	\$2,316	\$2,171	\$1,531	\$1,524	\$0	\$7,541	0%
Miscellaneous	\$1,600	\$1,706	\$1,310	\$1,282	\$0	\$5,897	0%
Reimbursements/Other	-\$9,364	-\$20,582	-\$1,268	-\$1,352	\$0	-\$32,566	-1%
Total	\$432,219	\$497,867	\$491,524	\$476,674	\$530,345	\$2,428,629	100%

Source: WMATA.

A.6 SHA OPERATING AND MAINTENANCE EXPENDITURES

Organize operations and maintenance expenditures by year and by internal labor, contract maintenance, and contractual services (Table B.8).

Table A.8 SHA Operations and Maintenance Expenditures
2011 Dollars, in Thousands

Program	2007	2008	2009	2010	2011	Total
Salaries, Wages, and Fringe Benefits	\$100,341	\$95,724	\$95,836	\$108,022	\$97,078	\$497,002
Technical and Special Fees	\$11,316	\$11,982	\$10,690	\$8,441	\$4,140	\$46,569
Communications	\$1,568	\$1,449	\$1,402	\$1,328	\$1,217	\$6,964
Travel	\$869	\$820	\$591	\$612	\$514	\$3,406
Utilities	\$16,126	\$16,549	\$15,535	\$12,618	\$12,576	\$73,404
Motor Vehicle Operations	\$14,476	\$15,258	\$12,978	\$13,515	\$14,489	\$70,717
Contractual Services	\$75,686	\$73,803	\$69,444	\$109,917	\$80,637	\$409,487
Supplies and Materials	\$27,264	\$22,248	\$24,429	\$32,152	\$31,496	\$137,589
Equipment – Replacement	\$423	\$620	\$131	\$93	\$371	\$1,638
Equipment – Additional	\$334	\$222	\$178	\$79	\$205	\$1,019
Grants, Subsidies, and Contributions	\$8,700	\$9,876	\$12,439	\$9,907	\$9,139	\$50,060
Fixed Charges	\$456	\$431	\$338	\$304	\$282	\$1,812
Land and Structures	\$0	\$0	\$0	\$0	\$37	\$37
Total	\$257,561	\$248,984	\$243,992	\$296,987	\$252,180	\$1,299,703

Source: SHA.