Appendix C

Yearly Waste Disposal Volume Requirements
Scenario 1: Base Case

	Year	Solid Waste ** (tons/year)	Solid Waste (tons/day)	Waste Diverted (tons)	Waste to Landfill (tons)	Waste to Landfill (cubic yards)	Daily Cover (cubic yards)	Accumulated Cover (cubic yards)	Annual Volume of Landfill Space Required (cubic yards)	Accumulated Volume (cubic yards)
0	2001	1,360	3.73							
1	2002	1,383	3.79	0	1,383	3,950	1,185	1,185	5,136	5,136
2	2003	1,406	3.85	0	1,406	4,016	1,205	2,390	5,221	10,357
3	2004	1,429	3.92	0	1,429	4,083	1,225	3,615	5,308	15,665
4	2005	1,453	3.98	0	1,453	4,151	1,245	4,860	5,397	21,062
5	2006	1,477	4.05	0	1,477	4,221	1,266	6,127	5,487	26,549
6	2007	1,502	4.12	0	1,502	4,292	1,288	7,414	5,579	32,128
7	2008	1,527	4.18	0	1,527	4,364	1,309	8,723	5,673	37,801
8	2009	1,553	4.26	0	1,553	4,437	1,331	10,055	5,769	43,570
9	2010	1,579	4.33	0	1,579	4,512	1,354	11,408	5,866	49,436
10	2011	1,606	4.40	0	1,606	4,589	1,377	12,785	5,965	55,401
11	2012	1,633	4.47	0	1,633	4,666	1,400	14,185	6,066	61,467
12	2013	1,661	4.55	0	1,661	4,746	1,424	15,609	6,169	67,637
13	2014	1,689	4.63	0	1,689	4,826	1,448	17,056	6,274	73,911
14	2015	1,718	4.71	0	1,718	4,909	1,473	18,529	6,381	80,293
15	2016	1,747	4.79	0	1,747	4,993	1,498	20,027	6,490	86,783
16	2017	1,777	4.87	0	1,777	5,078	1,523	21,550	6,601	93,384
17	2018	1,808	4.95	0	1,808	5,165	1,550	23,100	6,715	100,099
18	2019	1,839	5.04	0	1,839	5,254	1,576	24,676	6,830	106,929
19	2020	1,870	5.12	0	1,870	5,344	1,603	26,279	6,947	113,876
20	2021	1,903	5.21	0	1,903	5,436	1,631	27,910	7,067	120,943
21	2022	1,935	5.30	0	1,935	5,530	1,659	29,569	7,189	128,132
22	2023	1,969	5.39	0	1,969	5,625	1,688	31,257	7,313	135,445
23	2024	2,003	5.49	0	2,003	5,723	1,717	32,973	7,440	142,885
24	2025	2,038	5.58	0	2,038	5,822	1,747	34,720	7,569	150,454
25	2026	2,073	5.68	0	2,073	5,923	1,777	36,497	7,700	158,154
26	2027	2,109	5.78	0	2,109	6,026	1,808	38,305	7,834	165,988
27	2028	2,146	5.88	0	2,146	6,131	1,839	40,144	7,970	173,958
28	2029	2,183	5.98	0	2,183	6,238	1,871	42,016	8,110	182,068
29	2030	2,221	6.09	0	2,221	6,347	1,904	43,920	8,251	190,319

Variables used for calculations:

Yearly solid waste inflation rate:	1.89%	(The 5-year average population growth rate; see Table 3.1)
Percent of waste diverted:	0%	
In place density (lb/yd^3):	700	
Daily cover volume (percent of solid waste):	30%	

Equations

Solid waste	=inflation rate*(tons of waste/year)
Waste Diverted	=% diverted*Solid waste
Waste to Landfill (tons)	=Solid waste-Waste diverted
Waste to Landfill (cubic yards)	=(Weight of Waste to landfill/In place density)*(2000 lb/ton)
Daily Cover	=Daily cover volume*Waste to landfill
Annual Volume of Landfill Space Required	=Waste to landfill+Daily cover
Accumulated Volume	=Accumulated volume previous year+Annual volume current year

** 1360 Tons per year based on Delta Sanitation data of quantities of solid waste deposited in landfill (1194 tons per year) and estimated annual waste generation from residual force at Fort Greely (166 tons per year). Study dates were from July 1, 2000-December 31, 2000.

Note: Solid waste generated by Fort Greely is not inflated. It is assumed this population remains constant.

Yearly Waste Disposal Volume Requirements
Scenario 2: Base Case + Prison

	Year	Solid Waste ** (tons/year)	Solid Waste (tons/day)	Waste Diverted (tons)	Waste to Landfill (tons)	Waste to Landfill (cubic yards)	Daily Cover (cubic yards)	Accumulated Cover (cubic yards)	Annual Volume of Landfill Space Required (cubic yards)	Accumulated Volume (cubic yards)
0	2001	1,360	3.73							
1	2002	1,383	3.79	0	1,383	3,950	1,185	1,185	5,136	5,136
2	2003	1,406	3.85	0	1,406	4,016	1,205	2,390	5,221	10,357
3	2004	2,967	8.13	0	2,967	8,476	2,543	4,933	11,019	21,376
4	2005	2,991	8.19	0	2,991	8,544	2,563	7,496	11,108	32,483
5	2006	3,015	8.26	0	3,015	8,614	2,584	10,080	11,198	43,682
6	2007	3,040	8.33	0	3,040	8,685	2,605	12,686	11,290	54,972
7	2008	3,065	8.40	0	3,065	8,757	2,627	15,313	11,384	66,356
8	2009	3,091	8.47	0	3,091	8,830	2,649	17,962	11,480	77,835
9	2010	3,117	8.54	0	3,117	8,905	2,672	20,634	11,577	89,412
10	2011	3,144	8.61	0	3,144	8,982	2,695	23,328	11,676	101,089
11	2012	3,171	8.69	0	3,171	9,060	2,718	26,046	11,777	112,866
12	2013	3,199	8.76	0	3,199	9,139	2,742	28,788	11,880	124,746
13	2014	3,227	8.84	0	3,227	9,220	2,766	31,553	11,985	136,732
14	2015	3,256	8.92	0	3,256	9,302	2,791	34,344	12,092	148,824
15	2016	3,285	9.00	0	3,285	9,386	2,816	37,160	12,201	161,025
16	2017	3,315	9.08	0	3,315	9,471	2,841	40,001	12,312	173,338
17	2018	3,345	9.17	0	3,345	9,558	2,867	42,868	12,425	185,763
18	2019	3,376	9.25	0	3,376	9,647	2,894	45,762	12,541	198,304
19	2020	3,408	9.34	0	3,408	9,737	2,921	48,684	12,658	210,962
20	2021	3,440	9.43	0	3,440	9,829	2,949	51,632	12,778	223,740
21	2022	3,473	9.52	0	3,473	9,923	2,977	54,609	12,900	236,640
22	2023	3,506	9.61	0	3,506	10,019	3,006	57,615	13,024	249,664
23	2024	3,541	9.70	0	3,541	10,116	3,035	60,650	13,151	262,815
24	2025	3,575	9.80	0	3,575	10,215	3,065	63,714	13,280	276,094
25	2026	3,611	9.89	0	3,611	10,316	3,095	66,809	13,411	289,506
26	2027	3,647	9.99	0	3,647	10,419	3,126	69,935	13,545	303,051

Variables used for calculations:

Yearly solid waste inflation rate:	1.89%	(The 5-year average population growth rate; see Table 3.1)
Percent of waste diverted:	0%	
In place density (lb/yd³):	700	
Daily cover volume (percent of solid waste):	30%	

Equations

Solid waste	=inflation rate*(tons of waste/year)
Waste Diverted	=% diverted*Solid waste
Waste to Landfill (tons)	=Solid waste-Waste diverted
Waste to Landfill (cubic yards)	=(Weight of Waste to landfill/In place density)*(2000 lb/ton)
Daily Cover	=Daily cover volume*Waste to landfill
Annual Volume of Landfill Space Required	=Waste to landfill+Daily cover
Accumulated Volume	=Accumulated volume previous year+Annual volume current year

** 1360 Tons per year based on Delta Sanitation data of quantities of solid waste deposited in landfill (1194 tons per year) and estimated annual waste generation from residual force at Fort Greely (166 tons per year). Study dates were from July 1, 2000-December 31, 2000.

Projected data based on prison becoming operational in 2004, increasing tonnage by 1538 tons per year (See Appendix B)

Note: Solid waste generated by Fort Greely and Prison is not inflated. It is assumed this population remains constant.

Yearly Waste Disposal Volume Requirements
Scenario 3: Base Case + NMDS

	Year	Solid Waste ** (tons/year)	Solid Waste (tons/day)	Waste Diverted (tons)	Waste to Landfill (tons)	Waste to Landfill (cubic yards)	Daily Cover (cubic yards)	Accumulated Cover (cubic yards)	Annual Volume of Landfill Space Required (cubic yards)	Accumulated Volume (cubic yards)
0	2001	1,360	3.73							
1	2002	1,383	3.79	0	1,383	3,950	1,185	1,185	5,136	5,136
2	2003	1,406	3.85	0	1,406	4,016	1,205	2,390	5,221	10,357
3	2004	1,429	3.92	0	1,429	4,083	1,225	3,615	5,308	15,665
4	2005	1,453	3.98	0	1,453	4,151	1,245	4,860	5,397	21,062
5	2006	3,134	8.58	0	3,134	8,953	2,686	7,546	11,639	32,700
6	2007	3,158	8.65	0	3,158	9,024	2,707	10,253	11,731	44,431
7	2008	3,184	8.72	0	3,184	9,096	2,729	12,982	11,825	56,256
8	2009	3,209	8.79	0	3,209	9,169	2,751	15,733	11,920	68,176
9	2010	3,236	8.86	0	3,236	9,244	2,773	18,506	12,018	80,193
10	2011	3,262	8.94	0	3,262	9,321	2,796	21,302	12,117	92,310
11	2012	3,289	9.01	0	3,289	9,398	2,820	24,122	12,218	104,528
12	2013	3,317	9.09	0	3,317	9,478	2,843	26,965	12,321	116,849
13	2014	3,345	9.17	0	3,345	9,558	2,868	29,833	12,426	129,275
14	2015	3,374	9.24	0	3,374	9,641	2,892	32,725	12,533	141,808
15	2016	3,404	9.32	0	3,404	9,725	2,917	35,642	12,642	154,450
16	2017	3,433	9.41	0	3,433	9,810	2,943	38,585	12,753	167,203
17	2018	3,464	9.49	0	3,464	9,897	2,969	41,554	12,866	180,069
18	2019	3,495	9.58	0	3,495	9,986	2,996	44,550	12,981	193,051
19	2020	3,527	9.66	0	3,527	10,076	3,023	47,573	13,099	206,149
20	2021	3,559	9.75	0	3,559	10,168	3,050	50,623	13,219	219,368
21	2022	3,592	9.84	0	3,592	10,262	3,079	53,702	13,340	232,708
22	2023	3,625	9.93	0	3,625	10,357	3,107	56,809	13,465	246,173
23	2024	3,659	10.03	0	3,659	10,455	3,136	59,946	13,591	259,764

Variables used for calculations:

Yearly solid waste inflation rate:	1.89%	(The 5-year average population growth rate; see Table 3.1)
Percent of waste diverted:	0%	
In place density (lb/yd^3):	700	
Daily cover volume (percent of solid waste):	30%	

Equations

Solid waste	=inflation rate*(tons of waste/year)
Waste Diverted	=% diverted*Solid waste
Waste to Landfill (tons)	=Solid waste-Waste diverted
Waste to Landfill (cubic yards)	=(Weight of Waste to landfill/In place density)*(2000 lb/ton)
Daily Cover	=Daily cover volume*Waste to landfill
Annual Volume of Landfill Space Required	=Waste to landfill+Daily cover
Accumulated Volume	=Accumulated volume previous year+Annual volume current year

** 1360 Tons per year based on Delta Sanitation data of quantities of solid waste deposited in landfill (1194 tons per year) and estimated annual waste generation from residual force at Fort Greely (166 tons per year). Study dates were from July 1, 2000-December 31, 2000.

Projected data based on NMDS becoming operational in 2006, increasing tonnage by   1656   tons per year (See Appendix B)

Note: Solid waste generated by Fort Greely and NMDS is not inflated. It is assumed this population remains constant.

Yearly Waste Disposal Volume Requirements
Scenario 4: Base Case + Prison + NMDS

	Year	Solid Waste ** (tons/year)	Solid Waste (tons/day)	Waste Diverted (tons)	Waste to Landfill (tons)	Waste to Landfill (cubic yards)	Daily Cover (cubic yards)	Accumulated Cover (cubic yards)	Annual Volume of Landfill Space Required (cubic yards)	Accumulated Volume (cubic yards)
0	2001	1,360	3.73							
1	2002	1,383	3.79	0	1,383	3,950	1,185	1,185	5,136	5,136
2	2003	1,406	3.85	0	1,406	4,016	1,205	2,390	5,221	10,357
3	2004	2,967	8.13	0	2,967	8,476	2,543	4,933	11,019	21,376
4	2005	2,991	8.19	0	2,991	8,544	2,563	7,496	11,108	32,483
5	2006	4,671	12.80	0	4,671	13,346	4,004	11,500	17,350	49,833
6	2007	4,696	12.87	0	4,696	13,417	4,025	15,525	17,442	67,275
7	2008	4,721	12.93	0	4,721	13,489	4,047	19,572	17,536	84,810
8	2009	4,747	13.01	0	4,747	13,562	4,069	23,640	17,631	102,442
9	2010	4,773	13.08	0	4,773	13,637	4,091	27,732	17,729	120,170
10	2011	4,800	13.15	0	4,800	13,714	4,114	31,846	17,828	137,998
11	2012	4,827	13.22	0	4,827	13,791	4,137	35,983	17,929	155,927
12	2013	4,855	13.30	0	4,855	13,871	4,161	40,144	18,032	173,959
13	2014	4,883	13.38	0	4,883	13,951	4,185	44,330	18,137	192,096
14	2015	4,912	13.46	0	4,912	14,034	4,210	48,540	18,244	210,340
15	2016	4,941	13.54	0	4,941	14,118	4,235	52,775	18,353	228,692
16	2017	4,971	13.62	0	4,971	14,203	4,261	57,036	18,464	247,156
17	2018	5,002	13.70	0	5,002	14,290	4,287	61,323	18,577	265,733
18	2019	5,033	13.79	0	5,033	14,379	4,314	65,637	18,692	284,426
19	2020	5,064	13.87	0	5,064	14,469	4,341	69,977	18,810	303,236
20	2021	5,096	13.96	0	5,096	14,561	4,368	74,346	18,929	322,165
21	2022	5,129	14.05	0	5,129	14,655	4,396	78,742	19,051	341,216
22	2023	5,163	14.14	0	5,163	14,750	4,425	83,167	19,176	360,392
23	2024	5,197	14.24	0	5,197	14,848	4,454	87,622	19,302	379,694
24	2025	5,231	14.33	0	5,231	14,947	4,484	92,106	19,431	399,126

Variables used for calculations:

Yearly solid waste inflation rate:	1.89%	(The 5-year average population growth rate; see Table 3.1)
Percent of waste diverted:	0%	
In place density (lb/yd^3):	700	
Daily cover volume (percent of solid waste):	30%	

Equations

Solid waste	=inflation rate*(tons of waste/year)
Waste Diverted	=% diverted*Solid waste
Waste to Landfill (tons)	=Solid waste-Waste diverted
Waste to Landfill (cubic yards)	=(Weight of Waste to landfill/In place density)*(2000 lb/ton)
Daily Cover	=Daily cover volume*Waste to landfill
Annual Volume of Landfill Space Required	=Waste to landfill+Daily cover
Accumulated Volume	=Accumulated volume previous year+Annual volume current year

** 1360 Tons per year based on Delta Sanitation data of quantities of solid waste deposited in landfill (1194 tons per year) and estimated annual waste generation from residual force at Fort Greely (166 tons per year). Study dates were from July 1, 2000-December 31, 2000.

Projected data based on prison becoming operational in 2004, increasing tonnage by	1538	tons per year (See Appendix B).
Projected data based on NMDS becoming operational in 2006, increasing tonnage by	1656	tons per year (See Appendix B).
Total increases:	3194	tons per year.

Note: Solid waste generated by Fort Greely, Prison and NMDS is not inflated. It is assumed this population remains constant.

Appendix D