

This document was authored in 2004. For the latest information on the County's Solid Waste Management Plan, please review the 2015 – 2035 update.

Appendix

C

Development of MSW Projections

MSW Generation Forecasts

The county based waste generation projections on the predicted per capita MSW generation rate and population projections for the planning period. In addition, employment projections may be used to predict commercial waste generation, as discussed later in this appendix.

For projections of recycling quantities, the county forecasted its recycling rate to increase from 32 percent to 35 percent over the SWMP planning period. Although its 2002 recycling rate was 32 percent, the county has consistently achieved 35 percent recycling using current solid waste management practices. Therefore, the county projects that the recycling rate will gradually increase from 32 percent to 33.5 percent in 2010, and finally to 35 percent in 2015 and beyond.

Actual County per Capita Generation Data

The county examined its actual per capita waste generation data from 1992 through 1995 and 2000 through 2002 (Table C-1) to determine trends. Data in the Fairfax County SWMP Update (1995) supported a county per capita waste generation rate of 5.29 pcd in 1992, increasing to 5.81 pcd by 1995. These data are based on county scale records and are considered reliable. Recent county scale records show a generation rate of 5.92 pcd in 2000, increasing to 6.46 pcd by 2002; only a minimal increase was observed from 2001 to 2002. This represents an average increase in county MSW generation of approximately 2 percent per year from 1995 through 2002.

Table C-1. Historical Fairfax County MSW Generation Rates

Year	MSW (tons)	Population	Waste generation rate (pcd)
1992	813,676	842,252	5.29
1993	835,972	854,910	5.36
1994	908,869	893,528	5.57
1995	964,215	910,027	5.81
2000	1,082,839	1,001,624	5.92
2001	1,209,210	1,016,406	6.52
2002	1,216,621	1,032,205	6.46

Regional and National Per Capita Generation Data

Other national and regional generation rate estimates suggest a higher MSW generation rate in Fairfax County. Nationally, the MSW generation rate has remained constant at 4.51 pcd in both 2000 and 1990. Regionally, the MWCOG report indicated an MSW generation rate of 5.8 pcd for the Washington metropolitan area.

Alternative MSW Projections

From the differing trends and estimates of MSW generation in the county, regionally, and nationally, the county developed alternative MSW projections to address the probable range of variance in the future generation rates.

Alternative 1: MSW Generation in the County Remains Constant

Alternative 1 is a conservative alternative that assumes the current county generation rate of 6.30 pcd will not increase throughout the planning period. This alternative reflects the assumption that Fairfax County waste generation will follow the zero-growth trend of national MSW generation rates over the past 10 years. The county calculated MSW projections for this alternative by multiplying the average MSW generation rate of 6.30 pcd by the county population estimates from 2004 to 2025. Table C-2 shows the MSW projections for this alternative.

*Table C-2. Fairfax County MSW Generation Projections 2004-2025:
Alternative 1—No Increase in Generation Rate*

Year	Population	MSW generation rate (pcd)	MSW generation projection (tons)	Recycling rate (%)	MSW recycled (tons)	MSW disposal (tons)
2004	1,063,735	6.30	1,223,029	32.0	391,369	831,660
2005	1,079,600	6.30	1,241,270	32.0	397,206	844,064
2010	1,149,500	6.30	1,321,638	33.5	442,749	878,889
2015	1,185,400	6.30	1,362,914	35.0	477,020	885,894
2020	1,210,300	6.30	1,391,542	35.0	487,040	904,503
2025	1,223,100	6.30	1,406,259	35.0	492,191	914,068

Alternative 2: MSW Generation in the County Increases at 1 Percent

Alternative 2 assumes that the current county MSW generation rate of 6.30 pcd will likely increase throughout the planning period, but at a lower rate of 1 percent. The county per capita waste generation rate has increased approximately 2 percent per year from 1995 through 2002. This increase was observed in a period of high economic growth in the late 1990s; with a projected lower economic growth rate over the SWMP planning period, the county does not expect the generation rate to increase at 2 percent. Therefore, the county chose a 1 percent per year increase as the high-end generation rate increase scenario for MSW projections.

For Alternative 2, the county calculated MSW projections by first increasing the average MSW generation rate by 1 percent each year and then multiplying the MSW generation rate by the county population estimates for the corresponding year. Table C-3 shows the MSW projections from 2004 to 2025 for this alternative. This alternative returns an approximate 26 percent higher MSW generation rate by the year 2025 than Alternative 1.

Table C-3. Fairfax County MSW Generation Projections 2004-2025: Alternative 2—1 Percent Annual Increase in Generation Rate

Year	Population	MSW generation rate (pcd)	MSW generation projection (tons)	Recycling rate (%)	MSW recycled (tons)	MSW disposal (tons)
2004	1,063,735	6.43	1,247,612	32.0	399,236	848,376
2005	1,079,600	6.49	1,278,882	32.0	409,242	869,640
2010	1,149,500	6.82	1,431,144	33.5	479,433	951,711
2015	1,185,400	7.17	1,551,123	35.0	542,893	1,008,230
2020	1,210,300	7.54	1,664,490	35.0	582,571	1,081,918
2025	1,223,100	7.92	1,767,897	35.0	618,764	1,149,133

Alternative 3: MSW Generation Remains Constant; Estimates Calculated Separately for Residential and Commercial Sectors

Alternative 3 includes separate estimates for the residential and commercial sectors. For the residential sector, MSW projections are calculated similarly to Alternative 1, with a constant generation rate and using population estimates. However, commercial waste generation is more closely related to county employment than the total population, so we used employment data rather than population to calculate MSW projections for the commercial sector. County employment is projected to increase at a greater rate than the population, so this alternative generates higher estimates than Alternative 1. Table C-4 shows the MSW projections from 2004 to 2025 for Alternative 3.

Table C-4. Fairfax County MSW Generation Projections 2004-2025: Alternative 3—Using Employment, No Increase in Generation Rate

Year	Population	Employ.	Commercial generation rate (pcd)	Residential generation rate (pcd)	MSW generation projection (tons)	Recycling rate (%)	MSW recycled (tons)	MSW disposal (tons)
2003	1,047,970	571,217	2.84	6.30	1,199,920	32.0	383,974	815,945
2004	1,063,735	619,725	2.84	6.30	1,263,863	32.0	404,436	859,427
2005	1,079,600	626,800	2.84	6.30	1,280,220	32.0	409,670	870,550
2010	1,149,500	685,800	2.84	6.30	1,384,284	33.5	463,735	920,549
2015	1,185,400	711,100	2.84	6.30	1,431,980	35.0	501,193	930,787
2020	1,210,300	741,200	2.84	6.30	1,479,493	35.0	517,823	961,671
2025	1,223,100	769,500	2.84	6.30	1,518,665	35.0	531,533	987,132

Alternative 4: MSW Generation Increases at 1 Percent; Estimates Calculated Separately for Residential and Commercial Sectors

Like Alternative 3, Alternative 4 includes separate estimates for the residential and commercial sectors. For the residential sector, we calculated MSW projections similarly to Alternative 2, with a 1 percent per year increase in the generation rate and using population estimates. The county used employment data rather than population to calculate MSW projections for the commercial sector. County employment is projected to increase at greater rate than the population, so this alternative generates higher estimates than Alternative 2. Table C-5 shows the MSW projections from 2004 to 2025 for Alternative 4.

Table C-5. Fairfax County MSW Generation Projections 2004-2025: Alternative 4—Using Employment, 1 Percent Annual Increase in Generation Rates

Year	Population	Employ.	Commercial generation rate (pcd)	Residential generation rate (pcd)	MSW generation projection (tons)	Recycling rate (%)	MSW recycled (tons)	MSW disposal (tons)
2003	1,047,970	571,217	2.87	6.36	1,211,919	32.0	387,814	824,105
2004	1,063,735	619,725	2.90	6.43	1,289,267	32.0	412,565	876,701
2005	1,079,600	626,800	2.93	6.49	1,319,012	32.0	422,084	896,928
2010	1,149,500	685,800	3.08	6.82	1,498,982	33.5	502,159	996,823
2015	1,185,400	711,100	3.23	7.17	1,629,727	35.0	570,404	1,059,322
2020	1,210,300	741,200	3.40	7.54	1,769,692	35.0	619,392	1,150,300
2025	1,223,100	769,500	3.57	7.92	1,909,210	35.0	668,223	1,240,986

Note that these projections assume the continuation of the county's current management practices and conditions. Programs implemented by Fairfax County over the SWMP planning period may result in lower actual MSW generation amounts than these projections.