

SOLID WASTE

SOLID WASTE MANAGEMENT

In 2013, the 208 permitted solid waste facilities in Virginia processed 20.2 million tons of solid waste representing an 8.3 percent decrease from the figures reported in the ASCE-VA 2009 IRC report. Of this amount approximately 15.0 million tons originated within the Commonwealth, while 5.2 million tons were imported from out of state (25.74 percent).

Based on the 2013 population estimate of 8.26 million persons for Virginia this equates to an annual in-state solid waste generation rate of approximately 1.8 tons per person or a per capita generation rate of 9.86 pounds per day per person. 2013 data is used for this report in that is the most recent data available at the time of report preparation.

Breaking this down to the 8.66 million tons directly attributable to municipal solid waste generated in Virginia, equates to an annual average of 1.05 tons per person, or 5.75 pounds per day per person which exceeds the national average of 4.38 pounds per day per person by 1.36 pounds per day (31 percent higher).

“In 2012, Americans generated about 251 million tons of trash and recycled and composted almost 87 million tons of this material, equivalent to a 34.5 percent recycling rate ... On average, Americans recycled and composted 1.51 pounds out of our individual waste generation rate of 4.38 pounds per person per day.” – USEPA, 2012 Report

Based on the 2013 VA DEQ solid waste reports, Virginia localities achieved a recycling rate of 41.2 percent, exceeding the 2012 national average of 34.5 percent by nearly 7 percent. In addition, computer manufacturers recovered 2,058 tons of computer and related electronic waste (e-waste) from within Virginia in 2013. Both of these are positive trends for the state, with a growing number of recycling programs now collectively approaching a 50 percent post-consumer solid waste recovery rate.

These figures indicate Virginia is effectively meeting waste recovery and recycling standards but is not effectively dealing with source reduction as a proactive management measure. Furthermore, importing 25.74 percent of the total solid waste tonnage from out-of-state indicates a dependence on external sources of revenue to sustain current solid waste facility capital funding. This can make Virginia vulnerable to external economic factors that can jeopardize solid waste infrastructure funding and long term maintenance.

DATA SOURCES

This report card analysis relies upon annual solid waste statistics in the 2013 annual solid waste report issued by the Virginia Department of Environmental Quality (DEQ), enabling a 5-year comparison to the 2009 ASCE-VA report card which was based upon the 2008 DEQ annual solid waste report.

TABLE 1 – SUMMARY OF SOLID WASTE VOLUME - COMPARISON OVER 5 YEARS (2009 – 2014)

| Criteria | 2009 | 2014 |
|---|------|------|
| Number of Facilities | 197 | 208 |
| Solid Waste Generated in Virginia (in million tons) | 15.4 | 15.0 |
| Solid Waste Imported to Virginia (in million tons) | 6.6 | 5.2 |
| Total Solid Waste (in million tons) | 22.0 | 20.2 |

Due to the reduction in solid waste being locally generated (lowered by 0.4 million tons) and imported (lowered by 1.4 million tons), in combination with an increase in the number of facilities (11 additional facilities), the existing capacity is estimated to have increased from 20 years to 22 years approximately, since the publishing of a 2009 ASCE-VA report card.

DATA ANALYSIS

The following evaluation criteria were selected for preparing the grading for the 2014 Solid Waste infrastructure assessment.

TABLE 2: SOLID WASTE EVALUATION CRITERIA

| Component | A | B | C | D | F |
|--|---------------------------------------|---------------------------------------|--|------------------------|-----------------------------|
| Sustainable Funding | Equal to Bonding Terms | 80 - 90% of Bond Terms | 70 - 80% of Bond Terms | 60 - 70% of Bond Terms | Less than 60% of Bond Terms |
| Existing Capacity | 30 years | 25 Years | 20 Years | 15 Years | 10 years |
| Source Reductions | 20 Percent | 15 Percent | 10 Percent | 5 Percent | 0 Percent |
| Progressive Standards / Recycling | 90% of all Cities, Towns and Counties | All Cities and Towns, 50% of Counties | Large Cities and 50% of Towns and Counties | Just Large Cities | Limited Cities |

Sustainable Funding

Funding of solid waste infrastructure is primarily a local government obligation, with many localities owning and operating their own landfills either as part of a regional agreement (or compact) or as individual not-for-profit entities. This coupled with ample, open real estate for landfill operations in more

rural areas may enable Virginia to maintain very reasonable disposal fees (typically 10-15 percent below the national average of \$44/ton currently).

Given the expected longevity of our existing capacity of approximately 22 years, bonding of new facilities over 20 years is a reasonable cycle currently, with any additional capacity that can be capitalized beyond that (25 or 30 year financing) as an attractive business model.

Existing Capacity

It is estimated that existing solid waste infrastructure has a remaining capacity of nearly 22 years at current generation rates (including importation of solid waste). This accounting does not include any factors for additional progress in per capita waste reduction or population growth but it is a reasonable simplistic figure for comparative analysis. This figure is a slight improvement over the 2009 report card, which indicated an expected capacity approximately 20 years.

Source Reductions

Per capita solid waste generation rates in Virginia exceeded the national average by some 31 percent in the most recent DEQ report. Closing this gap could return significant revenue to other positive infrastructure needs. A simple 50% improvement in source reduction would eliminate over a million tons of solid waste annually, with an expected savings of some \$40 million per year to Virginia's economy. This would also more than double Virginia's current rate of source reductions.

Progressive Standards / Recycling

Virginia has passed progressive standards for e-waste reduction using principles of market based responsibility, by making manufacturers responsible for managing product recycling as part of their normal business practices, similar to the tire recycling fee program. This self-sustaining, user fee based regulatory approach to e-waste has proven effective in changing personal and corporate accountability for solid waste management and should serve a model for enhanced regulation of other sectors. Two examples include bio-persistent pharmaceuticals and enhanced litter control programs. Growing and expanding these progressive programs to the less populated and less affluent parts of Virginia will be a challenge moving forward but can be facilitated by increased communication and collaboration between successful locality programs and others looking to expand and improve their programs. State level involvement and leadership in promoting successful locality programs could help build success.

2015 GRADING AND RECOMMENDATIONS

The final 2015 grade for Solid Waste infrastructure in Virginia is a grade of B-. This is almost a full letter grade improvement over the C grade assigned in the 2009 ASCE Virginia Infrastructure Report Card and represents reductions in the per capita rate of solid waste generated in Virginia since 2009 and the improvement of recycling rates which exceed the national average by nearly 7 percent.

Although Solid Waste infrastructure has improved in Virginia since 2009, there are several emerging issues which are of concern and need to be priorities moving forward.

1. Annual report figures highlight large discrepancies in recycling rates achieved by localities and solid waste generation rates; improved statistical analysis of data should be employed to foster data

reliability and consistency. Statewide support of successful locality waste reduction strategies should be communicated and shared as models for improved performance across the Commonwealth, especially in the less populated and affluent areas, so that waste generation rates are further reduced statewide, hopefully reducing the 31% gap when compared to national averages.

2. Statewide guidance on the collection and processing of bio-persistent pharmaceuticals should be developed as a model ordinance for locality adoption to facilitate consistent approaches to the latest national standards for the collection and disposal of expired or excess pharmaceuticals continuing our recent successes with adopting progressive programs at the local level.
3. Recommend statutory specifications for qualified litter prevention programs across the Commonwealth should be developed as a model ordinance. Litter control costs should be assigned to those generating market responsibilities (similar to mandatory E-waste recycling under the Computer Recovery and Recycling Act). Principle sources of litter should also be further defined based on biennial surveys to develop sustainable program recommendations for litter reduction and costs. Further research into effective nationwide strategies that reduce litter impacts to the environment should also be incorporated into these recommendations.
4. The sustainability of waste management facilities should be indexed to bond funding cycles, using a common bond index for amortization rate and period, and should include per capita figures for sustainable funding of local and regional solid waste management systems to ensure long term municipal waste facility solvency, and reduce our dependency on importing waste from other states.
5. The potential impact of recent legislation allowing the landfilling of coal ash residue in municipal solid waste landfills should be further assessed, to more clearly determine impacts to available landfill capacity given that 72.8% of solid waste is disposed of via landfills in Virginia. A more detailed understanding of the impacts from coal ash residue will be needed to maintain and continue to improve future report card grades.