

**Barnstable County
MSW Diversion Options For Recyclable,
Reusable and Hard to Dispose Waste Materials**



TETRA TECH

Page Break

209-4203746
November 11, 2021

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Executive Summary

NOVEMBER 11, 2021

PROJECT NUMBER: 209-4203746

PRESENTED TO

Barnstable County

Superior Courthouse

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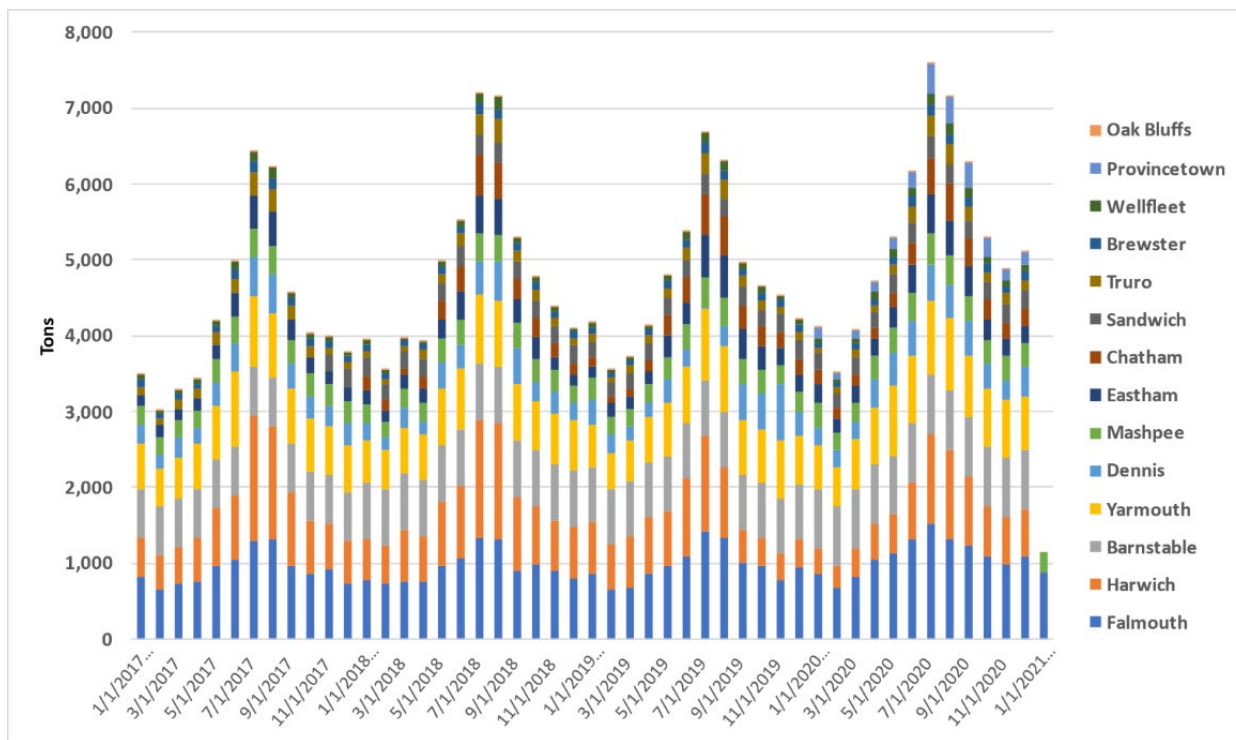
EXECUTIVE SUMMARY

Historically, landfilling and waste-to-energy have been the long-term, cost-certain, and environmentally compliant solutions for the management of waste. The regulatory climate moving forward has demonstrated an increasing reluctance to permit new landfill capacity in the Massachusetts region. In addition, waste-to-energy facilities are continuing to be under scrutiny from air permitting and greenhouse gas emission perspectives. Moreover, it is increasingly likely that future state regulations and planning efforts will mandate additional portions of the waste stream, in both quantity and quality, be diverted from disposal.

As a result, it is likely that over the longer-term planning horizon that Cape and Island communities will have fewer final disposal options that will be conveniently located and accessible, and it will become increasingly uncertain if the region will have access to recycling or waste diversion infrastructure sufficient to meet (what is likely to be) ever increasingly stringent diversion mandates. This would result in increasingly higher disposal and transportation costs and challenges in meeting state diversion mandates.

Barnstable County is in a position to advance longer term, comprehensive municipal waste management by aligning its member municipalities, including the towns on Martha's Vineyard and Nantucket, towards regional resiliency.

Figure 1: MSW Generation Per Month (in Tons)



This report is a technical summary comprised of the five technical memos previously submitted as supporting information. Tetra Tech conducted a high-level analysis of traditional and innovative options to reduce, reuse, re-purpose and market identified waste material streams.

Cape and Islands Towns Waste Material Streams

From 2017 to 2020, the year-round population on Cape Cod increased by 1.02% from 214,107 in 2017 to 216,294 in 2020 (*2020 Cape Cod Commission*). With the influx of summer residents and tourists, the population density increases to more than 500,000 during peak tourist periods.

To begin the process of benchmarking the magnitude of seasonal variations in the waste material stream, monthly tonnage data was requested from the town transfer stations within Barnstable County and included two towns on Martha's Vineyard (*Oak Bluffs and Tisbury*) in Dukes County. Some, but not all, municipalities provided data.

The most reported material stream was for municipal solid waste (MSW), with thirteen of the fifteen Barnstable County town transfer stations reporting monthly data.

Figure 1 shows the results for the MSW monthly tonnages from municipal programs with the obvious seasonal fluctuations between the summer and winter seasons. In most cases, the waste stream doubles in tonnage between May through September. These material volumes are not inclusive of municipal or private waste hauler subscription service pick-up at the curb.

- The estimated total generation of MSW was $\pm 64,500$ tons per year collected at the fifteen town transfer stations within Barnstable County.
- The estimated total generation of Construction and Demolition materials (C&D) was $\pm 30,150$ tons per year collected at the fifteen town transfer stations within Barnstable County.
- The estimated total generation of Recycling was $\pm 20,500$ tons per year collected at the fifteen town transfer stations within Barnstable County.
- The estimated total generation of Yard Debris was $\pm 19,300$ tons per year collected at the fifteen town transfer stations within Barnstable County.

Industry and Regulatory Shifts

Paradigm shifts in solid waste management have occurred over time. While we continue to have landfilling and waste-to-energy as waste solutions, the paradigm for materials management continues to evolve as markets shift and new technologies become available allowing us to realize a larger fraction of value from resources that are discarded, bringing us to a more circular infrastructure and economy.

The Massachusetts Department of Environmental Protection (MassDEP) will continue to set aggressive waste reduction goals and strive towards a zero-waste future in Massachusetts. Moreover, solid waste disposal options and capacity in Massachusetts and throughout the region are increasingly limited, which will result in progressively higher disposal and transportation costs.

The County is in a position to provide guidance and insights to assist Cape Cod towns and Islands towns in their collaborative planning to divert valuable materials through organics processing, reuse, and recycling programs and incorporate regional sustainability goals.

This report is intended as a starting point for the County to build consensus and focus on future solid waste management.

For the longer-term planning horizon, Tetra Tech recommends that it is in the best interest of Barnstable County to engage the Joint Base Cape Cod (JBCC) to seek land use instruments for parcels of land at the JBCC most suited for future development of waste material processing/waste diversion infrastructure. Having use over suitable land at the JBCC (or other suitable available land) would provide the communities with a measure of certainty over their solid waste management responsibilities that they do not currently possess. This unique opportunity presents the following advantages and flexibility to the County.

- Future solid waste infrastructure projects can be cooperatively considered and pursued among the County and member communities to build consensus regarding specific goals and mechanisms for development.
- Successful infrastructure implementation at the JBCC will increase capacity of local government, communities and other stakeholders to adopt and implement sustainable materials management policies, practices and incentives for decades to come.

- Identifying land to locate potential future technologies will place the Cape and Islands in the best position to take advantage of regional waste management opportunities and potential funding sources.
- The markets are dynamic with current levels of waste generation and market prices fluctuating. The current trend of mergers and acquisitions in the solid waste industry and impacts of COVID-19 make it even more challenging for communities to manage their municipal solid waste stream cost effectively and to plan for the future.
- Climate mitigation and greenhouse gas emissions will be an integral element in infrastructure. Reuse and recyclable content could be a priority in infrastructure projects to help meet environmental, sustainability and climate goals.

The solid waste management dynamic is challenging as there are no current solutions in waste conversion technologies that are acceptable to the Massachusetts Department of Environmental Protection (MassDEP). The MassDEP has revised the State Solid Waste Master Plan 2030 (the Plan) and revisions to regulations *310 CMR 16.00 Site Assignment for Solid Waste Facilities and 310 CMR 19.00 Solid Waste Management*. The Plan is revised in ten-year increments. As such, now is the opportunity for the County to start the process on how to organize the towns on the Cape and Islands to prepare for the implementation of MassDEP future policy mandates. Combined or collaborative approach is the direction that municipalities and counties across the country are moving toward. Working together to keep costs down through regional planning for a sustainable materials management infrastructure will ensure the Cape and Islands are more resilient to markets and support a growing population.

Barnstable County has an opportunity to work with the towns of the Cape and Islands to supplement a significant portion of their solid waste management into a system that will maximize resource reuse and align with long-term necessities for a more circular paradigm of resource management.