

MONTGOMERY COUNTY MARYLAND

Aiming for Zero Waste

Benchmarking and Best Practices

Technical Memorandum #2 – Executive Summary



Prepared for the Department
of Environmental Protection
Montgomery County, Maryland

December 2018

Table of Contents

1	Background and Purpose	3
2	Selection of Communities and Metrics	4
3	Population and Demographics	4
4	Type and Quality of Service Provided	4
5	Funding Mechanisms	8
6	Quantities of Waste Managed	8
7	Recycling and Diversion Rate	10
8	Regulatory Mechanisms	11
9	Zero Waste Goals/Policies	12
10	Best Practices for Consideration by Montgomery County.....	13

Tables

ES Table 1	Comparison of Demographics	4
ES Table 2	Comparison of Service Provision.....	5
ES Table 3	Comparison of Waste Fees for Single-Family Dwellings.....	8
ES Table 4	Comparison of Tons of Materials Recycled and Disposed.....	9
ES Table 5	Estimated Per Capita Residential Waste Generation Rate	9
ES Table 6	Comparison of Tons Recycled and Disposed and Recycling Rate	10
ES Table 7	Comparison of Municipal Regulatory Mechanisms	11
ES Table 8	Zero Waste/Recycling Goals and Timing	12

1 Background and Purpose

The Montgomery County, Maryland Department of Environmental Protection, Division of Solid Waste Services (County) is developing the “The Aiming for Zero Waste Plan” (the Plan) which will strategically evaluate the County’s actions and investments over the next 20-plus year period. There are three stated key objectives for the project:

- Develop a clear and realistic future vision of the County’s solid waste and recycling program and operations with the goal of maximizing waste reduction, reuse/repair, recycling, and sustainable management of materials;
- Develop actionable strategies (with projected costs, timelines, and outcomes) to achieve this goal; and,
- Identify impacts on existing solid waste management programs, facilities and operations, including new investments, initiatives, changes in methods of operations, and retiring or replacement of existing facilities.

This Benchmarking and Best Practices Technical Memorandum #2 is the second report in a series of reports being developed in support of this project. The first report, Technical Memorandum #1, documented Montgomery County’s baseline system. The purpose of Technical Memorandum #2 is to compare waste management programs and services offered in Montgomery County against five selected communities located in the United States and Canada. This task is not meant to be an exhaustive review of every program and service provided by each community, but rather a high level overview in order to make a comparison to Montgomery County.

The five communities selected for the purpose of comparison for this Technical Memorandum #2 include:

- Austin, Texas
- King County, Washington
- Minneapolis, Minnesota
- San Francisco, California
- Toronto, Ontario, Canada

In comparison to these five communities, the County:

- Provides differing levels of service to residents in different areas of the County.
- Does not utilize a PAYT program.
- Has a dual stream recycling program and provides weekly collection of recyclables.
- Does not provide a curbside food waste collection program.

As the County’s system has already been documented in Technical Memorandum #1, a description of its programs and services have not been included in this document, but specific pieces of information have been provided in the comparative tables. The outcome of this task may result in the identification of options for the consideration of the County as part of Task 5: Improvements to the Current Diversion/Recycling System.

2 Selection of Communities and Metrics

Five jurisdictions/communities were selected, with input from Montgomery County staff and the Task Force¹ established to support this project. The communities selected include Austin, TX; King County, WA; Minneapolis, MN; San Francisco, CA; and Toronto, ON.

While there are many aspects of programs that could be benchmarked, the following metrics were chosen in consultation with the County for benchmarking;

- Population and demographic information
- Level of service provision
- Waste management infrastructure
- Funding mechanisms and costs
- Relevant policies, regulations, ordinances
- Recycling, diversion and generation rates

3 Population and Demographics

In comparing population and demographics with the selected communities, it should be noted that Montgomery County has the third highest population, the second highest geographic area, the second lowest population density and the highest median income. ES Table 1 provides a comparison of the population and demographics for each of the selected communities and the County.

ES Table 1 Comparison of Demographics

	Montgomery County	Austin	King County	Minneapolis	San Francisco	Toronto
Population	1,058,810 (2017)	950,715 (2017)	1,500,000 (2017)	422,331 (2017)	884,363 (2017)	2,731,571 (2016)
Foreign Born (%)	32.6	18.2	21.6	15.3	34.9	46.1
Geographic Area (square miles)	492	320	2,050	58	47	243
Population Density (people per square mile)	2,152	2,653	732	7,820	18,854	11,241
Median Household Income (In 2016 dollars)	\$100,352	\$60,939	\$78,800	\$52,611	\$87,701	\$50,194

Source: US Census and Statistics Canada

4 Type and Quality of Service Provided

The types of materials managed and quality of service provided was reviewed for each of the chosen communities and compared to the County. ES Table 2 summarizes the service provision and programs offered.

¹ <https://www.montgomerycountymd.gov/SWS/Resources/Files/master-plan/County%20Executive%20Memo%2005302018.pdf>

ES Table 2 Comparison of Service Provision

	Montgomery County	Austin	King County	Minneapolis	San Francisco	Toronto
Number of Customers Receiving Service	217,828 units (recycling) 91,900 units (trash) (2017)	~200,000 (2017)	Individual municipalities provide service	107,000 (2018)	141,531 residential, 8,337 apartments, 17,099 commercial, 233 compactors (2017)	460,000 single family customers, 414,000 multi-family customers, and 17,300 non-residential customers (2017)
Sectors receiving collection	All residential properties up to 6 units	All residential properties up to 4 units, some small businesses	Varies	All residential properties up to 4 units, some non-residential properties	All residential and commercial properties	All residential and some small businesses
Number of Collection Days/Week	Five (Monday – Friday)	Five (Monday – Friday)	Five (Monday – Friday)	Five (Monday – Friday)	Five (Monday – Friday)	Four (Tuesday – Friday)
Trash Collection	Weekly	Weekly	Varies	Weekly	Weekly	Every two weeks (over a 4 day week)
Use of PAYT	None	PAYT	Varies	PAYT	PAYT	PAYT
Trash Container type/size	None provided. Residents may place up to 5 bags < 45 lbs. each at the curb for collection	Wheeled Cart 24-gallon 32-gallon 64-gallon 96-gallon	Wheeled Cart Range from 10 to 90-gallon	Wheeled Cart 96-gallon 32-gallon	Wheeled Cart 16-32 gallon depending on number of units	Wheeled cart 24-gallon 32-gallon 64-gallon 96-gallon
Overflow	Extra trash is accepted with no limits	Additional bags - \$9.60 per bag without stickers or \$4 for “extra trash” stickers for bags		Up to 2 items/week may be placed out for collection	Extra trash may be placed out with the cart – extra charges apply	Bag tags required - ~\$4/bag tag
Recycling Collection	Dual stream, weekly	Single stream, every other week	Varies by sector and contractor	Single stream, every other week	Single stream, weekly	Single stream, every other week (over a 4 day week)
Recycling Container type/size	64-gallon wheeled cart for paper, 22-gallon bin for commingled (containers)	96-gallon wheeled cart	90-gallon wheeled cart (smaller carts available by request)	96-gallon wheeled cart	32-64 gallon wheeled cart depending on number of units	4 sizes of wheeled carts (same as trash carts)
SSO (Food Scraps) Collection	None	Pilot scale for 90,000 hhlds	Weekly to every other week	By subscription, weekly	Weekly	Weekly (over a 4 day week)
SSO Container type/size	N/A	32-gallon wheeled cart	90-gallon wheeled cart (smaller carts are available by request)	64-gallon wheeled cart for properties with 3+ units 32-gallon wheeled cart for properties with for 1-2 units	32-gallon wheeled cart	32-gallon wheeled cart, Large multi-family buildings may have a front end bin
SSO Accepted	None	Meat Dairy Vegetative Waste Yard Trim Soiled Paper	Meat Dairy Vegetative Waste Soiled Paper	Meat Dairy Vegetative Waste Soiled Paper	Meat Dairy, Vegetative Waste, Yard Trim Soiled Paper	Meat Dairy Vegetative Waste Soiled Paper Pet Waste Diapers/Sanitary Waste

Yard Trim Collection	Weekly year round Seasonal leaf vacuuming in certain areas	Weekly year round. Collected with organics	In general, Organics and Yard Trim are collected together weekly to every other week	Weekly, seasonal from mid-April and mid-November	Collected with organics year round	Every other week, seasonal from mid-March to mid-December. Separate collection. Seasonal leaf vacuuming.
Yard Trim Container type/size	Kraft paper bags or open rigid container	Kraft paper bags or open rigid container	Residents are provided with 90-gallon wheeled cart (smaller carts are available by request)	Kraft paper bags or open rigid container	Extra yard trimmings may be placed in a compostable bag and set out with green cart. Extra charges may apply	Kraft paper bags or open rigid container
Bulky Waste Collection	5 pickups per year upon request. No limit on number of items. Unlimited scrap metal collected separately	2x/year. No limit on number of items but must be sorted into metal, tires and non-metal items	Self-haul to Transfer Station	Weekly collection of two items	2x/year by appointment. 10 items per collection	Every other week, year round curbside collection of oversized and metal items, carpets. No renovation or tires accepted. No limit on number of items setout
Other Materials Collection	Scrap metal curbside collection upon request	Weekly collection of textiles and housewares Large Brush 2x/yr			Up to 10 additional boxes, bags or bundles of textiles maybe set out with bulky trash collection	Every other week curbside collection of waste electronics.
Collection Service Provider	Contracted Service Providers	Municipal Staff	Contracted Service Providers	Municipal Staff	Contracted Service Provider - Recology	For cart-based collection, municipal staff provide collection in one half of the City, contracted staff provide collection in other half of the City. The City contracts for collection from large multi-family building with the private sector.
Other Facilities Available to Customers	One Transfer Station One Drop-off Center at County's Transfer Station and one drop-off center in Poolesville	One Recycling and Reuse Drop Off Center where residents may pick up gently used materials	Eight Transfer Stations and two Drop-off locations	Two Drop-off Centers	One Drop-off Centre at Recology Transfer Station	Seven Transfer Stations / Drop-off Centers
Materials Accepted at Transfer Station/Drop-Off Center	At the Transfer Station Drop-off area: Trash, metal items, building materials in usable condition, clothing and shoes, recyclables, electronics, HHW, bulky rigid plastics, yard trim, tires (some materials only accepted from residents). Poolesville Beauty Spot: only bulky trash.	HHW, electronics and appliances, single stream recycling, tires, clothing and housewares and brush and yard trim.	Varies by facility	Recyclables, electronics, HHW, appliances, tires, mattresses and box springs and trash	Trash, electronics, HHW, C&D debris	Varies by location: trash, HHW, electronic waste, renovation waste, yard trim, metal, recycling

Other Services / Programs	Confidential paper shredding			Each property with Solid Waste & Recycling service is offered clean up vouchers (6/year/property) for trash, construction and paving materials disposal for up to 2,000 lbs. at no charge and two tire vouchers for disposal of eight tires per voucher annually at no charge.	Gigantic 3 program is a free bulky item drop-off service at various locations around the City. Environmental Learning Center located at TS. Hosts an Artist in Residence. Recology TS also has a buy-back center for deposit redemption for recyclable bottles and cans.	Toxic Taxi service by appointment Community Environment Days – seasonal events, one event held in each ward of the City for drop-off of household goods, electronics, and household hazardous waste for a total of 44 events. Recently started an Artist in Residence program.
Reference	https://www.montgomerycountymd.gov/sws/	http://www.austintexas.gov/resident/trash-and-recycling	https://kingcounty.gov/depts/dnrp/solid-waste.aspx	http://www.minneapolis.gov/solid-waste/	https://www.sfdph.org/dph/EH/refuseLiens/default.asp https://www.recology.com/recology-san-francisco/	https://www.toronto.ca/city-government/accountability-operations-customer-service/city-administration/staff-directory-divisions-and-customer-service/solid-waste-management-services/

5 Funding Mechanisms

ES Table 3 provides a comparison of the fees single family residents pay considering the highest or maximum level of service (e.g. the largest carts), including all taxes, fees, etc. which would be equivalent to the level of service provided by Montgomery County. It is important to note that the County charges the lowest fees for a comparable level of service (except for food scraps collection) and that all benchmarked communities, except the County, utilize some method of Pay-As-You-Throw (PAYT) while setting fees that disincentivize disposal of trash.

ES Table 3 Comparison of Waste Fees for Single-Family Dwellings

	Montgomery	Austin	King County	Minneapolis	San Francisco	Toronto
Equivalent monthly fee for highest level of service (e.g. largest carts)	\$23.51 ¹	\$42.85	n/a*	\$28.99	\$94.17	\$30.81
Other Fees						
Leaf Vacuuming Charge for those Single Family Homes in Leaf Collection District	\$8.58	-	-	-	-	No additional charge
Monthly Bulk trash charge	-	-	-	-	-	\$6.07
Monthly Utility Charge	-	\$8.95	-	-	-	-
Taxes and Fees	-			\$3.50	-	-
Total Monthly Fee	32.09 ²	\$51.80	n/a*	\$32.49	\$94.17	\$36.88
Total Annual Cost	\$385.08	\$621.60	n/a*	\$389.88	\$1,130.04	\$442.56
Note	Fees are charged annually. Annual fee includes base charge, base and incremental system benefit charge, refuse collection and leaf vacuuming charges.	Monthly fee includes the base fee.	Fees are set by individual jurisdiction.	Monthly fee includes base fee and cart fee. Taxes include 9% Hennepin County fee and 9.75% State tax.	Monthly fee includes per unit base charge and excess trash premium.	Fees have been converted to USD and to a monthly rate for comparison.

*Collection fees in King County fees are set by individual jurisdictions.

¹ While Montgomery County does not charge for trash carts, residents are allowed to put out 5 containers of trash.

² Fees in Montgomery County are paid annually but have been converted to a monthly fee for comparison.

6 Quantities of Materials Managed

ES Table 4 presents the tons of materials recycled and disposed by each community, including non-residential waste and Industrial, Commercial, and Institutional (ICI) waste. It should be noted that these amounts do not represent the total amount of materials generated in each community, as each community has different requirements for reporting by various sectors.

ES Table 4 Comparison of Tons of Materials Recycled and Disposed

	Disposed	Recycled						Total	
	Single Family	Multi-family	Non-residential	Total	Single Family	Multi-family	Non-residential	Total	
Montgomery County ^a (2017)	153,433	70,098	262,788	486,318	256,556	28,215	331,963	616,733	1,103,052
Austin ^b (2017)	136,448	-	-	136,448	113,323	-	-	113,323	249,771
King County (2015)	259,511	137,084	235,537	632,132	325,125	36,034	572,907	934,066	1,566,198
Minneapolis ^b (2017)	81,551	-	-	81,551	52,044	-	-	52,044	133,595
San Francisco (2016)		234,128	185,860	419,988		193,899	186,140	380,039	800,027
Toronto ^{b, c, d} (2017)	207,702	244,469	98,127	547,298	366,654	94,213	46,829	507,696	1,054,994

^a Source: Montgomery County, Capture Model CY17. These numbers do not include C&D or non-processibles.

^b Residential (single and multi-family) waste includes some waste from small commercial and municipal facilities.

^c Toronto does not provide collection service to all Multi-family buildings in the city. Tons reported for multi-family represent only those managed by the City.

^d Non-residential waste includes waste direct hauled to the transfer station/drop-off depots which may include some residential waste.

Totals may not add due to rounding.

When reviewing quantities of waste managed, estimating a per capita residential waste generation rate is one tool that can be utilized to assess how current recycling and diversion programs are operating and whether changes to these programs have merit. Per capita generation rates are based on the amount of waste disposed per day divided by the population utilizing the service. ES Table 5 presents a comparison of the estimated daily per capita residential municipal solid waste generation rate for each of the communities. When reviewing the waste generation rates, caution should be taken due to adjustment made to population receiving services and the variability in the data.

ES Table 5 Estimated Per Capita Residential Waste Generation Rate

	Residential Rate (lbs/capita/day)
Montgomery County	2.63
Austin	2.77
King County	2.77
Minneapolis	3.00
San Francisco	2.65
Toronto	2.56

7 Recycling and Diversion Rate

One of the goals of this exercise was to provide a comparison of the recycling/diversion rates reported by the selected communities in comparison to the County. ES Table 6 provides a comparison of the major categories of materials recycled and disposed for each community as well as the percent recycled/diverted calculated and reported. The percent recycled reflects the Maryland Recycling Act (MRA) methodology for each community for consistency as well as the reported recycling rate using each community's own methodology.

ES Table 6 Comparison of Tons Recycled and Disposed and Recycling Rate

		Montgomery County	Austin	King County	Minneapolis	San Francisco	Toronto
	Sectors	Single Family, Multi-family, Non-Residential	Single Family, some Non-Residential	Single Family, Multi-family, Non-Residential	Single Family	Single Family, Multi-family, Non-Residential	Single Family, Multi-family, some Non-Residential
Materials Recycled							
A	Recycling (commingled containers and fibers)	171,356	59,060	443,159	27,235	141,902	229,252
B	Appliances/Metal	7,714	11,173	72,940	1,030	-	3,480
C	HHW	2,472	-	-	20	-	-
D	Electronics	2,235	-	-	487	-	1,105
E	Yard Trim	160,609	42,902	171,972	17,473		96,806
F	Source Separated Organics ¹	10,774	-	111,233	4,763	164,067	174,831
G	Other ²	98,455	189	134,762	1,037	74,069	2,221
H	Metals Recovered from RRF	7,039	-	-	2,993	-	-
I	Recycled Ash from RRF	156,080	-	-	-	-	-
J	Total Materials Recycled (A+B+C+D+E+F+G+H+I)	616,734	113,323	934,066	55,037	380,039	507,696
K	Total Disposed	486,317	136,448	632,132	81,551	419,988	547,298
L	Total Generated (J+K)	1,103,051	249,771	1,566,198	133,596	800,026	1,054,994
M	Calculated Recycling Rate (J/L)	55.9%	45.4%	59.6%	45.4%	47.5%	48.1%
N	Reported Recycling Rate	55.9%	45.4%	59.6%	37.4%	>80%	53.0%

Methodology Comparison	MRA Does not include tons of C&D recycled or disposed nor does it include non-processibles.	Same as MRA	Same as MRA	Does not include tons of C&D recycled or disposed. Includes estimated quantities of back end metal from HERC.	Does not include any C&D waste, sustainable crushing or adjustments for inventory or moisture.	Reported recycling rate is residential only and includes credits for grasscycling, and materials managed through stewardship programs (converted to tons). Calculated includes additional tons managed from other non-residential sectors.
------------------------	---	-------------	-------------	---	--	--

¹ Materials included as source separated organics are described for each community in previous sections, but in general include food scraps (meat, dairy, vegetative waste) and food soiled paper. It may include yard trim depending on how materials are collected and reported.

² Materials included in the “other” category vary by community but in general may include materials such as mattresses, tires, latex paint etc. collected for recycling. These are further described for each community in previous sections.

8 Regulatory Mechanisms

Many of the communities selected for review have implemented regulatory mechanisms such as ordinances, regulations and/or by-laws to enforce diversion of materials from the waste stream. Implementation of State regulations play a role in the success of regulatory mechanisms adopted by local jurisdictions as ES Table 7 highlights with the implementation of waste reduction and diversion goals implement in the states of California and Maryland.

ES Table 7 Comparison of Municipal Regulatory Mechanisms

	Montgomery County	Austin	King County	Minneapolis	San Francisco	Toronto
Mandatory Recycling	Residential and Commercial	Multi-family and Commercial	No	Multi-family and Commercial	Residential and Commercial	No
Yard Trim Disposal Ban	Yes. MD 9-1724	No	Yes	No	No	Grass is banned
Mandatory Composting	Yes	Multi-family and Commercial	No	No	Residential and Commercial	No
Plastic Bag Ban/Fee	Fee for bags	Yes, but not enforced	Depends on local municipality	Overtured	Yes	Overtured
Disposal of Recyclable Materials Ban	Yes. ER 18-04	No	Yes	No	Yes	No
Mandatory C&D Recycling	No	Yes	Yes	No	Yes	No
Ban on polystyrene and non-compostable food service items	Yes	No	No	No	Yes	No
Plastic, toxics and litter reduction	Partial	No	No	No	Yes	No
Mandatory Event Recycling	Yes	No	No	No	Yes	Yes

Cigarette litter abatement ordinance	No	No	No	No	Yes	No
Compliance audits for large generators	Yes	No	No	No	Yes	No
Requirements for Reporting by Generators not serviced by Municipality	Yes Business with more than 100 employees	Yes	No	No	Yes	No
Requirements for Reporting by private haulers	Yes	Yes	Yes	Yes	Yes	No
EPR Programs	No	No	Yes	No	Yes	Yes
Green Building Program	Yes, ER 19-07	No	Yes	Yes	Yes	Yes

9 Zero Waste Goals/Policies

Many of the communities in this report have either stated or aspirational goals of reducing waste or achieving zero waste. Zero waste is defined in various ways depending on the jurisdiction and is implemented through methods as incentives to residents, education and outreach programs and options for reuse in addition to adoption of ordinances and regulations. ES Table 8 illustrates the various methods utilized by the chosen communities to work towards Zero Waste with the timing associated for implementation.

ES Table 8 Zero Waste/Recycling Goals and Timing

	2020	2025	2026	2030	2040
Montgomery County	Recycle 70%	-	-	-	-
Austin	75% diversion	85% diversion	-	-	Reduce the amount of trash sent to landfills by 90%
King County	-	-	-	Recycle 70%	-
Minneapolis	Recycle and compost 50% of its citywide waste	-	-	Recycle and compost 80% of its citywide waste	-
San Francisco	Original Goal - Zero waste to landfill	-	-	Revised Goal - Reduce amount of waste generated per person by 15% and reduce landfilled trash by 50%	-
Toronto	-	-	70% diversion and aspirational goal of zero waste	-	-

10 Best Practices for Consideration by Montgomery County

The following is a summary of the best practices utilized by other communities that could be considered by Montgomery County.

Financial:

- Making trash disposal the most expensive option, or by providing collection of other materials (i.e. not trash) at no additional cost.
- Providing a discounted collection rate for proper and consistent diversion.
- PAYT program.
- Discouraging the disposal of excess trash by the requirement for a tag/sticker.
- Making grants or rebates available to businesses to purchase equipment required to properly participate in diversion programs.
- Providing grants for communities to support programs/actions to reduce waste and increase participation in diversion programs.

Physical:

- Providing a standardized collection container which limits the amount of trash that can be set out. Residents may have some choice in the size of container required for their household. There may be some allowances for occasional disposal of excess trash through the use of bag tags/stickers.

Regulatory:

- Implementing ordinances that enforce diversion to include SSO diversion, if implemented or additional material bans.
- Phasing in ordinances over a number of years in consultation with those parties affected to ensure businesses and residents have time to prepare for implementation.

Programmatic:

- Less frequent trash collection. Once the appropriate diversion programs are in place, trash can be collected on a less frequent basis (e.g. every other week) to encourage diversion.
- Collection of divertible materials (e.g. recycling) more frequently than trash.
- Restrictions on the number of bulk trash pickups and the number of items set out for collection.
- Curbside collection of textiles, housewares, electronics, HHW.
- Reuse areas at Drop-off Centers.
- Multiple Drop-off Centers.
- Consistent level of service in entire jurisdiction (i.e. provide trash collection to entire County).
- Provision of curbside collection of Source Separated Organics (e.g. food scraps).
- Support for waste reduction, reuse and recovery projects.
- Development of a mobile app to assist residents with recycling/sorting information as well as information on reuse opportunities.

Administrative:

- Reducing the number of contracts with private service providers to help reduce administrative costs and provide more flexibility for programmatic changes.
- Reporting on waste disposal instead of waste diversion as a performance metric.

In summary, Montgomery County has a very comprehensive waste management program, on par with others in the nation. Although the County continues to improve their programs, and conduct outreach and education, recycling rates have remained relatively constant over the last few years. It is clear that in order to increase diversion, the County will have to make some changes to their program which could include initiatives such as curbside collection of additional recyclables (e.g. textiles, electronics, housewares), diversion of additional materials (e.g. food waste), financial incentives to divert more material (e.g. PAYT, grants, rebates), provision of a uniform level of service etc. These options will be considered as part of Task 5.