
DEEP Unit Based Pricing Working Group

Stakeholder Meeting October 28, 2020



Department of
ENERGY & ENVIRONMENTAL PROTECTION

Today's Presentation Unit Based Pricing UBP

PAYT : Pay As You Throw

SMART: Save Money and Reduce Trash

1	Capacity Crisis
2	Program Results
3	Detailed Costs
4	Vision
5	Environment & Equity
6	FAQ's

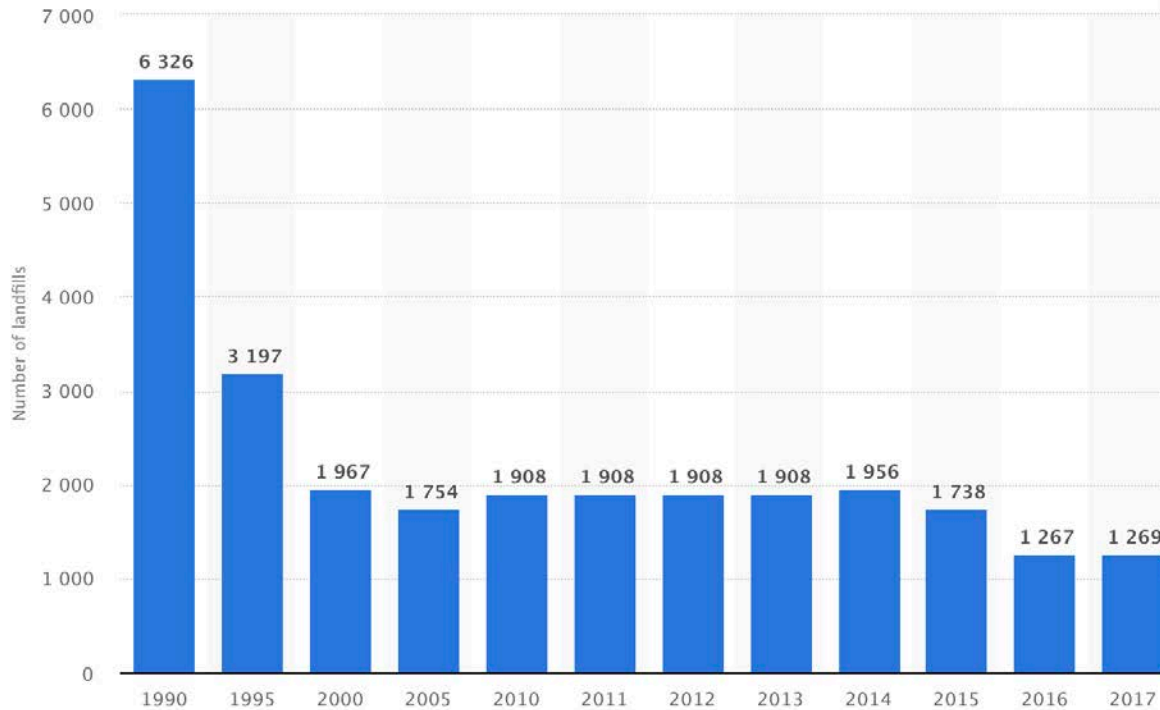
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US Capacity Crisis

Energy & Environmental Services > Waste Management

Number of municipal waste landfills in the U.S. from 1990



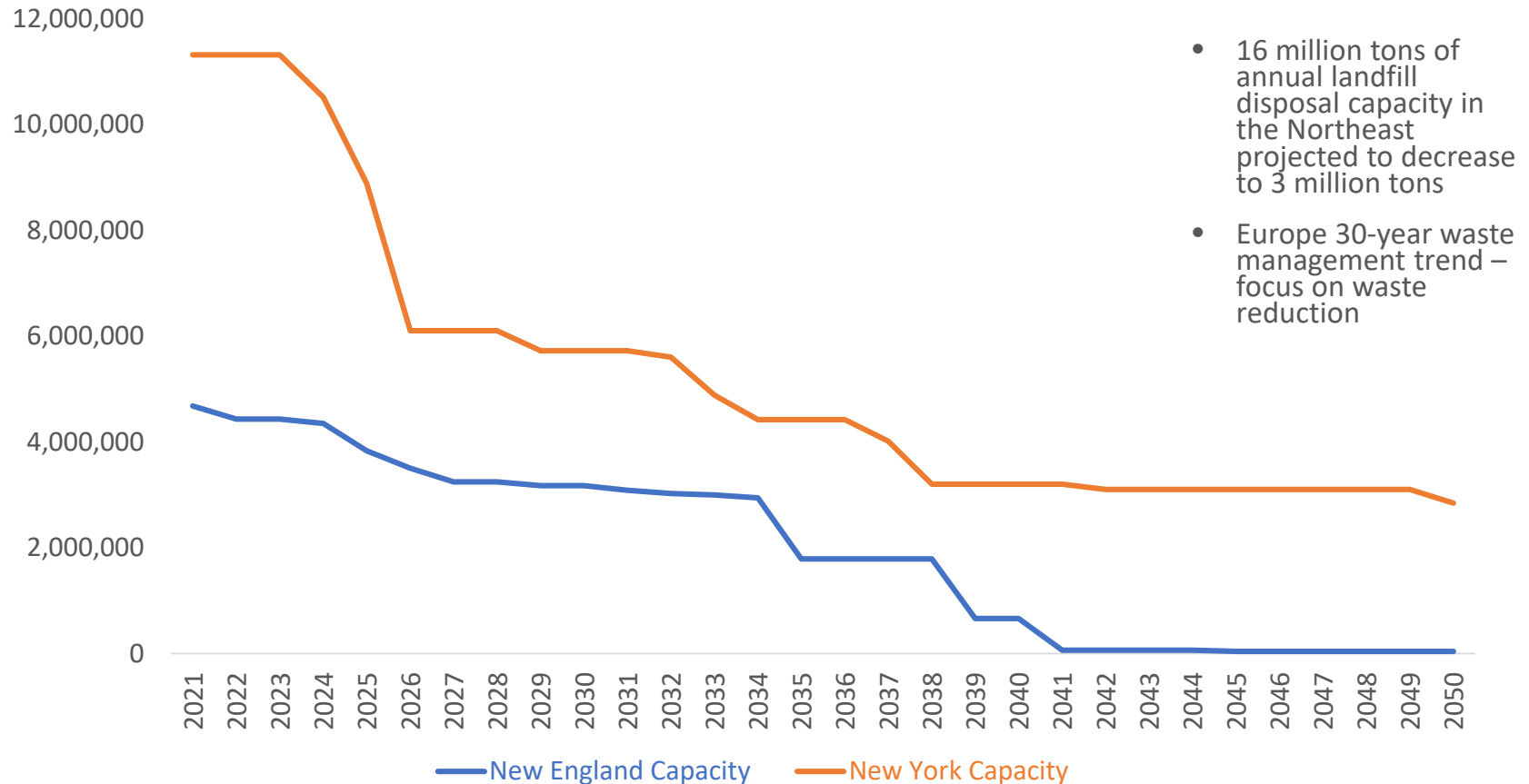
- 85%-95% of US landfills are privately owned up from 36 percent in 1998
- NIMBY makes landfills more difficult to site
- Of the 30 largest (mega landfills), only 5 are permitted to remain open after 2050
- No new WTE's sited in US since 2005
- CT's WTE's all over 30 years old

According to research firm Waste Business Journal (WBJ):

- The United States is on track to have 18 years of remaining landfill capacity left in 2020
- 85%-95% of US landfills are privately owned up from 36 percent in 1998, according to a [report by the Solid Waste Association of North America \(SWANA\)](https://www.waste360.com/landfill-operations/why-some-landfills-are-becoming-privatized-while-others-remain-public). <https://www.waste360.com/landfill-operations/why-some-landfills-are-becoming-privatized-while-others-remain-public>

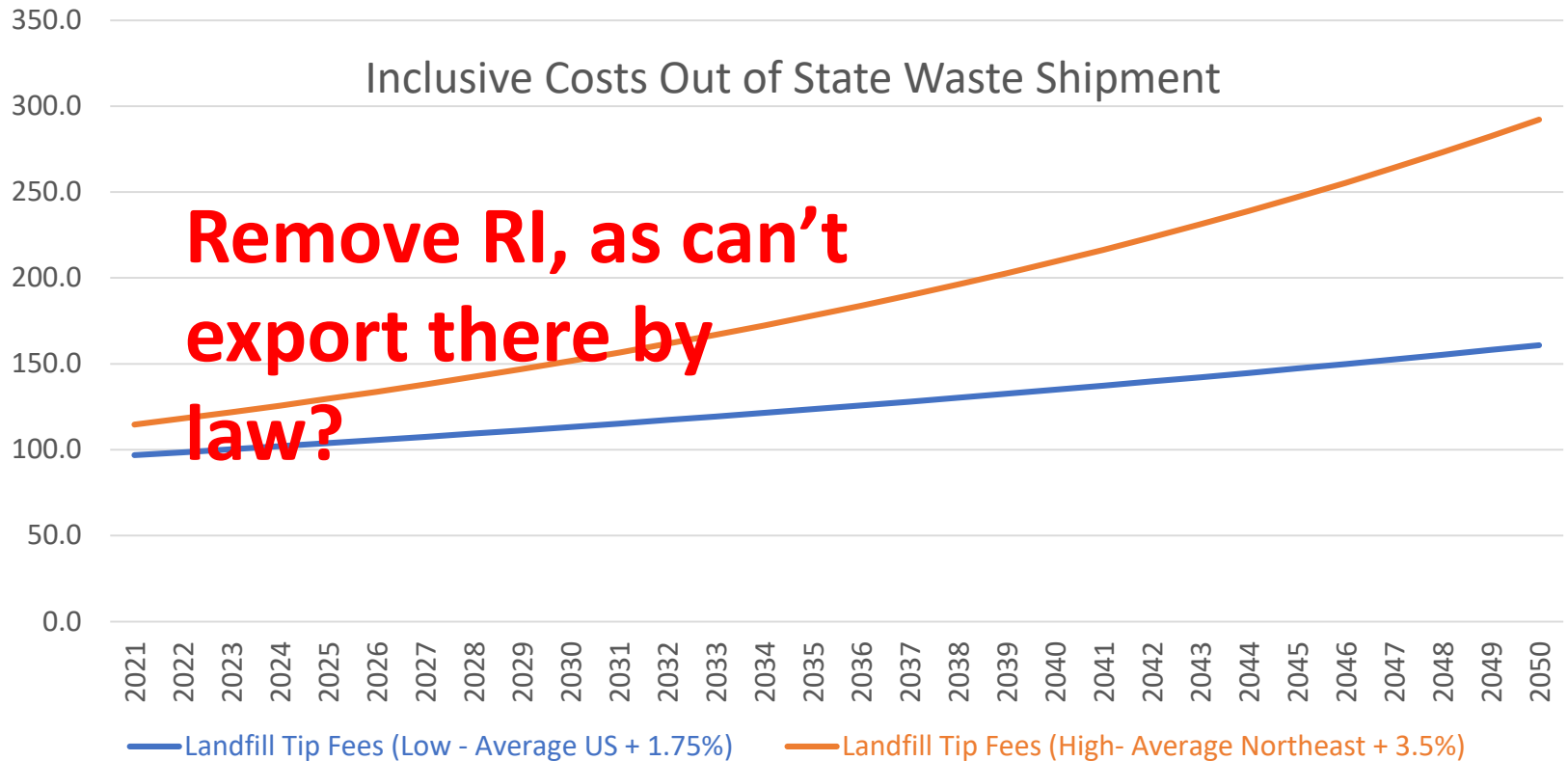
New England (ME, VT, NH, MA, RI, CT) Landfill Capacity will Decrease 82% by 2050

Landfill Capacity Through 2050



Sources: Report to the Joint Standing Committee on the Environment and Natural Resources, Maine Solid Waste Generation and Disposal Capacity Report, *January 2017*; NEW YORK STATE OFFICE OF GENERAL SERVICES, *Material Recovery and Waste Reduction Program, ANNUAL REPORT*, Fiscal Year 2007-08; BIENNIAL SOLID WASTE REPORT, OCTOBER 2019, Prepared by the New Hampshire Department of Environmental Services; MA Material Management Capacity Study February 11, 2019, MSW Consultants

Tipping Fess Estimates Out of State Disposal (between \$177 and \$292 per ton)

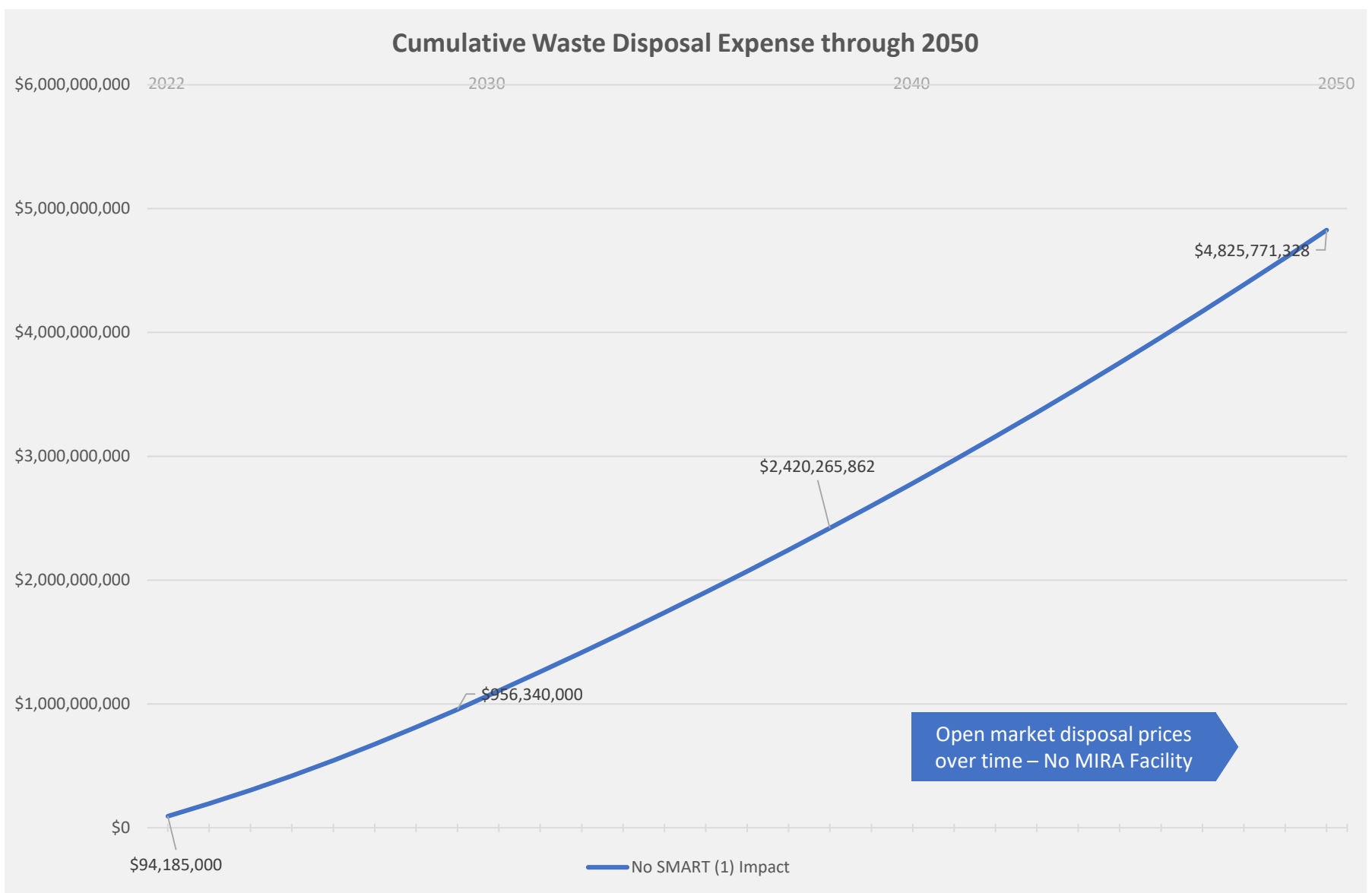


Assumptions:

- *Rail Transport Fees / per ton 300 miles starting at \$11.85 per ton with 2% COLA (this varies greatly year to year 2% annual is conservative)
- *Rail Transport Fees / per ton 500 miles starting at \$19.75 per ton with 2% COLA (this varies greatly year to year 2% annual is conservative)
- *Truck Transport Fees / per ton (30-60 miles) starting at \$6 per ton with 2% COLA (this varies greatly year to year 2% annual is conservative)
- Recycling costs as a percent of waste tip \$5 per year flat for \$30 years (no source)

*SOURCE MA Material Management Capacity Study February 11, 2019, MSW Consultants

Cumulative Residential Waste Tip Expense through 2050 (Statewide)

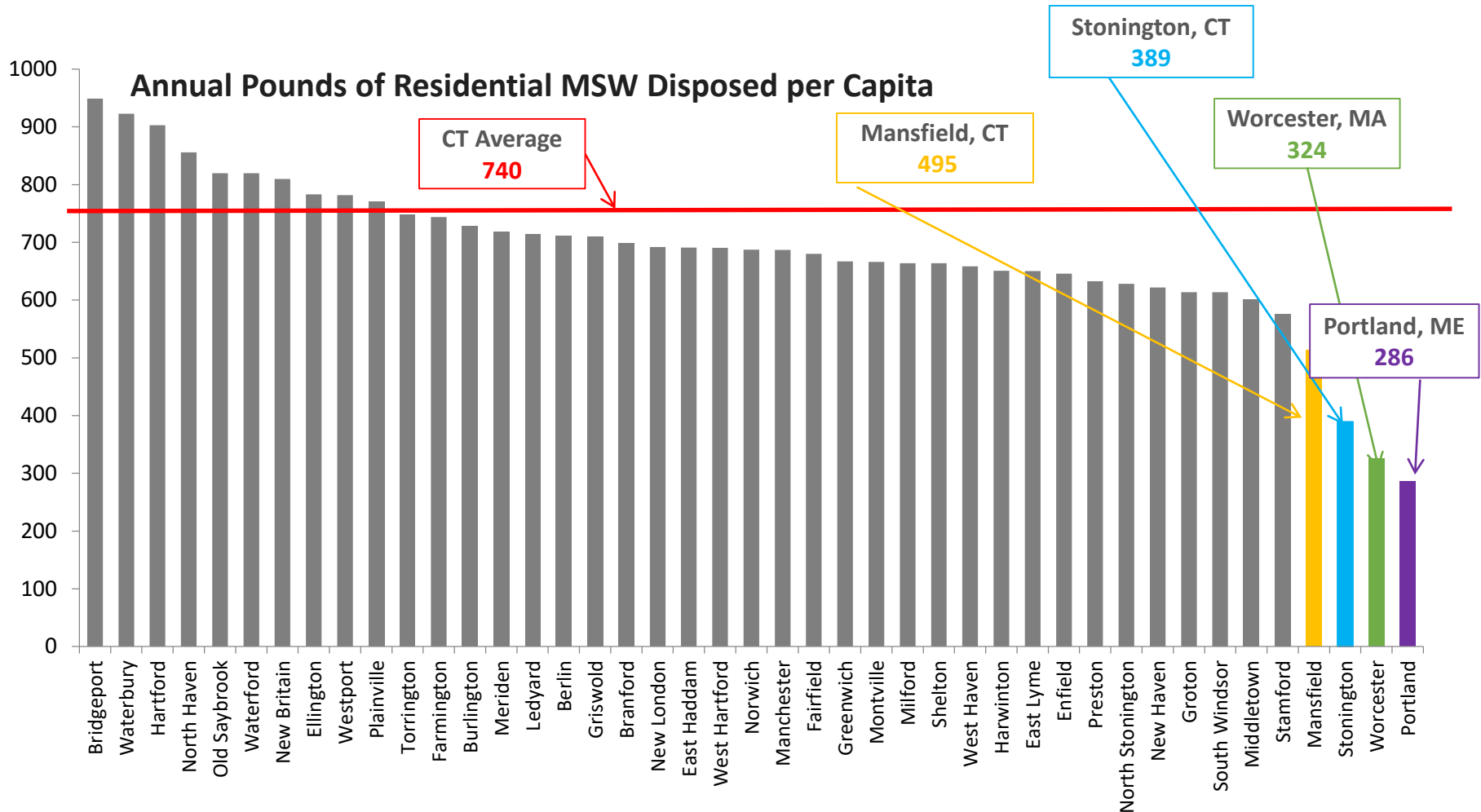


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Residential MSW Disposed per Capita – DEEP Dive Participants

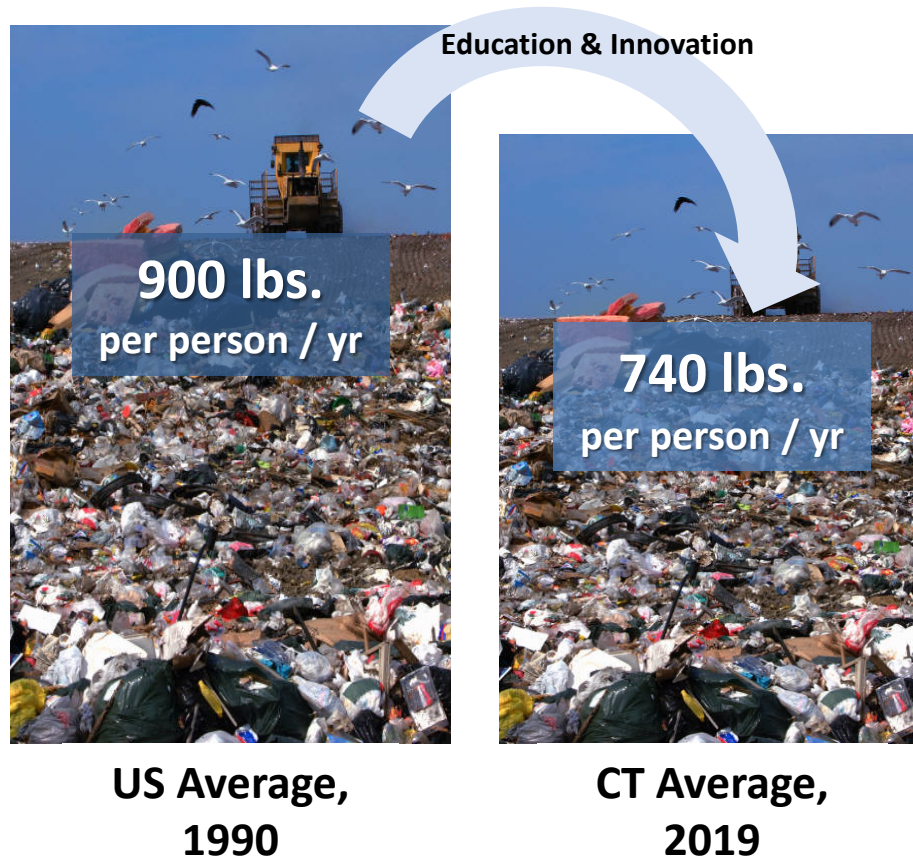
UBP communities dispose of less residential MSW per capita than most Connecticut cities and towns. Worcester, MA, a large and complex municipality, throws away 324 lbs. per capita.



Note: Figures are calculated using MSW tonnage data provided by the municipalities themselves.

Where is CT Now

The state has been actively encouraging waste reduction for 30 years or more. It has had some impact.



Bottle Bill (1980)

Electronics, Paint and Mattress EPR

Education Campaigns (What's In, What's Out)

Aggressive Waste Reduction Goals

National Packaging Innovation (down gauging, light weighting)

National Recycling Campaigns

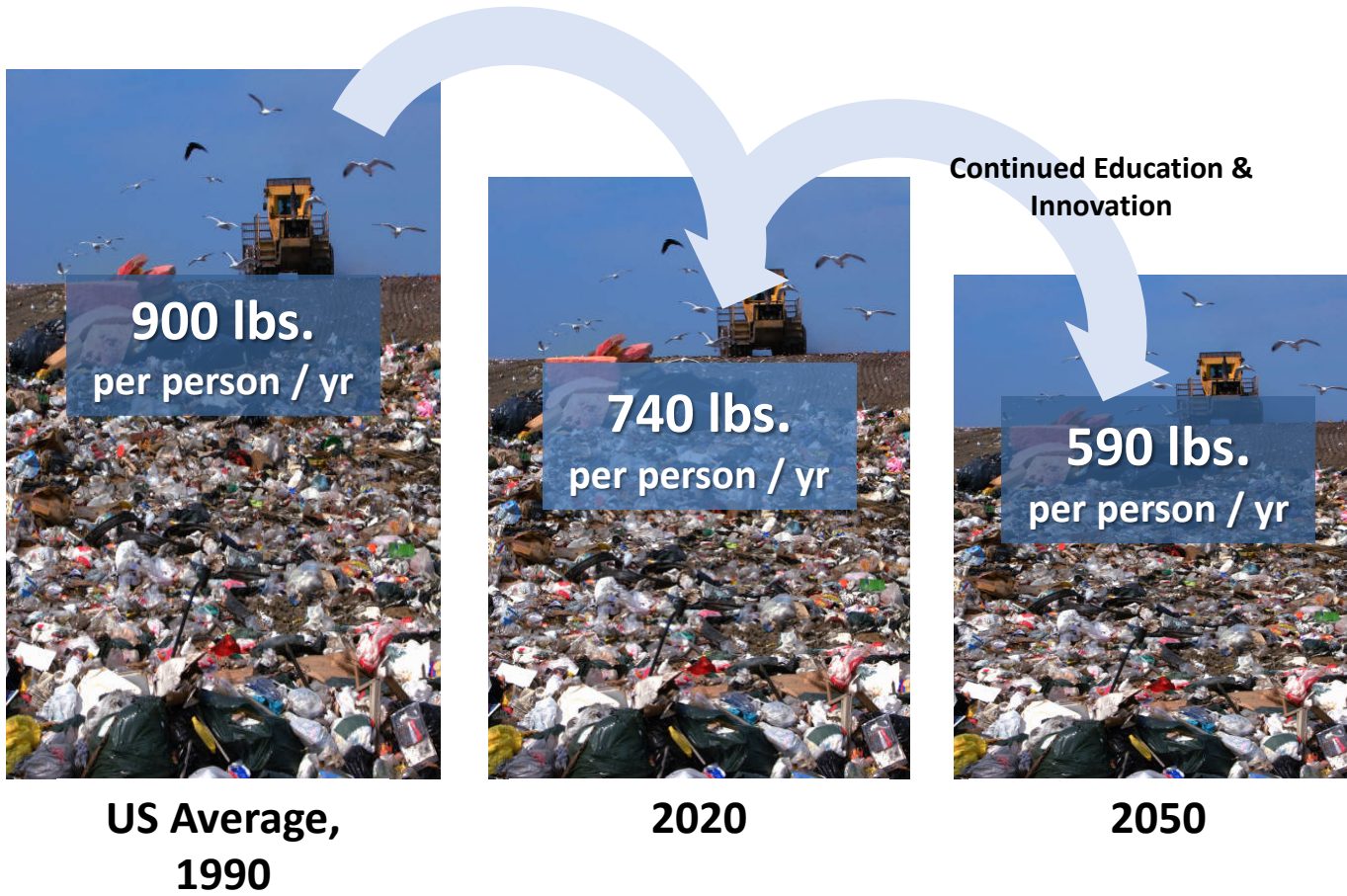
Single-Stream Recycling

Increased Consumer Access (curbside and drop-off recycling)

Other Programs (yard waste, event recycling days, etc.)

CT in 2050

On the current trajectory, per capita waste should still drop some. This assumes that additional innovation, education, and other policies will hold back the expected increase in packaging waste from online shopping and convenience/disposable lifestyles.



Continued Education Campaigns

Better Recycling Technology

Expanded Bottle Bill

Packaging EPR

Waste Bans

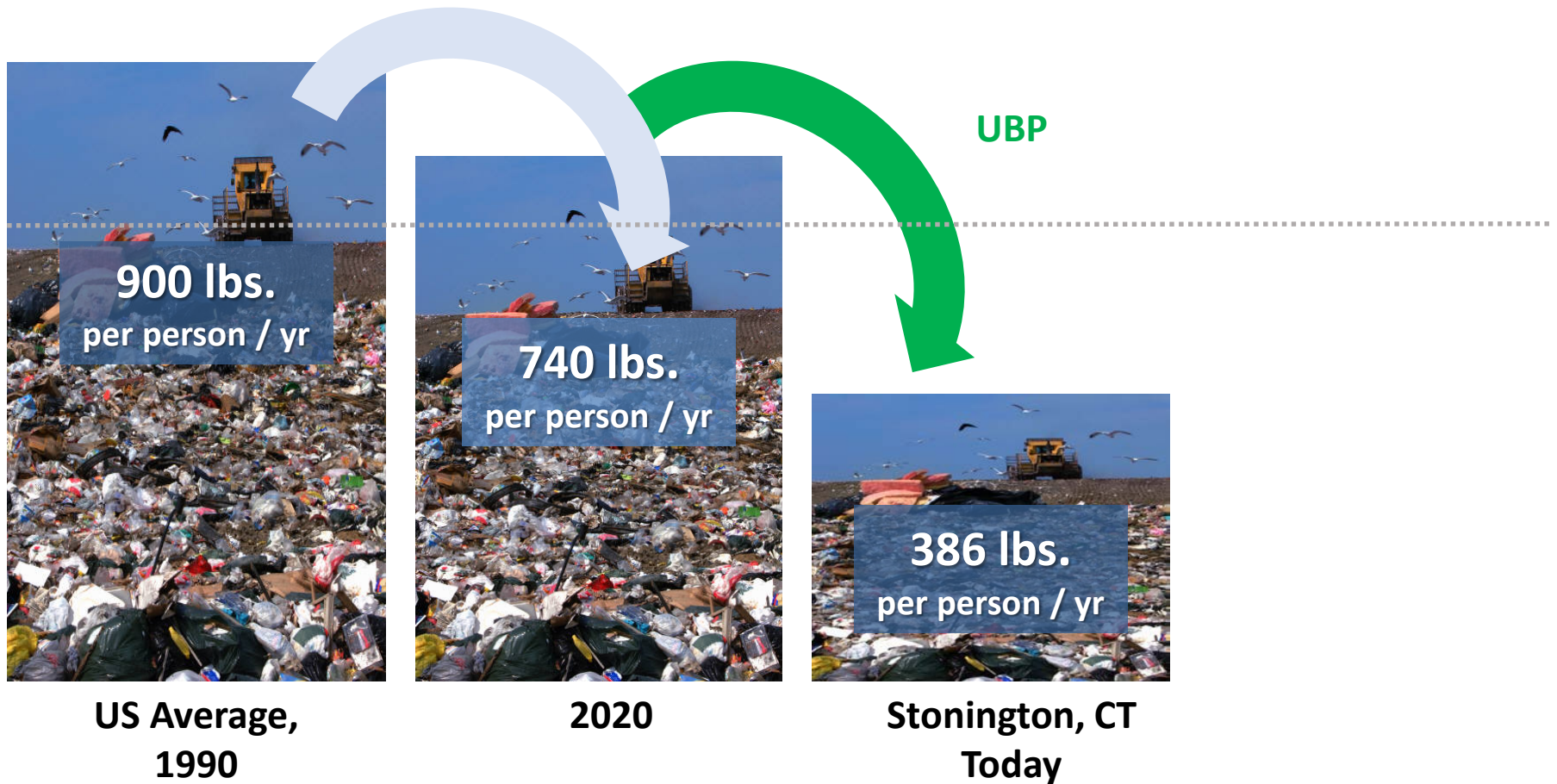
Increased Single-Use Bans

Increased Access

Curbside Food Waste Collection

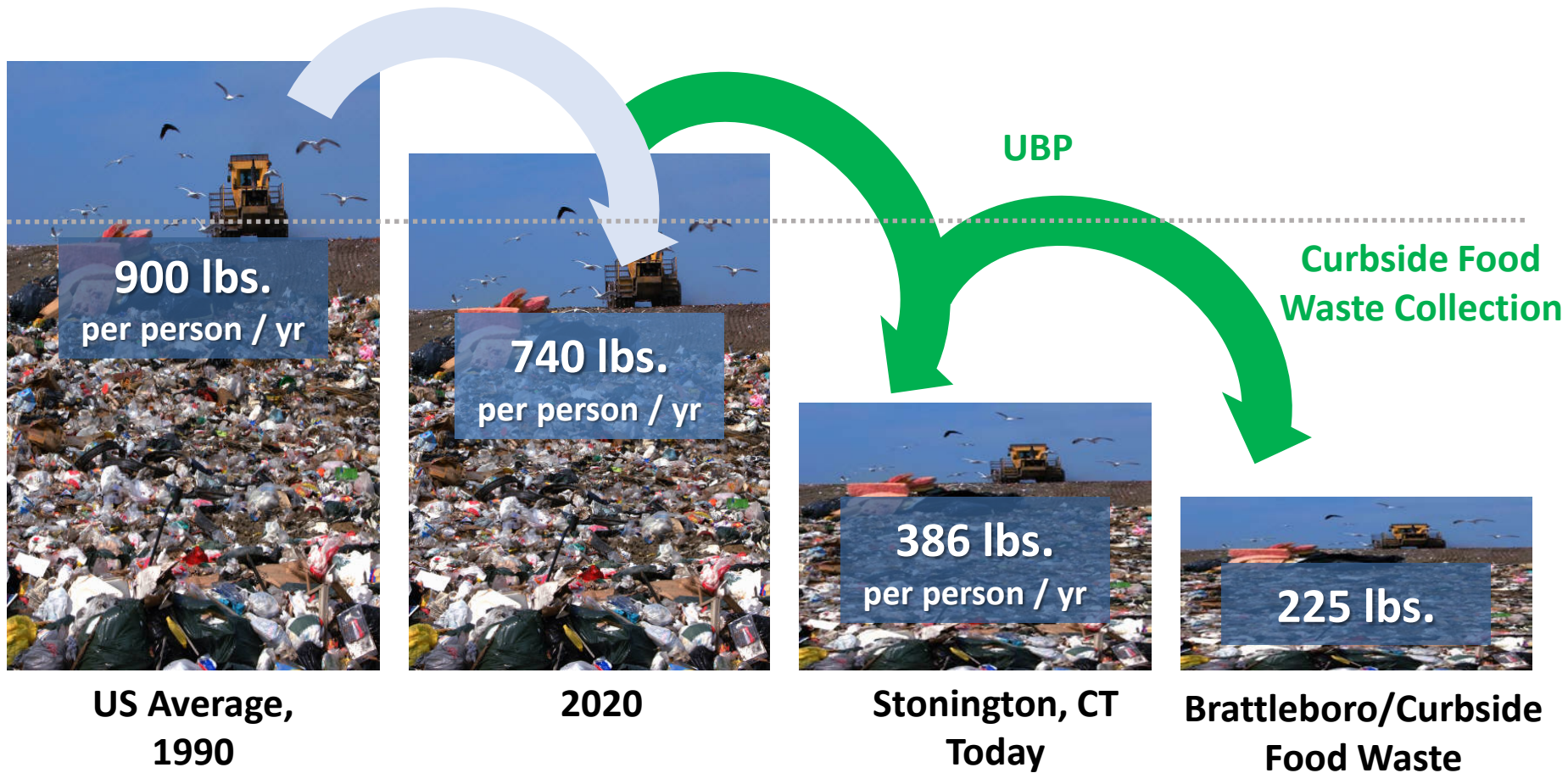
CT with Unit Based Pricing

Stonington, CT (along with 556 communities in New England) throw away 40-60% less waste with SMART programs (there are no exceptions).

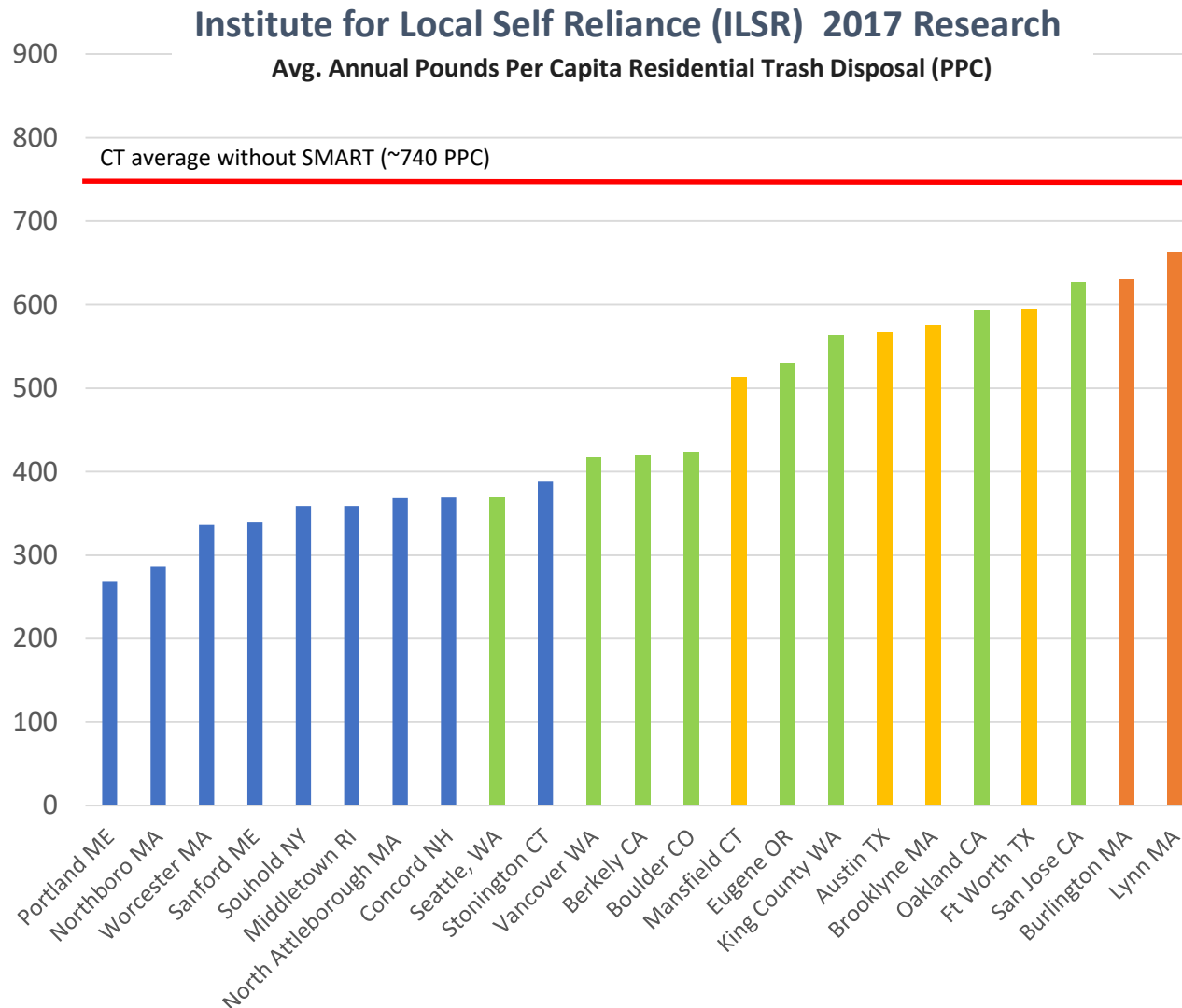


CT with Unit Based Pricing plus Food Waste

Curbside food waste collection—and other new program types—can reduce per capita waste even more.



Comparing Different Methods UBP



PAYT with Bags
(Avg. 344 PPC)

PAYT with Variable Carts plus Curbside Food Collection
(Avg. 510 PPC)

PAYT with Variable Carts no Curbside Food Collection
(Avg. 560 PPC)

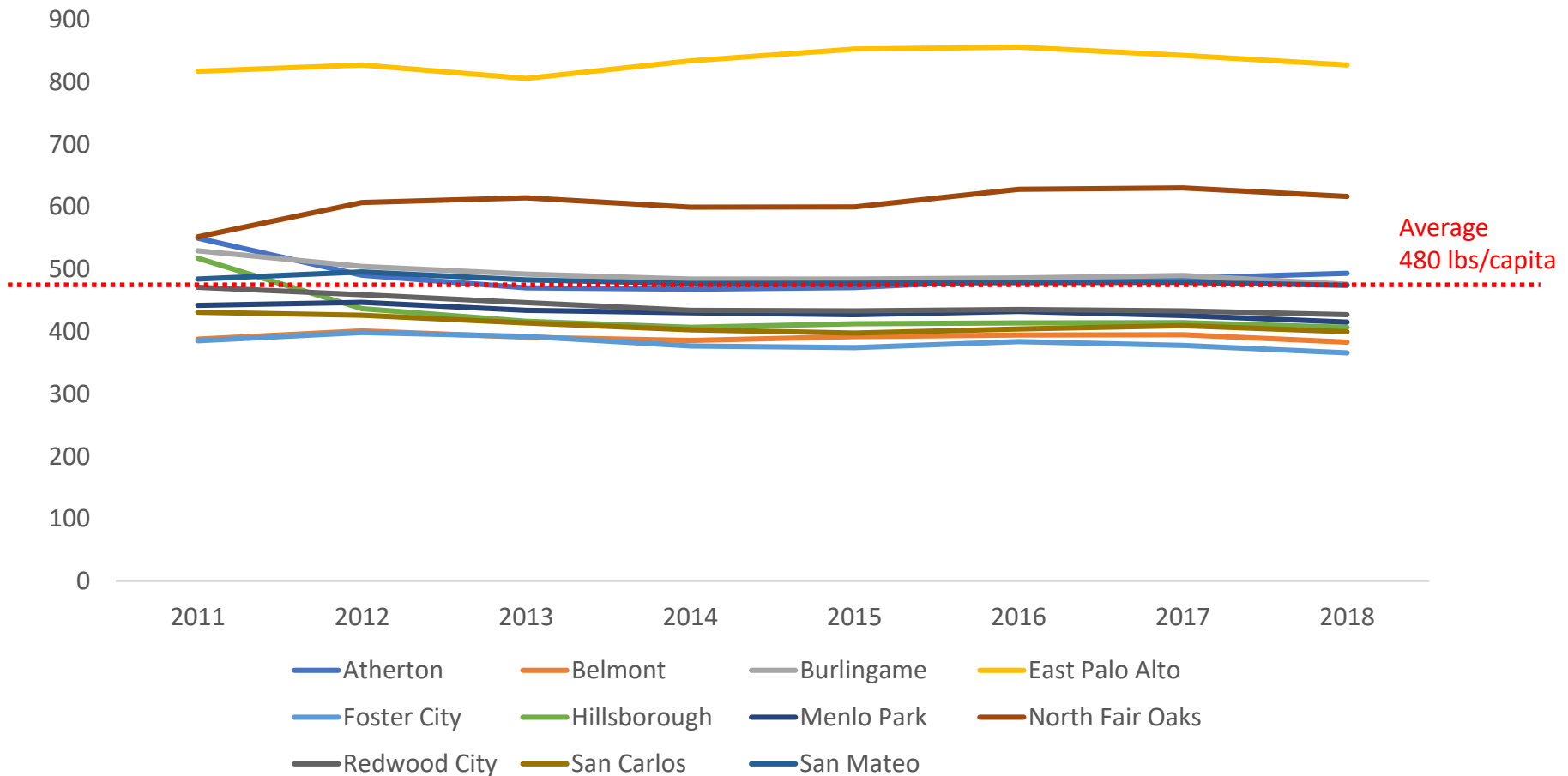
64 gallon Overflow Cart
(Avg. 646 PPC)

Historical Waste South Bay Waste Management Authority (SBWMA)

(pounds per capita)

SBWMA waste generation has plateaued since the addition of single stream recycling and curbside organics collection. The current cart rate structure is not facilitating municipal and state and waste reduction goals.

SBWMA (per capita trash generation)



UBP Does Not Increase Recycling Contamination

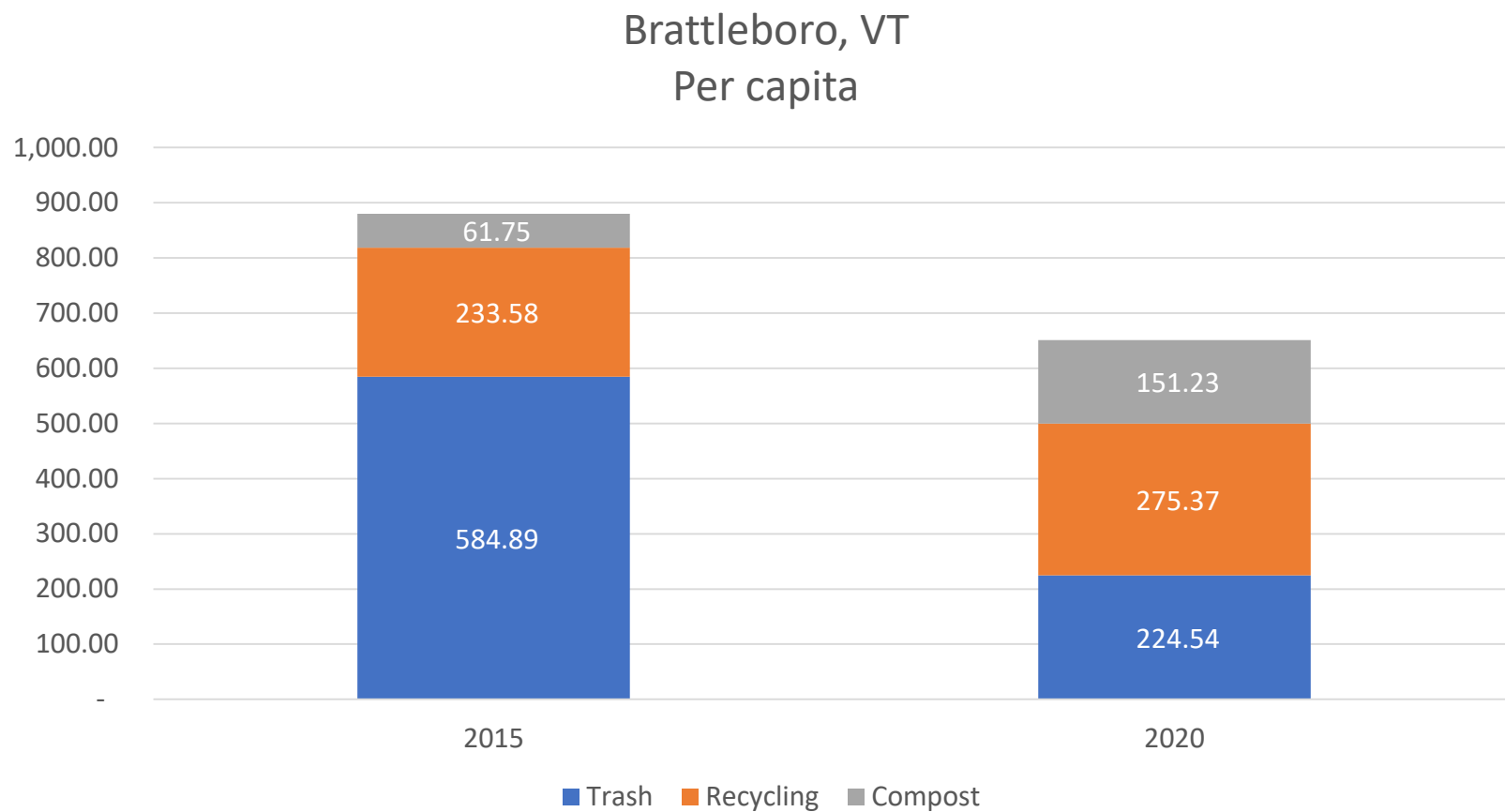
ecomaine PAYT Communities

Municipality	Population	lbs/capita
Waterville	15,722	235
Portland	66,318	265
Windam	17,001	268
Gorham	16,381	328
Sanford	20,798	340
Cumberland	7,211	370
North Yarmout	3,565	376

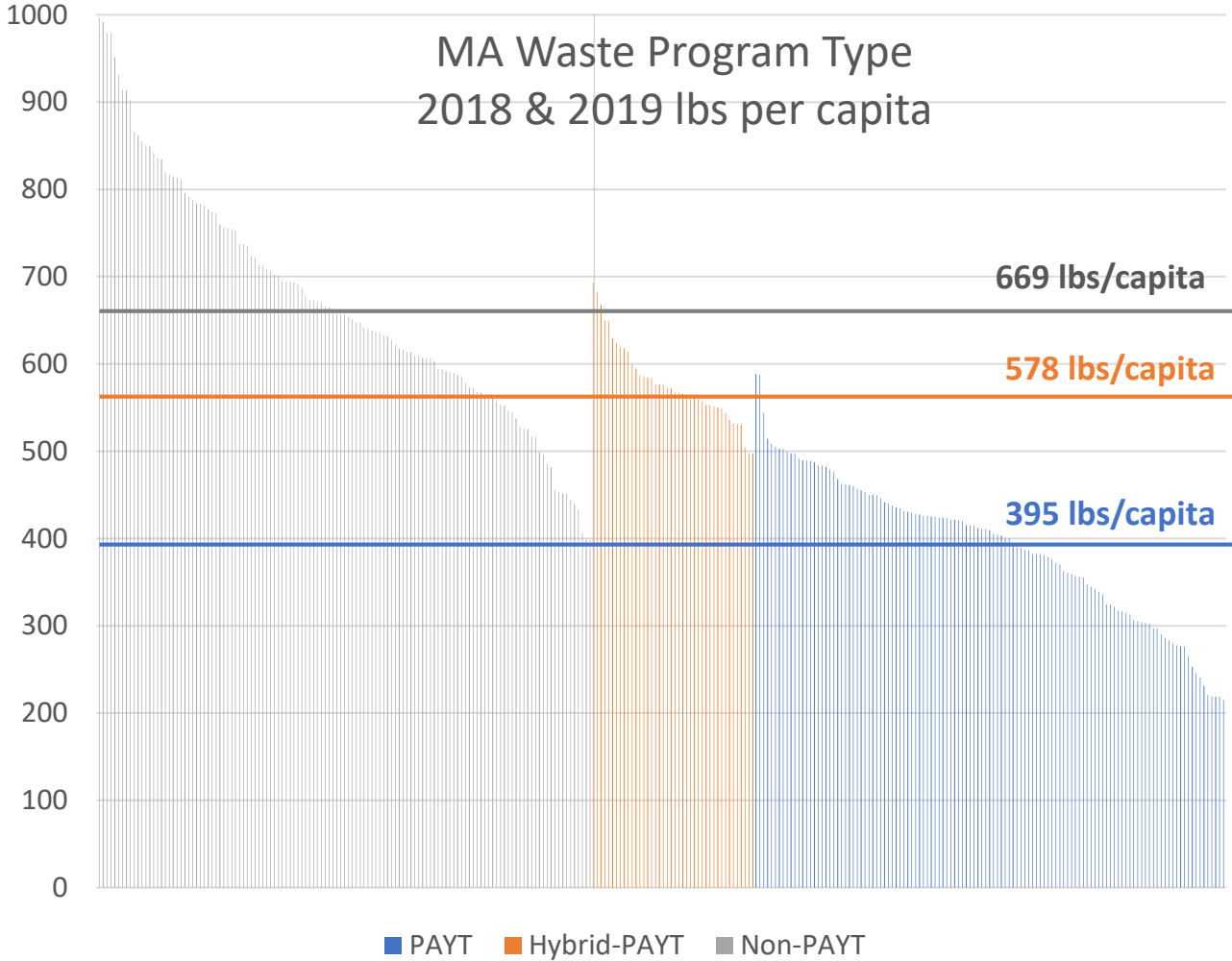
SMART
non-SMAR

- 2017 ecomaine municipalities with PAYT had 44.8% less waste than non-PAYT communities
- Sanford, ME has less than a 5% contamination rate
- ecomaine’s Lissa Bittermann “After 2.5 years of extensive tracking we have seen no correlation between increased contamination and PAYT”
- Rhode Island Resource Recovery Corp has been charging for recycling contamination for the past 3 years. To date Middletown, RI the only curbside PAYT community in the state, has never even had a warning for contamination.
- Waste Management in SW Massachusetts also claims lower recycling contamination from PAYT communities.

Brattleboro VT UBP Waste plus Recycling + Curbside Foodwaste



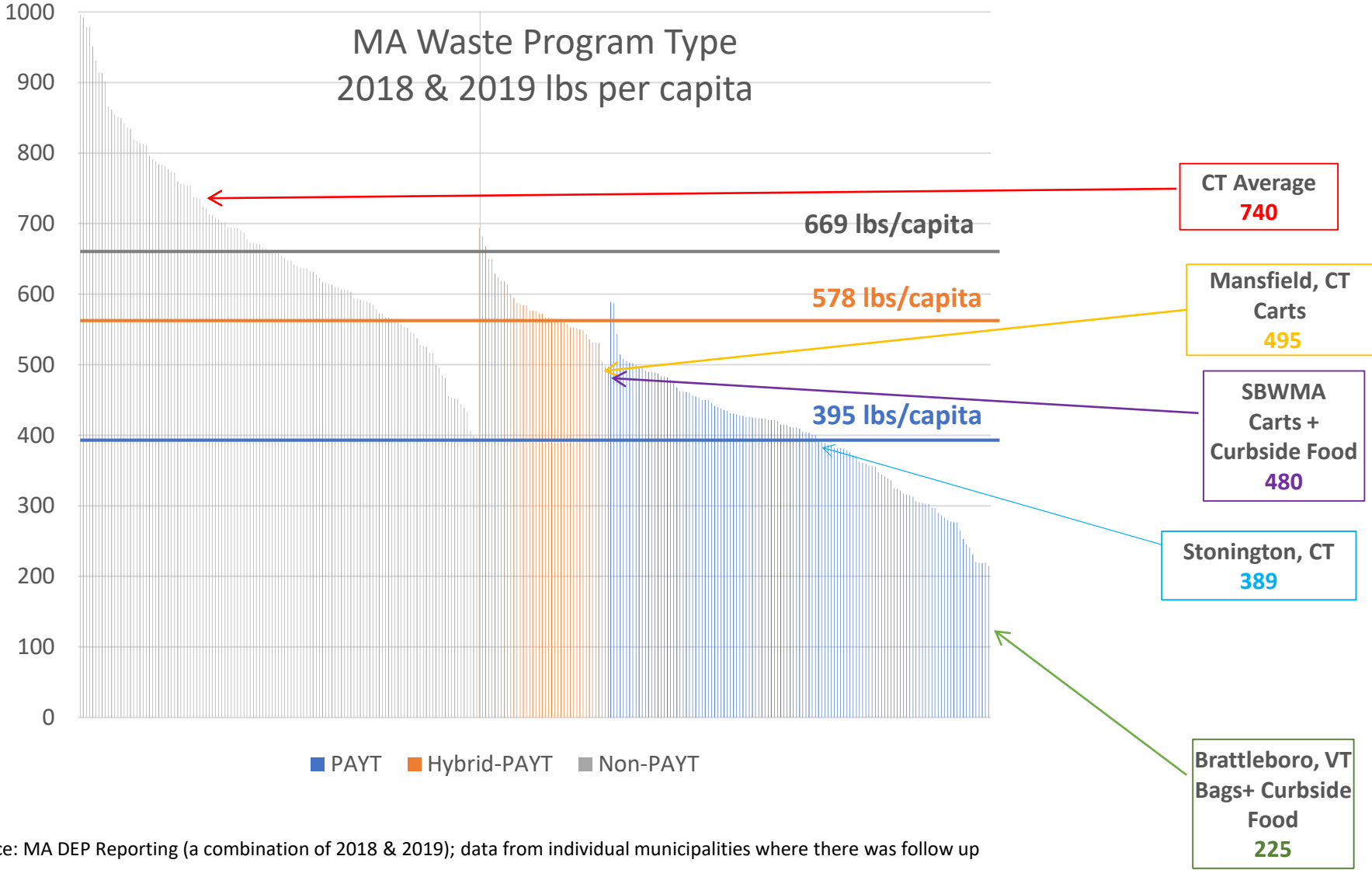
MA Program Comparison



- 189 Towns Reported 2018 and 2019
- Hybrid communities include: 64-gallon and 32-gallon overflow programs, curbside tag programs, and variable cart programs
- Mix of transfer station, subscription and municipal curbside programs

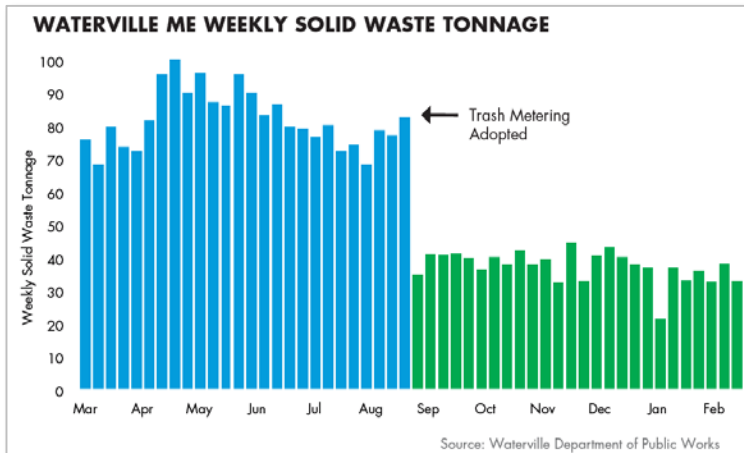
Source: MA DEP Reporting (a combination of 2018 & 2019); data from individual municipalities where there was follow up

Nationwide Program Results are Predictable

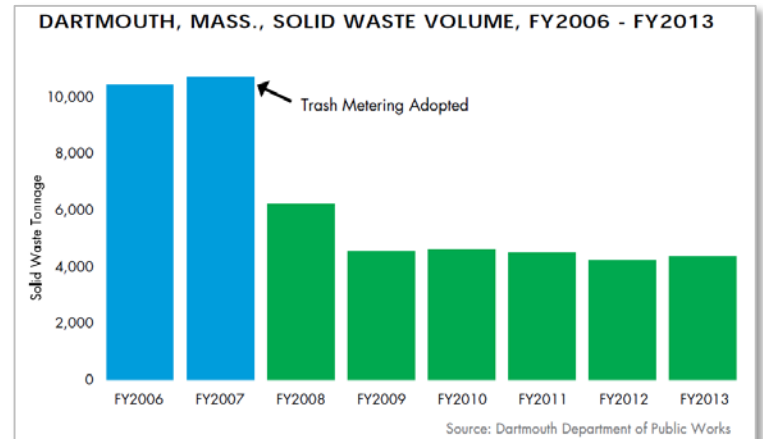


Source: MA DEP Reporting (a combination of 2018 & 2019); data from individual municipalities where there was follow up

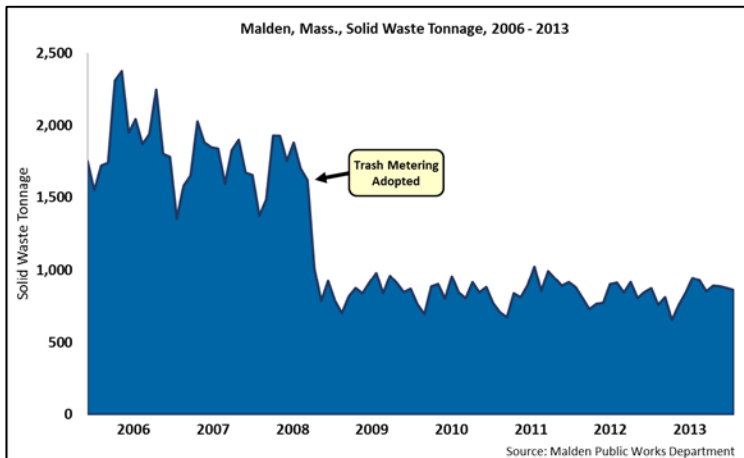
Results: Immediate & Predictable



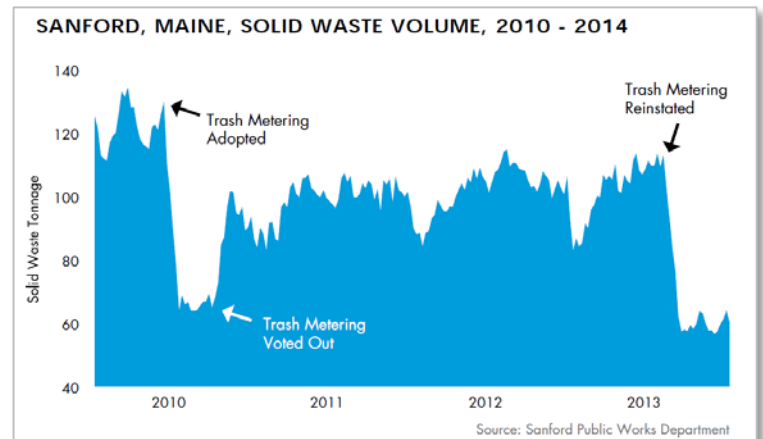
WATERVILLE, MAINE
53% DECLINE IN WASTE



DARTMOUTH, MA
59% DECLINE IN WASTE



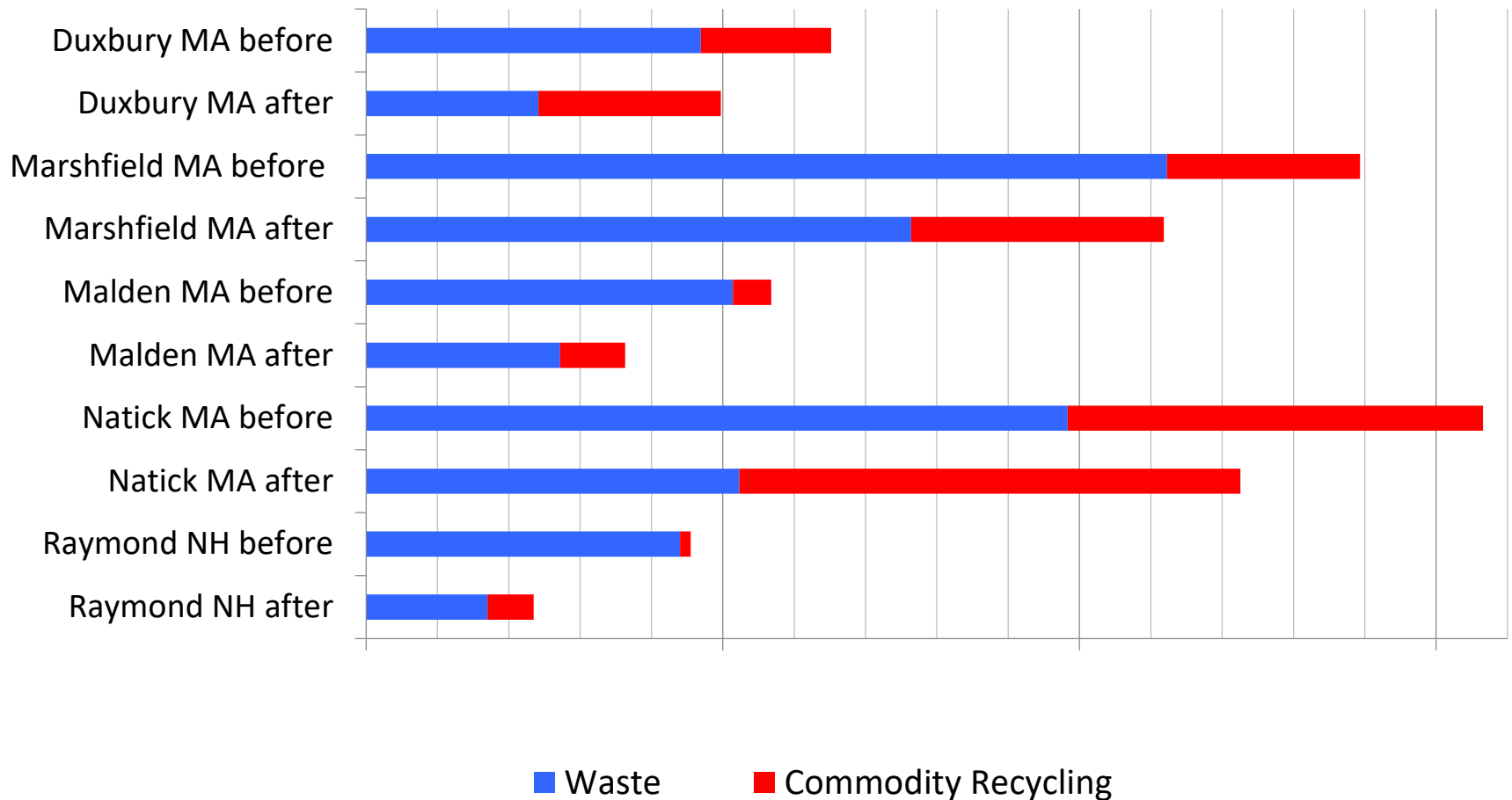
MALDEN, MA
52% DECLINE IN WASTE



SANFORD, MA
40%+ DECLINE IN WASTE...TWICE

SMART – Decreases Overall Generation – 20+%

SMART's price signal produces source reduction and moves materials into other recovery programs, such as donations and home composting.



Global Bag – Based SMART Efforts (Selected Examples)

Europe



- ZeroWaste Europe's 1st Category Municipalities must use SMART.
- Low annual per capita disposal (300-500 lbs.) with SMART in:
 - Belgium
 - Austria
 - Switzerland
 - Estonia
 - France
 - Italy
 - Others

SMART – Zurich
Reduced Waste 41%



South Korea



- Seoul reduced waste 42%.

Scandinavia



Taiwan



- Taipei uses bag-based SMART.
 - Reduced waste by 33%
 - Recycling rate is >50%

Japan



The bags pictured here have capacities from 5 liters to 40 liters, and come in different colors depending on whether they are for businesses or households.

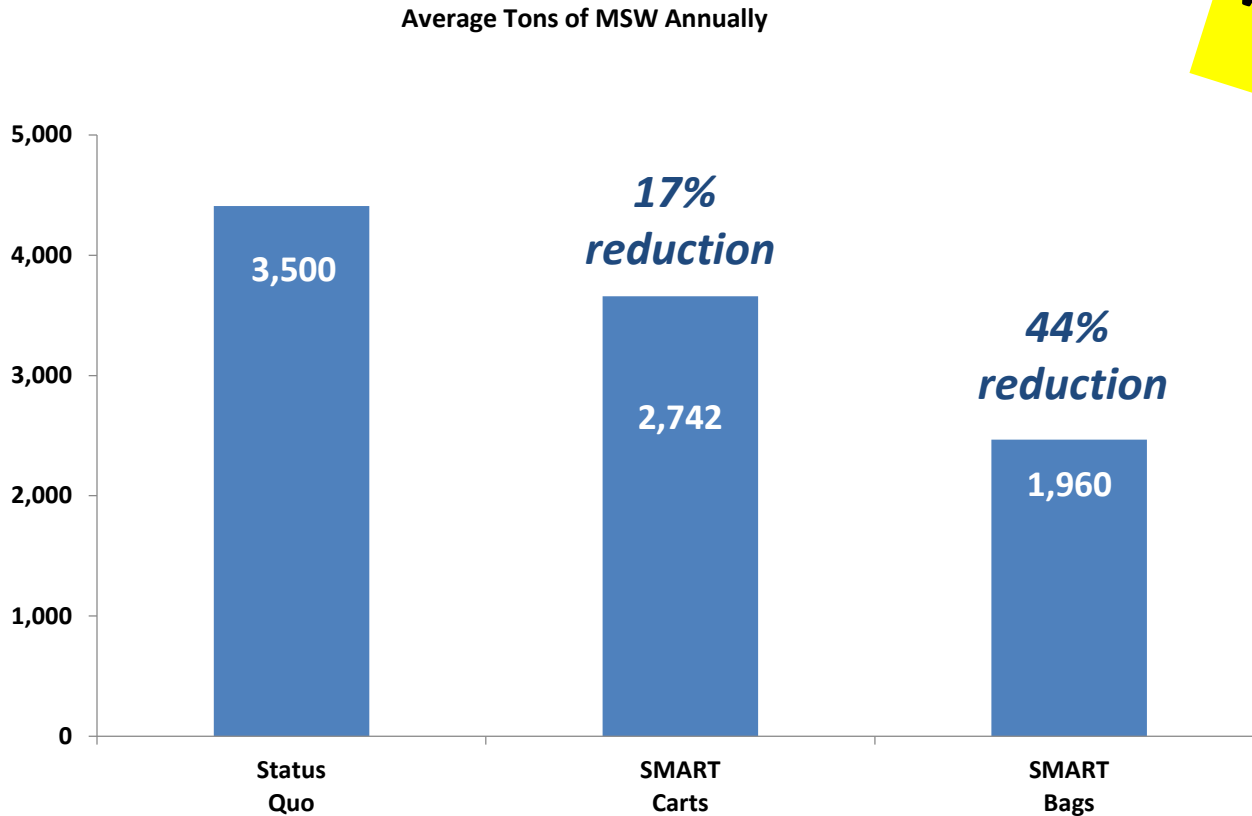
- Kyoto reduced waste more than 40%.

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Comparing UBP Program Types: Waste Reduction

Bag programs achieve lower disposal rates, averaging 44% waste reduction. Cart systems vary greatly in effectiveness, depending on the billing strategy, averaging 17% waste reduction.



Windsor Locks Example

The average reduction in trash for cart programs is 17%.

UBP Carts Pay for Disposal (plus a portion collection costs)

With cart programs, the cart size should be the responsibility of the property renter and not the property owner or the behavior will not change. **The average home will spend \$91 on cart fees annually.**

Windsor Locks Example

Cart cost covers trash incineration+ some operational costs



Cart Size (gallons)	Distribution	Number	Annual Revenue per Cart
24	25.0%	1,188	48
32	41.0%	1,949	74
64	26.0%	1,236	122
96	8.0%	380	216

*Based on achieving the same per capita as Mansfield, CT. Mansfield is an aggressive target

Cart programs where the landlord chooses the size are less fair to renters because they have no control of their true costs. Landlords simply add the annual fee to the rent.

Number of Official Bags the Average Home will Use per Week

With UBP, the average home will use less than one 33-gallon bag per week.



The average home will use...



...less than one bag per week

Windsor Locks
Example

Based on data collected from hundreds of UBP programs:

- Residential trash will drop by 44% (from 5,014 tons/yr. to 2,808 tons/yr.)
- 2,808 tons per year equals
 - 1,056 lbs. per home per year
 - 20.31 lbs. per home each week
- A 33-gallon bag collected through a UBP program contains about 21.25 lbs. of trash
- That's less than one bag per week per hh

How the Bags Pay for Trash

The average home will spend \$71 on bag fees annually (plus reduced expense on standard trash bags).



\$1.50 per Bag

Bag & Bag Distribution	\$0.31
Trash Incineration+ some operational costs	\$1.19
Total	\$1.50



Windsor Locks Example

\$.80 per Bag

Bag & Bag Distribution	\$0.21
Trash Incineration + some operational costs	\$0.59
Total	\$0.80

Comparing SMART Program Types: Up-Front Costs

**Windsor Locks
Example**

Carts require an upfront investment, bag programs do not.

Cart Size (gal.)	Purchase Cost (per unit)	Distribution Costs (per unit)	Direct Costs	Including Start up Logistics
24	\$32.00	\$5.00	\$43,965	\$50,560
32	\$50.00	\$5.00	\$107,180	\$123,257
64	\$60.00	\$5.00	\$80,326	\$92,375
94	\$70.00	\$5.00	\$0	\$0
Total			\$231,471	\$266,192

Cart Program

Cart sizes not currently in the municipal inventory must be purchased.

Carts must be distributed to every home.

The logistics of the roll-out must be carefully planned and managed.

Bag Program

An upgrade to camera or software for trucks to monitor compliance is @ \$2,500

+ @\$5,000 for compliance during start up for either program

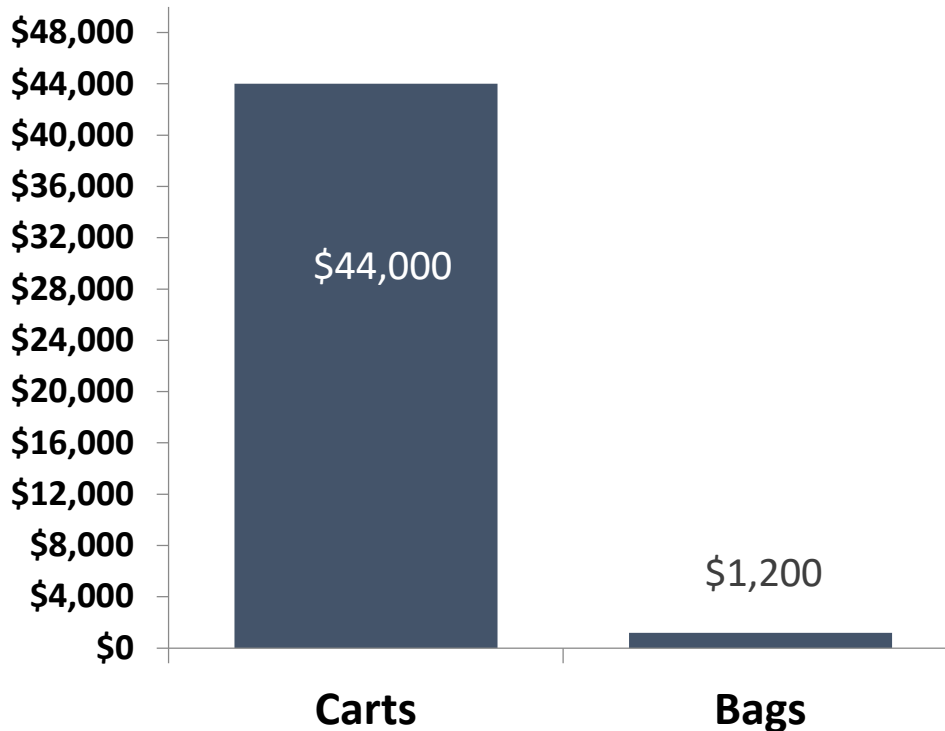
A SMART Bag program requires minimal start up expense.

Comparing SMART Program Types: Ongoing Costs

**Windsor Locks
Example**

Ongoing costs are the expenses required to run and maintain a SMART program.

Projected Annual Ongoing Costs



Projected costs based on Austin, TX VRC per HH program costs.

Cart Program

Residents must have the option to change cart size, in order to continue to reduce waste. Approximately 5% per year

The municipality must set up a regular billing mechanism for each home based on cart size. Approximately \$0.33 per month per household.

Progress toward program goals requires ongoing outreach and education. Approximately \$0.25 per month per household.

Bag Program

There is a nominal cost to review monthly statements. GPS services \$1,200 per year

A SMART Bag program can be managed with minimal effort and cost to the town.

Comparing SMART Program Types

**Windsor Locks
Example**

	Current Waste Program	UBP Bag	UBP Cart
Revenues			
Net Bag Revenue	\$0	\$261,579	\$0
Net Cart Revenues	\$0	\$0	\$434,139
Tax Revenue	\$937,250	\$528,267	\$490,125
Total Revenues	\$937,250	\$789,846	\$924,264
Expenses			
Curbside Disposal	\$335,008	\$187,604	\$278,057
Recycling Disposal	\$0	\$0	\$0
Cart Management (Billing, Change Outs, Marketing)	0	0	\$43,965
Other Solid Waste Costs	\$602,242	\$602,242	\$602,242
Total Expenses	\$937,250	\$789,846	\$924,264

Total department costs are 16% less with UBP Bag Program

Comparison SMART Bags and SMART Carts?

**Windsor Locks
Example**

SMART (unit based pricing) is the single best way to reduce waste.

Category	SMART Bag Program	SMART Cart Program
Waste Generation	285-435 lbs / per capita	480-630 lbs / per capita
Average Annual HH Expense (new out of pocket)	*\$71.00	\$91.00
Startup Expense	\$5,000 Cameras and software	\$266,192 Carts and distribution of additional sizes
On Going Annual Expense	\$2,400 Enforcement and compliance management	\$43,000 Monthly HHbilling, cart switch outs and marketing
Total Net Annual Expense (Tip and Collection)	\$798,846	\$924,264

Considerations for SBWMA

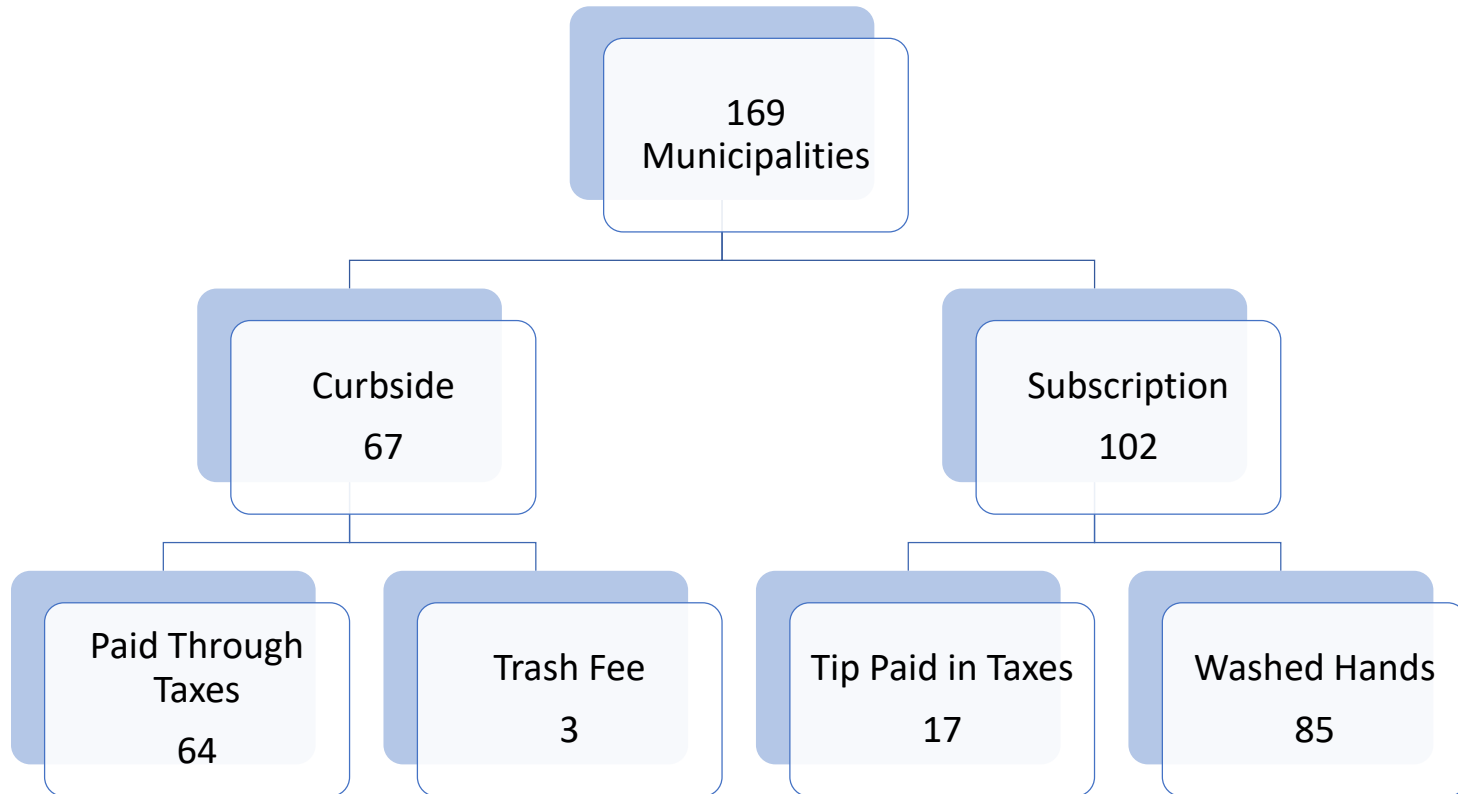
- SBWMA cart rate structures are not sustainable
 - California Law Proposition 218 indicates that if a municipality charges for a program, than full cost accounting must demonstrate that the charges are directly linked to the services that are being provided. The current cart rates may not be in compliance.
- The current cart program does not maximize Vehicle Miles Traveled (VMT)
- Cart rates are less fair to renters that don't select their own size and actually disincentivize waste reduction when landlords simply choose a larger cart as the default and add that cost to the rent without giving the renter the option.
- Waste reduction has Plateaued in SBWMA communities
- In order to reduce waste, create fair and legally compliant rate structures, cover the cost of new diversion programs and reduce VMT's, SBWMA communities should consider working toward a co-collection system with a two tiered rate structure. Using one single large cart with PAYT garbage bags along with bags designated for other materials such as hard to recycle plastics, food waste and other recyclables. The basic principals of such a program are as follows:

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What We Know: CT Residential Waste Make Up is Complicated

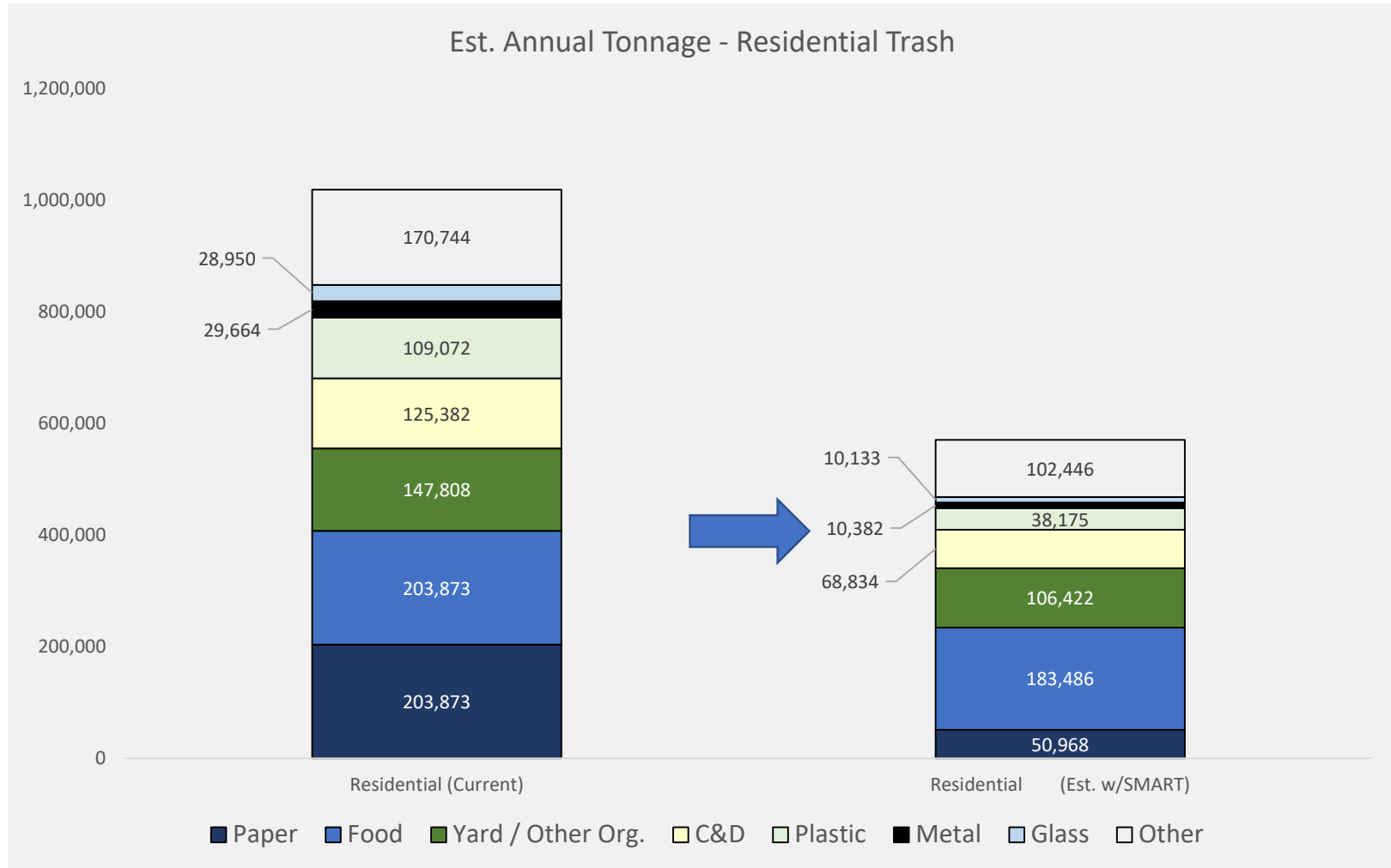
Communities with curbside collection are the most straightforward to implement. Other communities have financial incentives and control mechanisms that would allow for a SMART rate structure such as subscription communities that pay tip fees through property taxes or communities where all of the waste is run through the municipal transfer station.



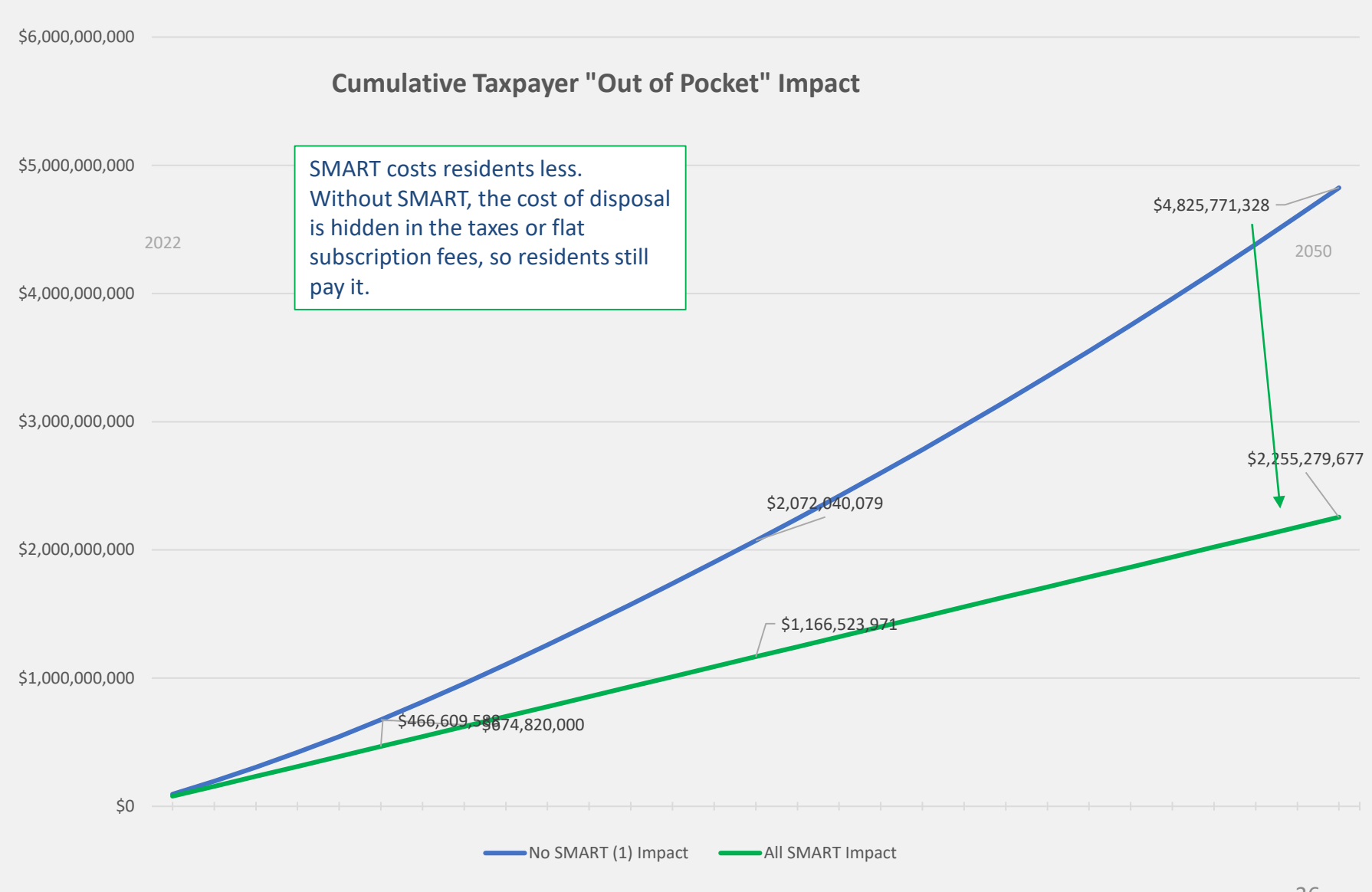
There are 17 (estimated) subscription communities where the tip fee is paid through taxes. These communities have an incentive to use a SMART system to prevent subsidizing waste from neighboring towns.

What We know: Organics Make up 35%

UBP would reduce residential MSW disposals by 44% overall. ~290,000 tons of food and yard/ organic would still remain, which could be targeted for removal leveraging SMART's pricing incentives.



What We Know: Unit Based Pricing will Cost Less



Vision

The ultimate materials management system would:

- Achieve 60% diversion by 2024 and create a foundation for success of other waste reduction programs.
- Incentivize reuse and source reduction.
- Minimize costs to municipalities and residents.
- Minimize vehicle miles travelled (VMTs).
- Prioritizes social justice (minimizes dependence on incineration).
- Provide consistent feedstocks to attract investment in the local circular economy.
- Aggregate resources so that CT residents have the benefit of scaled buying power.

How Co-Collection Works

1



Resident separates material types at home into official, color-coded bags

2



All bags go into one cart

3



All material goes into the same truck on the same collection route

4



Materials are separated at transfer station

5



→ To materials recovery facility (MRF)



→ To compost facility



→ To glass recycler



→ To single-use plastics (SUPs) recycler



→ To landfill

Waste streams are illustrative

Co-Collected Materials Could be Sorted at Central Locations (Starting with Food and Trash Only)



1 Resident separates material types at home into color-coded bags



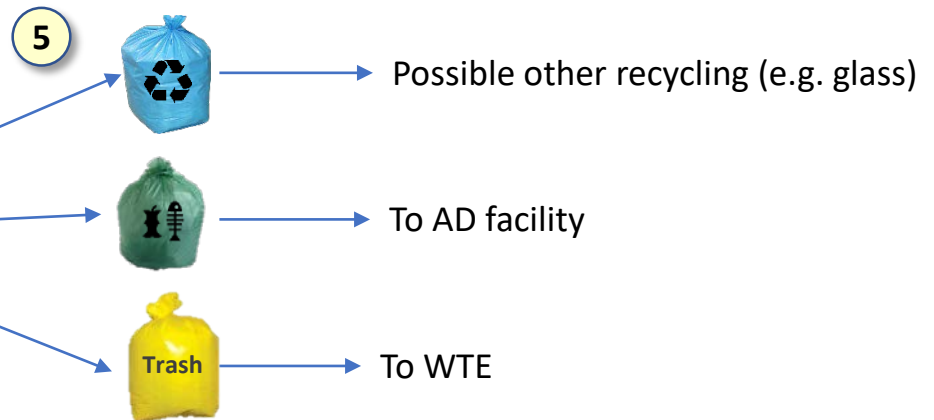
2 All bags go into the same curbside cart



3 All material goes into the same truck on the same collection route



4 Materials are unloaded and separated at the transfer station or sort facility



Solution

Co-collection is a single solution for materials management system that would:

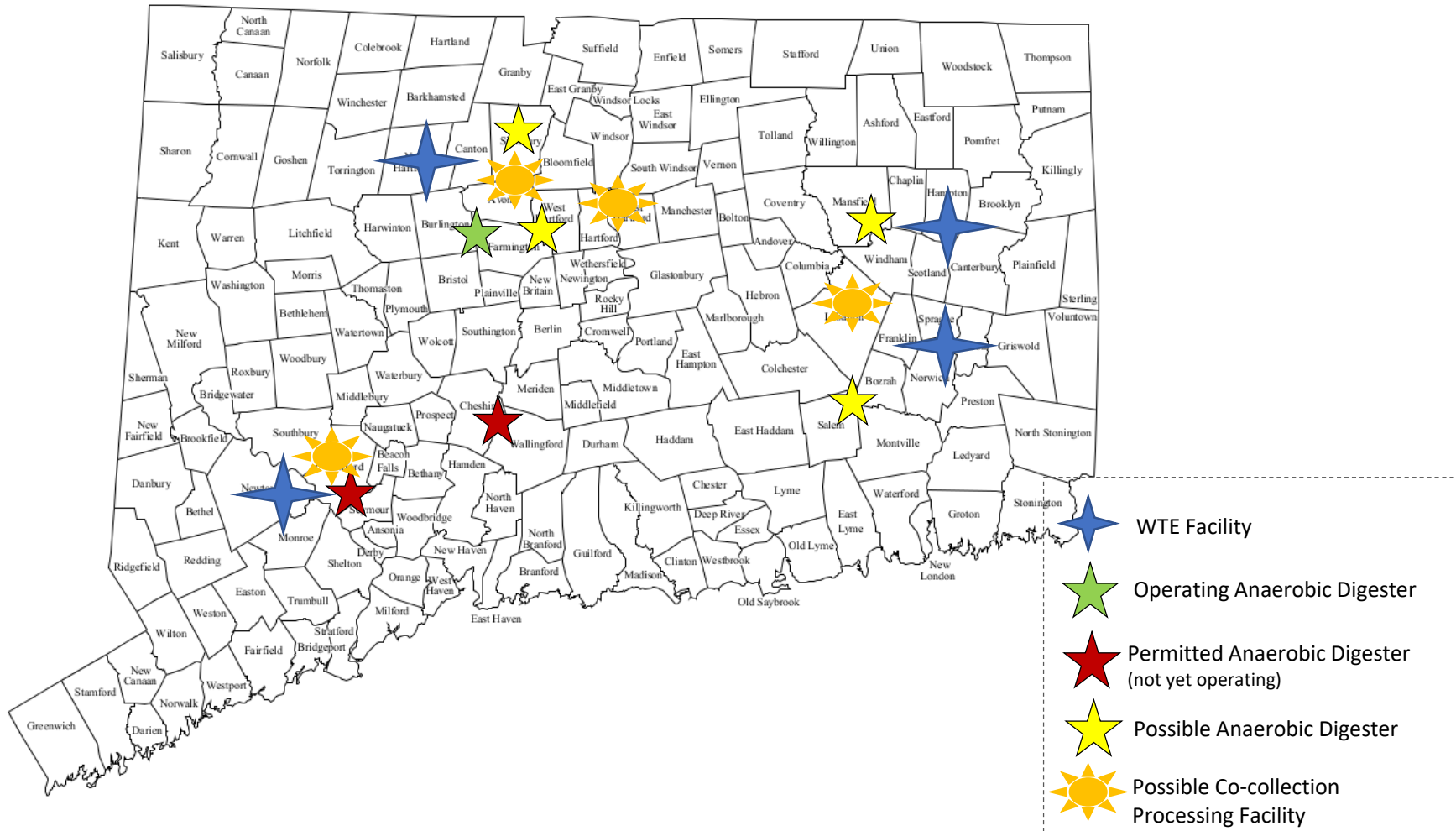
- Residents would use an official food waste bag and place it in their current receptacle along with the official unit-based trash bag.
- Institute a UBP pricing structure that would work in both municipal subscription collection systems equally well
- Create sufficient infrastructure so that universal food waste collection could be available to all residential homes, multi-family units, and businesses within the state.
- UBP pricing structure would incentivize participation on all waste diversion programs
- Food waste collection would not require any operational change for the hauler or municipality (same trucks, same receptacles, and no additional cost for collection).
- No additional VMTs, as all food and trash are currently collected together as trash.
- Aggregate resources so that CT residents have the benefit of scaled buying power.

High-Level Description of a MIRA SMART Program

1. The program would be:
 - a. Unit based – using different bag sizes to cover different levels of disposal
 - b. Administered by MIRA
 - c. Offered regionwide or statewide
2. Municipal participation would be voluntary, as additional legislation would be needed to mandate.
3. Participating municipalities or haulers would pay \$0 tip fees because:
 - a. MIRA would collect revenue from the sale of official SMART trash bags within the region or around the state.
 - b. MIRA would use the revenues to pay for trash disposal costs
4. Excess revenues above the cost of disposal could be rebated back to municipalities and haulers or used to pay for infrastructure (depending on the outcome of the facility), or alternative disposal infrastructure or programs.
5. The program would start with residential trash, but could later be expanded to include commercial trash.
6. The program would establish an infrastructure to which additional waste reduction innovations could be added. It would also improve their effectiveness:
 - a. Food waste
 - b. Glass
 - c. Hard-to-recycle plastics
 - d. Other

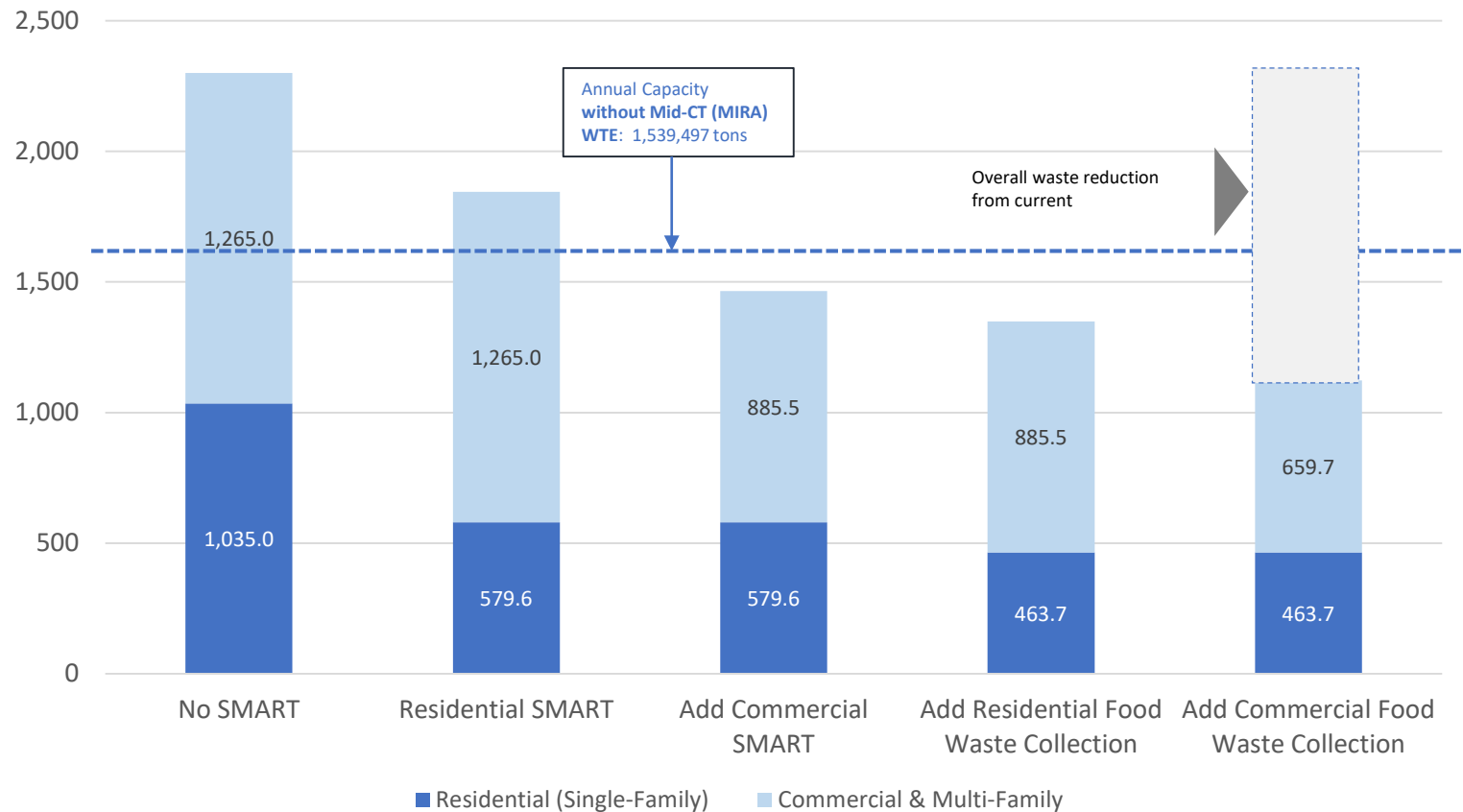
Locations of WTE, Anaerobic Digestion (Potential)

The AD capacity needed in CT to handle all food waste is equal to 13 additional Quantum (sized) facilities. To process all organics, an additional 24 Quantum sized facilities would be necessary.



Results with UBP and Universal Food / Organics Collection

Impact of UBP + Universal Food / Organics Waste Programs on the Waste Stream
(Thousands of Tons Disposed Annually)









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UBP Environmental Impact Analyses

The estimated trash reductions below assume full participation by all municipalities

Annual Enviro. Impact						
	Tons of Trash Reduced	Metric Tons of CO2 Reduction	Cars Removed from Roads	Gallons of Gas Saved	Homes Powered	Solar Panels Installed
Residential SMART Only	455,400	859,000	168,000	96,267,000	64,000	887,000
Res. + Commercial SMART	834,900	1,574,000	309,000	176,490,000	117,000	1,625,000

Waste Management Choices Disproportionately Affect Underserved Communities

174 million tons of trash from 325 million Americans in 40,000 municipalities is funneled into just over 1,000 landfills and 85 incinerators.



Trash trucks



Landfills



Incinerators



Methane



Leachate

- UBP would eliminate the need to replace closing landfills and incinerators, helping reverse the legacy of injustice in historically burdened neighborhoods.
- As municipal waste disposal costs increase so do property taxes. Landlords pass on these costs through increased rents. In today's system, renters bear the cost of community members that don't bother to recycle. Whereas a UBP system would give these families control of their own expenses, and they would not be subsidizing the wasteful behavior of others.



**Toxic
Chemicals**

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PAYT : Pay As You Throw

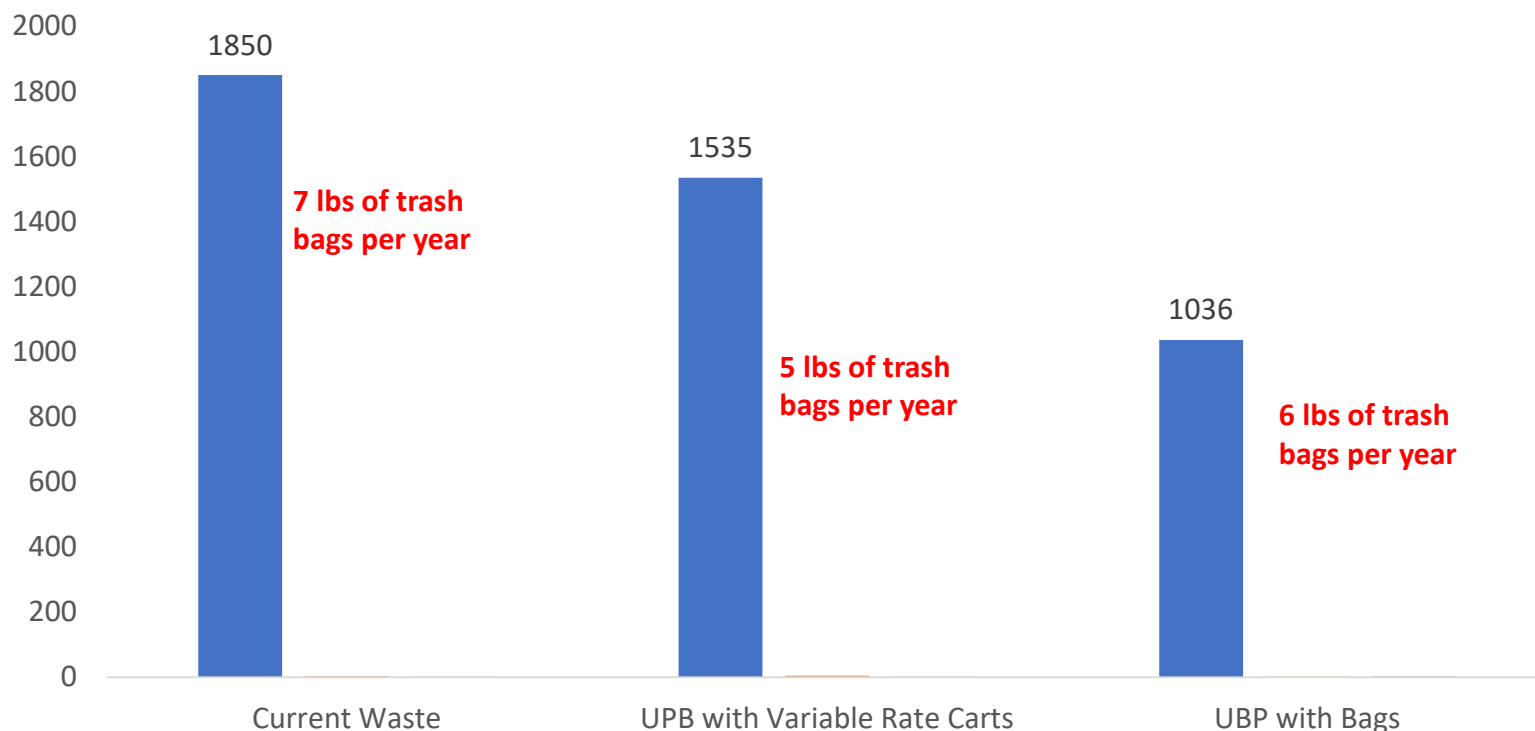
SMART: Save Money and Reduce Trash

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Frequent Objections

Is a UBP bag program worth it, when we are trying to eliminate single use plastics?

Pounds of Household Waste Per Year



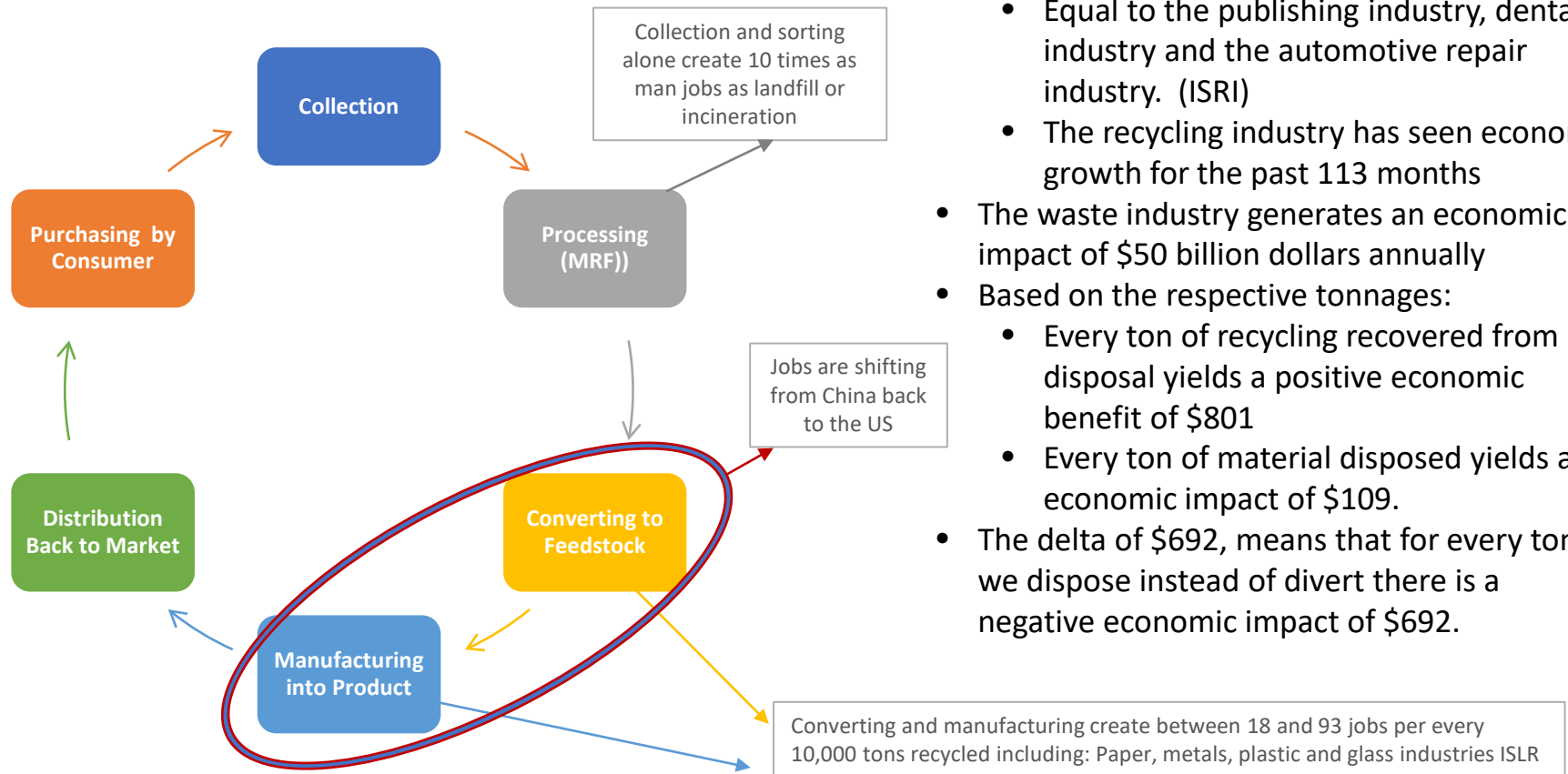
**Average home uses about 3 bag per week at about .1 mil thick (\$27 annual expense)*

***Average home uses .95 PAYT bag per week at 1.5 mil thick*

With Recycling Prices on the Rise is it a Good Time to Implement
SMART?

Is Recycling here to stay?

The recycling industry is made up of multiple sectors.



- The US recycling industry generates an economic impact of \$117 billion annually
 - Equal to the publishing industry, dental industry and the automotive repair industry. (ISRI)
 - The recycling industry has seen economic growth for the past 113 months
- The waste industry generates an economic impact of \$50 billion dollars annually
- Based on the respective tonnages:
 - Every ton of recycling recovered from disposal yields a positive economic benefit of \$801
 - Every ton of material disposed yields and economic impact of \$109.
- The delta of \$692, means that for every ton we dispose instead of divert there is a negative economic impact of \$692.

Net Effect of SMART in Current Recycling Market

Recycling markets have been weak for the past few years due to single stream contamination and China's policy. The recycling infrastructure in the US is adjusting and markets are predicted to rebound. Recycling is a commodity and there will always be highs and lows. SMART is the best way to manage waste regardless of the recycling costs because it promotes source reduction and reuse. **The recycling tip fee could go as high as \$170 per ton, and a SMART system will still cost less money.**

	No SMART	SMART	No SMART	SMART	No SMART	SMART	No SMART	SMART
Waste Tonnage	1,019,367	570,778	1,019,367	570,778	\$1,019,367	\$570,778	\$1,019,367	\$570,778
Recycling Tonnage	268,067	449,136	268,067	449,136	\$268,067	\$449,136	\$268,067	\$449,136
Waste Tip	\$75	\$75	\$75	\$75	\$75	\$75	\$75	\$75
Recycling Tip	\$0	\$0	\$40.00	\$40.00	\$80.00	\$80.00	\$170	\$170
Trash Disposal \$	\$76,452,541	\$42,808,335	\$76,452,541	\$42,808,335	\$76,452,541	\$42,808,335	\$76,452,541	\$42,808,335
Recycling \$			\$10,722,665	\$17,965,440	\$21,445,331	\$35,930,879	\$45,571,328	\$76,353,118
Total Cost	\$76,452,541	\$42,808,335	\$87,175,206	\$60,773,774	\$97,897,871	\$78,739,214	\$122,023,869	\$119,161,453
Savings - Comparison		\$33,644,206		\$26,401,432		\$19,158,658		\$2,862,416

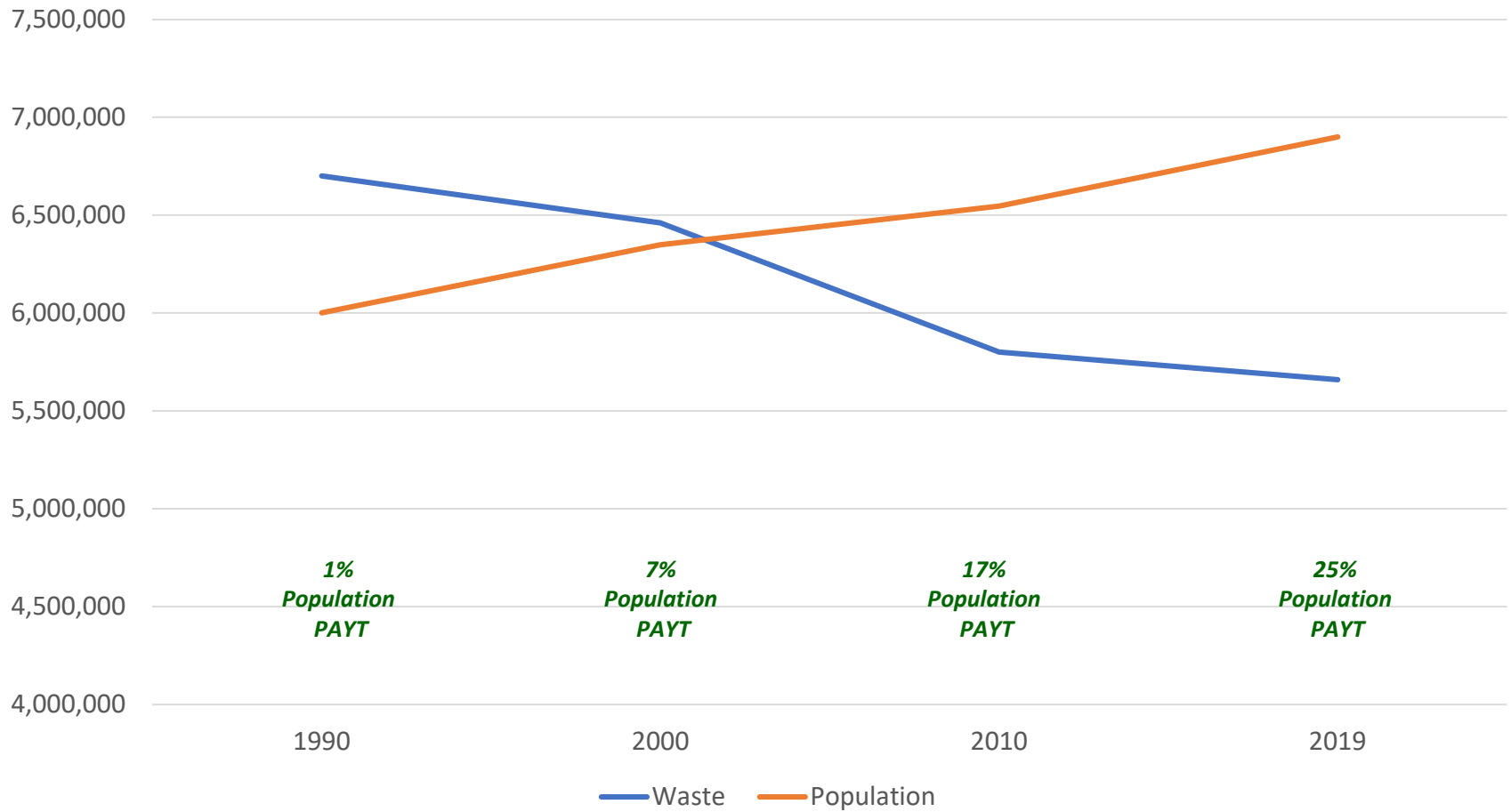
Waste tip fees are expected to rise significantly over the next decade. The average waste tip fee for the 40 DEEP DIVE communities was \$75 per ton. Most communities are tied to a CPI price escalator. Communities that have negotiated new contracts since the start of the program have seen much greater increases than CPI.

Frequent Concerns

Has PAYT worked in Massachusetts?

Massachusetts Waste Generation vs Population and Economic Growth

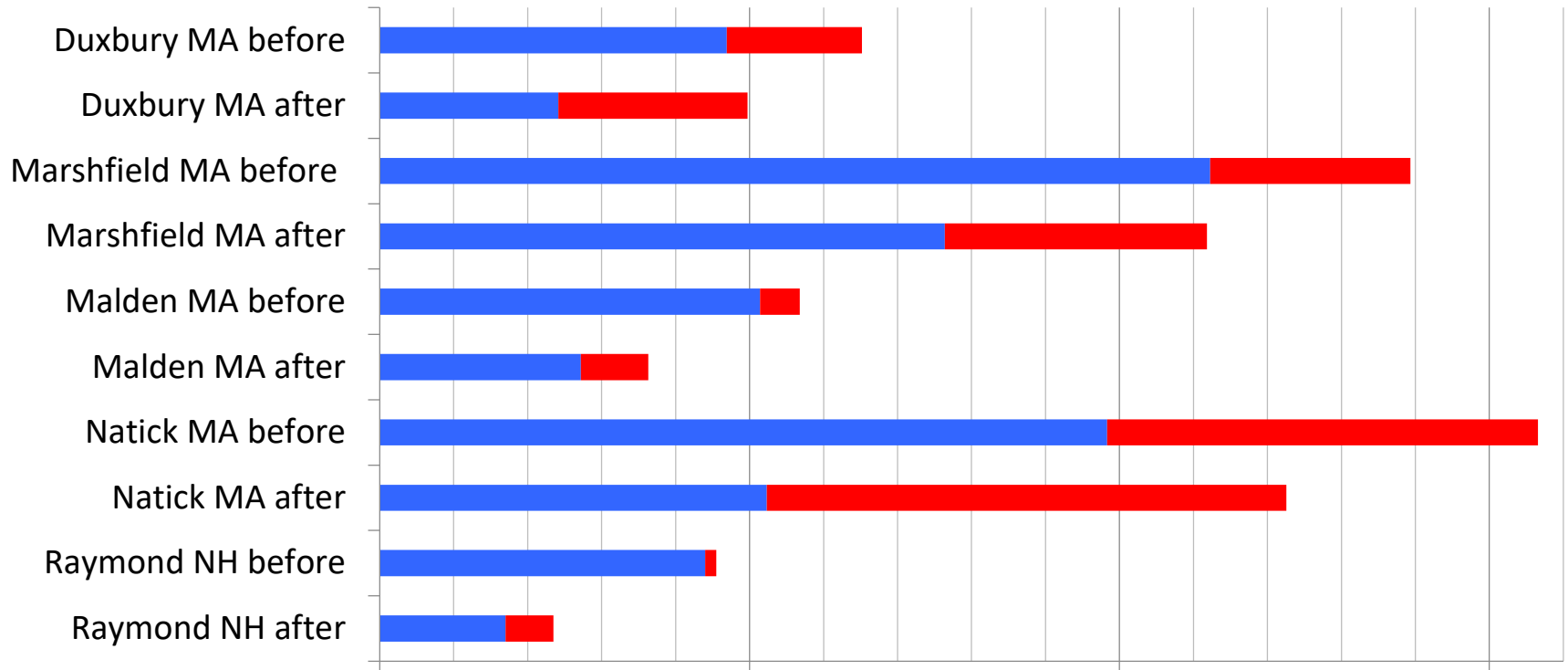
Gross Domestic Product Grew 16% since 2008.



Sources: Beyond 2000 Solid Waste Plan, Solid Waste Pathway to Zero Waste April 2013, MA 2030 Solid Waste Master Plan September 2019, US Census. Based on total population (ie multi-family is not factored out)

SMART – Decreases Overall Generation – 20+%

SMART's price signal produces source reduction and moves materials into all other programs, including donations and home composting.



**Already covered
this slide**

■ Waste

■ Commodity Recycling

Will the Recycling will be Contaminated?

Some observe recycling is less contaminated in communities with unit based pricing because residents pay attention to the program and its rules.

SMART Will Not Increase Recycling Contamination

ecomaine PAYT Communities

Municipality	Population	lbs/capita
Waterville	15,722	235
Portland	66,318	265
Windam	17,001	268
Gorham	16,381	328
Sanford	20,798	340
Cumberland	7,211	370
North Yarmout	3,565	376

**Already covered
this slide**

SMART
non-SMAR

- 2017 ecomaine municipalities with PAYT had 44.8% less waste than non-PAYT communities
- Sanford, ME has less than a 5% contamination rate
- ecomaine's Lissa Bittermann "After 2.5 years of extensive tracking we have seen no correlation between increased contamination and PAYT"
- Rhode Island Resource Recovery Corp has been charging for recycling contamination for the past 3 years. To date Middletown, RI the only curbside PAYT community in the state, has never even had a warning for contamination.
- Waste Management in SW Massachusetts also claims lower recycling contamination from PAYT communities.

Anticipated Concerns

Does waste simply shift from the residential stream into the commercial stream—

*Bob Moylan former Commissioner of Public Works
(Worcester, MA):*

“Some businesses had to be careful about locking or securing their dumpsters behind fences, however most businesses had no issues. There was no noticeable increase in the overall commercial waste disposed after PAYT implementation. The City included all city facilities in the PAYT program including police, fire etc.”

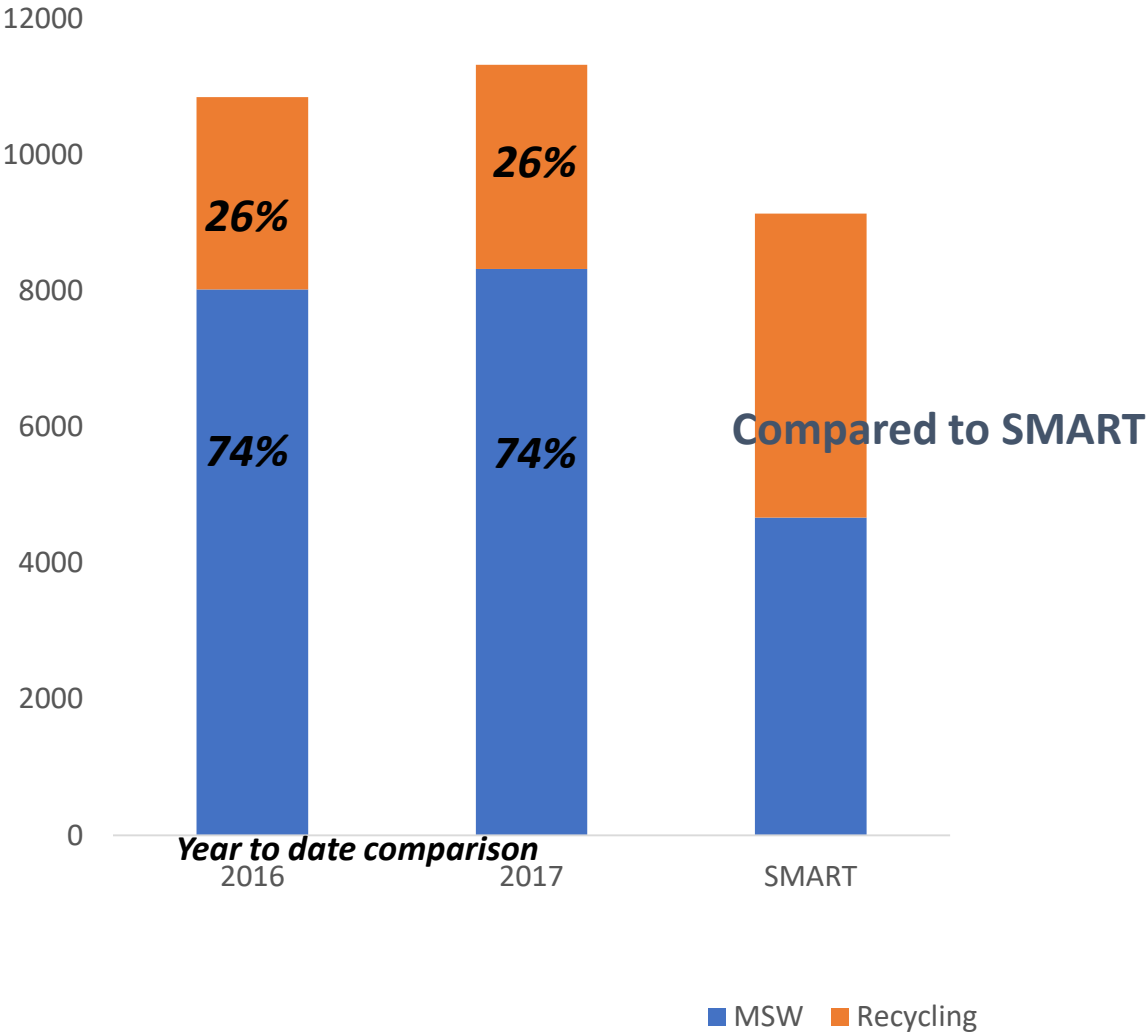
Frequent Concerns

There must be a better way. We should study this more thoroughly and try other solutions first?

The State of Connecticut, as well as other states and cities around the country have worked for decades to find programs that increase recycling and reduce waste.

SMART is the single most effective way to reduce trash while also saving money.

West Hartford Switch from Bi-weekly to Weekly Recycling



SMART: Big Impact

Westport banned plastic bags about 10 years ago. Although the ban was important for multiple reasons, its effect on waste volume is minimal.

10-Year Estimated Plastic Bag Ban Results:

390 tons

\$27,300 in disposal savings



10 Year Estimated SMART Results:

80,000 tons

\$7 million in disposal savings



Frequent Concerns

This information does not tell the entire picture. What about all the programs that failed?

There are hundreds of SMART bag programs around the world.

Only a handful of programs that have been discontinued. Two are located in Connecticut. The programs were discontinued for political reasons, not because of poor results.

Case Study: East Lyme, CT

The East Lyme Selectman Decided to Discontinue the Program in 1998 for political reasons

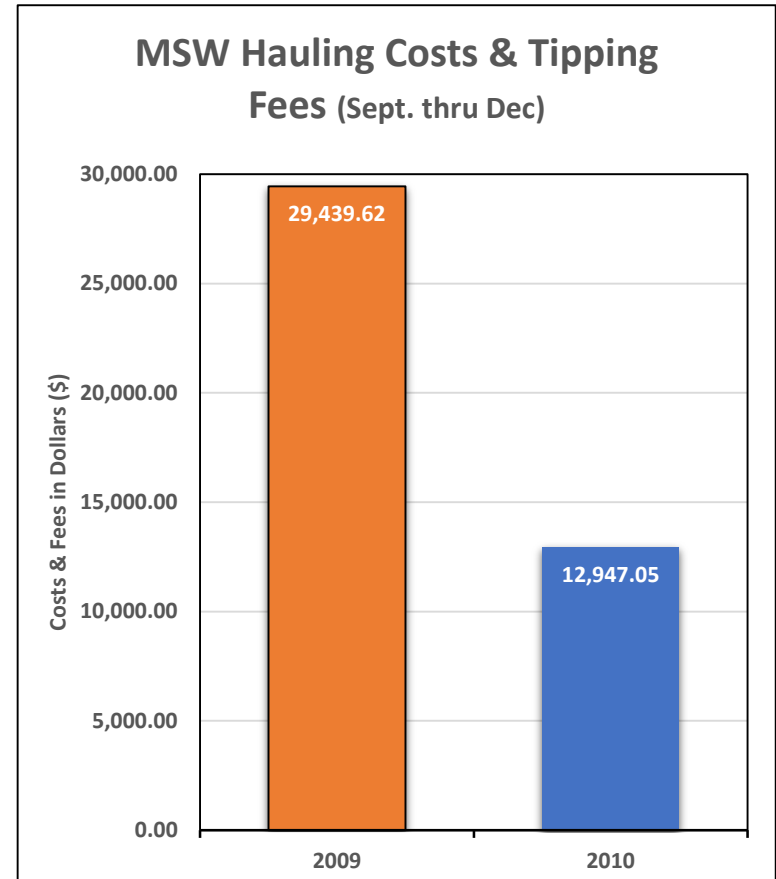
- When East Lyme's Selectman discontinued the program, trash went up from 4,571 tons (1997) to 7,179 tons (1998).
- **East Lyme's current per capita trash is 650.**
- Stonington implemented the program at the same time as East Lyme, has a similar demographic make up, and nearly the same population. **Stonington's current per capita trash is 389.**
- Stonington had a referendum and the strong majority of residents chose to keep the program.
- Stonington has saved approximately \$6.5 million dollars since the program's inception.

Case Study: Columbia, CT

Columbia voted at a Town Hall Meeting to Eliminate the Program

Program Results:

- Municipal Solid Waste Decreased by 54%
- MSW Hauling Costs and tipping fees reduced by 49%
- Recycling hauling costs and tipping fees reduced by \$7,481.72 in just four months
- Bag Revenue exceeded previous expectations:
 - \$25,000 was budgeted for the entire 6 month trial and, only 4 months into the trial, net bag revenues exceeded this number at \$28,000
- Recycling rate increased from 27% to 41%
- Despite the SWRAC recommendations, and overall program results, the Town voted to eliminate the program in February 2011



Frequent Concerns

My neighbors will not comply and therefore it will cost me more and not them.

Compliance from neighboring state programs, as well as Stonington, is approximately 99%.

Studies also show that there is no notable increase in illegal dumping.

How Can the Town Enforce the SMART Program?

SMART compliance is very high and enforcement is usually not a challenge.

Most compliance issues happen during the first 6 weeks of a new program.

Most communities manage these with existing staff.

- Additional support can be provided if compliance is a concern.

A tiered enforcement system is recommended where one is not in place.

In all instances, the cost of enforcement has been a fraction of the financial savings related to SMART.

Sanford, ME – City-Reported Compliance Rates			
Week 1	96.3%	Week 6	99.65%
Week 2	98.52%	Week 7	99.79%
Week 3	99.52%	Week 8	99.76%
Week 4	99.38%	Week 9	99.94%
Week 5	99.43%	Week 10	99.86%

Automated Collection

Typical Ongoing Compliance Process

See [video](#)



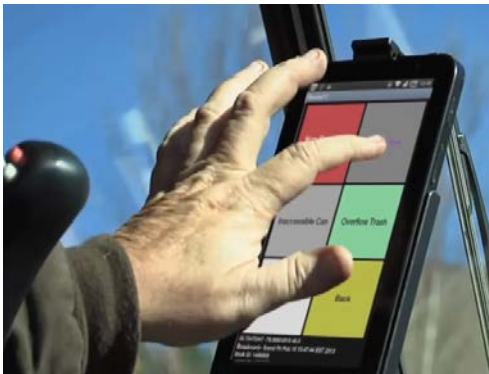
Official bags are placed in automated carts for collection



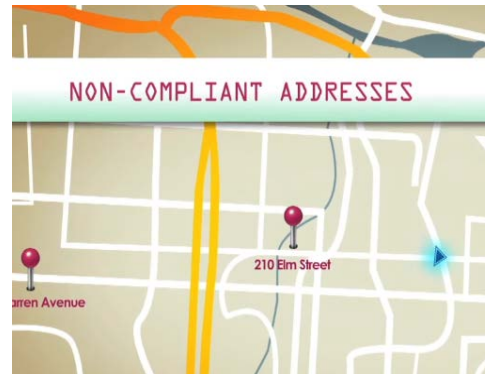
Trucks are equipped with video cameras mounted to the hopper (standard on most automated trucks)



Camera clearly shows what goes into hopper – driver can easily see bags on camera inside truck



Driver pushes one button on Tablet / app (or similar solution) if non-compliant bags are spotted



Non-compliant addresses are auto-uploaded to central database so notices (or citations) can go out.



Loads can easily be spot checked during start up phase.

Frequent Concerns

Residents will not like it.

Residents tend to like the program once they have given it a try.

Strong Support for Pay-as-You-Throw

In a Public Policy Polling survey of ~1,000 PAYT participants from 10 communities, significant majorities said they are satisfied with PAYT, see it as fair and easy, and believe it is effective.

- ***Favorability***

79% have either a very or somewhat favorable opinion of PAYT, with a majority (52%) having a very favorable opinion.

- ***Fairness***

More than two-thirds—68%—see the program as fair.

- ***Ease of Participation***

74% think it is not difficult to take part in PAYT.

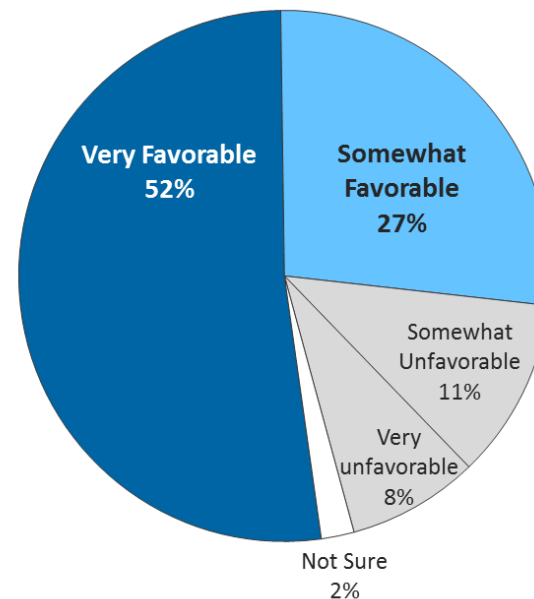
- ***Effectiveness***

89% said PAYT is performing better than or as well as they expected.

- ***Minimal Political Impact***

77% said they are either more likely to vote for leaders who brought in PAYT or that it does not make a difference in their vote.

Participants in Pay-as-You-Throw Programs Have a Highly Favorable View of Them.



Do you have a favorable or unfavorable opinion of pay-as-you-throw?

Source: Automated telephone survey of 991 residents of communities with bag-based pay-as-you-throw programs, conducted by Public Policy Polling Feb. 21-25, 2014.

WasteZero Overview



- In business since 1991 and driven to **cut trash in half in the US**
- **National leader** in municipal waste reduction:
 - ~\$1.7B in savings and financial impacts
 - Support nearly 800 municipal waste reduction programs nationwide
- Deep experience with a **full range** of waste reduction approaches
- Certified **B Corp (Benefit Corporation)**, meeting rigorous social and environmental standards



Our programs are effective, reducing waste by 44% on average, with some surpassing 50%.