



# Measurement of Municipal Discards and Materials Flows

an urban perspective from  
New York City with comments relevant to other cities  
in Northeast/Mid-Atlantic States

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May 19, 2016

Kathryn Garcia, Commissioner



# To discuss:

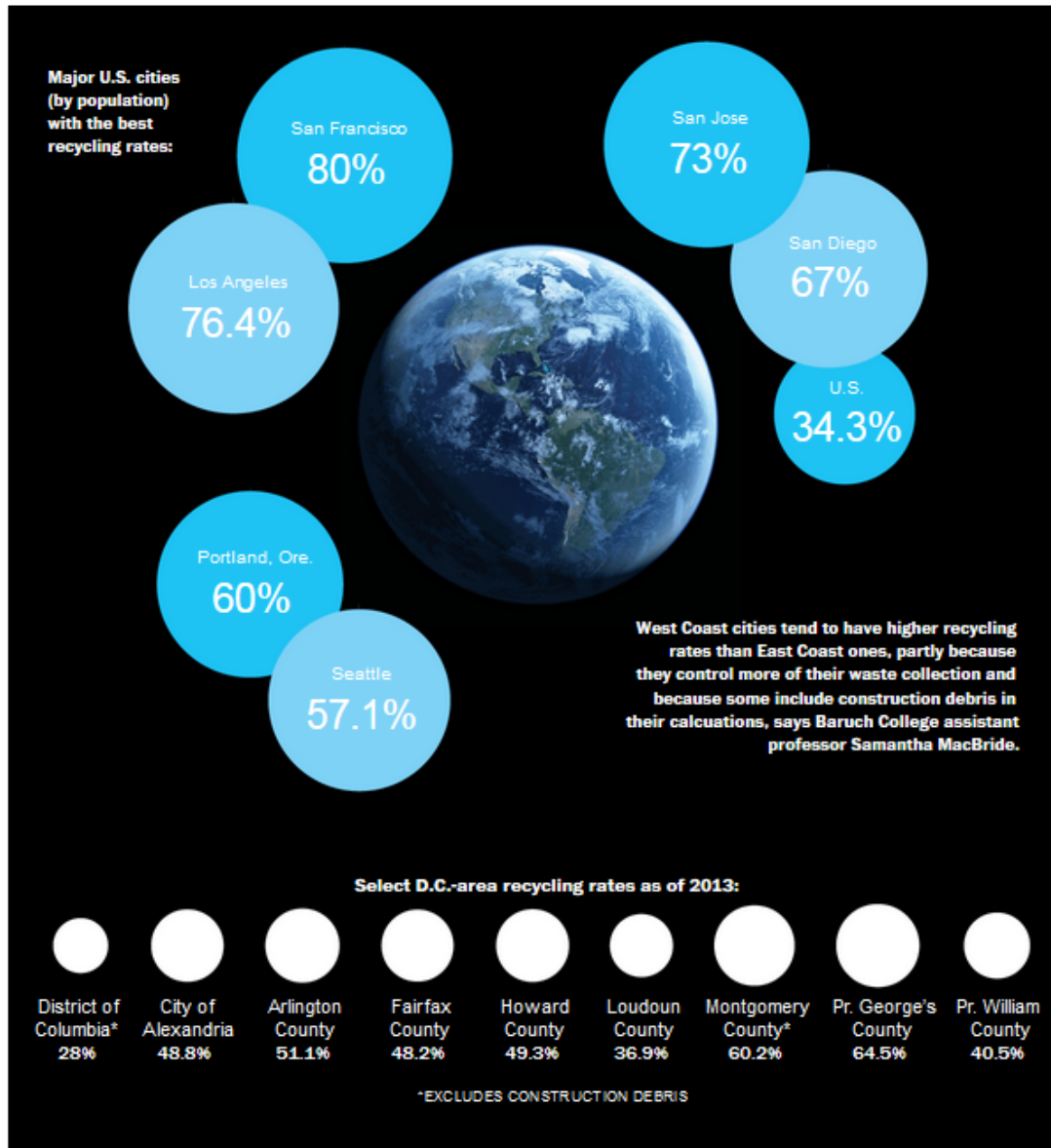
- How NYC measures and reports diversion (probably not too different from most East Coast industrial/post-industrial cities)
- Communication problems with the press and public with regard to diversion and/or progress towards “Zero Waste”



# last week's reporter inquiry (to me)

- Impoverished city in upstate New York with a population of about 260,000
- Investigative journalist had harshly critiqued the public works department in that city for years, now was about to write an expose on them because:
  - Data from 2012 to present showed recycling tonnage went up, but refuse tonnage stayed the same
  - Diversion rate is (now) (only) 25%
  - City counts textiles, bottle bill redemptions, and estimates of bulk metal scavenging in diversion rate
- Despite dire economic conditions in this rust belt city, it also runs curbside recycling and yard waste collections
- The city's per capita refuse disposal is 1.8 lbs per capita per day (n/incl. commercial to my knowledge, but including a lot of street and lot cleaning tonnage)





The (unfortunate) “distillation” of hours of discussion and emails with another notable reporter.

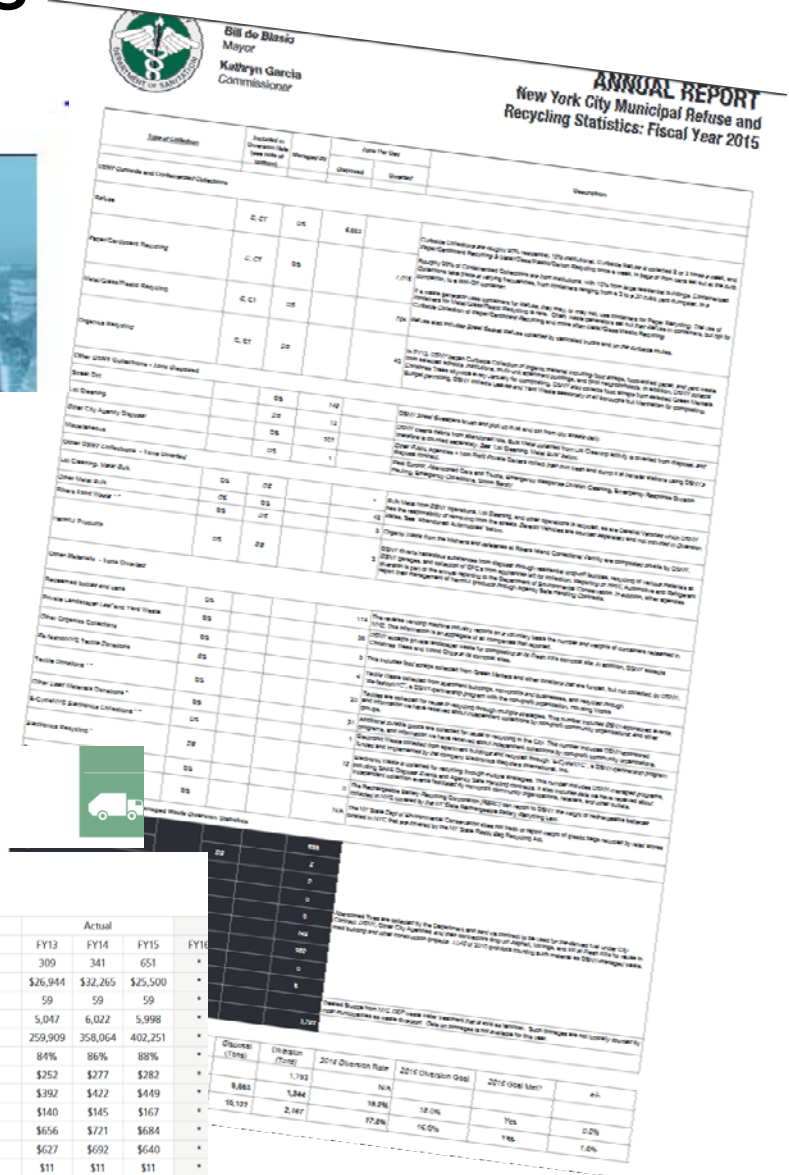
Washington Post Magazine, April 22, 2016,  
By Annys Shin

SOURCE: City and county governments; news accounts; U.S. Environmental Protection Agency; Northern Virginia Regional Commission; Virginia Department of Environmental Quality; Maryland Department of the Environment; Samantha MacBride, Baruch College School of Public Affairs, City University of New York.  
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# NYC Published Metrics



## Annual & Monthly Statistics

Annual breakdown, by borough and Community District, of recycling and garbage tonnages collected curbside by diversion and capture rates.

- Fiscal Year 2015 DSNY Curbside Collections
- Fiscal Year 2014 DSNY Curbside Collections
- Fiscal Year 2013 DSNY Curbside Collections
- Fiscal Year 2012 DSNY Curbside Collections
- Fiscal Year 2011 DSNY Curbside Collections

## Annual Reports for DSNY & Non-DSNY Collections

Annual breakdown of municipal recycling and garbage tonnages, along with diversion rates and goals.

- Fiscal Year 2015 DSNY and Non-DSNY Collections
- Fiscal Year 2014 DSNY and Non-DSNY Collections
- Fiscal Year 2013 DSNY and Non-DSNY Collections
- Fiscal Year 2012 DSNY and Non-DSNY Collections
- Fiscal Year 2011 DSNY and Non-DSNY Collections

## Fiscal Year to Date Report for DSNY Collections

A fiscal year to date breakdown by borough, showing curbside, containerized, and other DSNY-managed recycling and garbage tonnages collected, along with diversion rates.

## Year to Date DSNY Collections for DSNY Curbside and Containerized Collections

Annual breakdown, by borough and Community District, of recycling and garbage tonnages collected, along with diversion and capture rates.

### SERVICE 2 Collect and dispose of refuse.

#### Goal 2a Improve efficiency of refuse handling.

Performance Indicators	Actual				Target
	FY13	FY14	FY15	FY16	
★ Tons of refuse disposed (000)	3,262.8	3,193.8	3,176.9	3,150.0	3
★ Refuse tons per truck-shift	9.9	9.6	9.5	10.7	-
★ Trucks dumped on shift (%)	47.2%	43.5%	44.6%	45.6%	4
Tons per day disposed	10,876	10,611	10,554	*	-
Average outage rate for all collection trucks (%)	19%	21%	20%	*	-
Mixed refuse collections (%)	1.1%	0.0%	0.0%	*	-

\* Critical indicator "NA" - means Not Available in this report \* No target + - shows desired direction

### SERVICE 3 Recycle refuse.

#### Goal 3a Increase the percentage of waste recycled.

Performance Indicators	Actual				Target
	FY13	FY14	FY15	FY16	
★ Curbside and containerized recycling diversion rate (%)	15.1%	15.4%	16.0%	19.0%	11
★ Curbside and containerized recycled tons (000)	539.2	553.2	575.4	683.3	6
Total annual recycling diversion rate (%)	36.3%	37.0%	37.8%	*	-
Recycled tons per day	2,058	2,088	2,191	2,270	2
Annual tons recycled total (000)	642	652	685	*	-
★ Recycling tons per truck-shift	5.1	5.1	5.2	6.2	-
Mixed recycling collections (%)	3.3%	0.0%	0.0%	*	-
Recycling trucks dumped on shift (%)	29.2%	25.7%	25.8%	*	-
Recycling trucks per day	65,017	107,049	107,428	*	-

\* Critical indicator "NA" - means Not Available in this report \* No target + - shows desired direction

## DEPARTMENT OF SANITATION Kathryn Garcia, Commissioner

### AGENCY-WIDE MANAGEMENT

Performance Indicators	Actual			
	FY13	FY14	FY15	FY16
Cases commenced against the City in state and federal court	309	341	651	*
Payout (\$000)	\$26,944	\$32,265	\$25,500	*
Private transfer station permits	59	59	59	*
Private transfer station inspections performed	5,047	6,022	5,998	*
Total Environmental Control Board violations issued	259,909	358,064	402,251	*
Violations admitted to or upheld at the Environmental Control Board (%)	84%	86%	88%	*
Refuse collection cost per ton (\$)	\$252	\$277	\$282	*
Refuse cost per ton (fully loaded) (\$)	\$392	\$422	\$449	*
Disposal cost per ton (\$)	\$140	\$145	\$167	*
Recycling cost per ton (fully loaded) (\$)	\$656	\$721	\$684	*
Recycling collection cost per ton (\$)	\$627	\$692	\$640	*
Paper recycling revenue per ton (\$)	\$11	\$11	\$11	*
Removal cost per inch of snow (\$000)	\$1,602	\$2,330	\$2,444	*
Collisions involving City vehicles	2,093	2,457	2,616	*
Workplace injuries reported (uniform and civilian)	1,572	1,539	1,266	*

\*NA\* - means Not Available in this report \* No target

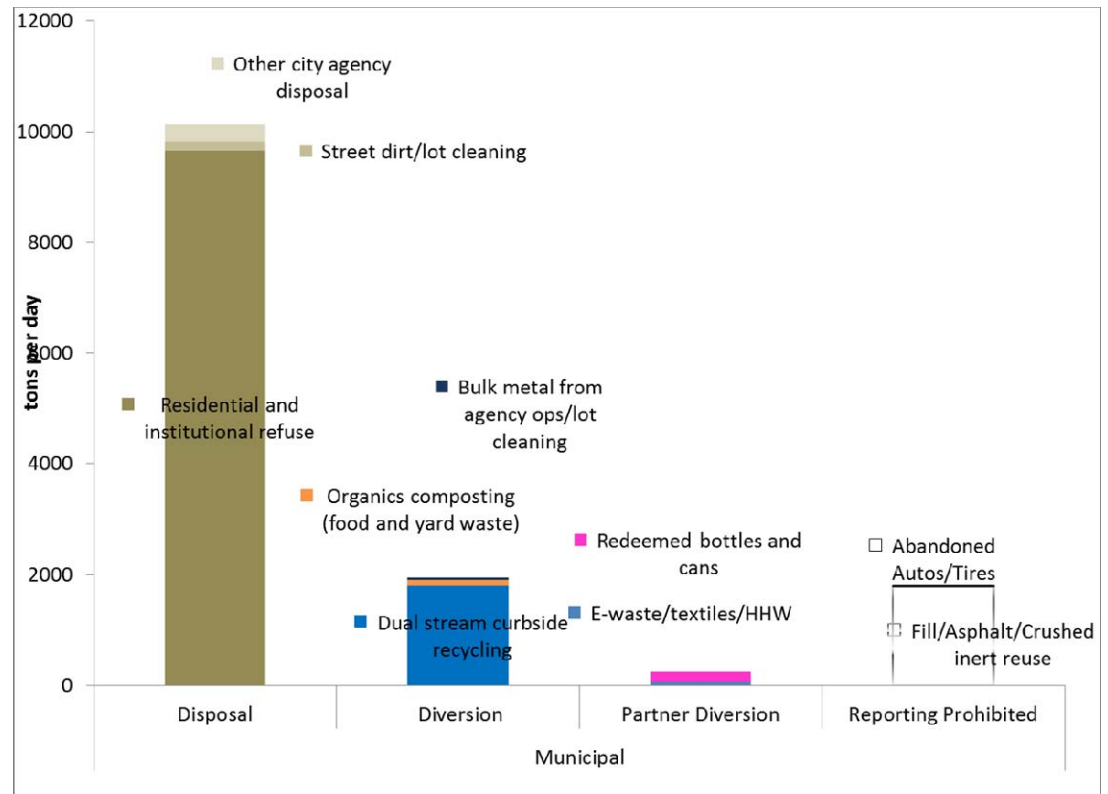
## Kathryn Garcia, Commissioner Mayor's Management Report (MMR)

May 19, 2016



# NYC Published Metrics

- NYC Department of Sanitation collects from residents (~90%) and public institutions including schools, city agencies, and nonprofit organizations (~10%)
- We also accept and reuse public inerts (asphalt, millings, fill, crushed concrete); we are prohibited by law from counting this in our diversion rate (Local Law 40)
- Counting allowable tonnages, our official diversion rate is 16%.
- This includes: “traditional recycling” (dual stream: (1) paper/cardboard; (2) metal/glass/plastics, and our fledgling organics diversion, along with very small quantities of:
  - Estimated bottle bill redemptions (voluntarily reported by industry for NYC)
  - Textile donations (Re-FashionNYC and nonprofit partners)
  - E-waste recycling (E-cycleNYC and nonprofit partners)
  - Harmful product (HHW) takeback and recovery/processing



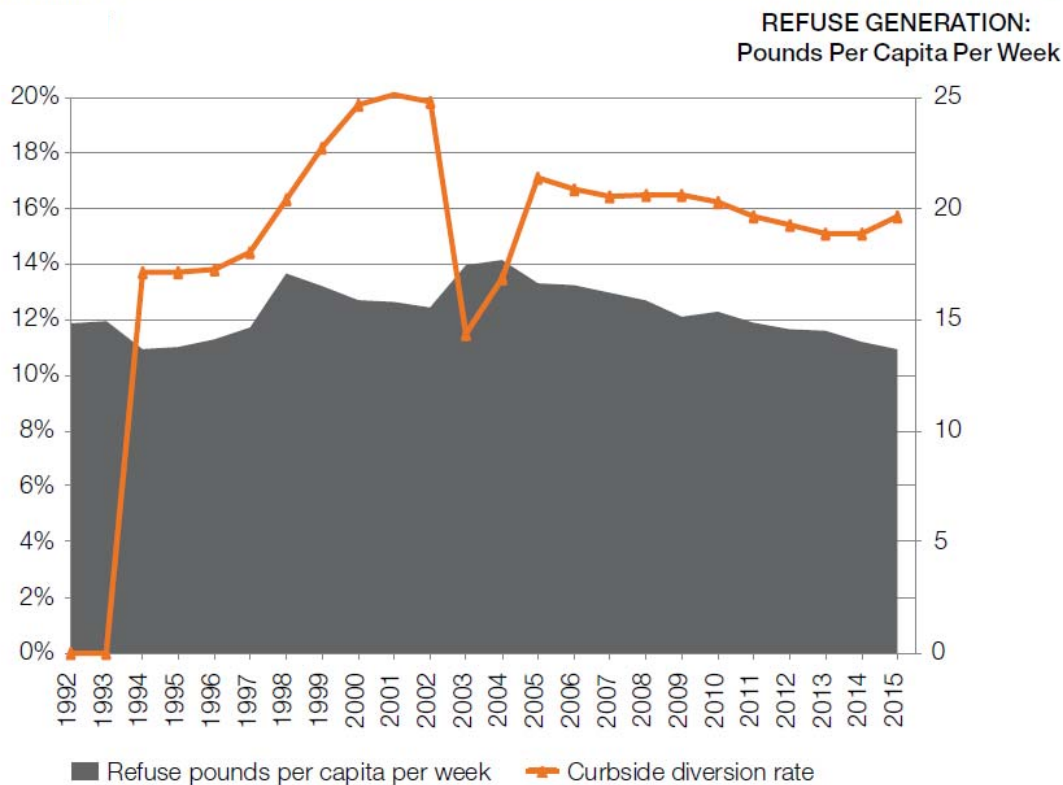
Data for Fiscal Year 2015, available at [www.nyc.gov/dsny](http://www.nyc.gov/dsny)



# With 8.4 million people...

- Our per capita residential/institutional disposal rate is 13.6 lbs per week or 2.3 lbs per day (6 day workweek) or 1.9 lbs per day (365 day year).

Figure 23: DSNY Diversion Rate and Pounds per Capita per Week: Fiscal Year 1992 to 2015



Since 2012, the diversion rate has begun to reverse the steady decline it saw beginning in 2004. All this time, **refuse generation has been going down.**

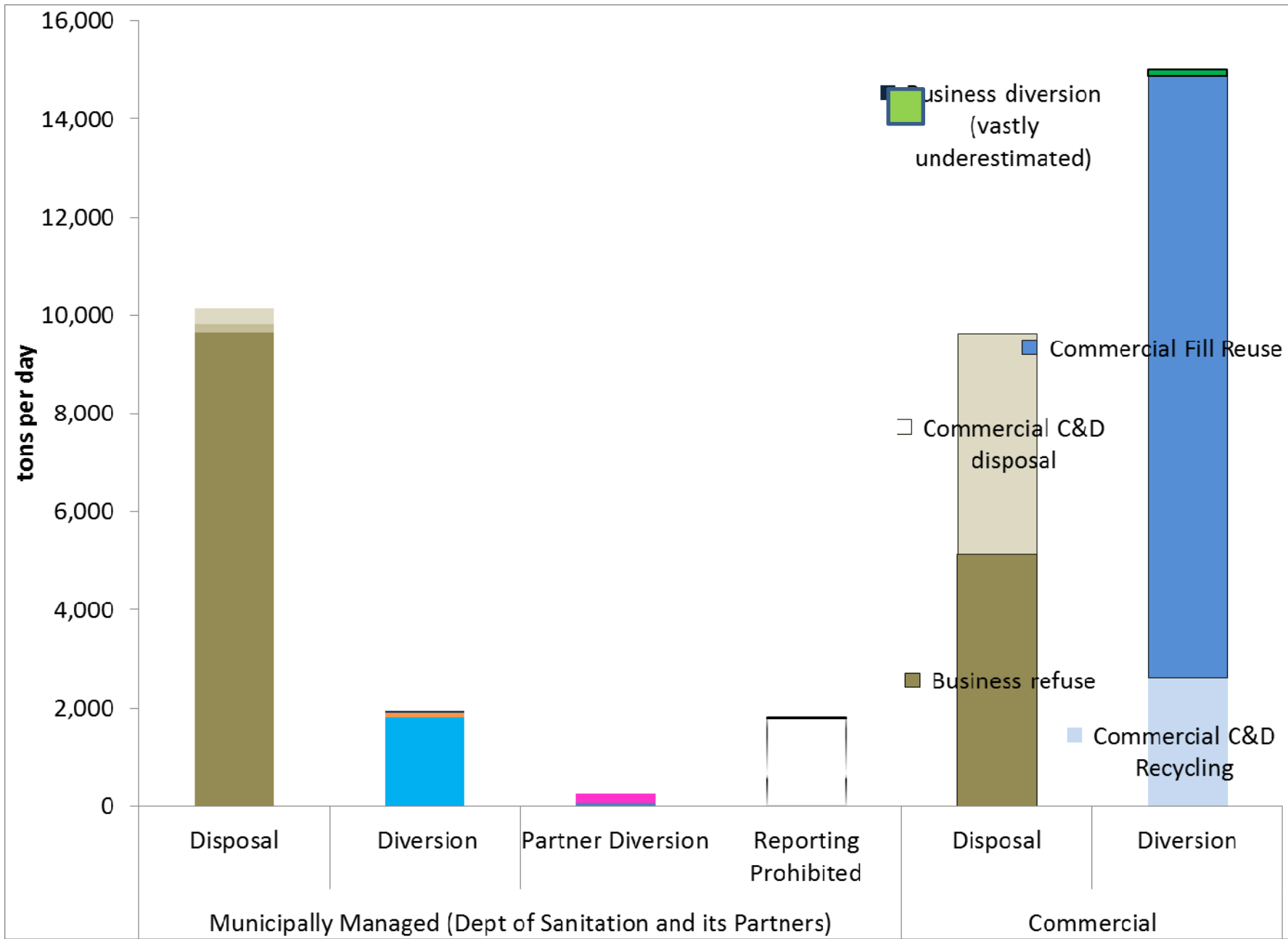


# Not included in NYC published metrics:

- NYC Commercial Statistics (Disposal and Diversion)
  - Business waste: Offices, retail, restaurants, wholesale, ateliers and workshops:
  - Construction and Demolition Debris: rubble, bricks, structural steel, drywall, plate glass, [plastics]
  - Fill reuse (100% local diversion, btw)
- Private, free-market system with over 200 private carters; regulated to monitor organized crime and rate caps but not a franchise system.







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Data for 2012 fourth quarter, DSNY

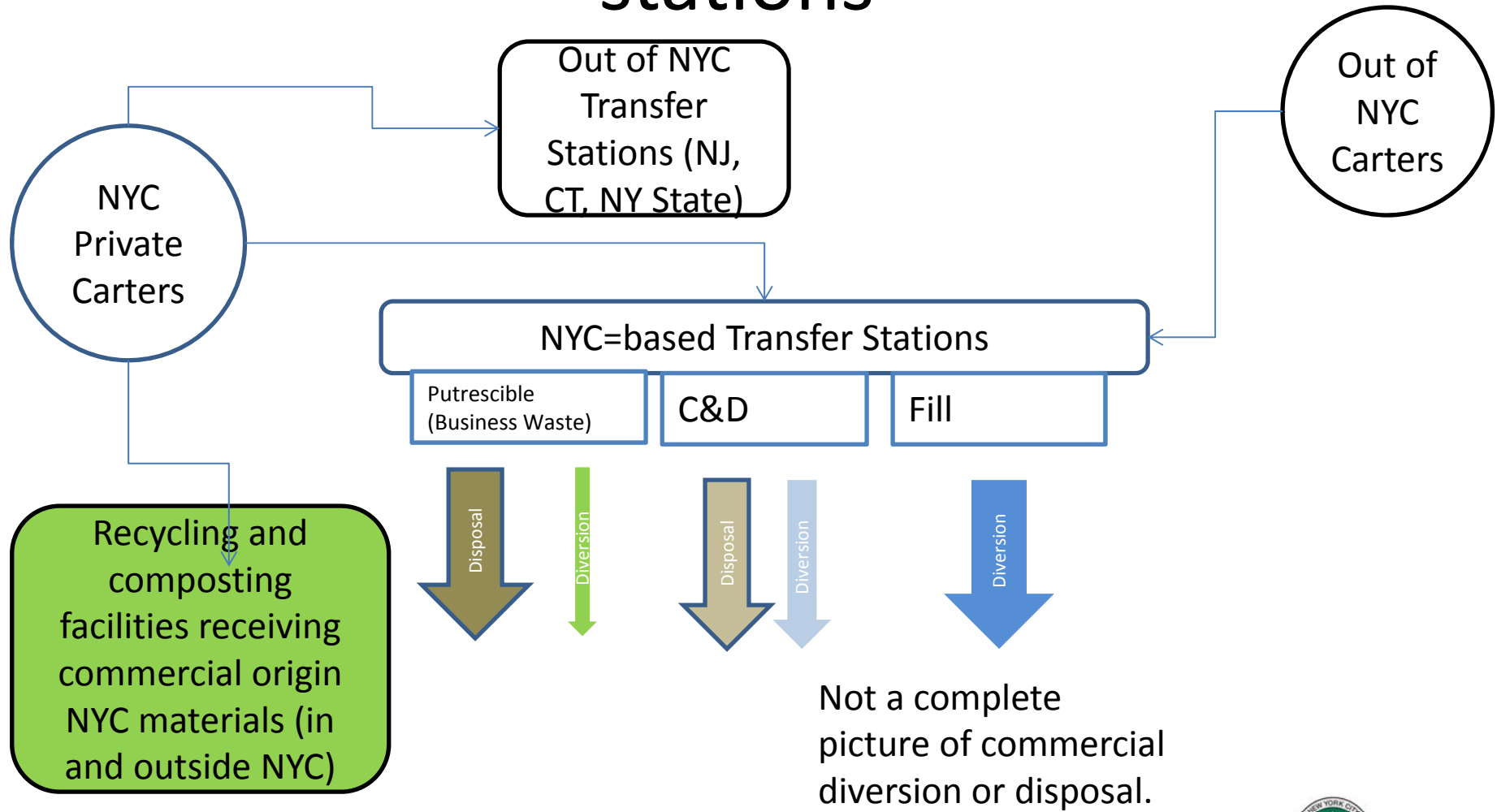
# Commercial Waste Statistics: from in city transfer stations

QUARTERLY REPORT  
FOURTH QUARTER, CALENDAR YEAR (OCTOBER, NOVEMBER AND DECEMBER)  
COMMERCIAL MATERIAL (PRIVATE TRANSFER STATION)  
2012 FOURTH QUARTER COMPARED TO 2011 FOURTH QUARTER  
RECYCLING TONS PER DAY COLLECTED AND DIVERSION

## COMMERCIAL REPORTING

<u>TOTAL COMMERCIAL MANAGED WASTE STREAM DIVERSION *</u>				
		CURRENT QUARTER CALENDAR YEAR 2012	SAME QUARTER CALENDAR YEAR 2011	PERCENT DIFF
<b>PUTRESCIBLE TRANSFER STATION</b>				
	INPUT **	5,270.9	4,908.6	7.4
	RECYCLING	126.0	136.7	-7.8
	TOTAL DIVERSION	2.4	2.8	-14.2
<b>NON-PUTRESCIBLE TRANSFER STATION</b>				
	INPUT	7,130.2	6,854.6	4.0
	RECYCLING	2,631.4	2,885.4	-8.8
	TOTAL DIVERSION	36.9	42.1	-12.3
<b>FILL TRANSFER STATION</b>				
	INPUT ***	10,996.0	10,284.4	6.9
	RECYCLING	12,261.9	12,048.1	1.8
	TOTAL DIVERSION	>100%	>100%	NA
<b>TOTAL</b>				
	INPUT	23,397.1	22,047.6	6.1
	RECYCLING	15,019.3	15,070.1	-0.3
	TOTAL DIVERSION	64.2	68.4	-6.1

# Commercial tonnages are as reported to DSNY by NYC-based transfer stations



# Challenges

- The by now old “apples to apples” issue:
  - municipal (i.e. residential, mainly) vs. residential + commercial;
  - MSW as most know it vs. C&D in general but especially Inerts
  - Quasi-municipal diversion (partnerships, EPR estimates)
- Bashing of some cities as a result.
- Expectations of true Zero Waste (ie low per capita disposal) based on high rates reported in other cities.



# Conundrums

- Per capita disposal reflects economic conditions, material shifts in products, as well as residential and business diligence in recycling.
- *What* is going to disposal is as important as how much, yet is not counted in per capita stats.
- At least per capita disposal avoids the pitfalls of diversion rate incommensurability.



# Ways forward

- Work with the media to contextualize diversion rates, and stress that contextualizing does *not* equate to:
  - Giving up
  - Defending municipal inaction
  - “Peddling” waste combustion
- Probably a longitudinal per capita disposal (landfill + combustion) rate is the fairest comparison metric, broken out by generator type (residential vs. commercial)



# Other issues to discuss if we have time

- Specifying generators (e.g low-rise residents, high-rise residents, schools, business sectors) based on truck routing – additional challenges.
- Itinerant entrepreneurs (sometimes called pickers or scavengers) and municipal concerns over diversion rates.
- The dearth of city-scale private sector data on materials inflows (consumer products) and outflows (processed materials to remanufactured products).



# Thank you!

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