



CLEAN CITY, GREEN JOBS

How smart recycling policies can build NYC's economy



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ABOUT US

The Transform Don't Trash NYC coalition is dedicated to transforming New York City's commercial trash industry to reduce waste and pollution, foster clean and healthy communities for all New Yorkers, and create good jobs. Members include the New York City Environmental Justice Alliance (and its member organizations Brooklyn Movement Center, El Puente, the Morningside Heights/West Harlem Sanitation Coalition, Nos Quedamos, THE POINT Community Development Corporation, UPROSE, and Youth Ministries for Peace and Justice), ALIGN, the International Brotherhood of Teamsters Joint Council 16 & Locals 813, 831 (the Uniformed Sanitationmen's Association), 210, 812, 553, 125, 456, and 445, the Natural Resources Defense Council, and NYLPI.

Introduction

After decades of decline, New York City's industrial and manufacturing sectors have recently stabilized and have even begun to grow again. Manufacturing and industrial jobs are a smaller share of the economy than they once were, but these sectors still employ 10% of New York workers and provide incomes twice as large as the retail, hospitality, and service sectors.¹

Mayor Bill de Blasio, Speaker Melissa Mark-Viverito, and the City Council have prioritized protecting and growing this sector of the economy, including putting forward a slate of zoning proposals and investments to encourage job creation.² Smart local sustainability policies can support this initiative, by creating new businesses and green jobs in the process. While New York City is last among major US cities in green tech job creation,³ the city's waste stream is an untapped resource that can encourage this emerging sector.

Most manufacturing requires import of raw materials into the city, but New York City's giant waste stream is a massive, overlooked, and inherently local source of useful raw materials for recycling or re-manufacturing. However, we continue to truck the great majority of our waste to landfills and incinerators – usually in other states – which not only harms our environment, but creates comparatively few jobs within our city and region.

A new analysis of employment data by Transform Don't Trash NYC finds that recycling and job creation go hand in hand: major cities that divert higher percentages of waste from disposal have outpaced New York in creating local jobs via recycling, reuse, and re-manufacturing of discarded materials.

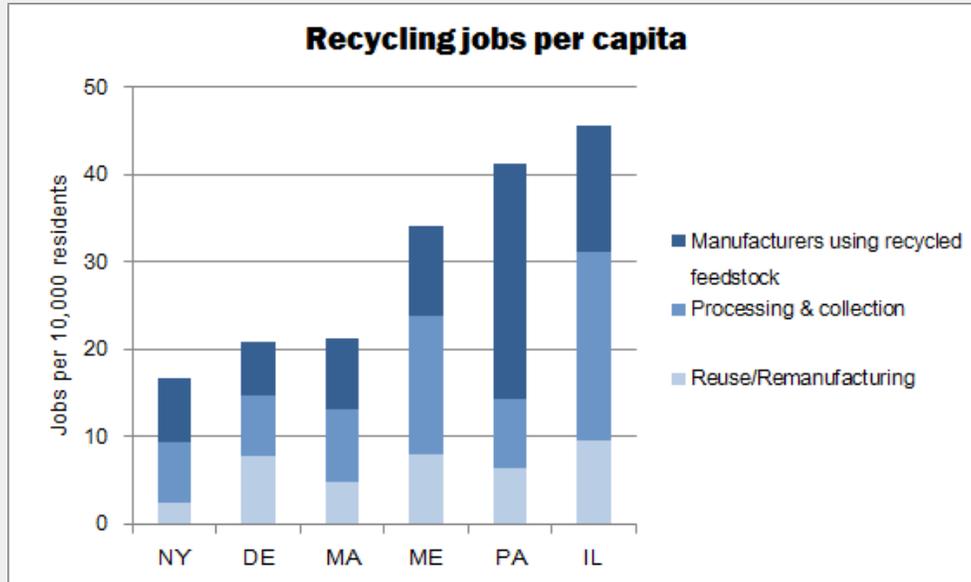
With the adoption of Zero Waste goals, the expansion of residential curbside recycling and compost by DSNY, and a process for creating a zoned commercial waste collection system, New York City has the potential to fundamentally change a longstanding, environmentally harmful solid waste system. With the right policy and investment choices, the zero waste approach is a major opportunity to diversify our economy, provide living wages and opportunity to thousands of working families, and meet the goals of our industrial development plan while contributing to substantial reductions in the city's greenhouse gas emissions.

Key findings:

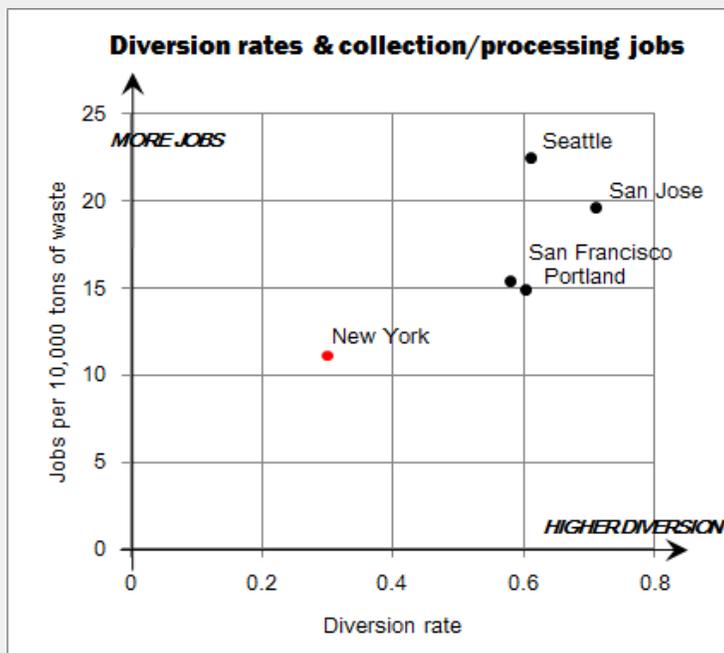
- Cities with high diversion rates have 60 percent more recycling processing and collection jobs per ton of generated waste⁴ than New York City. Seattle has over twice as many recycling processing and collection jobs per ton of generated waste than New York City.
- If New York City were to increase its municipal solid waste (MSW) diversion rate, which includes residential and commercial waste, from its current 21% to 70%, we could rapidly create 3,300 new local jobs in processing recyclables and organic waste in addition to the temporary construction jobs needed to build and upgrade recycling infrastructure. By supporting recycling-reliant industries, the city could create additional manufacturing jobs in and near the city.
- If structured correctly, the City's new plan to reform the commercial waste system can drive substantial private investment in better recycling infrastructure and can help a lagging private sanitation industry catch up to the more robust public sector in diversion, efficiency, and mitigation of community impacts. New commercial waste contracts in cities like Los Angeles show the potential of these public-private partnerships.

I. New York City and State lag in recycling industry job creation.

Jobs generated by recycling can include collection and processing of recyclable materials, manufacturing that uses recycled materials (such as paper and metal) as feedstocks, and remanufacturing that salvages usable parts or items for resale. Data compiled for comprehensive studies of recycling's economic impact show that New York State lags behind others in employment per capita on both the collection/processing and reuse/remanufacturing sides of the industry:



City-level waste diversion policies also correlate closely with job creation. Cities with policies such as mandatory recycling and composting sustain many more jobs per ton of generated waste than New York City, which continues to export most waste to landfills and incinerators [see Appendix]. For example, Seattle has a diversion rate that is approximately double that of New York City and has around twice as many waste collection and processing jobs per ton:



*Diversion rates include MSW and construction and demolition materials.

While New York State has failed to adopt comprehensive, enforceable diversion goals and mandates like those in California and Oregon, New York City can lead our state and region in creating good, green jobs in recycling industries.

Currently, the City has adopted ambitious zero waste goals, and sits at a crossroads in determining how these diversion targets will be achieved and how job creation and equity will be integrated into these efforts.

- The City has committed to creating a more efficient zoned commercial waste system, but has not yet decided how this system will achieve the diversion and waste reduction targets set out in OneNYC.
- DSNY has rapidly expanded new diversion programs such as plastics recycling and curbside compost collection to millions of New Yorkers. However, organics recycling capacity in and near the city is limited and, until it increases, the growth of mandatory commercial organics recycling will proceed slowly.



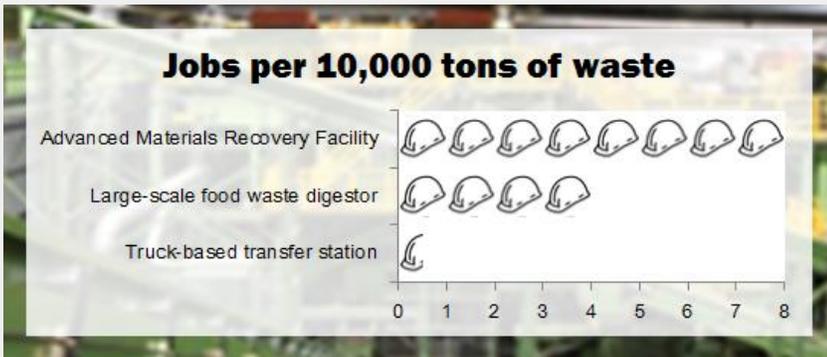
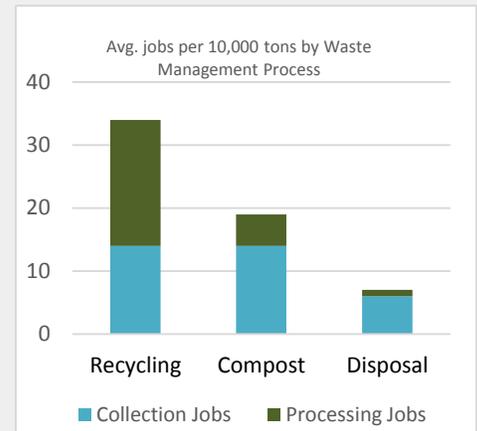
Rainbow Environmental Services, Huntington Beach, CA. Courtesy LAANE

II. Strategies for Green Job creation

A. Build facilities to process recyclables and organics in or near New York City.

National data and regional data compiled by the Tellus Institute show that recycling and composting create far more jobs per ton of waste processed than landfilling and incineration.⁵

Employment numbers at existing disposal and recycling facilities fit this pattern. A typical private transfer station in the Bronx handling putrescible waste employs only 13 workers to export 23,000 tons per month to landfills and incinerators. In contrast, the new materials recovery facility (MRF) operated by Sims Municipal Recycling in Sunset Park, Brooklyn handles a similar amount of material (18,000 tons per month) but employs 85 workers. If we also consider nearly 100 additional workers employed at other Sims facilities in the Bronx, Queens, and New Jersey, the superior job creation potential of recycling facilities versus transfer stations is even more dramatic.

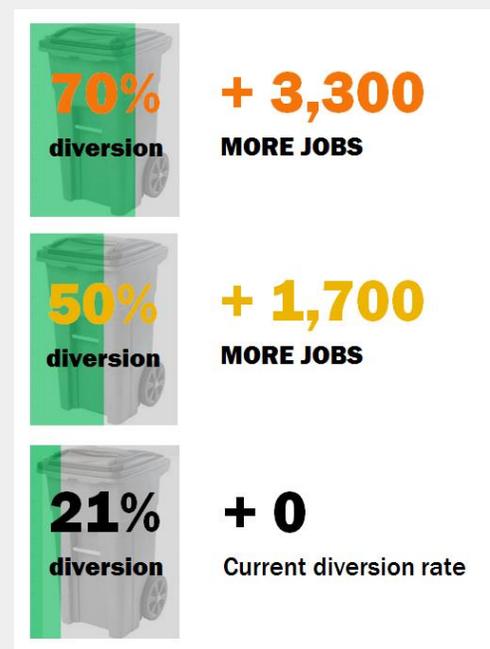


New organic waste recycling technologies such as specialized anaerobic digesters would also support more jobs than transfer and disposal. For example, the facility constructed to digest and create clean energy from San Jose's commercial food waste employs eight times more workers per ton than a typical New York City transfer station.

Given the city's huge waste stream and low diversion rate, there is potential to create thousands of local jobs in processing recyclables if we succeed in achieving the city's zero waste goals.

By investing in the modern facilities needed to process recyclables and organic waste, we could create thousands of local jobs on the processing and sorting side of the recycling industry alone. Using the Tellus Institute's estimates of jobs per ton created by disposal, recycling, and composting, we estimate that by increasing the diversion rate of MSW from 21% to 50%, about 1,700 new permanent jobs could be created in and near New York City. By achieving a 70% diversion rate (consistent with the current rate of leading cities and New York City's 2030 Zero Waste goals) we could create 3,300 additional jobs processing recyclables.

Building the infrastructure such as recycling facilities and modern organics facilities required to achieve high diversion will also create hundreds of temporary construction jobs in and near the city.



**Diversion rates for MSW only and exclude C&D*

B. Drive private investment in local recycling industries through long-term contracts, public-private partnerships, and commercial waste zone agreements.

Private corporations are more willing to partner with city government and to make substantial investments in recycling and organics infrastructure when they are offered long-term contracts, a predictable quality and quantity of recyclable material, and a share of revenues that can be captured from recycling. To create these conditions, both commercial and residential collection systems must be designed to maximize the quality and quantity of recyclables and organic waste available to processing facilities through the adoption of efficient public and private collection systems.

In other cities, private waste management companies have made large upfront investments in the new and updated facilities necessary to meet specific waste reduction and diversion goals in exchange for a long-term, stable customer base. For example, the seven haulers selected to serve eleven commercial zones in Los Angeles have committed to \$200 million in combined investments in recycling facility upgrades and new organics facilities including state-of-the-art anaerobic digesters.^{6,7}



"Advanced anaerobic digestion facilities such as the San Jose facility operated by ZWED require innovative Public-Private Partnership delivery models. **A long-term waste processing contract or franchise agreement** allows the private developer to secure **long-term financing** and maintain **reasonable levels of service pricing** to customers."

**– Jeff Draper
Senior VP, Zero Waste Energy LLC**

C. Encourage investment in local reuse and waste reduction operations



Disassembling used electronics at Isidore Recycling

From an environmental standpoint, reusing and repairing discarded but useful items such as furniture, electronics, clothing, and food is better than recycling them. New Yorkers throw out tons of used – but still useful – furniture, clothing, and electronics every day in addition to massive quantities of salvageable food. Rescuing, repairing, and dismantling items to maximize re-use are job-intensive activities – although cities must take steps to ensure that we create good, living wage jobs as we expand this small sector of the waste system.

New York City has begun to fund re-use initiatives targeted at the city-managed waste stream, such as textile collections and materials exchanges;^{8,9} however, under the commercial waste system, haulers are still financially incentivized to collect and charge for as much waste as possible. For example, food rescue organizations find that without clear price incentives to reduce waste, restaurants and food stores are often not willing to pay small fees or train staff to divert unused or leftover food.¹⁰

Under the new Los Angeles franchise system, franchised haulers will be required to reduce disposed tons of waste by about 75% over 10 years, giving them a strong incentive to partner with local reuse and waste reduction initiatives. Many of the franchised haulers have committed to offer subcontracts and funding to small firms with specialized waste reduction and re-use capabilities, including building partnerships with food recovery organizations.

Isidore Recycling, in Los Angeles, recycles electronics via repair and reuse or dismantling, which creates more local jobs than exporting or shredding these materials.

Four of the waste haulers awarded franchises will subcontract with Isidore to help divert electronics from the commercial and multifamily waste streams. Isidore targets hiring to formerly incarcerated individuals with few job options, and estimates that they will be able to double or triple the number of employees they hire with this funding.¹¹

Similarly, some of the franchised haulers in Los Angeles have committed to subcontract with reuse and recycling education organizations such as LA Shares and Global Green to increase diversion and educate waste generators.



Civicorps apprentices with Waste Management in Oakland, CA

D. Ensure recycling industries are aligned with the City’s equity & fair share goals.

Too often, poorly regulated or designed recycling operations cause harm to communities and workers. For example, a large commercial compost facility in Delaware was forced to close after numerous complaints of excess trash storage, odor problems and fire risks.¹² Some recycling companies offer only low-paying and dangerous jobs.¹³ Like transfer stations, most commercial recycling facilities in New York City are clustered in a few communities of color and use diesel trucks to transport to deliver and export recyclables.

For recycling to truly be sustainable, the industry must provide living wage jobs to local residents, and must actively reduce the environmental and public health burdens faced by communities that have hosted a disproportionate share of waste facilities for decades. As our City designs and implements a zoned collection system for commercial waste, we have a significant opportunity to reform a historically under-regulated industry and to ensure that waste haulers utilize and construct recycling and organics facilities that are safe for workers and environmentally sound for host communities.

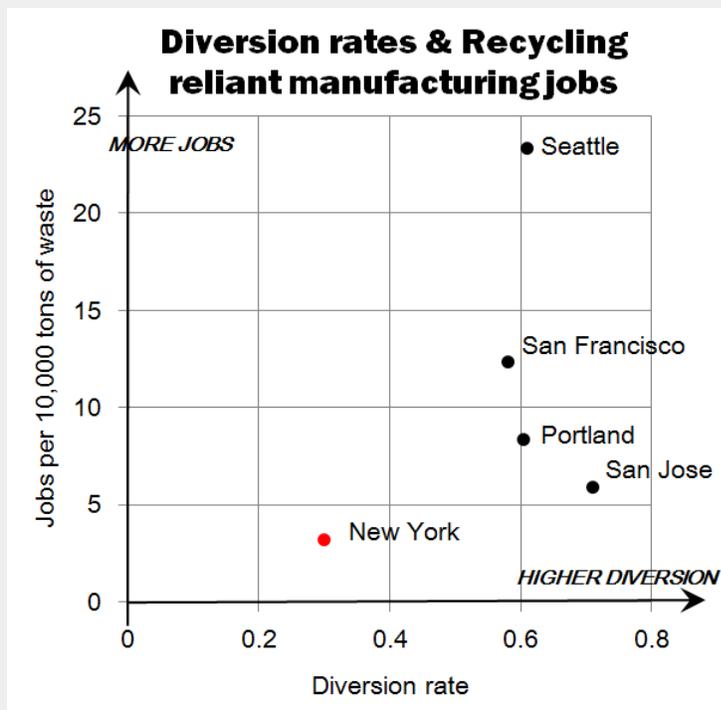
- Hiring and training can be targeted to disadvantaged communities where unemployment is highest, and where access to living wage jobs is limited. In Oakland, Waste Management has agreed to partner with the Teamsters union and a local nonprofit organization called Civicorps to hire and train apprentice drivers to collect commercial food waste under an exclusive franchise agreement.¹⁴ Commercial waste zone agreements in New York City can potentially include similar stipulations to create a pathway to good, union jobs for disadvantaged communities across the city.
- Recycling facilities should be designed or retrofitted to use environmentally preferable barge or rail transport wherever possible. Sims Recycling uses barge and rail to transport recyclable materials to and from their MRF, eliminating 240,000 diesel truck miles annually.¹⁵ The Pratt Paper mill on Staten Island also receives 73% of its recycled paper feedstock via barge transport, eliminating 350 trucks per week between Manhattan and Staten Island.¹⁶ Both Sims and Pratt also use renewable solar and wind energy to meet their local electricity needs.¹⁷
- Equitable and efficient siting of recycling and waste facilities should be a major consideration in awarding commercial waste zones to haulers. For example, a City RFP can award points to haulers that commit to using cleaner, less burdensome recycling and organics facilities, and for using facilities sited to minimize truck travel between collection and tipping locations.

E. Nurture Recycling-Reliant Industries in and near NYC.

Currently, substantial quantities of materials recovered for recycling in New York City are shipped overseas, resulting in a lost opportunity to create domestic and regional jobs in recycling-reliant industries such as paper, glass, and plastics manufacturing using recycled feedstocks.¹⁸

Similar to the gap in processing and collection jobs, a comparison of US census County Business Patterns employment figures for firms engaged in reuse and remanufacturing shows that high-diversion cities also sustain more of these jobs.

As with other large manufacturing enterprises, costs and residential density can make it difficult to site new paper mills, glass manufacturers, or smelters in or near cities like New York. However, city policies can nurture the growth of smaller, recycling-reliant businesses and potentially support thousands of additional jobs in the region through the City's growing stream of recycled and diverted materials.



*Diversion rates include MSW and construction and demolition materials.

The City can work to ensure both the supply and quality of feedstock and increase product demand for local recycling industries. One example is the Pratt Paper mill on Staten Island, which produces corrugated cardboard boxes from recycled municipal paper, and supports 200 local jobs. While most DSNY-collected recyclable paper already goes to this plant, the City's new commercial waste zones could provide leverage to drive commercial paper to Pratt and other regional mills.

Consistent with the mayor's current industrial policy, the City and various economic development agencies can offer support to medium and small firms that use recycled feedstocks, such as Ice Stone,¹⁹ which has manufactured custom glass countertops in the Brooklyn Navy Yard since 2003 and employs about 35 people locally.

Local governments can support recycling-reliant industries through recycled content purchasing policies, building code requirements to utilize recycled materials, and long-term power purchase contracts for electricity and fuel generated via organic waste recycling.²⁰ Recycled products could include paper, construction, and soil products manufactured with local recycled content.²¹



Appendix: Data and Methodology

1. State Recycling Industries Comparison

Two of the definitive studies of recycling's economic impact were the 2009 Northeast Recycling Economic Impact Study Update²² and the 2010 Illinois Recycling Economic Impact Study,²³ both conducted by DSM Environmental Associates. These studies combine a variety of survey-based data, employment figures from the US Business Census, and derived employment estimates for both "supply-side" recycling operations (including government and private collection and processing jobs), as well as "demand-side" estimates of employment from manufacturing and reuse firms using recycled materials.

For this report, TDT NYC grouped the employment estimates in these reports into three categories of recycling-related employment.

State		Recycling Industry Jobs (Collection and Processing)	Reuse/Remanufacture Jobs	Recycling Reliant Industry Jobs
ME	1,328,361	2,096	1,063	1,385
MA	6,547,629	5,452	3,202	5,252
PA	12,702,379	10,171	8,106	34,039
DE	897,934	632	703	545
NY	19,378,102	13,485	4,691	14,063
IL	12,800,000	27,690	12,294	18,402

2. City recycling and collection jobs comparison

The four cities we compared to New York City have implemented mandatory recycling and composting policies, and report high diversion rates across MSW and C&D (construction and demolition) waste streams.

- San Francisco: All California businesses and multifamily dwellings are subject to mandatory recycling and composting laws (AB 341 and AB 1826). San Francisco mandates residential and business composting and recycling,^{24 25} and bans disposal of construction and demolition materials. 2015 diversion rate = 58%.²⁶
- Seattle: Mandatory recycling and composting for all businesses and residents,²⁷ and has a disposal ban on readily recyclable construction and demolition materials.²⁸ 2015 Diversion rate = 61%.²⁹
- San Jose: Mandatory two-bin recycling and composting service for commercial businesses. Residential curbside collection of yard trimmings and recycling available to residents, but not food scrap composting.³⁰ 2015 diversion rate = 71%.³¹
- Portland, OR: Recycling is mandatory for all businesses and composting mandatory for food-scrap generators. Recycling and composting must be offered to all residential customers. Construction and demolition projects must meet city diversion requirements.^{32,33} 2015 metro diversion rate = 58%.³⁴

Generated tonnage estimates for the five cities in our sample include both Municipal Solid Waste (MSW) and Construction and Demolition (C&D) tons. Our estimate of a 29% overall diversion rate for New York City is based on a 26% rate for commercial putrescible waste (~3 million tons per year), a 16% rate for DSNY-managed waste (~3 million tons per year) and a 47% rate for 2.5 million tons C&D waste derived from quarterly reports from in-city transfer stations.

To estimate the number of private sector waste collection and processing jobs in each city, we compiled US Census County Business Patterns series for the following NAICS codes:

Solid waste collection 562111

Recyclable material merchant wholesalers 42393

Materials recovery facilities 56292

Fertilizer (mixing only) manufacturing 325314

For New York City, we also included an estimated 6,000 public-sector collection jobs based on DSNY budgets and information from the International Brotherhood of Teamsters.

3. Potential Job Creation Estimate

To estimate recycling job creation potential in New York City, we used the Tellus Institute's estimates of the processing jobs per ton for putrescible waste and recycling management processes. We applied these to the best available estimates of the current composition and tonnage of diverted and disposed material in city's commercial and residential MSW streams. For composition of commercial diverted and disposed MSW, we used DSNY's 2012 commercial recycling study by Halcrow Engineers.³⁵ For composition of residential diverted MSW, we used DSNY's 2016 annual report on curbside and containerized collections.³⁶ For composition of residential disposed waste, we used DSNY's 2013 curbside waste composition study.³⁷

For this analysis, we used the 26% commercial putrescible diversion rate estimated by Halcrow Engineers, and a 17% diversion rate for residential curbside waste. [Note that TDT's analysis of commercial recycling reports submitted to the state DEC finds that the overall diversion rate for in-city transfer stations and recycling facilities could be lower, at 19-22%.]

To create a basic estimate of job creation potential at 50% and 70% scenarios, we assumed that the composition of diverted and disposed materials in each waste stream would remain the same.

For this study, we did not include estimates of job creation associated with increased C&D recycling or reuse, nor did we estimate the job creation potential of increased re-use or remanufacturing jobs within New York City, although both C&D recycling and recycling-reliant manufacturing have significant job creation potential.

Recycling and Organics Processing	Diversion Rate	Estimated Jobs at Current Diversion	Estimated Jobs at 50% Diversion	Estimated Jobs at 70% Diversion
Commercial Putrescible Waste	26%	1,556	2,670	3,598
DSNY Curbside Collected Waste	17%	1,455	2,037	2,708
Total New Jobs			1,696	3,295

4. Diversion and Recycling-Reliant Manufacturing Jobs comparison

To examine correlation between city diversion rates and employment in recycling-reliant and remanufacturing industries across cities, we compiled private-sector employment data from the US Census County Business Patterns series for the following NAICS codes:

- All other converted paper product manufacturing - 322299
- Custom compounding of purchased resins - 325991
- Fertilizer (mixing only) manufacturing - 325314
- Secondary smelting and alloying of aluminum - 331314
- Secondary smelting, refining, and alloying of nonferrous metal (except copper and aluminum) - 331492
- Tire retreading - 326212
- Used merchandise stores – 453310

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