TECHNICAL MEMO

NYMTC Regional Freight Plan Update 2015-2040 Interim Plan

Task 2.2.2
Estimation of Municipal Solid Waste Flows

PREPARED BY

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NYMTC
NEW YORK METROPOLITAN TRANSPORTATION COUNCIL

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technical memorandum

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Estimation of Municipal Solid Waste Flows

prepared for

New York Metropolitan Transportation Council

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1.0 Introduction

New York State residents, on average, generate about 1,500 pounds of solid waste per year.[1] Further, construction sites statewide generate 6.1 million tons of construction and demolition (C&D) debris annually. The flows of these waste materials from curbside collection, through transfer stations, and to ultimate disposal or reclamation facilities are not fully captured in commodity flow databases such as IHS Global Insight's TRANSEARCH, and the U.S. Department of Transportation's Freight Analysis Framework database.

In order to account for these flows in the commodity flow analysis that is being conducted for the NYMTC Regional Freight Plan Update Interim Plan, facility-level volumes of received material were collected from Planning Unit Profiles appended to the New York State Department of Environmental Conservation's (NYSDEC) 2010 report, *Beyond Waste: A Sustainable Materials Management Strategy for New York State*.[2] The NYSDEC Planning Units located in the NYMTC Region are listed in Table 1. Section 2.0 of this memorandum describes facility-level waste generation in the NYMTC region.

The facility-level waste volumes were then used to develop an appendix to the TRANSEARCH commodity flow database. The sum of facility-level waste volumes in each planning unit were apportioned to various destination states and counties based on the destination distribution shares reported in the Planning Unit Profiles. These planning unit-level flows were then aggregated to county-level inbound and outbound flows of waste. The results of this analysis are described in Section 3.0 of this memorandum.

[1] New York State Department of Environmental Conservation (NYSDEC).

[2] New York State Department of Environmental Conservation, *Beyond Waste: A Sustainable Material Management Strategy, 2010*, available from: http://www.dec.ny.gov/chemical/41831.html.

Table 1. NYSDEC Planning Units in the NYMTC Region

NYSDEC Region	Planning Unit Name	Municipalities	County
1	Babylon (Town) and North Hempstead Solid Waste Management Authority	Babylon (Town), North Hempstead (Town)	Suffolk, Nassau
1	Brookhaven (Town)	Brookhaven (Town)	Suffolk
1	East Hampton (Town)	East Hampton (Town)	Suffolk
1	Fishers Island Waste Management District	Southold (Town)	Suffolk
1	Glen Cove (City)	Glen Cove (City)	Nassau
1	Hempstead (Town)	Hempstead (Town)	Nassau
1	Huntington (Town)	Huntington (Town)	Suffolk
1	Islip Resource Recovery Agency	Islip (Town)	Suffolk
1	Long Beach (City)	Long Beach (City)	Nassau
1	Oyster Bay Solid Waste Disposal District	Oyster Bay (Town) (portion)	Nassau
1	Riverhead (Town)	Riverhead (Town)	Suffolk
1	Shelter Island (Town)	Shelter Island (Town)	Suffolk
1	Smithtown (Town)	Smithtown (Town)	Suffolk
1	Southampton (Town)	Southampton (Town)	Suffolk
1	Southold (Town) (except Fishers Island)	Southold (Town) (except Fishers Island)	Suffolk
2	New York City	New York	Bronx, Kings, New York, Queens, Richmond
3	Putnam County	All	Putnam
3	Rockland County Solid Waste Management Authority	All	Rockland
3	Westchester County	All	Westchester

2.0 Waste Processing Facilities

According to the Planning Unit Profiles appended to the Beyond Waste report, 333 waste handling and processing facilities are located in the 10-county NYTMC region. Of these, 125 are transfer stations, where municipal solid waste collection trucks drop off waste that is then transloaded into larger loads for transport to landfills, recycling facilities, and resource recovery facilities. There are 198 construction and demolition (C&D) debris processing facilities, 5 municipal waste combustor (MWC) or resource recovery facilities (RRF) in the region, and 5 landfills.

There are many transfer stations and C&D debris processing facilities in the region for which volume (tons received) data are not presented in the Planning Unit Profiles. For example, a Planning Unit Profile may read "There are 6 transfer stations in the Planning Unit. The three largest include…" Due to this reporting formula, it is estimated that volume data for 82 transfer stations and 125 C&D debris processing facilities are not included in this analysis. The omitted facilities, however, are believed to generate relatively small volumes of material compared to other facilities. For this reason, the facilities illustrated in Figures 1 through 5 and listed in the Table A.1 in the Appendix are described as "Major Transfer Stations."

Figures 1 through 7 illustrate the distribution of waste processing facilities throughout the NYMTC Region in 2008. Due to the large number of transfer stations in the region, separate maps showing transfer stations in each Transportation Coordinating Committee (TCC) subregion have been prepared as well. The facilities are symbolized according to the tonnage of material received at each location.

Figure 1. Major Transfer Stations in the NYMTC Region

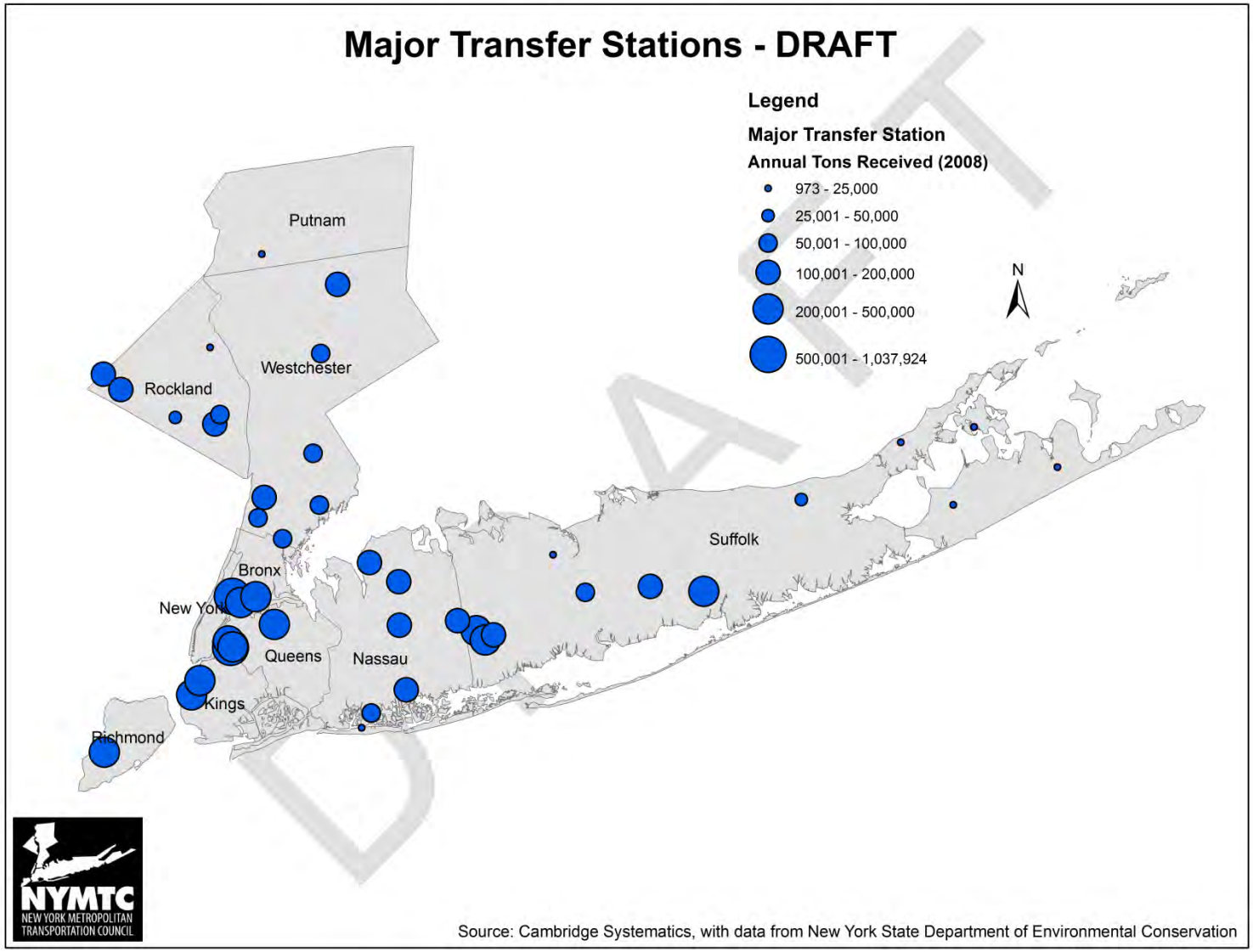


Figure 2. Major Transfer Stations in the Nassau-Suffolk TCC Subregion

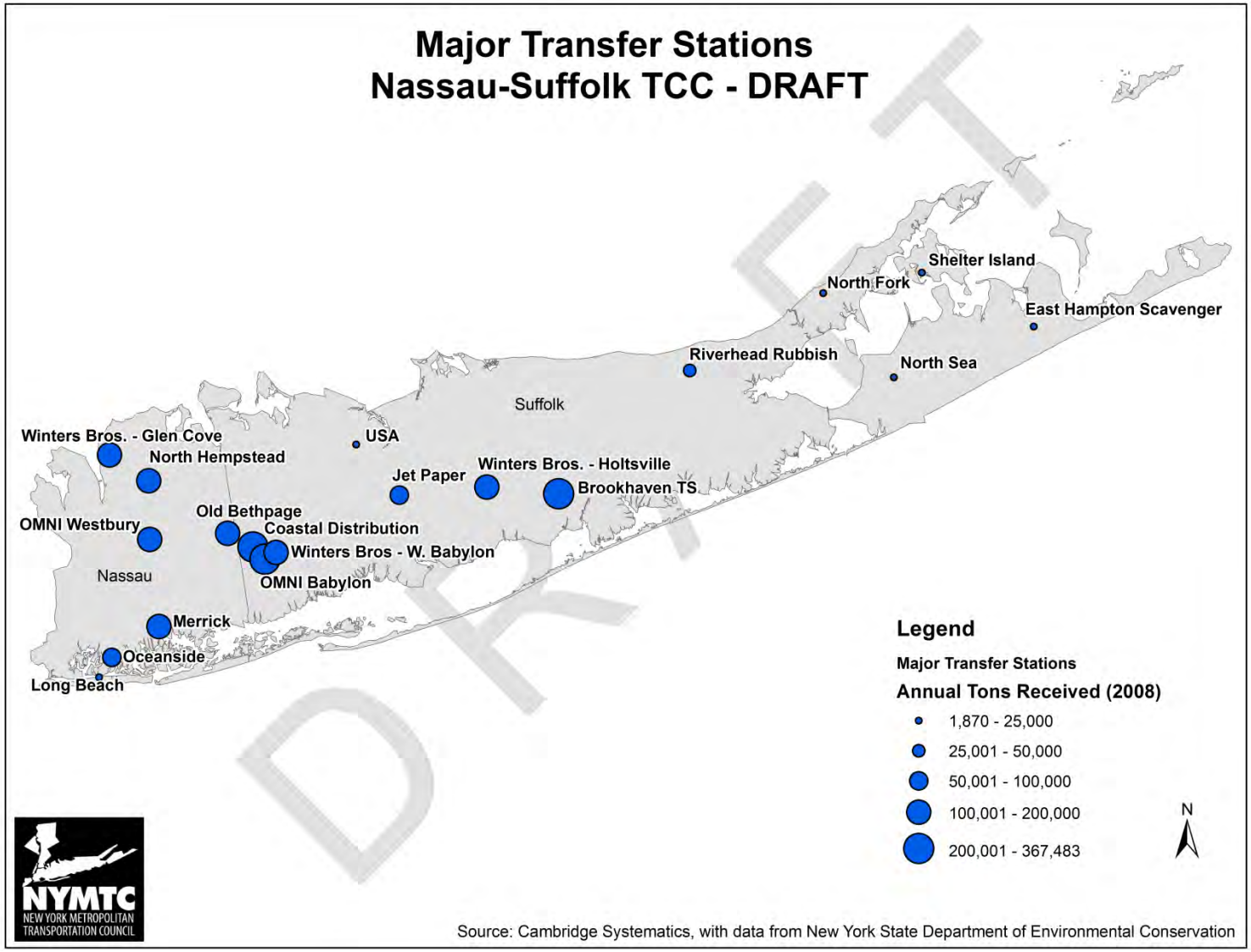


Figure 3. Major Transfer Stations in the New York City TCC Subregion

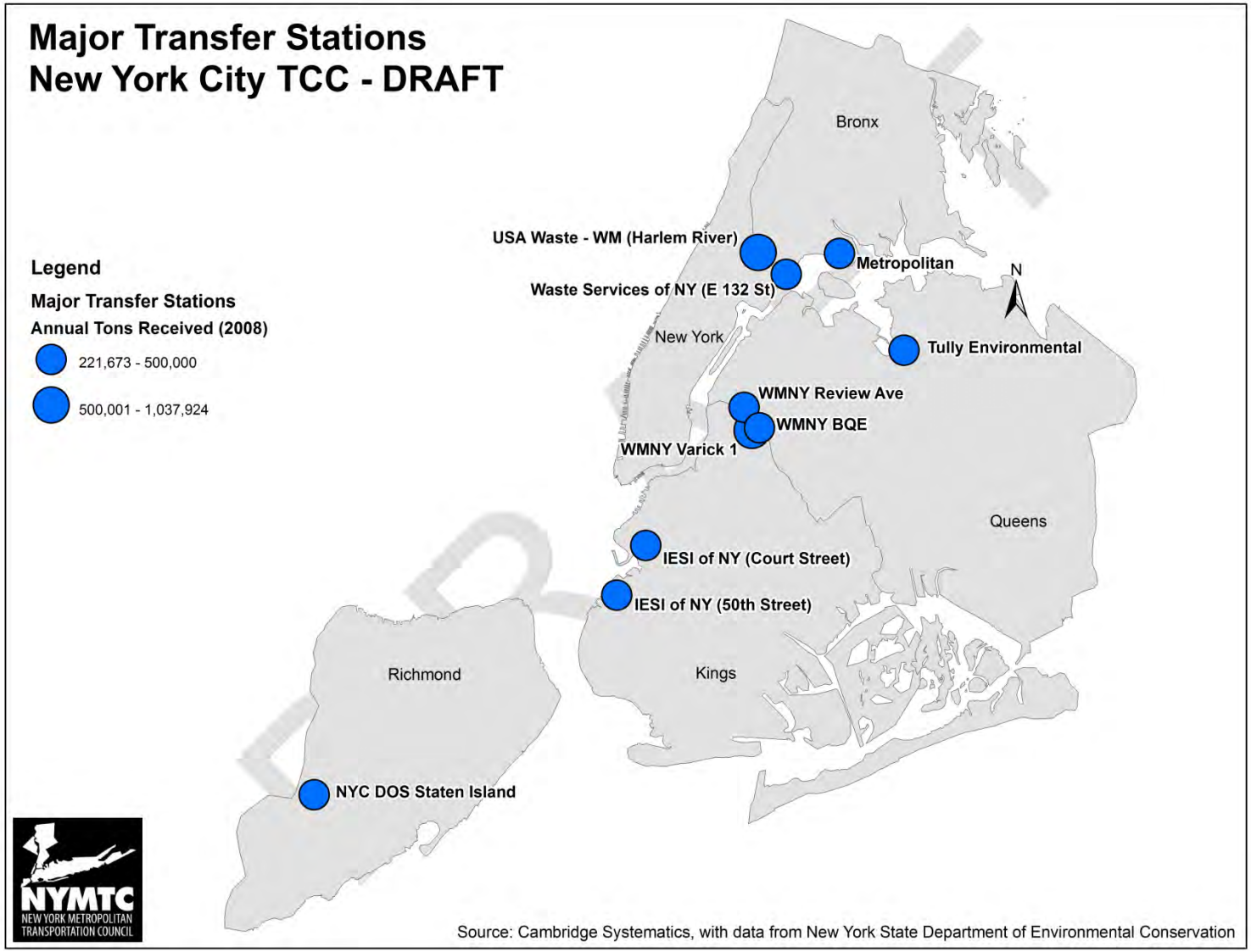


Figure 4. Major Transfer Stations in the Mid-Hudson South TCC Subregion

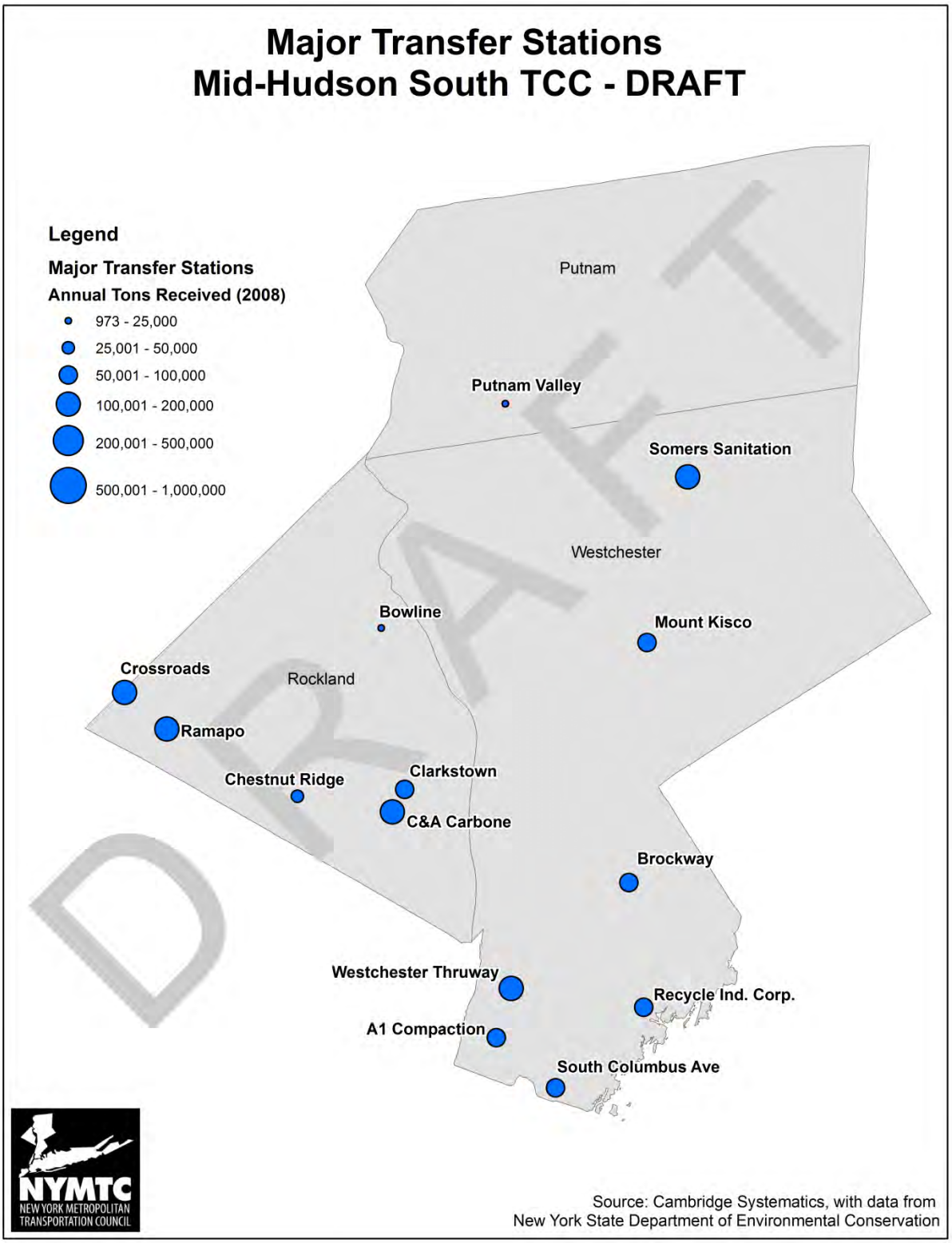


Figure 5. Major Construction and Demolition (C&D) Debris Processing Facilities

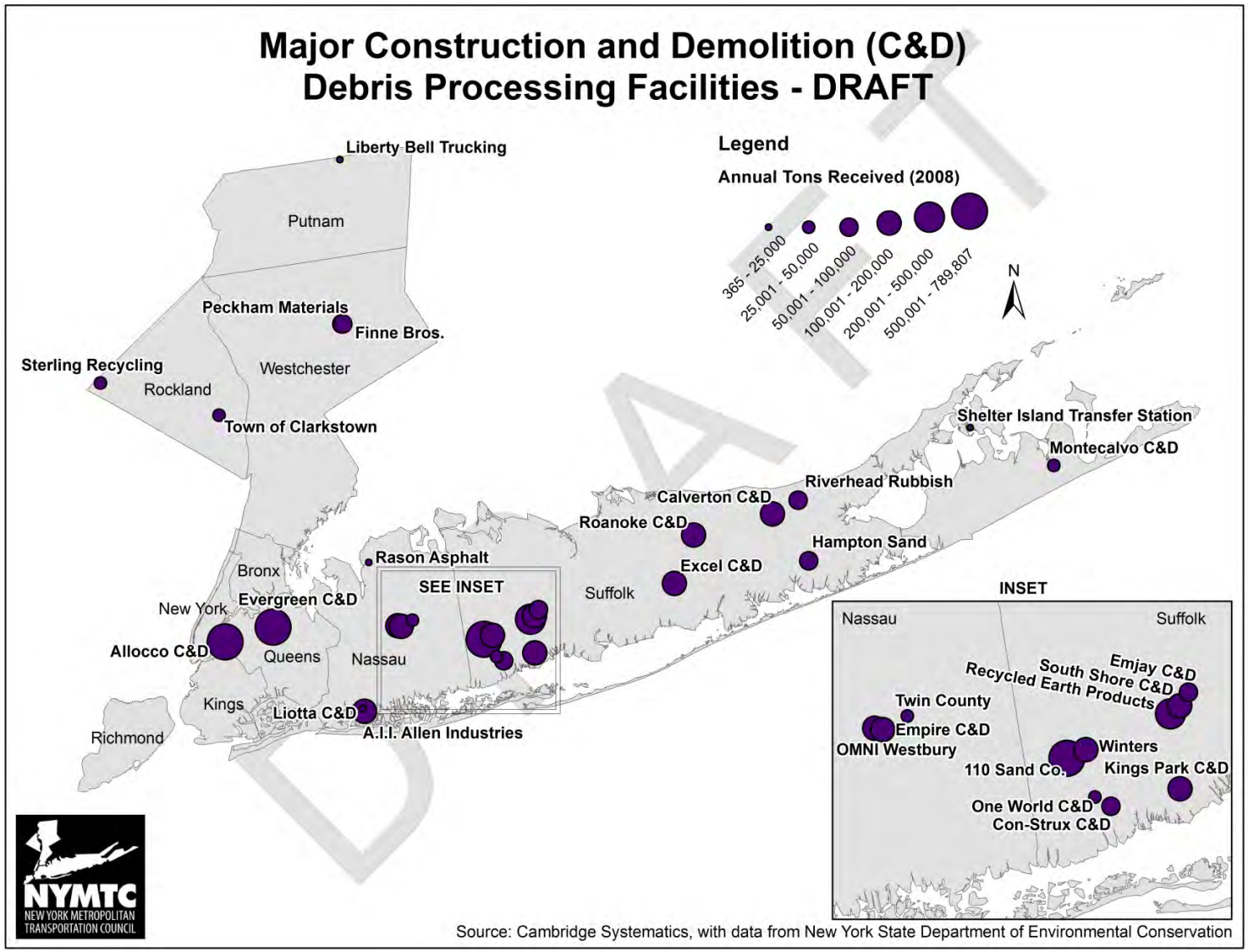


Figure 6. Municipal Solid Waste and Ash Landfills

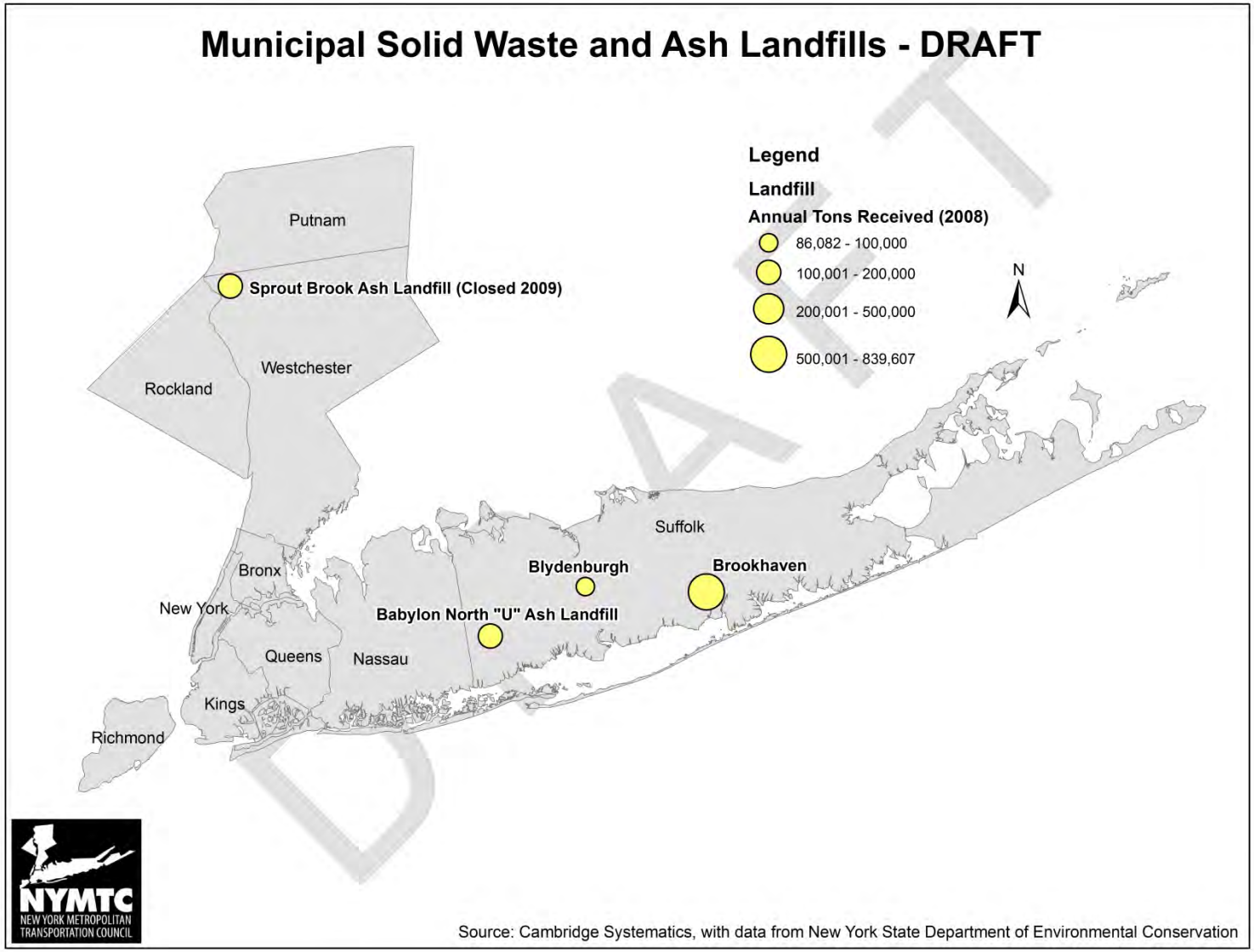
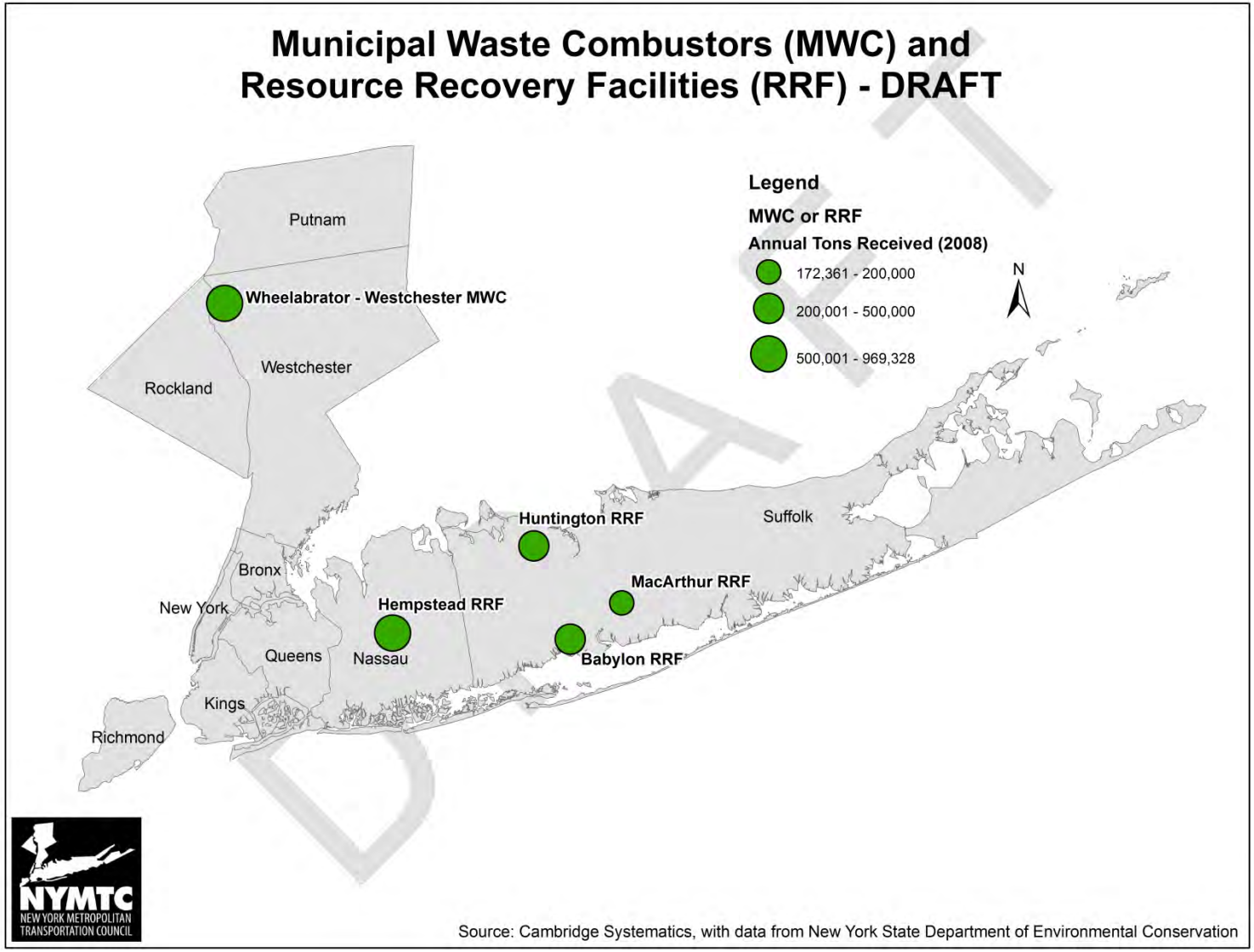


Figure 7. Municipal Solid Waste Combustors (MWC) and Resource Recovery Facilities (RRF)



3.0 Waste Commodity Flows

Data published in the NYSDEC *Beyond Waste* report were used to develop a county-to-county waste commodity flow trip table that will be incorporated into an enhanced TRANSEARCH commodity flow database. This enhanced TRANSEARCH database will be the basis for analysis of freight moving into, out of, and within the NYMTC region.

To develop the waste trip table, the transfer station tons received volumes presented in Section 2.0 of this memorandum were summed to establish total volumes for each Planning Unit. Because transfer stations are the point at which municipal waste are consolidated for disposal at facilities in other locations, these tons received volumes were considered as outbound flows. These outbound flows were then distributed to destination counties according to the distribution shares reported in each Planning Unit Profile. Planning unit flows were then aggregated to the county level to match the county-to-county commodity flow reporting detail in the TRANSEARCH database. The result is a summary commodity flow table showing flows of municipal solid waste county-to-county. In the event that out-of-state county detail was not provided in the Planning Unit Profiles, the county containing the centroid of the destination state was used as a proxy. For example, tons of materials destined for "Pennsylvania" with no county specified were assigned to Centre County, Pennsylvania.

Figure 8 illustrates the top destinations of outbound material flows generated in the NYMTC region by share of material received. Figure 9 shows the flows of waste material within, to, and from the NYMTC Region in 2008.

To develop a forecast year trip table, target growth rates in per capita waste generation published in the Beyond Waste report were used. The report sets a goal for reducing per capita disposable waste generation from 4.1 pounds per person per day to 0.6 pounds per person per day by 2030. The 2030 target per capita disposable waste generation was applied to NYMTC's county-level population projections for 2040 to develop future disposable waste generation by county. The future waste generation values were then assigned to origins and destinations using the base year distribution by county.

As Figure 9 illustrates, the projection developed using the NYSDEC Beyond Waste report suggests that overall disposable waste volumes will decline significantly during the forecast period. This reduction, according to the Beyond Waste report, is achievable through technological advances in efficient packaging, and in education and incentives to expand participation in recycling on the part of consumers and institutions, and in updating recycling technology and equipment that will allow for optimal material recovery. The source documents did not provide origin-destination detail for recycled materials in a consistent manner across all parts of the region, so the distribution of those materials is not known.

Figure 8. Destinations of Waste Material Generated in the NYMTC Region, *2008*

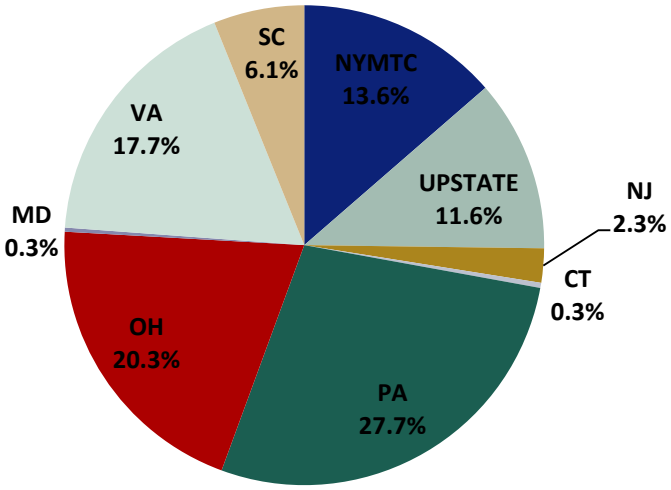


Figure 9. Waste Flows To, From, and Within the NYMTC Region, 2008

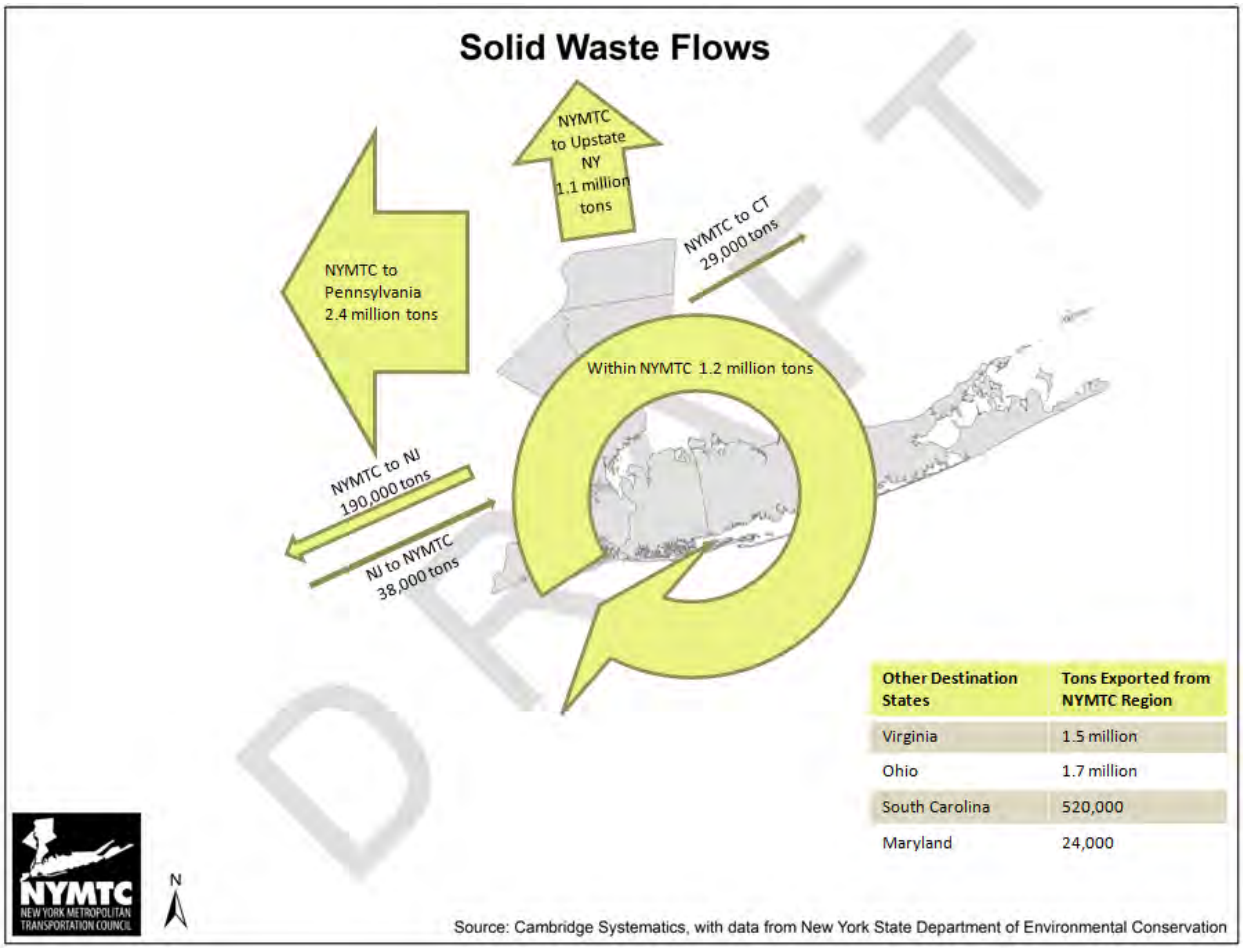
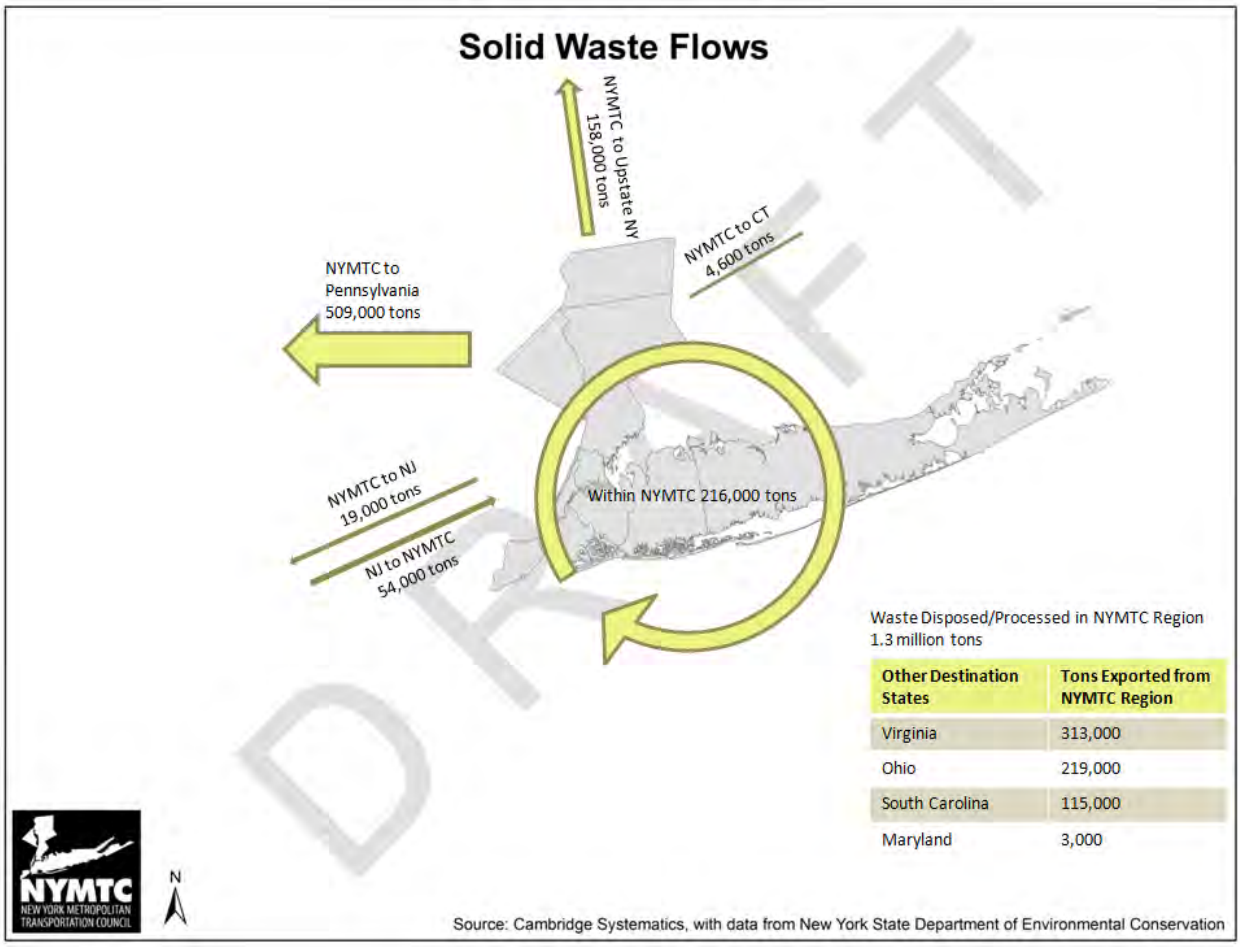


Figure 10. Waste Flows To, From, and Within the NYMTC Region, 2040



Appendix A

Table A.1 Waste Processing and Disposal Facilities
By Tons Received by Type

MAJOR TRANSFER STATIONS				
DEC REGION	FACILITY NAME	TONS RECEIVED IN 2008	SERVICE AREA	CITY
2	USA WASTE-WM (HARLEM RIVER YARD)	1037924	BRONX, KINGS	BRONX
2	WMNY (VARICK 1)	562434	KINGS	BROOKLYN
1	COASTAL DISTRIBUTION TRANSFER STATION	367483	BRONX, KINGS, NASSAU, QUEENS, SUFFOLK	FARMINGDALE
2	WASTE SERVICES OF NY (920 E 132 ST)	302041	BRONX	BRONX
2	IESI OF NY (110-120 50TH ST)	295996	KINGS	BROOKLYN
2	TULLY ENVIRONMENTAL	288274	QUEENS	FLUSHING
2	WMNY (REVIEW AVE)	269601	QUEENS	MASPETH
2	WMNY (BQE)	244844	KINGS	BROOKLYN
1	OMNI BABYLON	240081	NASSAU, SUFFOLK	WEST BABYLON
2	METROPOLITAN	233789	BRONX	BRONX
2	NYCDOS STATEN ISLAND TRANSFER STATION	227000	RICHMOND	STATEN ISLAND
2	IESI OF NY (577 COURT STREET)	221673	KINGS	BROOKLYN
1	BROOKHAVEN TRANSFER STATION	217502	SUFFOLK	NORTH BELLPORT
3	WESTCHESTER THRUWAY TRANSFER STATION	169815	WESTCHESTER	HASTINGS-ON-HUDSON
1	OLD BETHPAGE TRANSFER STATION	156792	NASSAU	OLD BETHPAGE
1	WINTERS BROS. – HOLTSVILLE	153040	SUFFOLK	HOLTSVILLE
1	NORTH HEMPSTEAD TRANSFER STATION	150856	NASSAU	PORT WASHINGTON
3	CROSSROADS TRANSFER STATION	141061	BRONX, ORANGE, PUTNAM, ROCKLAND, SULLIVAN, ULSTER, WESTCHESTER, NEW JERSEY	HILLBURN
1	MERRICK TRANSFER STATION	124338	NASSAU	MERRICK

MAJOR TRANSFER STATIONS, CONTINUED				
DEC REGION	FACILITY NAME	TONS RECEIVED IN 2008	SERVICE AREA	CITY
3	C&A CARBONE	113050	ROCKLAND, WEST-CHESTER, NEW JERSEY	WEST NYACK
3	RAMAPO TRANSFER STATION	113050	ORANGE, ROCKLAND, SENECA, NEW JERSEY	HILLBURN
1	WINTER BROS TRANSFER STATION – GLEN COVE	109547	NASSAU	GLEN COVE
1	OMNI WESTBURY	104187	NASSAU, SUFFOLK	WESTBURY
3	SOMERS SANITATION TRANSFER STATION	101273	DUTCHESS, PUTNAM, WESTCHESTER, CONNECTICUT	SOMERS
1	WINTERS WASTE SERVICES	101055	SUFFOLK	WEST BABYLON
1	JET PAPER	97924	NASSAU, SUFFOLK	CENTRAL ISLIP
3	CLARKSTOWN TRANSFER STATION	91004	ROCKLAND	WEST NYACK
3	SOUTH COLUMBUS AVE TRANSFER STATION	89248	WESTCHESTER	MT VERNON
3	RECYCLE IND. CORP.	87360	WESTCHESTER, CONNECTICUT	MAMARONECK
3	BROCKWAY TRANSFER STATION	85189	WESTCHESTER	WHITE PLAINS
1	OCEANSIDE TRANSFER STATION	77781	NASSAU	OCEANSIDE
3	A1 COMPACTION	66968	BRONX, WESTCHESTER, PENNSYLVANIA	YONKERS
3	MT KISCO TRANSFER STATION	61980	WESTCHESTER, CONNECTICUT	MT KISCO
3	CHESTNUT RIDGE TRANSFER STATION	33733	ORANGE, ROCKLAND, WESTCHESTER, NEW JERSEY	CHESTNUT RIDGE
1	RIVERHEAD RUBBISH	27491	SUFFOLK	CALVERTON
1	EAST HAMPTON SCAVENGER	20602	SUFFOLK	EAST HAMPTON
3	BOWLINE TRANSFER STATION	11461	ROCKLAND	HAVERSTRAW
1	NORTH FORK TRANSFER STATION	4841	SUFFOLK	CUTCHOGUE
1	LONG BEACH TRANSFER STATION	4376	NASSAU	LONG BEACH
1	NORTH SEA TRANSFER STATION	4067	SUFFOLK	SOUTHAMPTON
1	SHELTER ISLAND TRANSFER STATION	2104	SUFFOLK	SHELTER ISLAND
1	USA TRANSFER STATION	1870	SUFFOLK	KINGS PARK
3	PUTNAM VALLEY TRANSFER STATION	973	PUTNAM	PUTNAM VALLEY

MAJOR CONSTRUCTION AND DEMOLITION DEBRIS PROCESSING				
DEC REGION	FACILITY NAME	TONS RECEIVED IN 2008	SERVICE AREA	CITY
1	110 SAND COMPANY CLEAN FILL	789807	SUFFOLK, NASSAU	WEST BABYLON
2	EVERGREEN CONSTRUCTION & DEMOLITION	688244	BRONX, KINGS, NASSAU, NEW YORK, QUEENS, RICHMOND, SUFFOLK, WESTCHESTER	CORONA
2	ALLOCCO CONSTRUCTION & DEMOLITION	544116	KINGS, NEW YORK, QUEENS	BROOKLYN
1	RECYCLED EARTH PRODUCTS	263953	NASSAU, SUFFOLK	BAYSHORE
1	OMNI WESTBURY	180428	NASSAU, SUFFOLK	WESTBURY
1	WINTERS WASTE SERVICES	142780	SUFFOLK	WEST BABYLON
1	EXCEL CONSTRUCTION & DEMOLITION	121904	SUFFOLK	MEDFORD
1	KINGS PARK CONSTRUCTION & DEMOLITION	118900	SUFFOLK	KINGS PARK
1	CALVERTON CONSTRUCTION & DEMOLITION DEBRIS	114352	BRONX, KINGS, NASSAU, NEW YORK, QUEENS, SUFFOLK	CALVERTON
1	ROANOKE CONSTRUCTION & DEMOLITION DEBRIS	110725	NASSAU, QUEENS, SUFFOLK	MIDDLE ISLAND
1	LIOTTA CONSTRUCTION & DEMOLITION DEBRIS	109535	BRONX, KINGS, NASSAU, QUEENS	OCEANSIDE
1	EMPIRE CONSTRUCTION & DEMOLITION	109087	NASSAU	WESTBURY
1	SOUTH SHORE CONSTRUCTION & DEMOLITION DEBRIS	107806	BRONX, KINGS, NASSAU, NEW YORK, QUEENS, RICHMOND, SUFFOLK	BRENTWOOD
1	EMJAY CONSTRUCTION & DEMOLITION DEBRIS	91202	NASSAU, QUEENS, SUFFOLK	BRENTWOOD
3	FINNE BROS	87602	NEW YORK, PUTNAM, WESTCHESTER, CONNECTICUT	BEDFORD HILLS
1	RIVERHEAD RUBBISH	74314	NASSAU, SUFFOLK	CALVERTON
1	CON-STRUX CONSTRUCTION & DEMOLITION DEBRIS	72280	NASSAU AND SUFFOLK	LINDENJURST
1	HAMPTON SAND	65969	NASSAU, QUEENS, SUFFOLK, WESTCHESTER	EASTPORT
3	PECKHAM MATERIALS – BEDFORD HILLS	55286	WESTCHESTER	BEDFORD HILLS
1	TWIN COUNTY	40900	NASSAU	HICKSVILLE
1	MONTECALVO CONSTRUCTION & DEMOLITION	36992	SUFFOLK	EAST HAMPTON

MAJOR CONSTRUCTION AND DEMOLITION DEBRIS PROCESSING, CONTINUED				
DEC REGION	FACILITY NAME	TONS RECEIVED IN 2008	SERVICE AREA	CITY
3	STERLING RECYCLING	31125	NEW JERSEY	SLOATSBURG
1	ONE WORLD	29719	NASSAU, SUFFOLK	LINDENJURST
3	TOWN OF CLARKSTOWN CONSTRUCTION & DEMOLITION DEBRIS	26192	ROCKLAND, SENECA, PENNSYLVANIA	WEST NYACK
3	VALLEY VIEW	11101	PUTNAM, WESTCHESTER	
3	LIBERTY BELL TRUCKING	8474	DUTCHESS, PUTNAM, WESTCHESTER	CARMEL
1	RASON ASPHALT	4638	SUFFOLK	GLEN COVE
1	A.I.I. ALLEN INDUSTRIES	3515	NASSAU	OCEANSIDE
1	SHELTER ISLAND TRANSFER STATION	365	SUFFOLK	SHELTER ISLAND

MUNICIPAL WASTE COMBUSTORS AND RESOURCE RECOVERY FACILITIES				
DEC REGION	FACILITY NAME	TONS RECEIVED IN 2008	SERVICE AREA	CITY
1	HEMPSTEAD RESOURCE RECOVERY FACILITY	969,328	NASSAU, QUEENS, SUFFOLK, WESTCHESTER	WESTBURY
3	WHEELABRATOR-WESTCHESTER MUNICIPAL WASTE COMBUSTOR	692,923	DUTCHESS, KINGS, PUTNAM, QUEENS, WESTCHESTER, CONNECTICUT	PEEKSKILL
1	HUNTINGTON RESOURCE RECOVERY FACILITY	336,280	SUFFOLK	EAST NORTHPORT
1	BABYLON RESOURCE RECOVERY FACILITY	219,899	SUFFOLK	ISLIP
1	MACARTHUR RESOURCE RECOVERY FACILITY	172,361	SUFFOLK	RONKONKOMA

LANDFILLS				
DEC REGION	FACILITY_NAME	TONS RECEIVED IN 2008	SERVICE AREA	CITY
1	BROOKHAVEN LANDFILL	839607	KINGS, NASSAU, QUEENS, SUFFOLK	NORTH BELLPORT
3	SPROUT BROOK ASH LANDFILL (CLOSED 2009)	179296	WESTCHESTER	CORTLANDT MANOR
1	BABYLON NORTH "U" ASH LANDFILL	138490	SUFFOLK	WEST BABYLON
1	BLYDENBURGH LANDFILL	86082	SUFFOLK	CENTRAL ISLIP