

# Large Urban Freight Traffic Generators: Opportunities for City Logistics Initiatives

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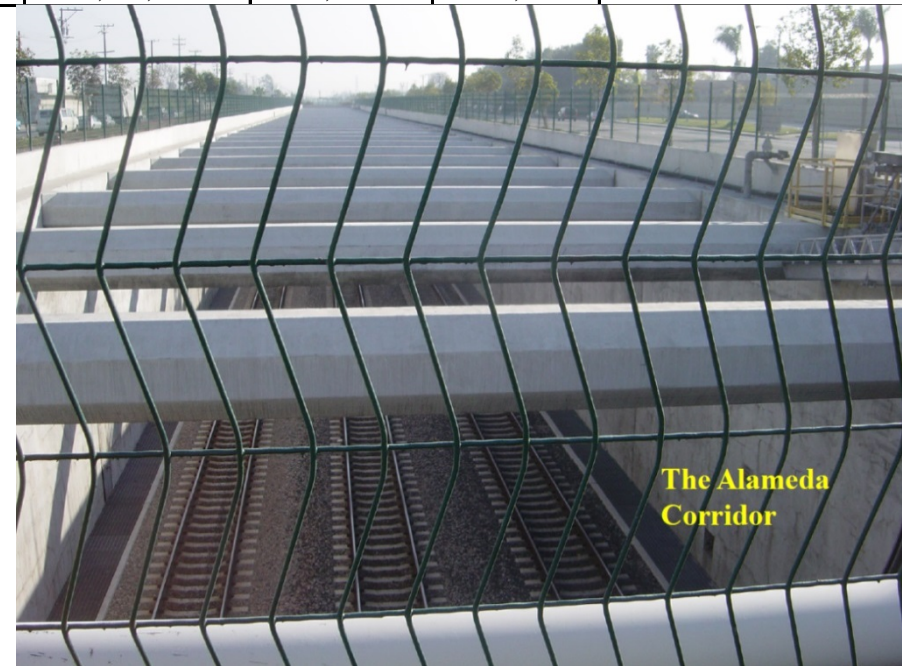
1. Urban freight large traffic generators
2. Opportunities for city logistics
3. Identification methods



# Large traffic generators

## ❖ Ports, airports, intermodal terminals, etc...

2008 North American Rank	Port	TEUs	Boxes	Population (2008)	Area (sq. mi.)	Employment
1/2	LA/LB	14,200,110	7,980,729	12,923,547	4,850	6,574,300
3	NY/NJ	5,265,058	3,068,935	18,815,988	6,720	9,407,500
4	SAVANNAH	2,616,126	1,458,135	329,329	1,359	180,300
9	HOUSTON	1,794,309	1,102,545	5,728,143	10,062	2,765,500
10	SEATTLE	1,704,492	1,005,273	3,344,813	5,894	1,850,500
17	MIAMI	828,349	473,154	5,413,212	6,137	2,848,700
20	BALTIMORE	612,877	395,467	2,668,056	599	1,411,800
27	PORTLAND	245,459	140,405	2,175,113	6,684	1,161,000
29	NEW ORLEANS	235,336	153,709	1,134,029	3,755	528,300



# Large buildings/establishments

**Grand Central Terminal**  
**More than 180 establishments**  
**Between 150-200 truck trips**  
**per day**



## Supplying a Midtown Hotel

A week of Truck Deliveries to a Midtown Luxury Hotel

**M**



**Tu**



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**Th**



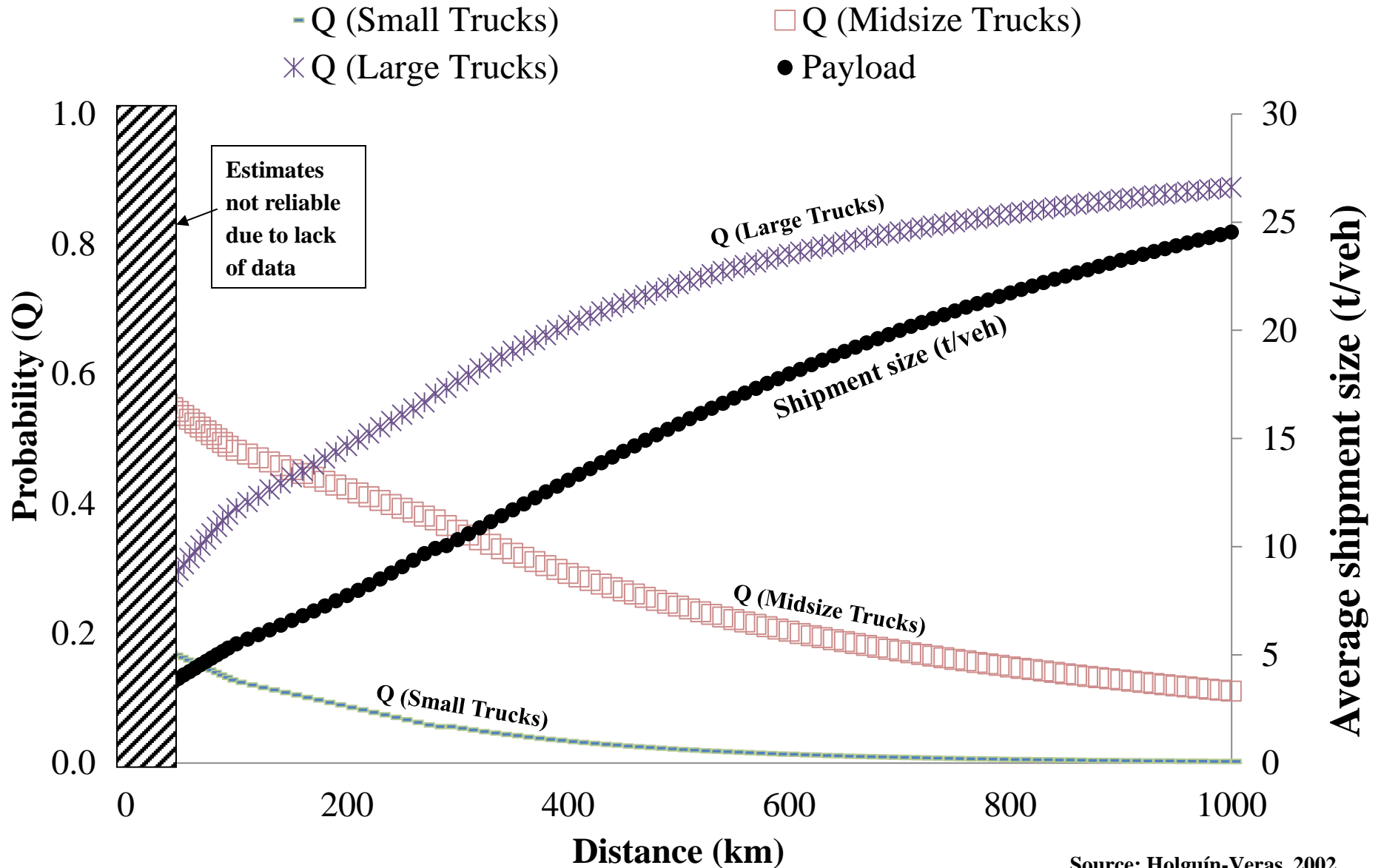
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Source: NYU Wagner /NYCDOT

\*Visualization of vehicle stops only, actual truck and load sizes vary. Data from 3/11-3/15 2013 Loading Dock Records

# Shipment size vs. vehicle type vs. distance



# Freight trip generation

## ❖ Urban establishments' FTG vs. Port's FTG

County	Population	Establishments	Estimated employment	Estimated daily FTA	Percentage of total FTA per day	Estimated daily FTP	Percentage of total FTP per day
<b>1. Manhattan</b>	1,537,195	102,597	2,062,079	182,427	49%	161,144	47%
<b>2. Brooklyn</b>	2,465,326	44,043	521,992	75,865	20%	73,431	21%
<b>3. Queens</b>	2,229,379	41,551	518,953	71,447	19%	68,883	20%
<b>4. Bronx</b>	1,332,650	15,528	224,179	26,320	7%	26,838	8%
<b>5. Staten Island</b>	443,728	8,376	100,975	14,464	4%	12,910	4%
<b>Grand Total</b>	8,008,278	212,095	3,428,177	370,522	100%	343,206	100%

Port	Estimated Truck Trips Generated
LOS ANGELES/LONG BEACH	16,289
<b>NEW YORK/NEW JERSEY</b>	<b>9,166</b>
SAVANNAH	4,640
HOUSTON	3,236
SEATTLE	3,082
MIAMI	1,585
BALTIMORE	1,217
PORTLAND	589
NEW ORLEANS	572



**About 2.6% of  
Manhattan FTG**

**The urban freight traffic is  
generated by the 100k+  
establishments in the  
Manhattan**



# Large urban freight traffic generators (LTGs)

- ❖ Specific facilities housing businesses that individually or collectively produce and attract a large number of daily truck trips.
- ❖ **Large Buildings and landmarks:** those that house scores of establishments which generate a large aggregated freight truck traffic
- ❖ **Large establishments:** those, that because of their size, generate significant amounts of freight



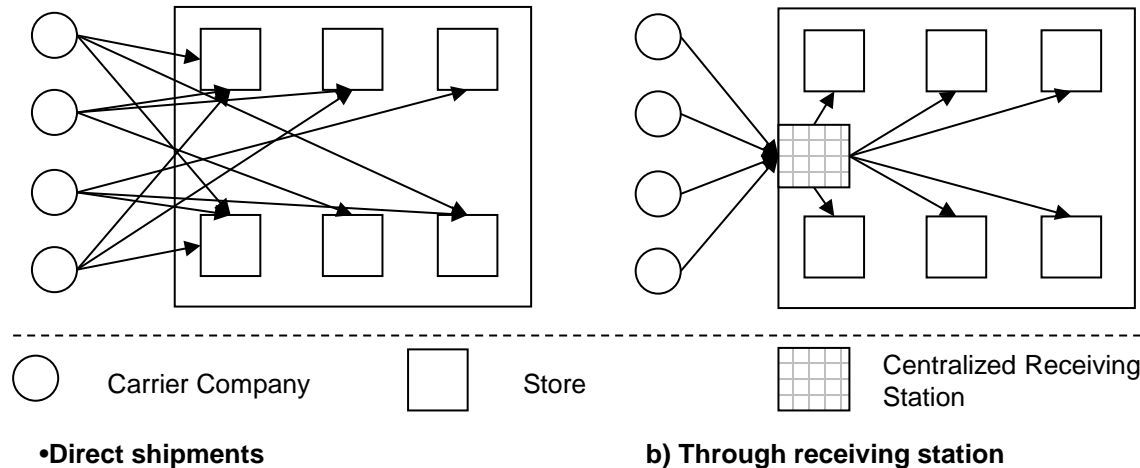


# Opportunities for City Logistics Initiatives



# Off-hour deliveries and receiving stations

- ❖ Off-hour deliveries at a centralized receiving station and then distributed to the different stores, offices, restaurants



(+) reduce freight trips attracted

(+) reduce parking needs

(-) requires coordination efforts

(-) space may not be available



- ❖ Pick-up/Drop-off: local collection and distribution depots, or boxes, from which consumers can pick up ordered goods (e.g., locker banks)
  - ❖ These systems can be installed in or near LTGs
- ❖ Unattended Deliveries: strategies that do not require staff for pick-up or drop off
  - ❖ Double door systems
  - ❖ Virtual cages
  - ❖ Video or alarm monitored equipment



# Parking and loading/unloading initiatives

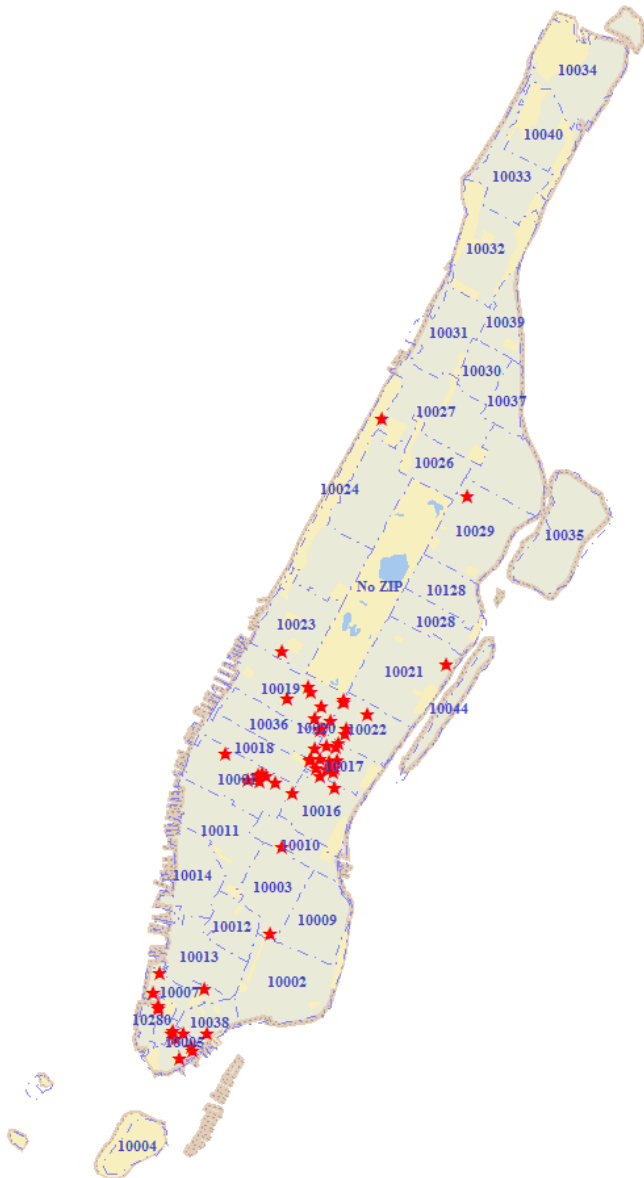
- ❖ Parking is a major issue in large urban areas
- ❖ Alternatives:
  - ❖ Parking pricing
  - ❖ Reserved parking
  - ❖ Low-scale nearby delivery areas
  - ❖ On-street loading bays
    - (+) low capital investment
    - (+) reduce congestion
    - (+) reduce double parking
    - (-) conflict with pedestrians / cyclists
    - (-) require enforcement
    - (-) limited space availability

# Identifying Urban Freight Large Traffic Generators



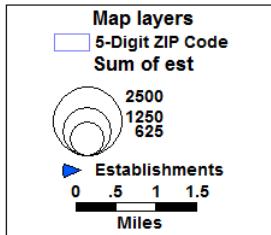
- ❖ Buildings/landmarks that have their own ZIP code
  - ❖ (+) These are buildings/landmarks that in opinion of USPS generate a lot of mail (and maybe deliveries)
  - ❖ (+) Accurate geolocation
  - ❖ (-) Includes unknown mix of freight /non-freight related est.
- ❖ Large buildings
  - ❖ Parcel areas (top 1%)
  - ❖ Establishments with more than 250, 500 and 1000+ employees
    - ❖ (+) Comprehensive
    - ❖ (-) Some industries with constant FTG per establishment
    - ❖ (-) No accurate geolocation (only at ZIP code level)

# Landmark buildings (unique zip codes)

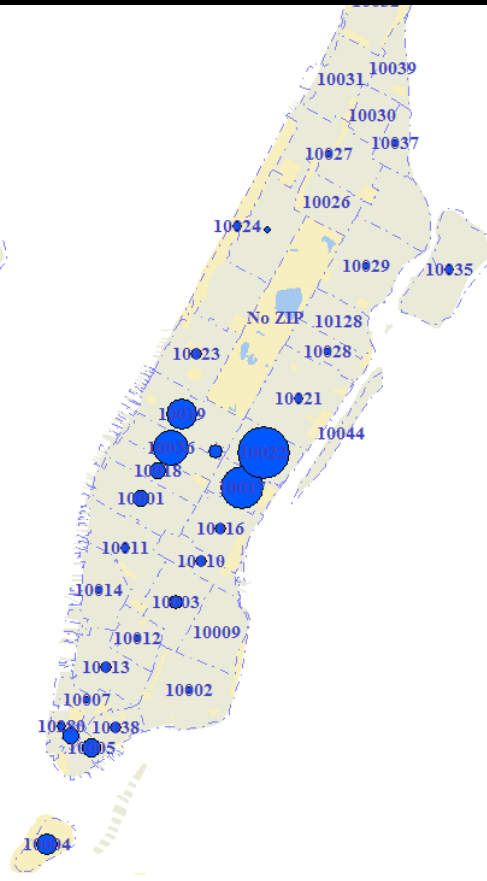
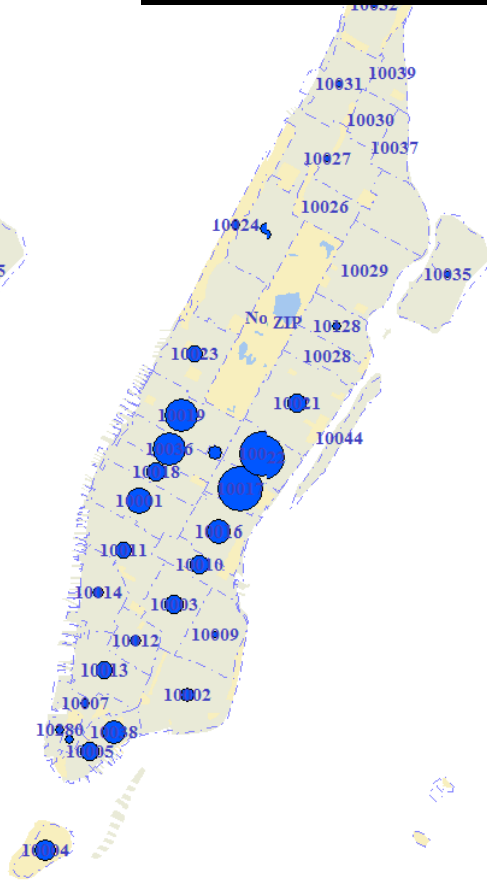
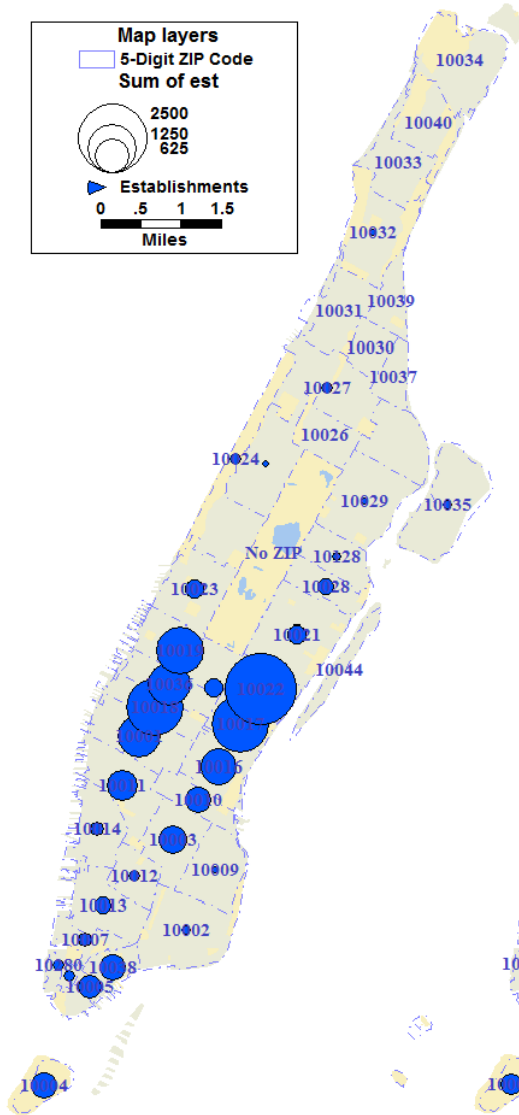


Zip Code	Zip Code Description	Establishments	Estimated			Zip Code	Zip Code Description	Establishments	Estimated		
			Daily FTA	Daily FTP	Total daily FTG				Daily FTA	Daily FTP	Total daily FTG
10118	Empire State Building	594	1,014	898	1,912	10152	Seagram Building	88	98	101	200
10165	Lincoln Building	462	573	546	1,119	10178	101 Park Avenue	73	85	89	174
10119	1 Penn Plaza	300	460	454	914	10115	475 Riverside Drive	66	79	71	150
10170	Graybar Building	309	373	375	748	10069	---	55	81	68	149
10123	450 Fashion Avenue	240	337	330	667	10104	1290 Avenue of the Am	36	69	68	137
10166	Met Life Building	130	345	277	622	10171	West Vaco Building	54	64	71	135
10282	---	227	283	272	555	10041	55 Water Street	39	81	46	127
10112	General Electric Building	130	232	316	548	10154	Bristol Myers Building	52	66	61	127
10107	Fisk Building	222	279	262	542	10172	Chemical Bank Building	57	62	63	125
10120	112 W 34th Street	68	332	198	530	10285	Shearson American Exp	20	29	86	115
10169	Helmsley Building	227	265	249	514	10105	Burlington Building	48	58	54	112
10281	---	153	263	239	502	10158	605 3rd Avenue	49	51	56	107
10103	Tishman Building	103	266	199	464	10270	AIG	46	57	49	106
10122	Pennsylvania Building	169	235	227	463	10055	Park Avenue Plaza	44	44	49	93
10168	Grand Central Station	184	241	221	462	10177	Marine Midland Building	33	39	46	85
10110	500 5th Avenue	177	226	205	431	10286	Bank of New York	40	43	41	84
10155	Architect & Design	140	253	166	419	10173	342 Madison Avenue	30	39	41	80
10111	International Building	164	208	193	401	10080	Merrill Lynch	29	32	32	64
10106	888 Fashion Avenue	118	182	147	329	10043	CITIBANK	29	30	31	61
10121	2 Penn Plaza	86	134	189	322	10162	Pavilion Building	17	23	26	49
10174	Chrysler Building	125	149	164	313	10199	GPO Official Mail	5	30	9	39
10153	General Motors Building	101	126	177	302	10102	Radio City BRM	9	24	13	37
10167	Bear Sterns Building	118	147	142	288	10072	Philip Morris	5	25	7	32
10279	Woolworth Building	117	132	150	282	10292	Bache Halsey Stuart St	14	14	14	28
10176	French Building	103	143	124	268	10081	JP Morgan Bank	12	12	13	25
10175	521 5th Avenue	92	129	110	239	10278	Jacob K. Javits	7	7	9	16
10271	Equitable Building	93	104	103	207	10179	Bear Sterns Building	7	7	7	14
10151	745 5th Avenue	72	103	102	205	10280	JP Morgan Bank	6	6	6	12
<b>Total</b>								<b>4,912</b>	<b>7,030</b>	<b>6,761</b>	<b>13,791</b>

# Large establishments (employment)

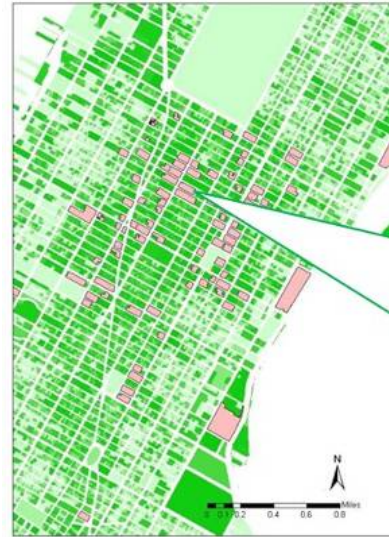


	No. of ZIP Codes	Establishments	Estimated employment	Estimated daily FTA	Estimated daily FTP
<b>Large Establishments</b>		24,667	1,732,875	43,224	40,274
<b>250-499 employees</b>	65	13,542	706,010	25,796	24,093
<b>500-999 employees</b>	52	6,203	493,294	10,982	8,866
<b>1000+ employees</b>	53	4,922	533,571	6,446	7,314





# Large buildings (parcel area)



**Top 1% parcels in terms of area in the city**



## ❖ They produce highly concentrated traffic impacts

	No.	Establishments	%***	Estimated employment	%***	Estimated daily FTA	%***	Estimated daily FTP	%***
<b>Manhattan</b>		<b>102,597</b>		<b>2,062,079</b>		<b>182,427</b>		<b>161,144</b>	
<b>Landmarks*</b>	56	5,994	5.84%	196,497	9.53%	7,030	3.85%	6,761	4.20%
<b>Large Establishments</b>		24,667	24.04%	1,732,875	84.04%	43,224	23.69%	40,274	24.99%
<b>250-499 employees</b>		13,542	13.20%	706,010	34.24%	25,796	14.14%	24,093	14.95%
<b>500-999 employees</b>		6,203	6.05%	493,294	23.92%	10,982	6.02%	8,866	5.50%
<b>1000+ employees</b>		4,922	4.80%	533,571	25.88%	6,446	3.53%	7,314	4.54%
<b>Large Area Parcels</b>	146	20,778	20.25%	467,350	22.66%	67,949	37.25%	**	

\* More than 5 establishments

\*\* No models available

\*\*\* Percentage from total values for Manhattan

FTA = Freight Trips Attracted

FTP = Freight Trips Produced



## ❖ **Advantages:**

- ❖ Easy to identify
- ❖ Concentration of a large number of establishments in a reduced set of locations
- ❖ They generate a significant share of daily truck traffic
- ❖ Their close spatial location allow for green last mile distribution strategies
- ❖ Size and economy of scales/ cargo consolidation

## ❖ **Disadvantages:**

- ❖ Lack of storage space for large volumes of goods
- ❖ Security management
- ❖ Limited loading facilities lead to increased scheduling complexities

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Thank you!  
Questions!  
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