Chapter 16: Traffic and Parking

A. INTRODUCTION

The proposed rezoning encompasses portions of 111 blocks located within the East Village and Lower East Side sections of Manhattan, generally bounded by East 13th Street to the north, Avenue D to the east, Houston Street/Delancey Street/Grand Street to the south, and the Bowery/Third Avenue to the west. This chapter assesses the potential traffic and parking impacts associated with the reasonable worst-case development scenario (RWCDS) under the proposed actions. Because the Inclusionary Housing Alternative, discussed in more details in Chapter 23, "Alternatives," would yield more incremental development than the RWCDS under the proposed actions, its potential impacts on traffic and parking are also addressed in this chapter. As demonstrated below, neither the RWCDS nor the Inclusionary Housing Alternative would generate enough vehicle trips to warrant the need for a detailed traffic study, and as a result, both scenarios would not result in any significant adverse traffic impacts. Furthermore, the parking demand generated by development components of these scenarios could be accommodated by the existing parking supply and is not expected to result in a parking shortfall.

B. METHODOLOGY

OVERVIEW

The *City Environmental Quality Review (CEQR) Technical Manual* identifies procedures for evaluating a project's potential impacts on traffic, parking, transit, and pedestrian facilities. This methodology begins with the preparation of a trip generation analysis to determine the volume of person and vehicle trips associated with the proposed actions. The results are then compared to *CEQR* thresholds to determine whether additional quantified analyses are required. Details on the trip generation estimates, screening of traffic analyses, and parking assessments are provided below. Potential effects of the proposed actions on transit and pedestrian conditions are addressed in Chapter 17, "Transit and Pedestrians."

TRIP GENERATION AND TRAFFIC ASSIGNMENT

A preliminary trip generation analysis and traffic assignment for the Inclusionary Housing Alternative, which would yield a larger amount of incremental development than the RWCDS under the proposed actions, was prepared during the scoping process of this EIS to determine if a detailed traffic study would be warranted. The results of this analysis were summarized in a technical memorandum and are presented in Appendix E. Subsequent to this effort, detailed trip generation estimates and assignment of vehicle trips to the rezoning area and its available parking locations were developed for both the RWCDS under the proposed actions and the Inclusionary Housing Alternative to determine if the proposed rezoning would yield 50 or more peak hour vehicle trips through any intersection, thereby requiring a quantified analysis of intersection operations.

PARKING CONDITIONS ASSESSMENT

The parking analysis identifies the extent to which on-street and off-street parking is available and utilized under existing and future conditions. Typically, this analysis encompasses a study area within ¼ mile of the project sites. If the analysis produces a parking shortfall in the ¼ mile study area, the study area could be extended to ½ mile to identify additional parking supply. The analysis, which takes into consideration anticipated changes in area parking supply, provides a comparison of parking needs versus availability to determine if a parking shortfall is likely to result from additional demand generated by the proposed actions. A detailed inventory of on-street parking regulations and off-street supply and utilization was conducted to assess existing parking conditions. Increases in future parking demand independent of the proposed actions were then superimposed along with background growth to establish a future baseline to which the projected demand from the proposed actions can be compared.

C. TRAVEL DEMAND PROJECTIONS AND TRAFFIC ANALYSIS SCREENING

At the affected rezoning sites, there are currently 300 residential dwelling units. By 2017, another 2,234 dwelling units are anticipated to be constructed absent the proposed actions (future with the proposed actions or the No Build condition). With the proposed actions, the RWCDS would result in a net increase of 1,383 dwelling units and a net decrease of 74,439 gross square feet (gsf) of commercial space. Under the Inclusionary Housing Alternative, 1,589 additional dwelling units over the future No Build condition could be constructed and, as with the proposed actions, there would be a net decrease of 74,439 gsf of commercial space. To determine whether these increments would warrant the need for detailed transportation analyses, travel demand projections were developed to identify the numbers of person, transit, and vehicular trips that could potentially be generated by the proposed actions.

TRANSPORTATION PLANNING ASSUMPTIONS

For the residential trip generation, the *Urban Space for Pedestrians* (by Pushkarev and Zupan [P&Z]) and *CEQR Technical Manual* daily trip rate of 8.075 per DU was used to estimate the total daily person trips and the 2000 census journey-to-work data were used to develop the modal split profile for travel during peak hours. This profile essentially shows approximately 9 percent of residential travel via auto, 3.5 percent via taxi, 44.5 percent via subway, 10 percent via bus, and 33 percent via walk/other. For a reasonable worst-case analysis, the commercial uses were assumed to be office-oriented. The office trip generation made use of the P&Z and CEQR daily trip rate of 18.0 person trips per 1,000 gsf, the 2000 census reverse journey-to-work peak period data for the commuting modal split profile (approximately 17.5 percent auto, 1.0 percent taxi, 40 percent subway, 8.5 percent bus, 16 percent walk/other, and 17 percent work at home) for AM and PM peak hour travel, and the *No. 7 Subway Extension–Hudson Yards Rezoning and Development Program FGEIS* midday modal split profile (2 percent auto, 3 percent taxi, 6 percent subway, 6 percent bus, 66 percent walk, and 17 percent work at home) for midday peak hour travel.

Table 16-1 summarizes the estimated person and vehicle trips generated by the 1,382 projected residential dwelling units under the RWCDS. Because the proposed actions would result in less developable office space, the office trips were netted out (separately) from the residential trips to estimate the potential trip increments. As shown in Table 16-2, these negative increments would total fewer than 170 person trips and 30 vehicle trips during peak hours. Therefore, the RWCDS

under the proposed actions would generate, as shown in Table 16-3, up to approximately 1,040 total peak hour person trips and 100 peak hour vehicle trips. In comparison, the Inclusionary Housing Alternative would generate, as shown in Tables 16-4 and 16-5, up to approximately 1,220 total peak hour person trips and 120 peak hour vehicle trips. Typically, the number of the projected peak hour trips (exceeding 50 vehicle trips) would warrant a detailed analysis of traffic conditions. However, since the projected development sites and the associated vehicle trips would be dispersed within a large rezoning area and among over 100 intersections, a screening analysis comprising detailed assignments of projected vehicle trips, as detailed below, would suffice in addressing potential traffic impacts.

Table 16-1
Proposed Actions Residential Trip Generation

Residential Use	1,382 (dwelling units)												
Daily Trip Rate	**Person Trips[1] (/dwelling unit)**					**Delivery Trips[2] (/dwelling unit)**							
	8.075					0.06							
Temporal & In/Out Distribution	**Person Trips[1]**					**Delivery Trips[2]**							
	Temporal	In	Out			Temporal	In	Out					
Weekday AM Peak Hour	9.1%	15.0%	85.0%			9.7%	100%	100%					
Weekday Midday Peak Hour	4.7%	50.0%	50.0%			9.1%	100%	100%					
Weekday PM Peak Hour	10.7%	70.0%	30.0%			5.1%	100%	100%					
Modal Split (%)[3]	**Auto**		**Taxi**		**Subway**	**Bus**		**Walk/Other**			**Total**		
Weekday AM Peak Hour	9.1%		3.4%		44.4%	10.3%		32.8%			100.0%		
Weekday Midday Peak Hour	9.1%		3.4%		44.4%	10.3%		32.8%			100.0%		
Weekday PM Peak Hour	9.1%		3.4%		44.4%	10.3%		32.8%			100.0%		
Vehicle Occupancy	**Auto[3]**		**Taxi**										
	1.35		1.40										
Peak Hour Person Trips	**Auto**		**Taxi**		**Subway**		**Bus**		**Walk/Other**			**Total**	
	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	Total
Weekday AM Peak Hour	14	79	5	29	68	383	16	89	50	283	153	863	1,016
Weekday Midday Peak Hour	24	24	9	9	116	116	27	27	86	86	262	262	524
Weekday PM Peak Hour	76	33	28	12	371	159	86	37	274	117	835	358	1,193
Peak Hour Vehicle Trips	**Auto**		**Taxi**		**Delivery**		**Total**						
	In	Out	In	Out	In	Out	In	Out	Total				
Weekday AM Peak Hour	10	58	23	23	8	8	41	89	130				
Weekday Midday Peak Hour	18	18	9	9	8	8	35	35	70				
Weekday PM Peak Hour	56	24	20	20	4	4	80	48	128				

Sources:
1. *Urban Space for Pedestrians (1975),* Pushkarev & Zupan
2. USDOT
3. U.S. Census 2000

Table 16-2
Proposed Actions and Inclusionary Housing Alternative Office Trip Generation

Office Use -74.44 (1,000 gsf)

Daily Trip Rate

Person Trips (/1,000 gsf)[1]	Delivery Trips (/1,000 gsf)[2]
18.0	0.2

Temporal & In/Out Distribution

	Person Trips[1]			Delivery Trips[2]		
	Temporal	In	Out	Temporal	In	Out
Weekday AM Peak Hour	11.8%	95.0%	5.0%	9.6%	100%	100%
Weekday Midday Peak Hour	15.0%	48.0%	52.0%	11.0%	100%	100%
Weekday PM Peak Hour	13.7%	15.0%	85.0%	1.0%	100%	100%

Modal Split (%)

	Auto	Taxi	Subway	Bus	Walk/Other	Total	Work at Home
Weekday AM Peak Hour[3]	17.5%	1.2%	39.8%	8.5%	16.2%	83.2%	16.8%
Weekday Midday Peak Hour[3,4]	2.0%	3.0%	6.0%	6.0%	66.2%	83.2%	16.8%
Weekday PM Peak Hour[3]	17.5%	1.2%	39.8%	8.5%	16.2%	83.2%	16.8%

Vehicle Occupancy

Auto[3]	Taxi
1.20	1.40

Peak Hour Person Trips

	Auto		Taxi		Subway		Bus		Walk/Other		Total		
	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	Total
Weekday AM Peak Hour	-26	-1	-2	0	-60	-3	-13	-1	-24	-1	-125	-6	-131
Weekday Midday Peak Hour	-2	-2	-3	-3	-6	-6	-6	-6	-64	-69	-81	-86	-167
Weekday PM Peak Hour	-5	-27	0	-2	-11	-62	-2	-13	-4	-25	-22	-129	-151

Peak Hour Vehicle Trips

	Auto		Taxi		Delivery		Total		
	In	Out	In	Out	In	Out	In	Out	Total
Weekday AM Peak Hour	-22	-1	-1	-1	-1	-1	-24	-3	-27
Weekday Midday Peak Hour	-2	-2	-3	-3	-2	-2	-7	-7	-14
Weekday PM Peak Hour	-4	-23	-1	-1	0	0	-5	-24	-29

Source:
1. *Urban Space for Pedestrians (1975), Pushkarev & Zupan*
2. *Motor Trucks in the Metropolis (1969), Wilbur Smith Associates*
3. *U.S. Census 2000*
4. *No. 7 Subway Extension - Hudson Yards Rezoning and Development Program FGEIS*

Sources:
1. *Urban Space for Pedestrians (1975), Pushkarev & Zupan*
2. *Motor Trucks in the Metropolis (1969), Wilbur Smith Associates*
3. *U.S. Census 2000*
4. *No. 7 Subway Extension – Hudson Yards Rezoning and Development Program FGEIS*

Table 16-3
Proposed Actions Total Trip Generation Increments

Peak Hour Person Trips

	Auto		Taxi		Subway		Bus		Walk/Other		Total		
	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	Total
Weekday AM Peak Hour	-12	78	3	29	8	380	3	88	26	282	28	857	885
Weekday Midday Peak Hour	22	22	6	6	110	110	21	21	22	17	181	176	357
Weekday PM Peak Hour	71	6	28	10	360	97	84	24	270	92	813	229	1,042

Peak Hour Vehicle Trips

	Auto		Taxi		Delivery		Total		
	In	Out	In	Out	In	Out	In	Out	Total
Weekday AM Peak Hour	-12	57	22	22	7	7	17	86	103
Weekday Midday Peak Hour	16	16	6	6	6	6	28	28	56
Weekday PM Peak Hour	52	1	19	19	4	4	75	24	99

Table 16-4
Inclusionary Housing Alternative Residential Trip Generation

Residential Use	1,589 (dwelling units)												
Daily Trip Rate	**Person Trips[1] (/dwelling unit)** 8.075					**Delivery Trips[2] (/dwelling unit)** 0.06							
Temporal & In/Out Distribution	**Person Trips[1]**					**Delivery Trips[2]**							
	Temporal	In	Out			Temporal	In	Out					
Weekday AM Peak Hour	9.1%	15.0%	85.0%			9.7%	100%	100%					
Weekday Midday Peak Hour	4.7%	50.0%	50.0%			9.1%	100%	100%					
Weekday PM Peak Hour	10.7%	70.0%	30.0%			5.1%	100%	100%					
Modal Split (%)[3]	**Auto**		**Taxi**		**Subway**	**Bus**		**Walk/Other**			**Total**		
Weekday AM Peak Hour	9.1%		3.4%		44.4%	10.3%		32.8%			100.0%		
Weekday Midday Peak Hour	9.1%		3.4%		44.4%	10.3%		32.8%			100.0%		
Weekday PM Peak Hour	9.1%		3.4%		44.4%	10.3%		32.8%			100.0%		
Vehicle Occupancy	**Auto[3]**		**Taxi**										
	1.35		1.40										
Peak Hour Person Trips	**Auto**		**Taxi**		**Subway**		**Bus**		**Walk/Other**		**Total**		
	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	Total
Weekday AM Peak Hour	16	90	6	34	78	441	18	102	57	326	175	993	1,168
Weekday Midday Peak Hour	27	27	10	10	134	134	31	31	99	99	301	301	602
Weekday PM Peak Hour	87	37	33	14	427	183	99	42	315	135	961	411	1,372
Peak Hour Vehicle Trips	**Auto**		**Taxi**		**Delivery**		**Total**						
	In	Out	In	Out	In	Out	In	Out	Total				
Weekday AM Peak Hour	12	67	26	26	9	9	47	102	149				
Weekday Midday Peak Hour	20	20	10	10	9	9	39	39	78				
Weekday PM Peak Hour	65	28	23	23	5	5	93	56	149				

Sources:
1. *Urban Space for Pedestrians (1975), Pushkarev & Zupan*
2. *USDOT*
3. *U.S. Census 2000*

Table 16-5
Inclusionary Housing Alternative Total Trip Generation Increments

Peak Hour Person Trips	**Auto**		**Taxi**		**Subway**		**Bus**		**Walk/Other**		**Total**		
	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	Total
Weekday AM Peak Hour	-10	89	4	34	18	438	5	101	33	325	50	987	1,037
Weekday Midday Peak Hour	25	25	7	7	128	128	25	25	35	30	220	215	435
Weekday PM Peak Hour	82	10	33	12	416	121	97	29	311	110	939	282	1,221
Peak Hour Vehicle Trips	**Auto**		**Taxi**		**Delivery**		**Total**						
	In	Out	In	Out	In	Out	In	Out	Total				
Weekday AM Peak Hour	-10	66	25	25	8	8	23	99	122				
Weekday Midday Peak Hour	18	18	7	7	7	7	32	32	64				
Weekday PM Peak Hour	61	5	22	22	5	5	88	32	120				

TRAFFIC ASSIGNMENTS AND DETAILED ANALYSIS SCREENING

TRAFFIC ANALYSIS SCREENING

Based on the East Village and Lower East Side roadway network characteristics, potential travel routes of vehicle trips to and from the development sites within the rezoning area, and U.S. Census journey-to-work and reverse journey-to-work data, traffic distributions for autos, taxis and trucks for residential and commercial land uses were developed for specific assignments of the projected vehicle trip increments, as discussed above. Eight zones, as shown in Figure 16-1

and summarized below, were designated to assign the peak hour vehicle trips onto the study area roadway network.

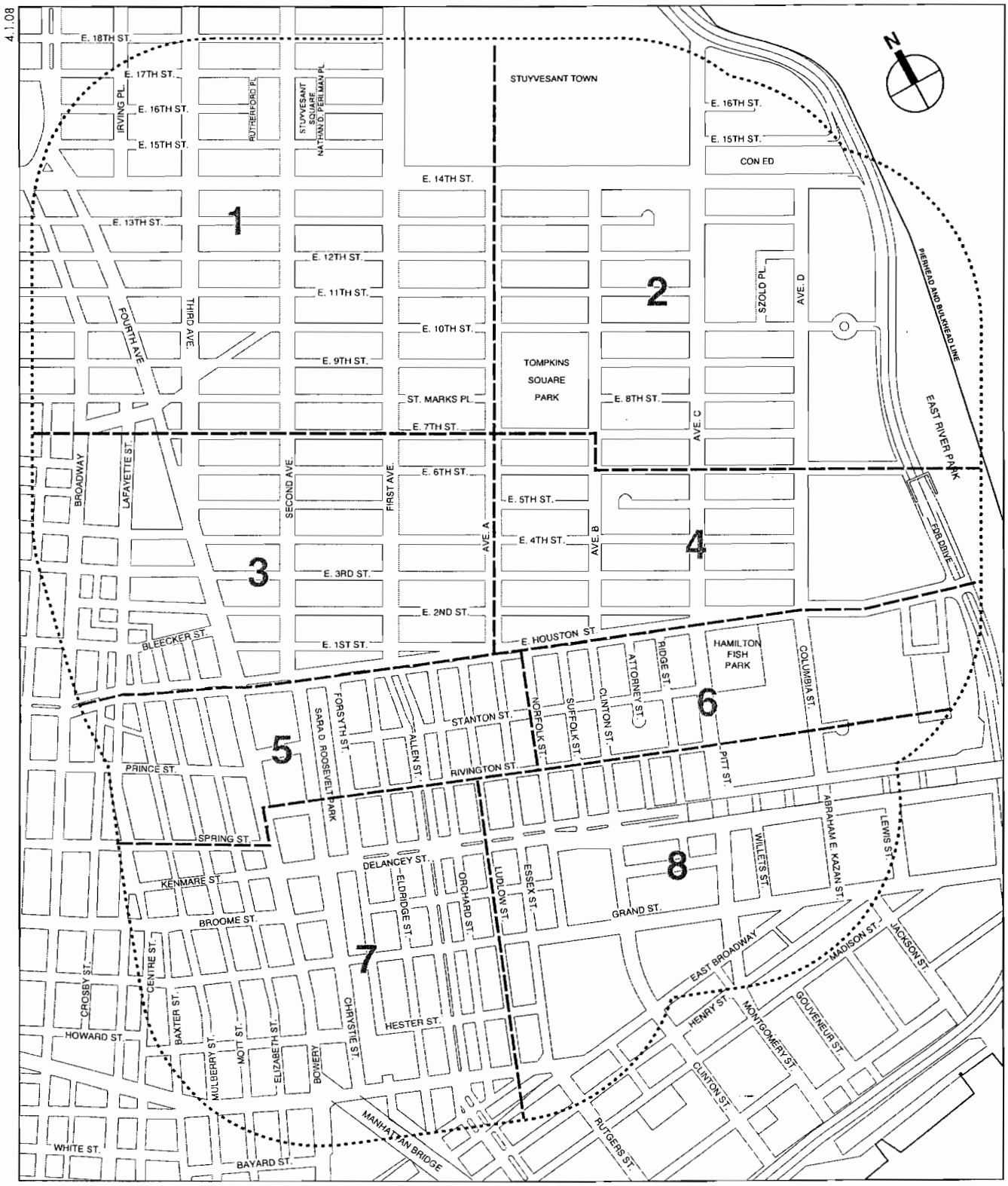
Traffic Assignment Zone Boundaries:

- Zone 1 – north of East 7th Street and west of Avenue A
- Zone 2 – north of East 7th Street between Avenues A and B, north of East 6th Street east of Avenue B, and east of Avenue A
- Zone 3 – north of Houston Street, south of East 7th Street, and west of Avenue A
- Zone 4 – north of Houston Street, south of East 7th Street between Avenues A and B, south of East 6th Street east of Avenue B, and east of Avenue A
- Zone 5 – north of Rivington Street, south of Houston Street, and west of Norfolk Street
- Zone 6 – north of Rivington Street, south of Houston Street, and east of Norfolk Street
- Zone 7 – south of Rivington Street and west of Ludlow Street
- Zone 8 – south of Rivington Street and east of Ludlow Street

The specific allocation of these vehicle trips to the above zones is summarized in the technical memorandum in Appendix E. The detailed intersection-by-intersection weekday peak hour volume increments of the projected RWCDS and Inclusionary Housing Alternative vehicle trips by zone and peak hour are presented in figures in this chapter. As demonstrated in the traffic volume increment figures, the RWCDS and the Inclusionary Housing Alternative would not result in an increment of 50 or more peak hour vehicle trips through any intersection within or surrounding the rezoning area. Therefore, a detailed traffic analysis is not warranted and the proposed rezoning under either the RWCDS or the Inclusionary Housing Alternative is not expected to result in any significant adverse traffic impacts. A discussion of the incremental volumes follows, with figures illustrating the weekday AM, midday, and PM peak hour volume increments.

RESIDENTIAL TRIP ASSIGNMENTS

For residential uses projected in the study area, most auto trips are expected to be made to other Manhattan locations (about 50 percent), Queens (about 9 percent), Brooklyn (10 percent), Long Island (about 5 percent), New Jersey (about 9 percent), and upstate New York, Westchester county, and Connecticut (about 7 percent) while taxi trips would be destined to other Manhattan locations. About 33 percent of the residentially-generated auto trips would be expected to use the FDR Drive, especially to destinations in Midtown, Upper Manhattan, and Westchester County. Most Queens and Long Island trips would be oriented to the Queens-Midtown Tunnel, Queensboro Bridge, and Williamsburg Bridge. Many northern New Jersey auto trips would be oriented to the George Washington Bridge via the FDR Drive. Brooklyn and Staten Island auto trips would enter and exit the study area via the Manhattan Bridge or the Brooklyn Bridge. The remainder of the auto trips would use the various north-south avenues to go uptown or downtown, and primarily 14th Street, Houston Street, and Canal Street to reach crosstown destinations including the entrances to the Holland Tunnel for many New Jersey-bound vehicles. The local street network would also be used to gain access to the three bridges to Brooklyn in or near the study area. Taxi trips would also be made via this array of routes, with percentages shifted slightly higher towards north-south avenues and crosstown streets, and percentages shifted slightly lower to the FDR Drive, bridges and tunnels. Trucks would use designated NYCDOT truck routes to reach the study area, and then proceed directly to their destination on local streets.



Study Area Zones
Figure 16-1

OFFICE TRIP ASSIGNMENTS

The RWCDS shows that office development in the study area would decrease with the proposed actions when compared to future conditions without the RWCDS. Therefore, the office trips have been subtracted from the residential trips to calculate the net generated traffic volumes. For office uses, most auto trips would originate from Queens (about 25 percent), Long Island (about 10 percent), Brooklyn (about 22 percent), Manhattan (about 18 percent), Westchester and other upstate New York counties (about 13 percent), and New Jersey (about 9 percent), while nearly all taxi trips would originate from Manhattan.

The FDR Drive would be significantly used by office auto trips, with about 26 percent using this route to access the study area. Another 18 percent is expected to approach the area via the Williamsburg Bridge, 12 percent via the Brooklyn Bridge, and 9 percent via the Manhattan Bridge. About 7 percent would access the area via the Holland Tunnel. First and Second Avenues would be expected to be the primary routes for approximately 14 percent of office trips. Canal Street, Houston Street, and 14th Street would not be the primary approach routes to the area regionally (about 10 percent), however these three east-west streets would be more heavily used by traffic once it emerges onto the street network from the FDR Drive, the Holland Tunnel, the Williamsburg Bridge, and the Manhattan Bridge. Another four percent would be expected to access the study area via Broadway, Bowery, Lafayette Street, and Centre Street. Taxi trips would also be made via this array of routes, with percentages shifted slightly higher towards north-south avenues and crosstown streets, and percentages shifted slightly lower to the FDR Drive, bridges, and tunnels. Trucks would use designated NYCDOT truck routes to reach the study area, and then proceed directly to their destination on local streets.

INCREMENTAL TRAFFIC VOLUMES WITH THE PROPOSED ACTIONS

The net trip assignments produced by the residential land use increase and office land use decrease produce intersection-by-intersection traffic volumes by AM, midday, and PM peak hour, and an overview of these volume increments is provided below. The traffic network consists of over 100 intersections, and has been divided into four quadrants to be described in this EIS; a key map of the four quadrants is shown in Figure 16-2. Specific intersection-by-intersection traffic volume increments from the RWCDS are provided in Figures 16-3 through 16-14.

When comparing future No Build conditions to the future with the proposed actions or Build conditions, First Avenue traffic volumes can generally be expected to increase by about 19 vehicles per hour (vph) near 14th Street and 10 vph near Houston and Grand Streets, with midday peak hour volumes increasing by about 6 vph near 14th Street and 4 vph near Houston Street and Grand Streets, and PM peak hour volumes increasing by about 6 vph near 14th Street and 5 vph near Houston and Grand Streets.

Second Avenue traffic volumes can generally be expected to increase by about 5 vph near 14th Street and 6 vph near Houston Street, and 2 vph near Grand Street, with midday peak hour volumes increasing by about 6 vph near 14th Street, 5 vph near Houston Street, and 3 vph near Grand Street, and PM peak hour volumes increasing by about 16 vph near 14th Street, 10 vph near Houston Street, and 9 vph near Grand Street.

The Bowery traffic volumes near Houston Street can be expected to increase by about 4 to 9 vph per direction in each of the peak hours.

FDR Drive Service Road volumes near Houston Street can be expected to increase by about 1 vph southbound in the AM peak hour, by about 4 vph southbound during the midday peak hour, and by about 13 vph southbound in the PM peak hour. Northbound FDR Drive Service Road volumes are expected to increase by about 13 vph during the AM peak hour, 4 vph during the midday peak hour, and 3 vph during the PM peak hour.

Crosstown traffic volumes on 14th Street are generally expected to increase by about 2 vph in the eastbound direction and 3 vph in the westbound direction in the AM peak hour, about 2 vph in the eastbound direction and 1 vph in the westbound direction at midday, and by about 5 vph eastbound and 2 vph westbound in the PM peak hour.

Crosstown traffic volumes on Houston Street are generally expected to increase by about 10 vph per direction near Second Avenue in the AM peak hour, by about 5 vph per direction at midday, and by about 10 vph eastbound and 6 vph westbound in the PM peak hour.

Traffic volumes on Delancey Street leading to and from the Williamsburg Bridge are generally expected to increase by approximately 7 vph in the eastbound direction and decrease by approximately 1 vph in the westbound direction in the AM peak hour. Traffic volumes are expected to increase by approximately 3 vph in each direction in the midday peak hour, and decrease by approximately 1 vph in the eastbound direction and increase by 7 vph in the westbound direction in the PM midday peak hour.

INCREMENTAL TRAFFIC VOLUMES WITH INCLUSIONARY HOUSING ALTERNATIVE

The incremental traffic volumes expected to be generated by the Inclusionary Housing Alternative would be approximately 14 percent higher in the AM peak hour than the RWCDS volumes summarized above, 11 percent higher in the midday peak hour, and 16 percent higher in the PM peak hour. As with the RWCDS, fewer than 50 vph would pass through any intersection within or surrounding the study area under the Inclusionary Housing Alternative. Specific intersection-by-intersection traffic volume increments for the Inclusionary Housing Alternative are shown in Figures 16-15 through 16-26.

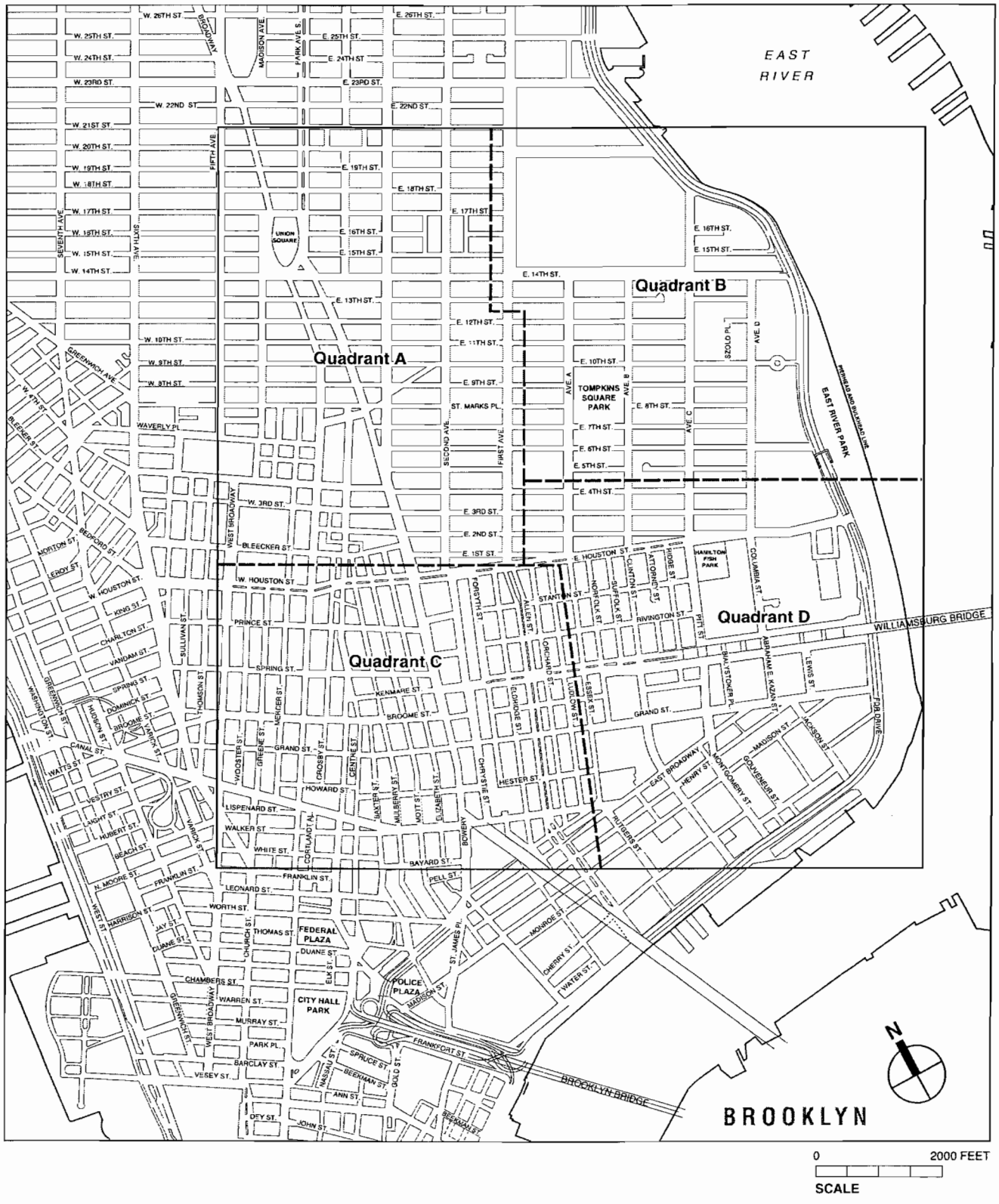
As demonstrated above, since the RWCDS and the Inclusionary Housing Alternative would both incur fewer than 50 peak hour vehicle trips through any intersection, no detailed analyses of traffic conditions are required and the proposed actions are not expected to result in any significant adverse traffic impacts.

D. PARKING

EXISTING PARKING CONDITIONS

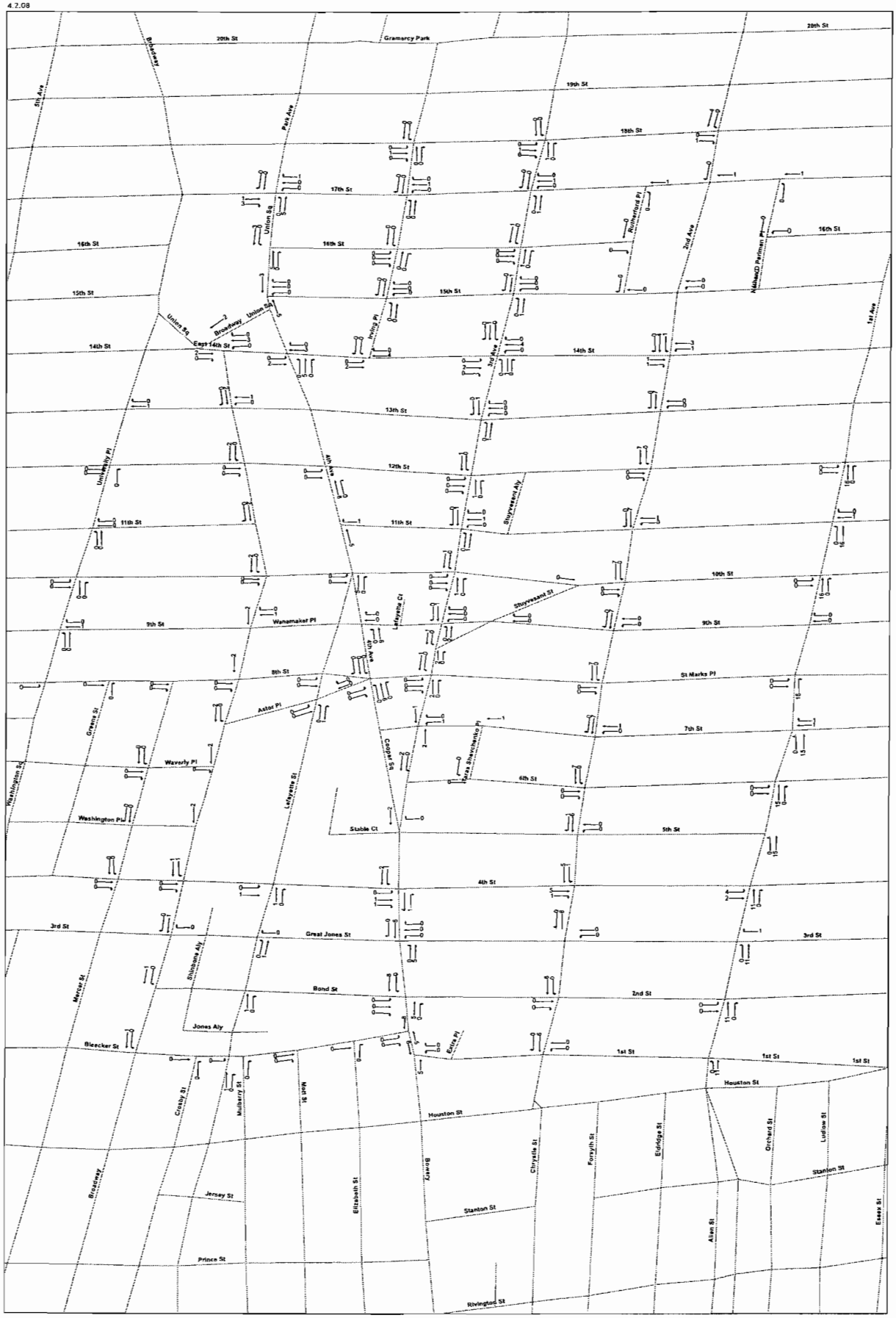
An inventory of public parking lots and garages within the primary study area and extending approximately one-quarter mile from the study area was conducted. One-quarter mile is about a five-minute walk, which is considered an acceptable walking distance to parking. Overall, there are 64 public parking lots or garages in the area whose locations are shown in Figure 16-27, the majority of which have capacities in the 40 to 200 vehicle range.

As shown in Table 16-6 the public parking facilities surveyed contain approximately 8,021 spaces, with an occupancy level of about 60 percent in the AM, 76 percent in the weekday midday, and 71 percent in the PM based on detailed surveys conducted for this EIS. This means that at about 8 to 9 AM, i.e., the AM peak inbound commuter hour, there are about 3,200

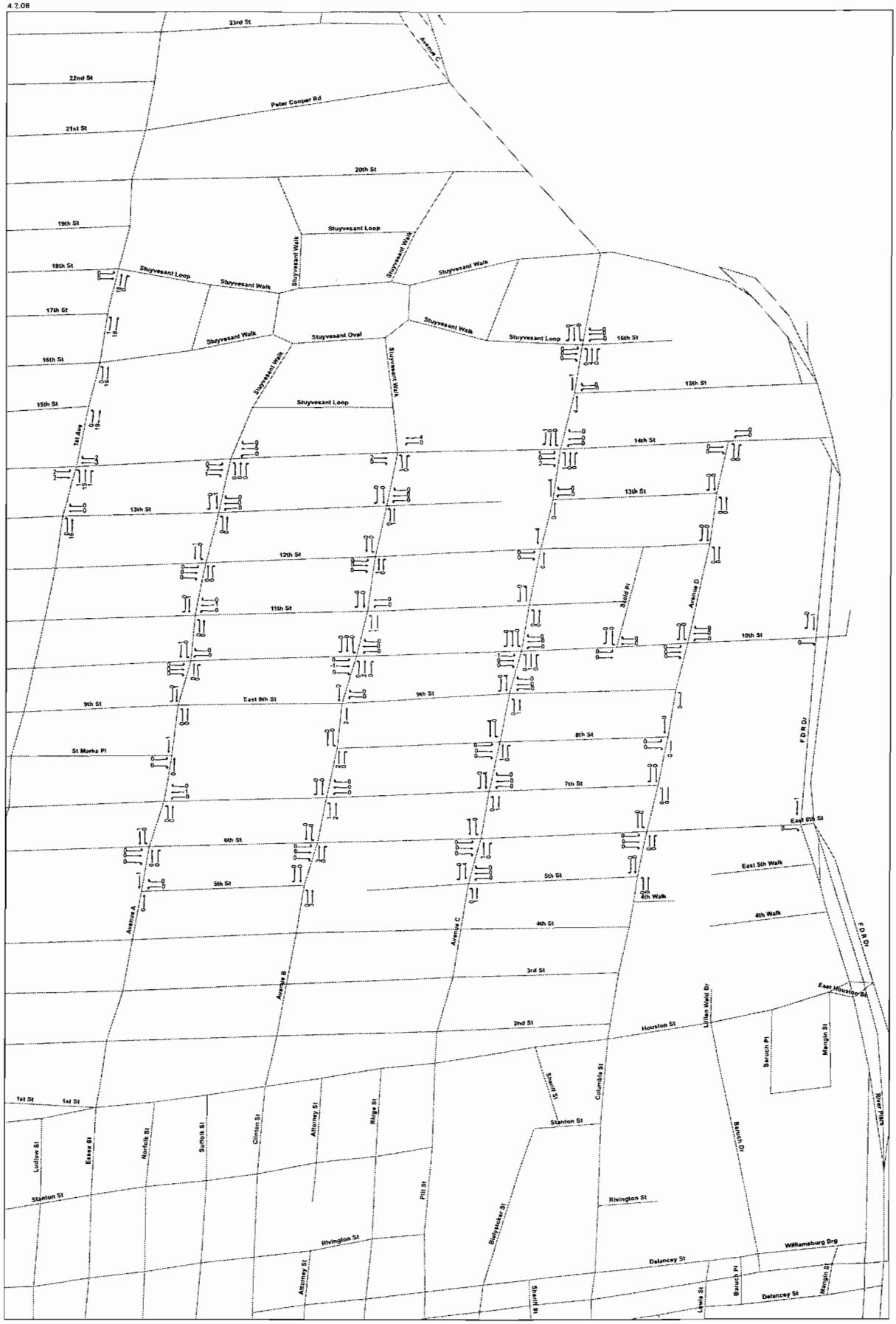


Traffic Assignment Map Quadrants

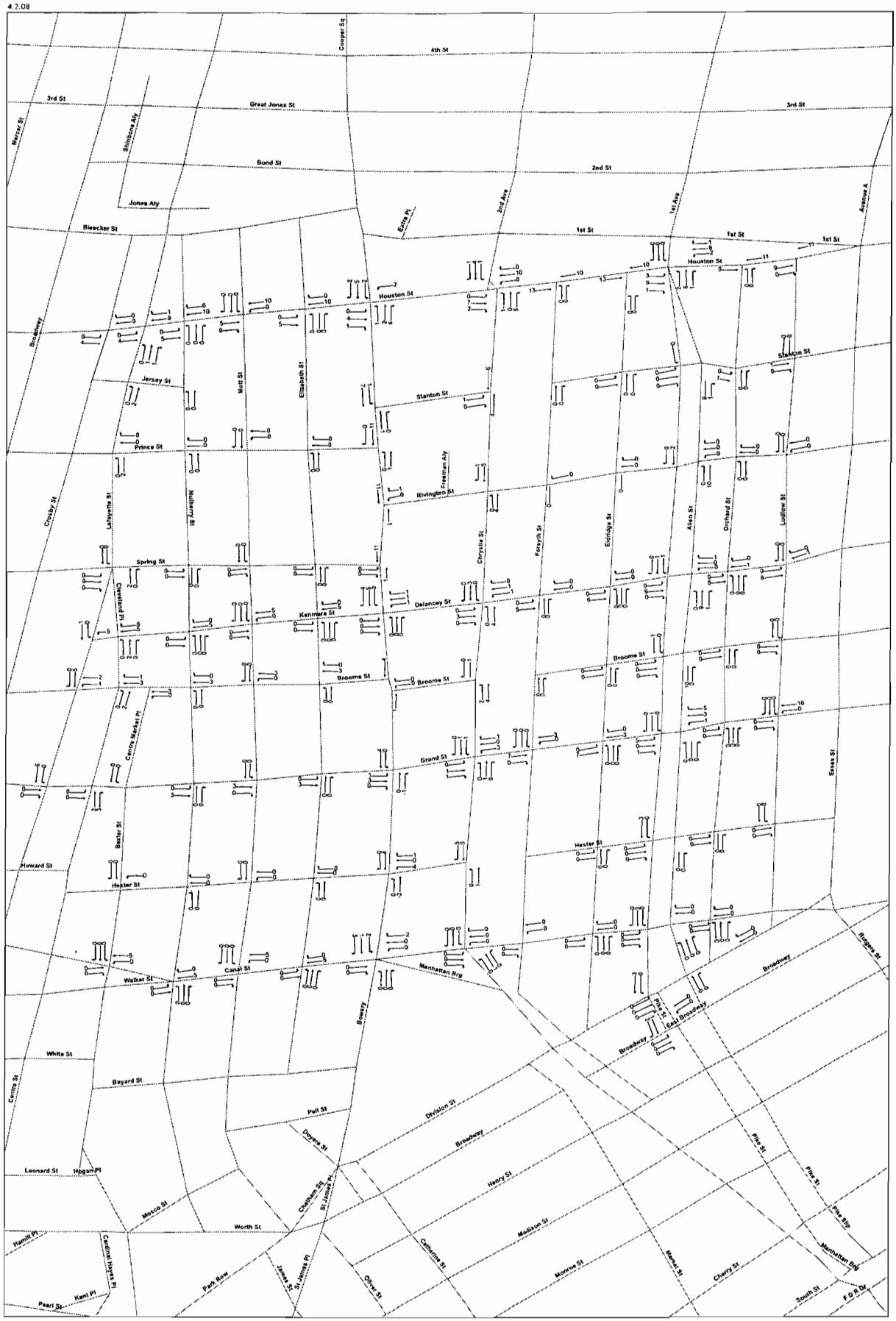
Figure 16-2



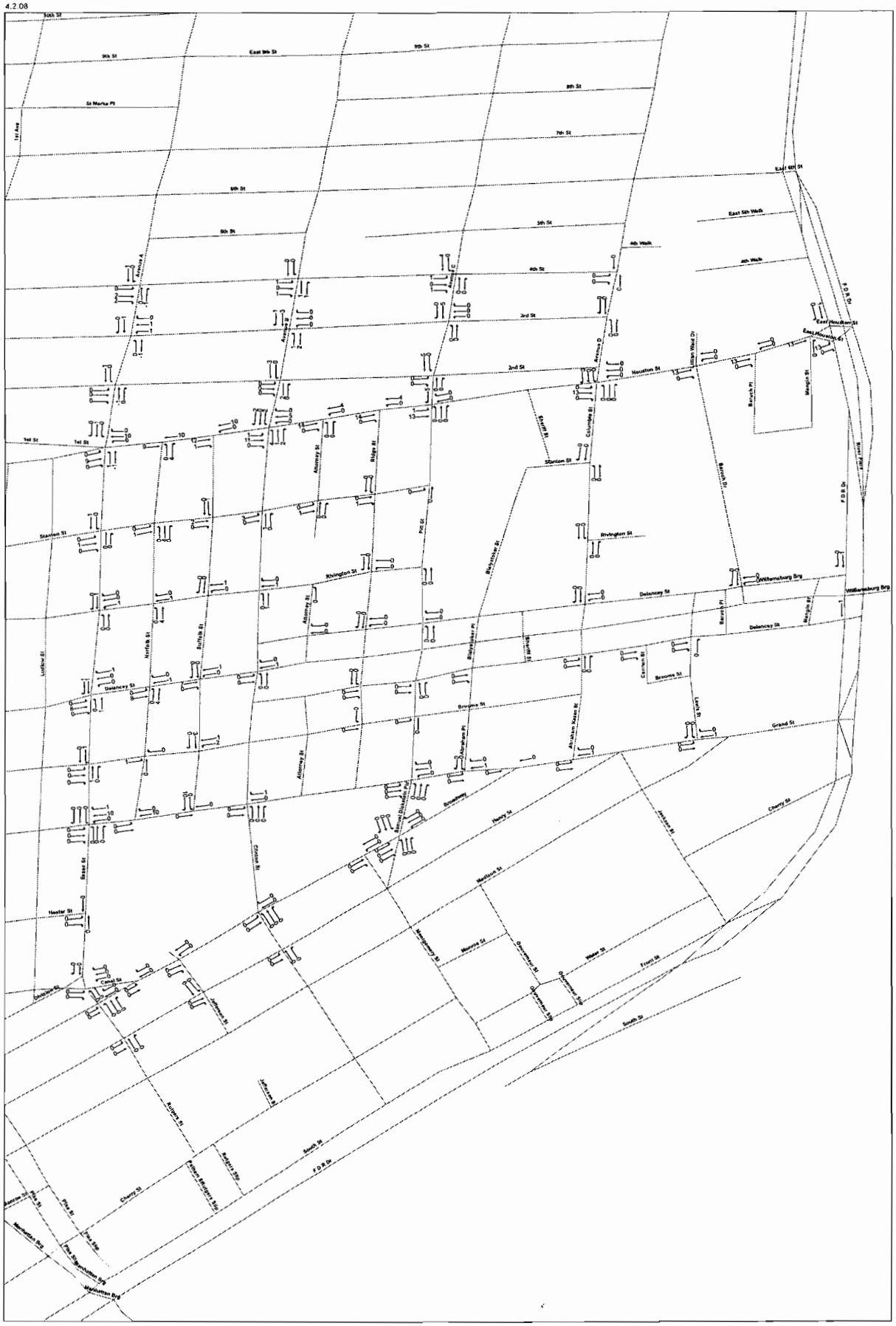
RWCDS Increment - Quadrant A
AM Peak Hour
Figure 16-3



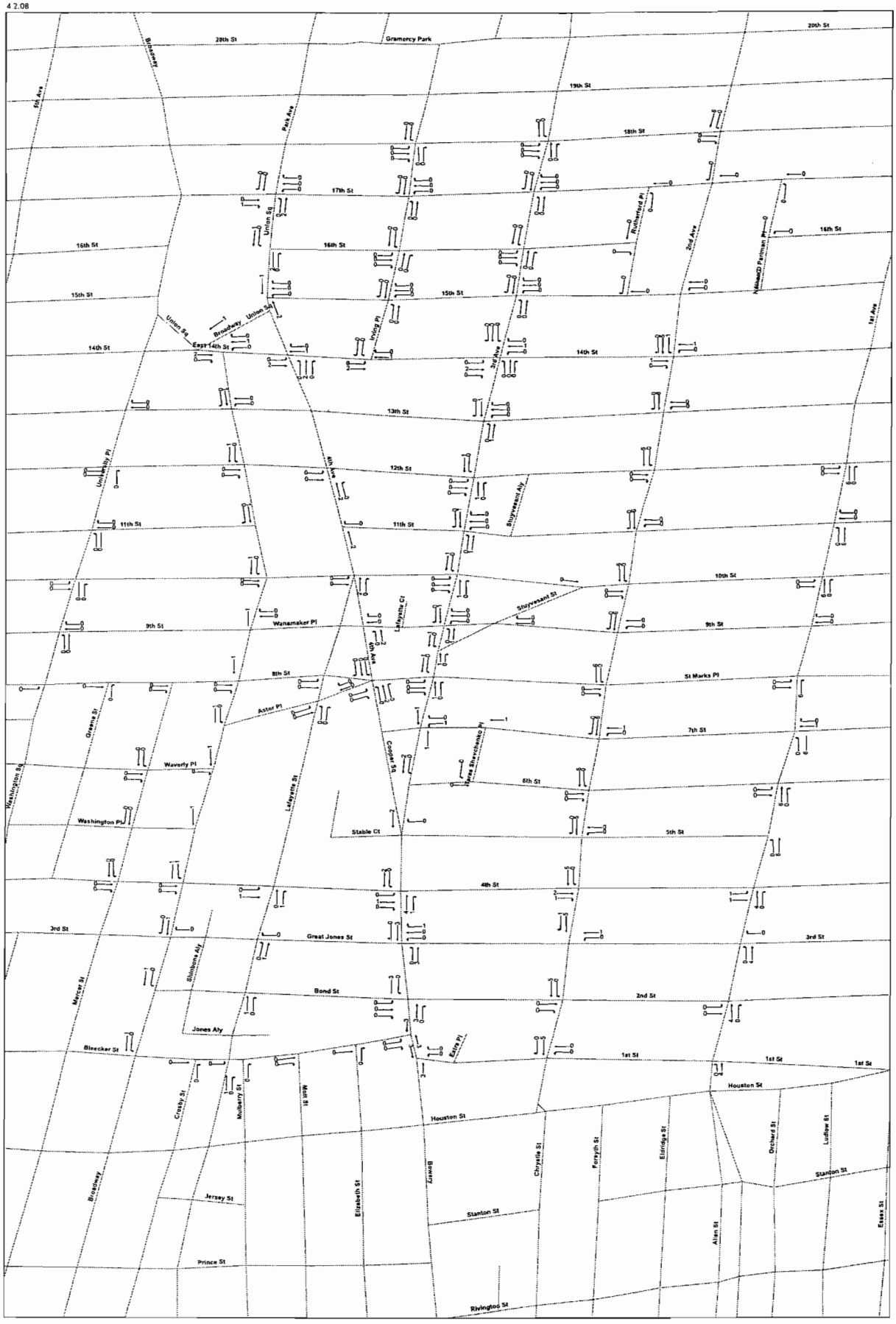
RWCDS Increment - Quadrant B
AM Peak Hour
Figure 16-4



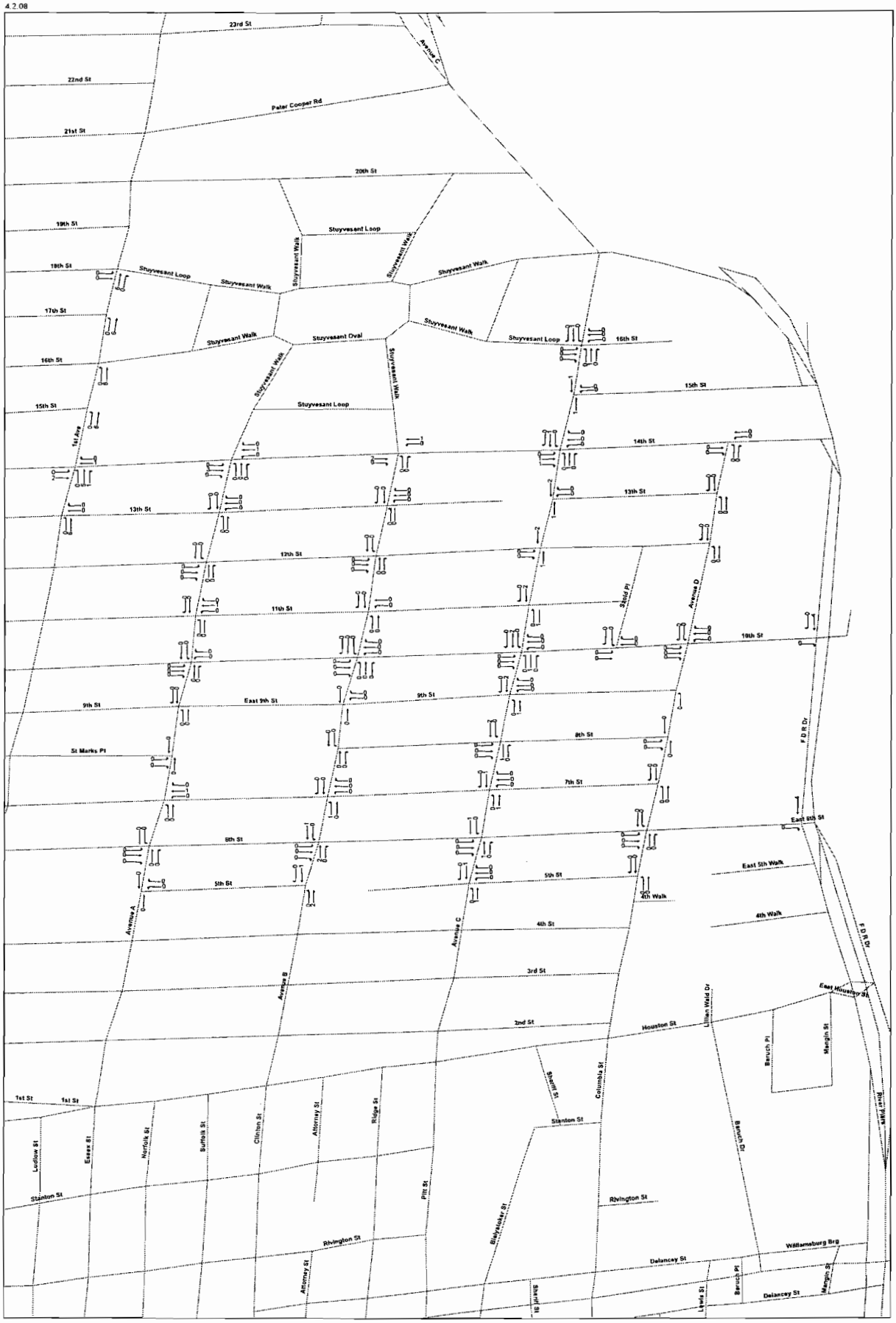
RWCDS Increment - Quadrant C
AM Peak Hour
Figure 16-5



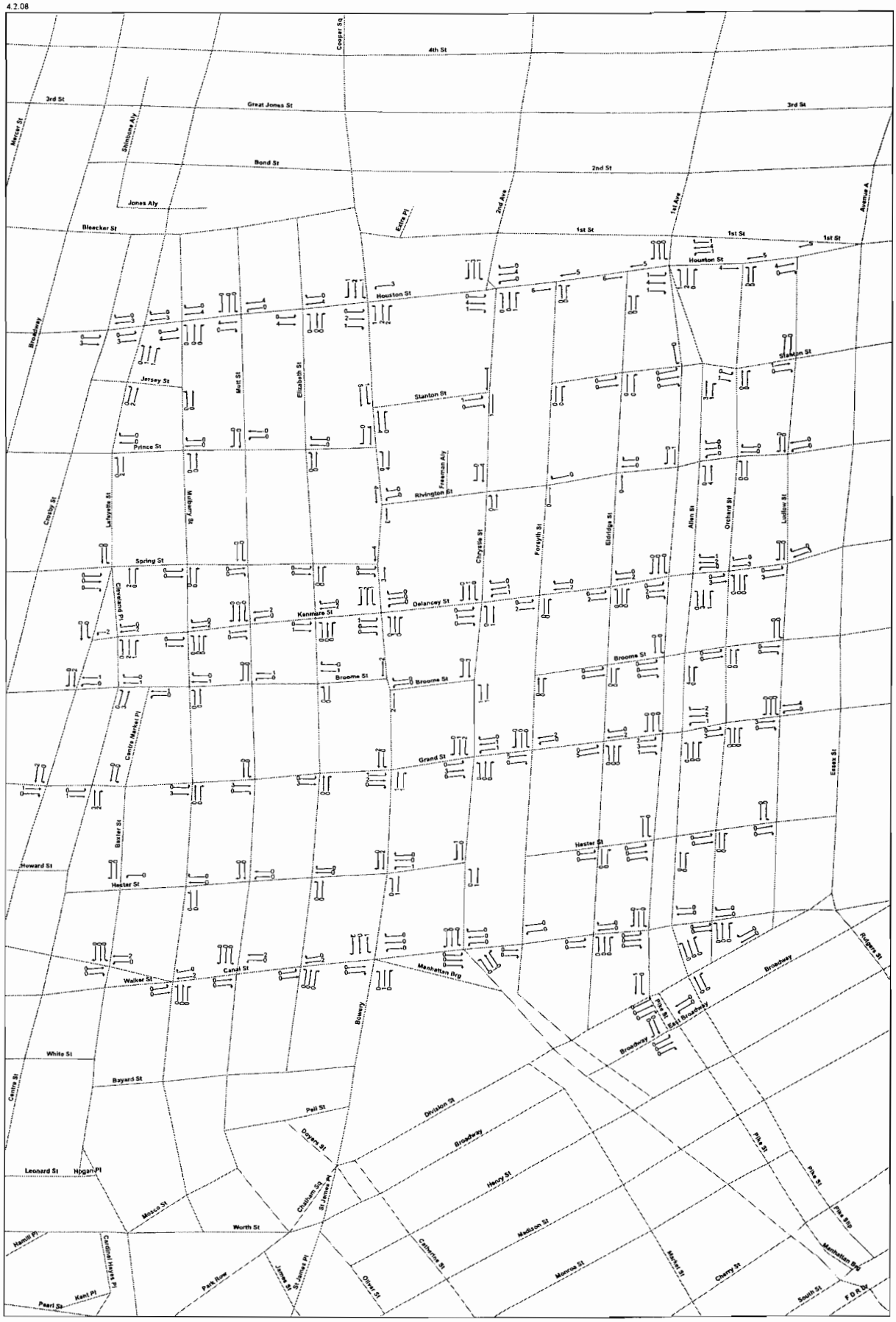
RWCDS Increment - Quadrant D
AM Peak Hour
Figure 16-6



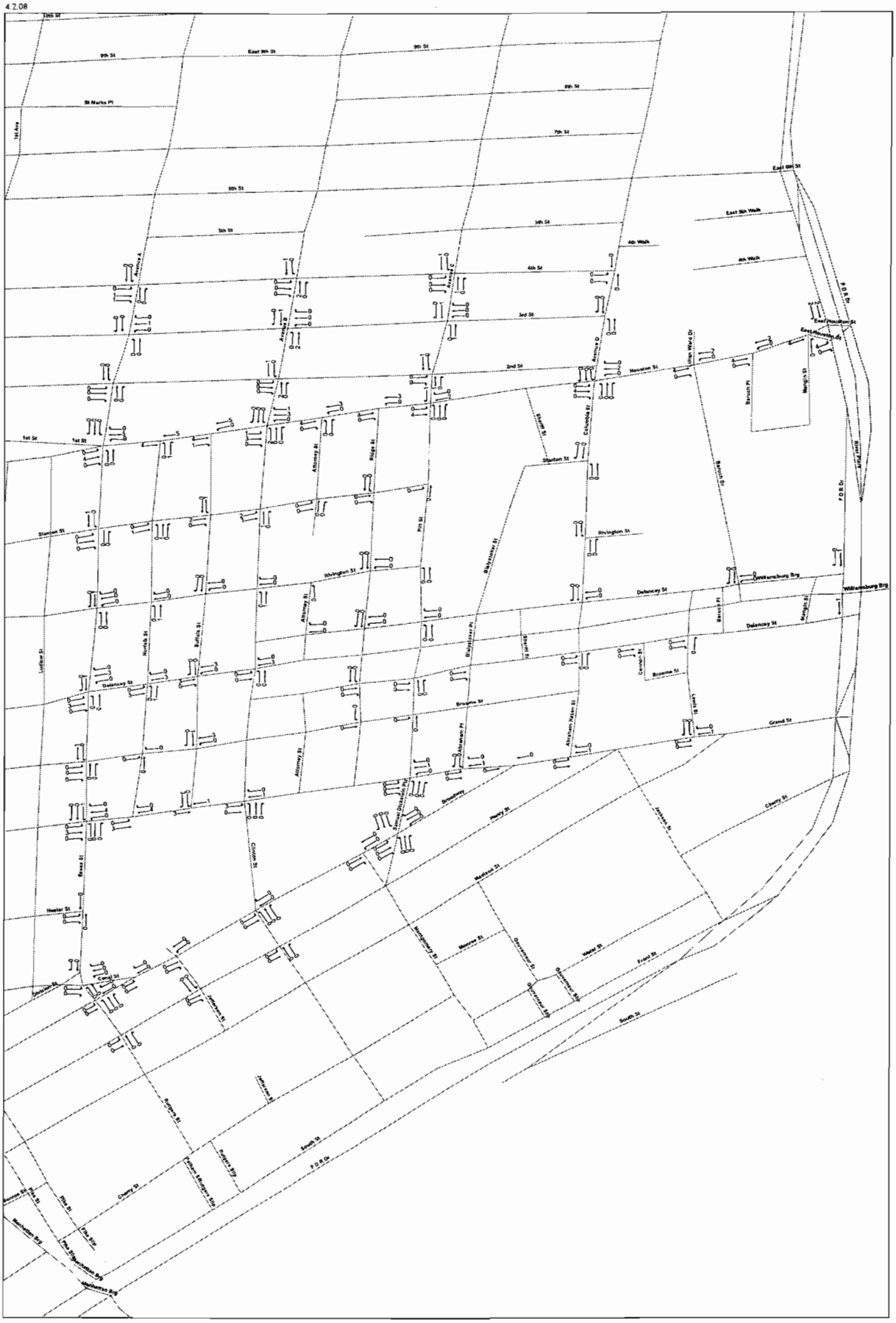
RWCDS Increment - Quadrant A
Midday Peak Hour
Figure 16-7



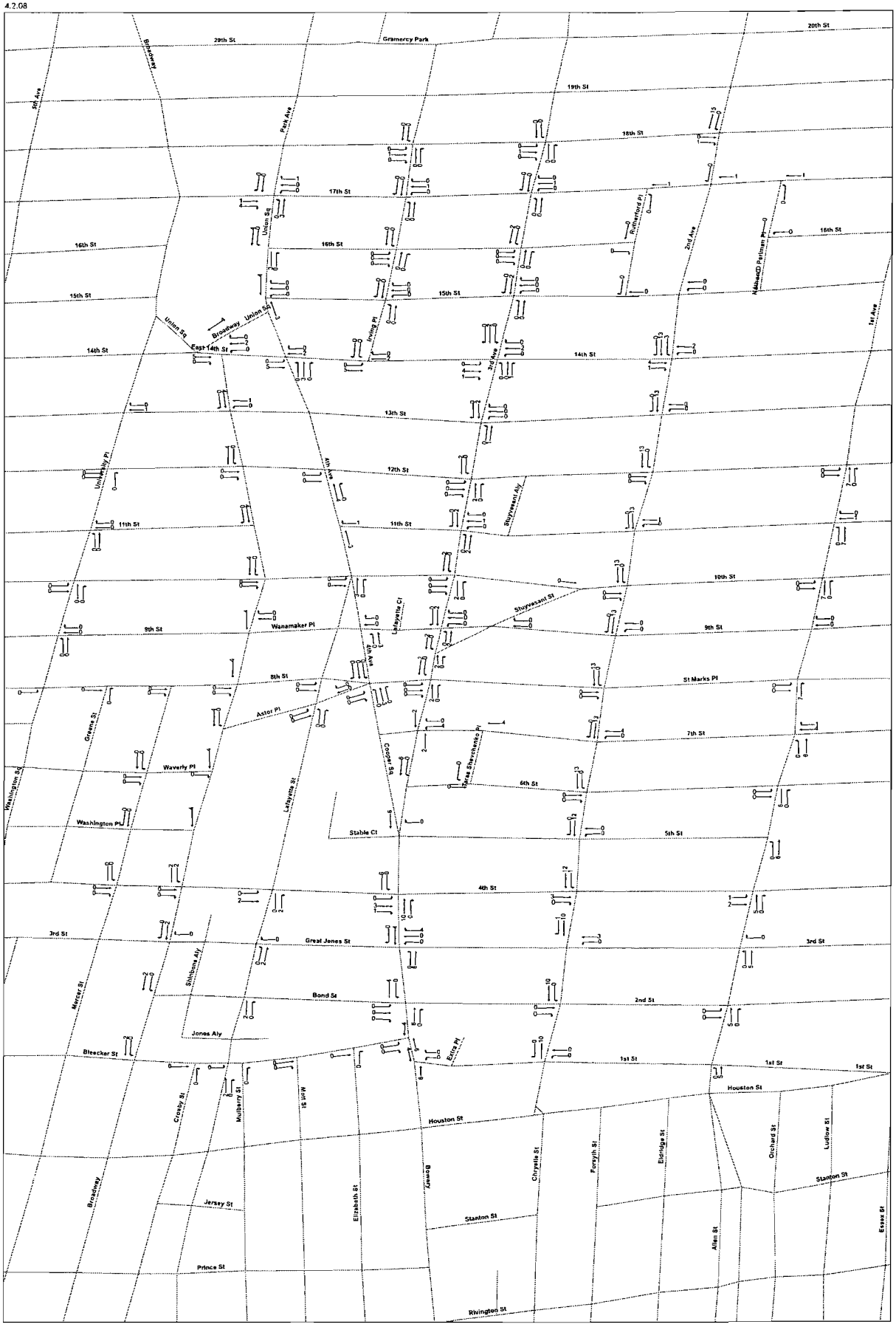
RWCDS Increment - Quadrant B
Midday Peak Hour
Figure 16-8



RWCDS Increment - Quadrant C
Midday Peak Hour
Figure 16-9



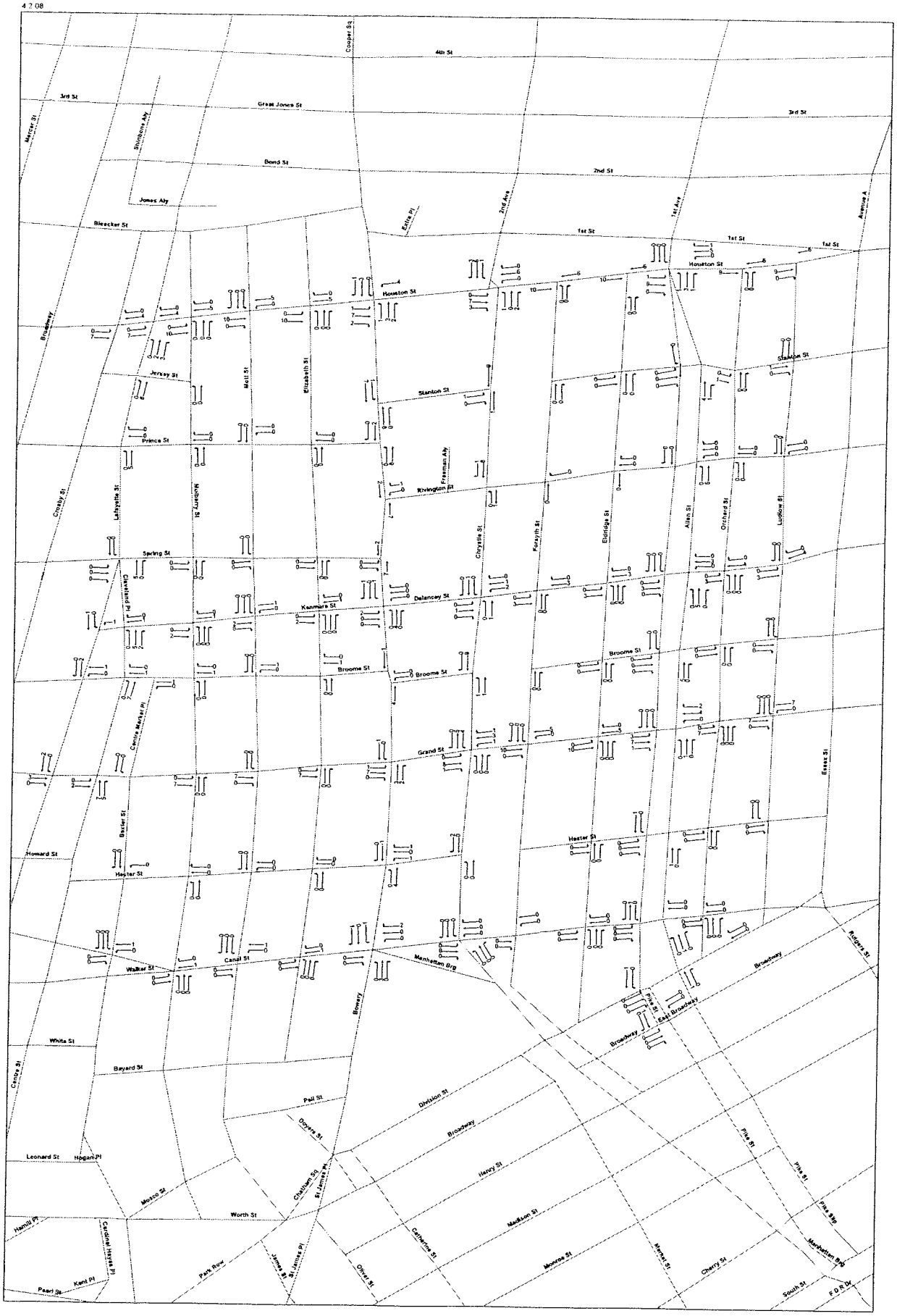
RWCDS Increment - Quadrant D
Midday Peak Hour
Figure 16-10



RWCDS Increment - Quadrant A
PM Peak Hour
Figure 16-11



RWCDS Increment - Quadrant B
PM Peak Hour
Figure 16-12

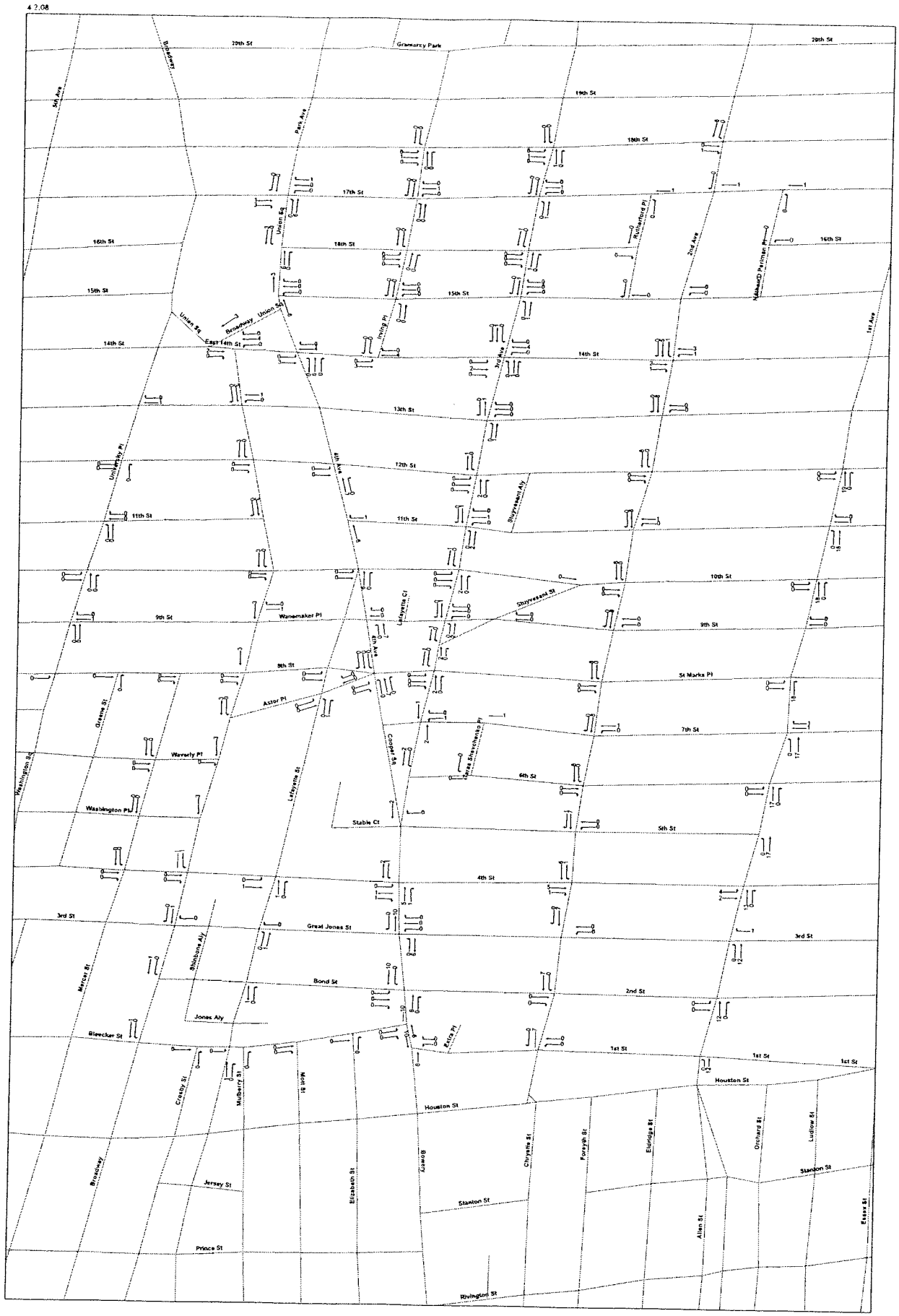


RWCDS Increment - Quadrant C
PM Peak Hour
Figure 16-13



EV/LES East Village/Lower East Side Rezoning

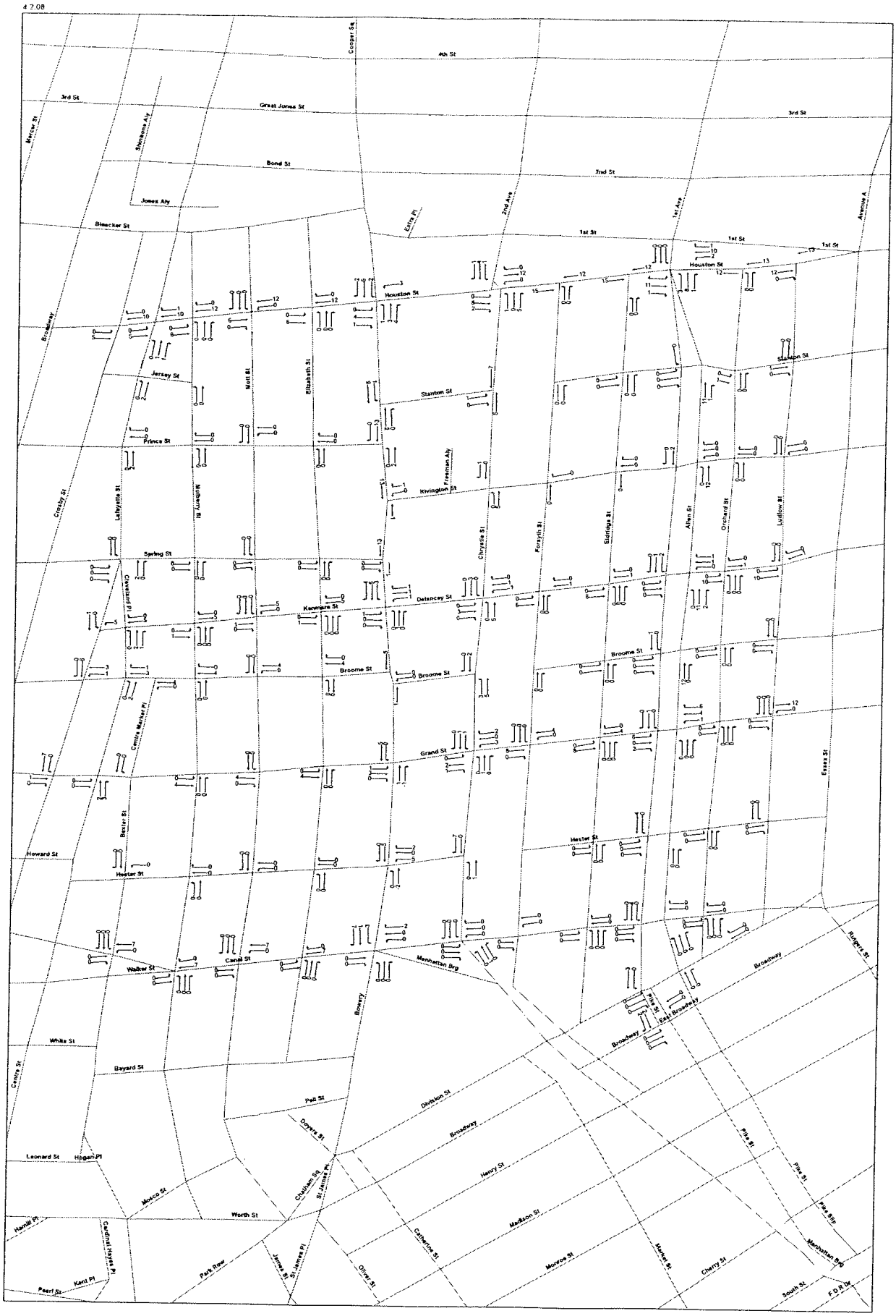
RWCDS Increment - Quadrant D
PM Peak Hour
Figure 16-14



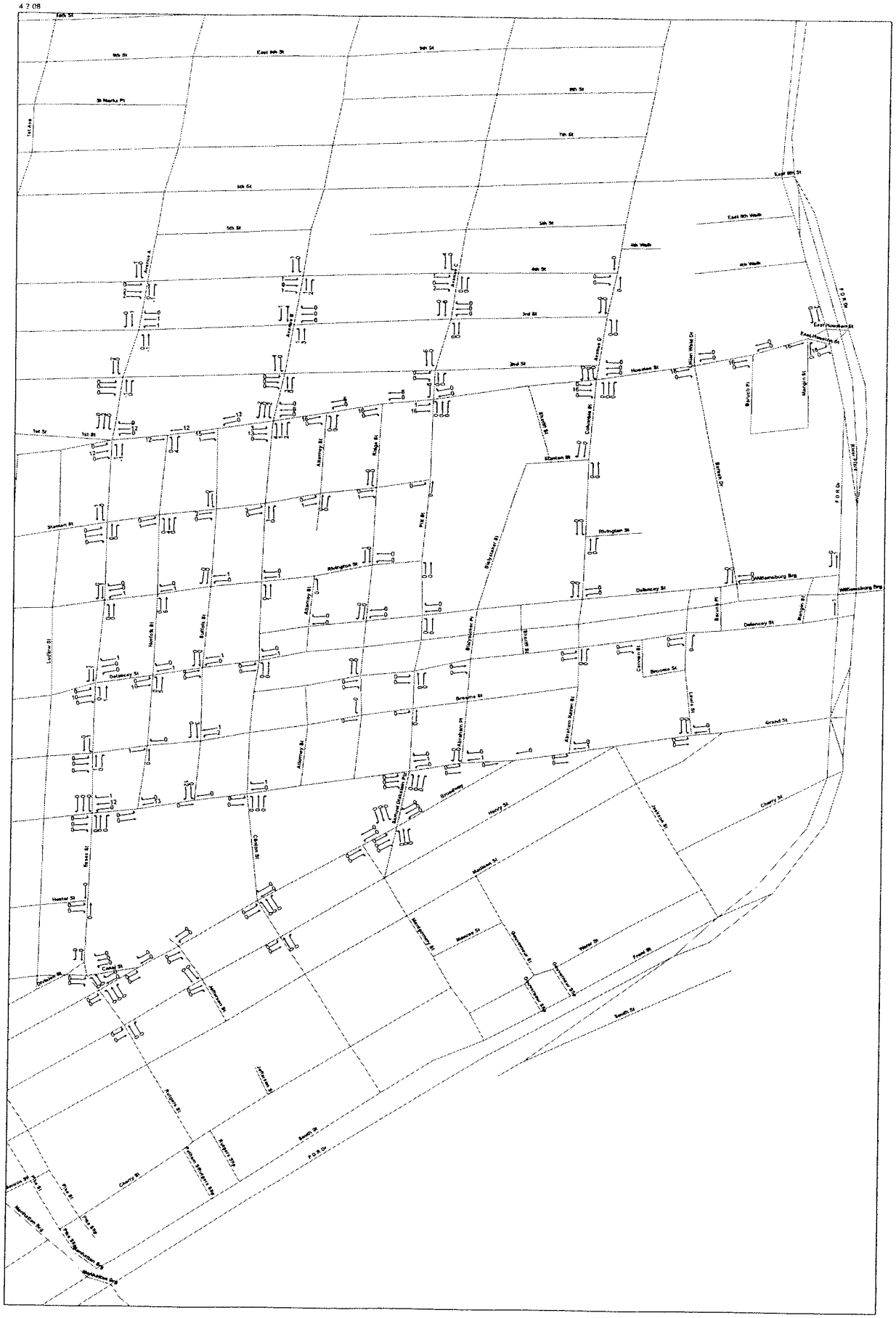
Alternative Increment - Quadrant A
AM Peak Hour
Figure 16-15



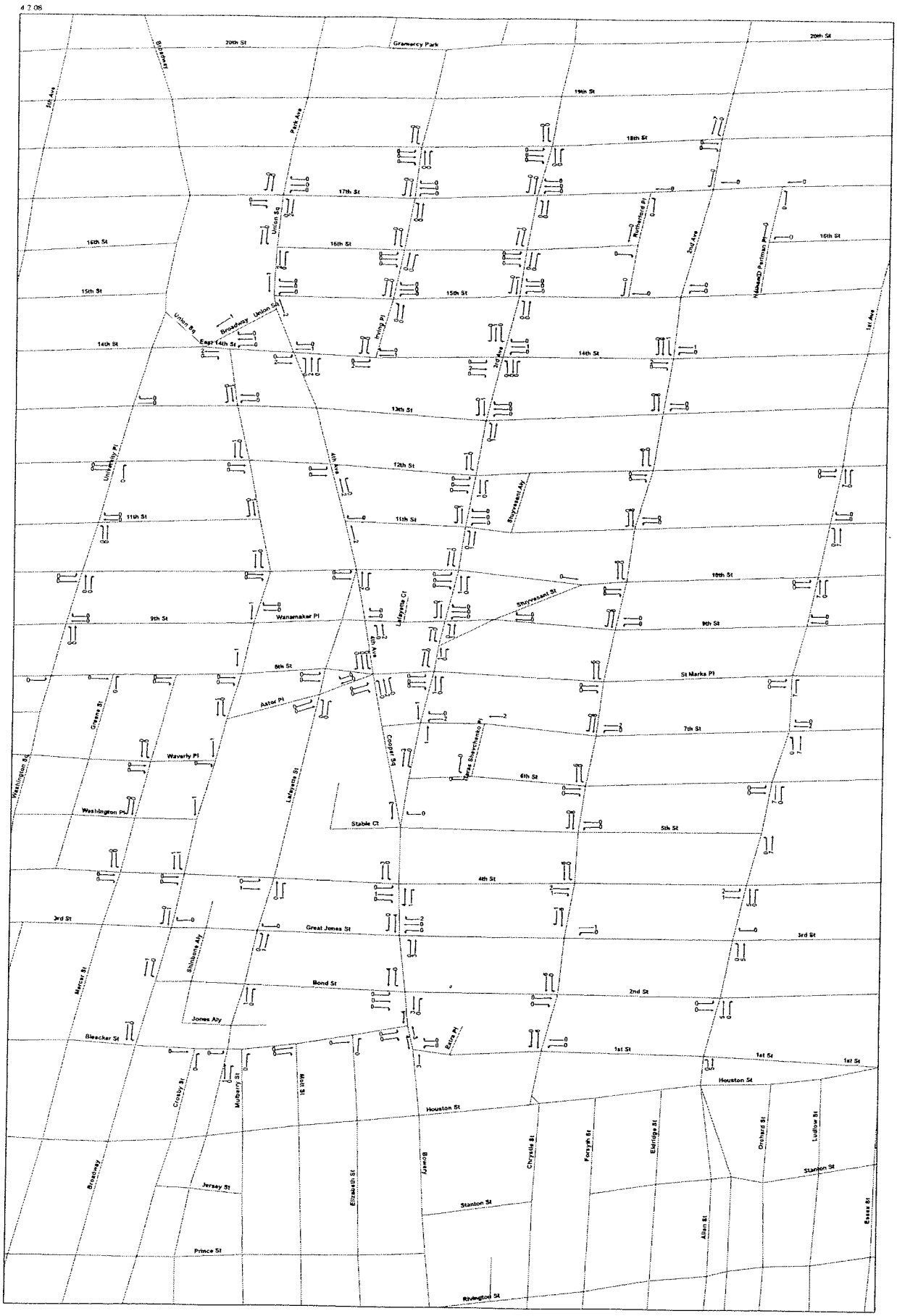
Alternative Increment - Quadrant B
AM Peak Hour
Figure 16-16



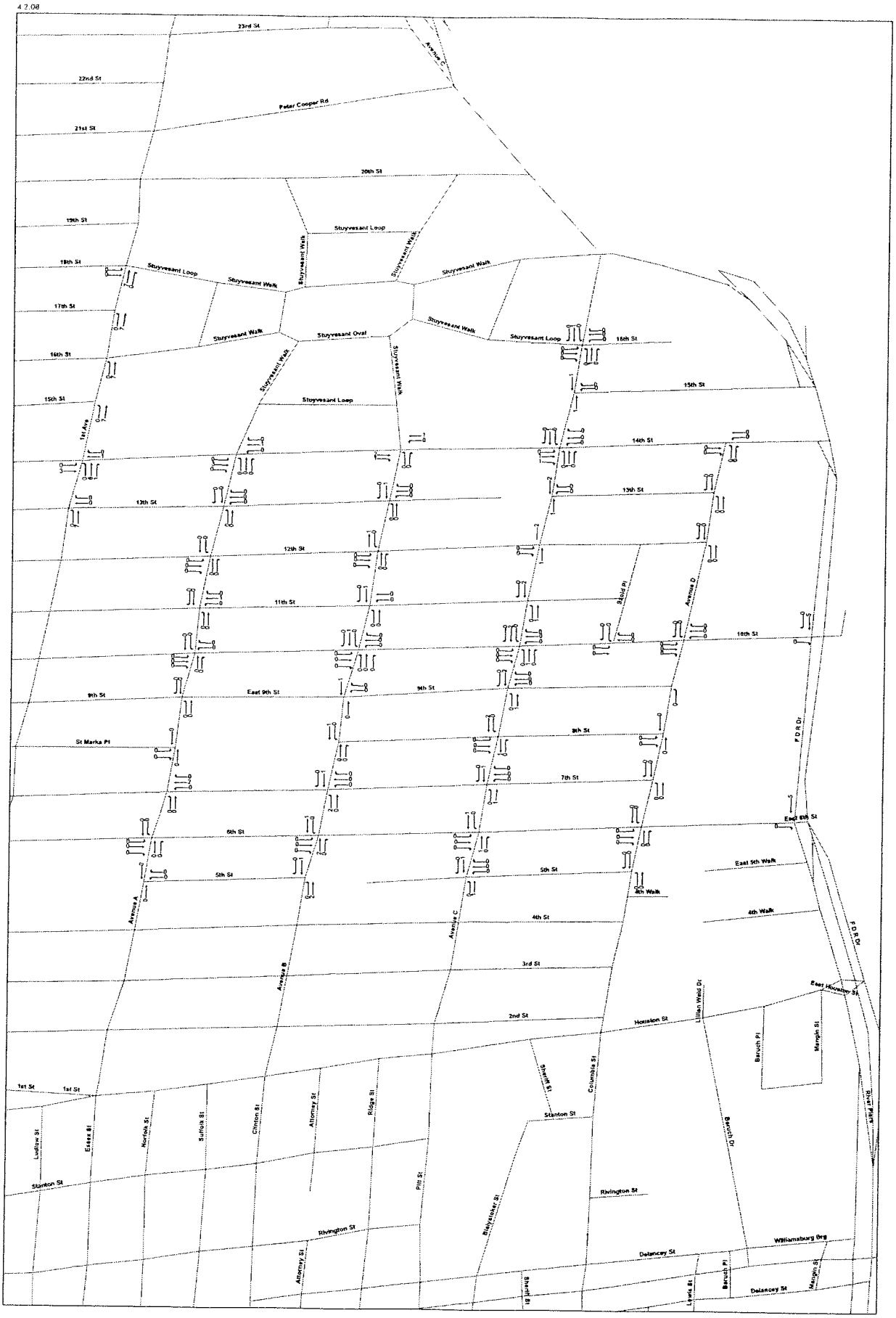
Alternative Increment - Quadrant C
AM Peak Hour
Figure 16-17



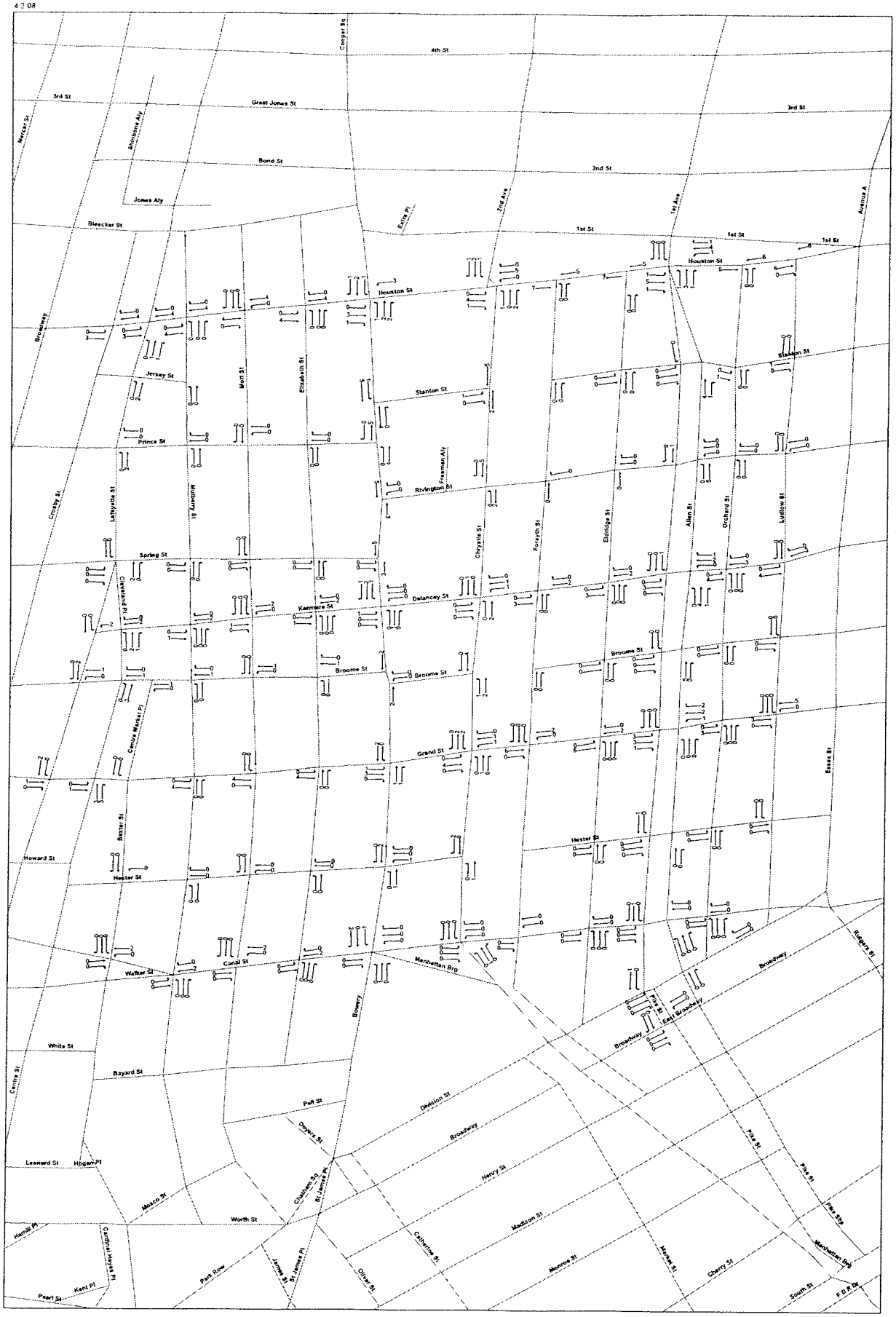
Alternative Increment - Quadrant D
AM Peak Hour
Figure 16-18



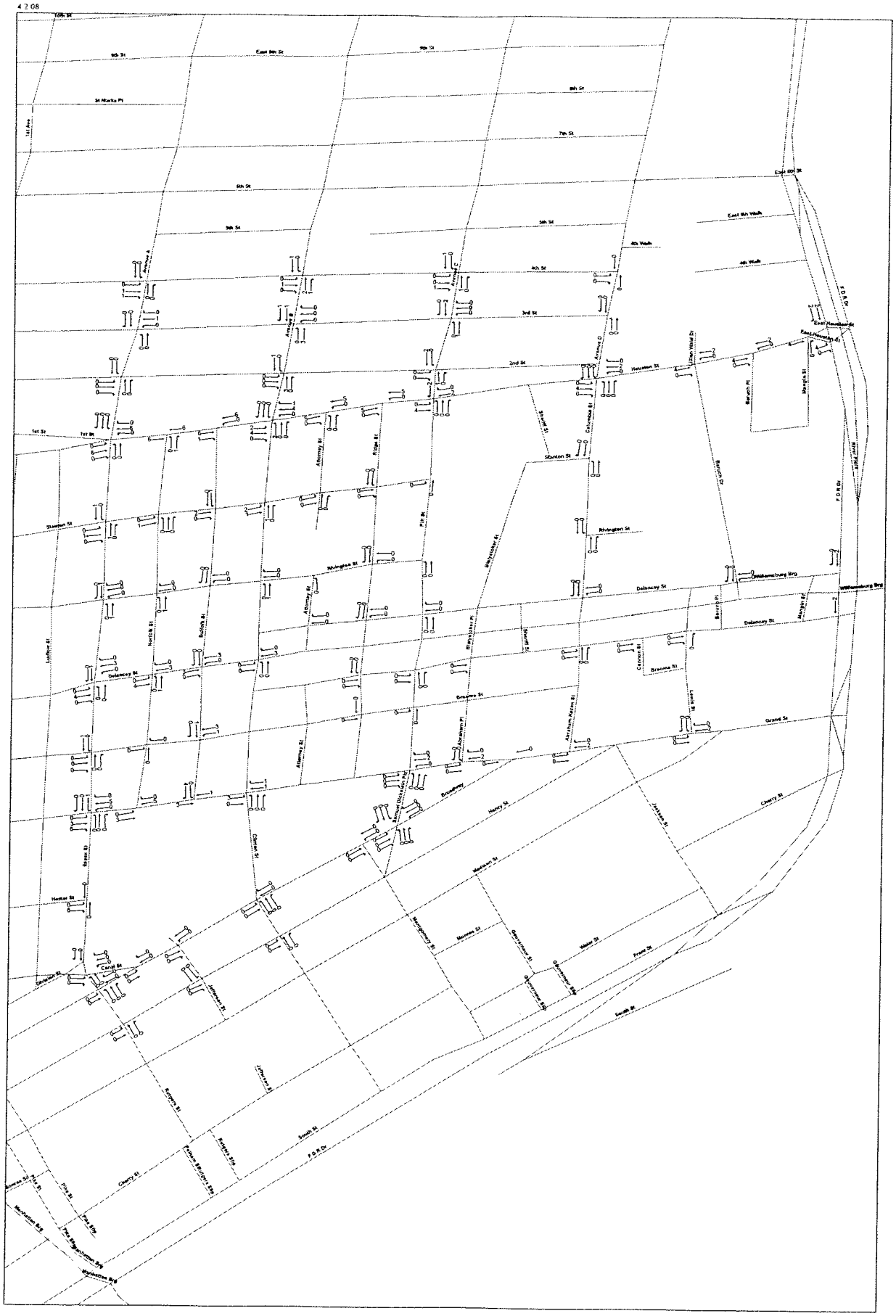
Alternative Increment - Quadrant A
Midday Peak Hour
Figure 16-19



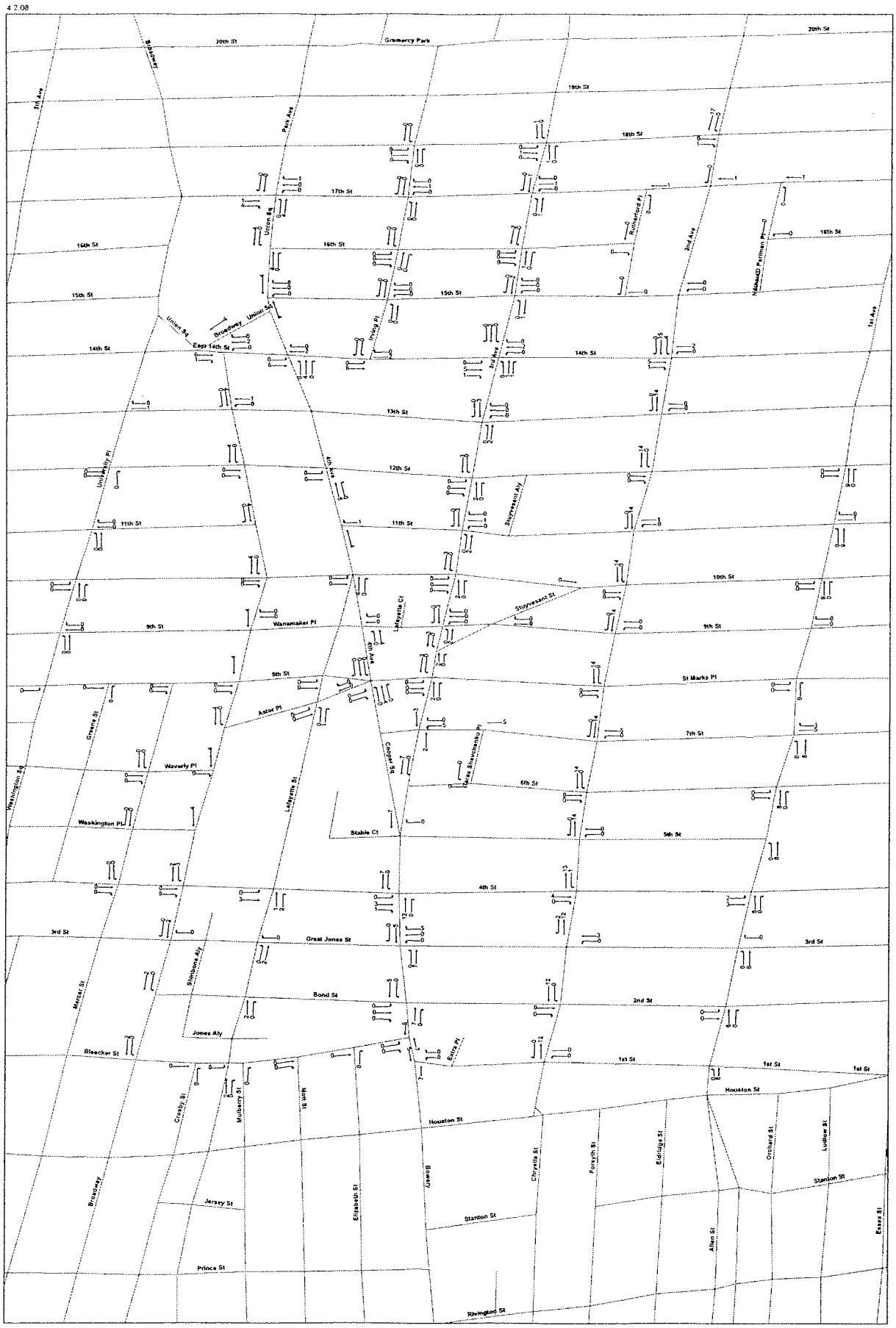
Alternative Increment - Quadrant B
Midday Peak Hour
Figure 16-20



Alternative Increment - Quadrant C
Midday Peak Hour
Figure 16-21



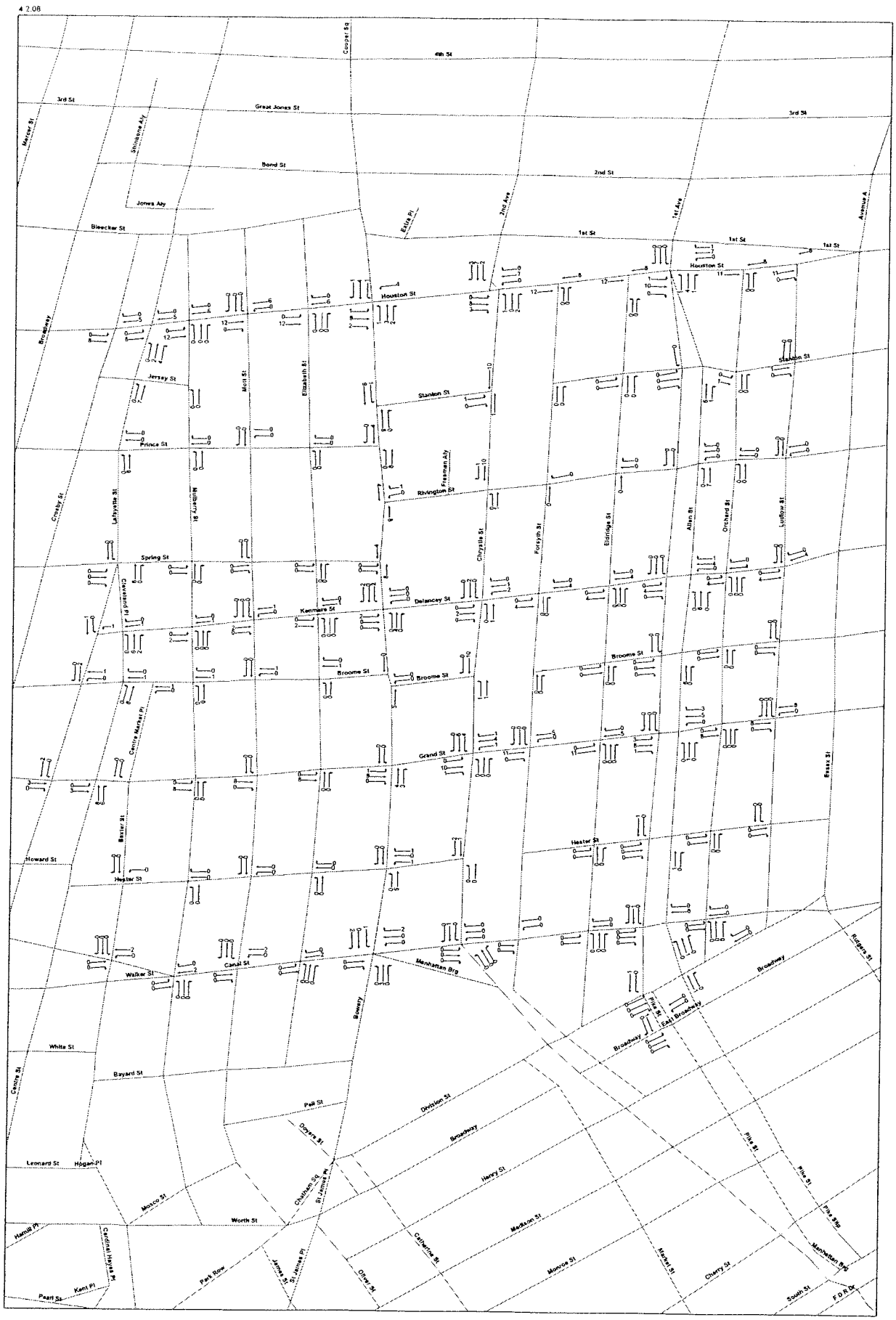
Alternative Increment - Quadrant D
Midday Peak Hour
Figure 16-22



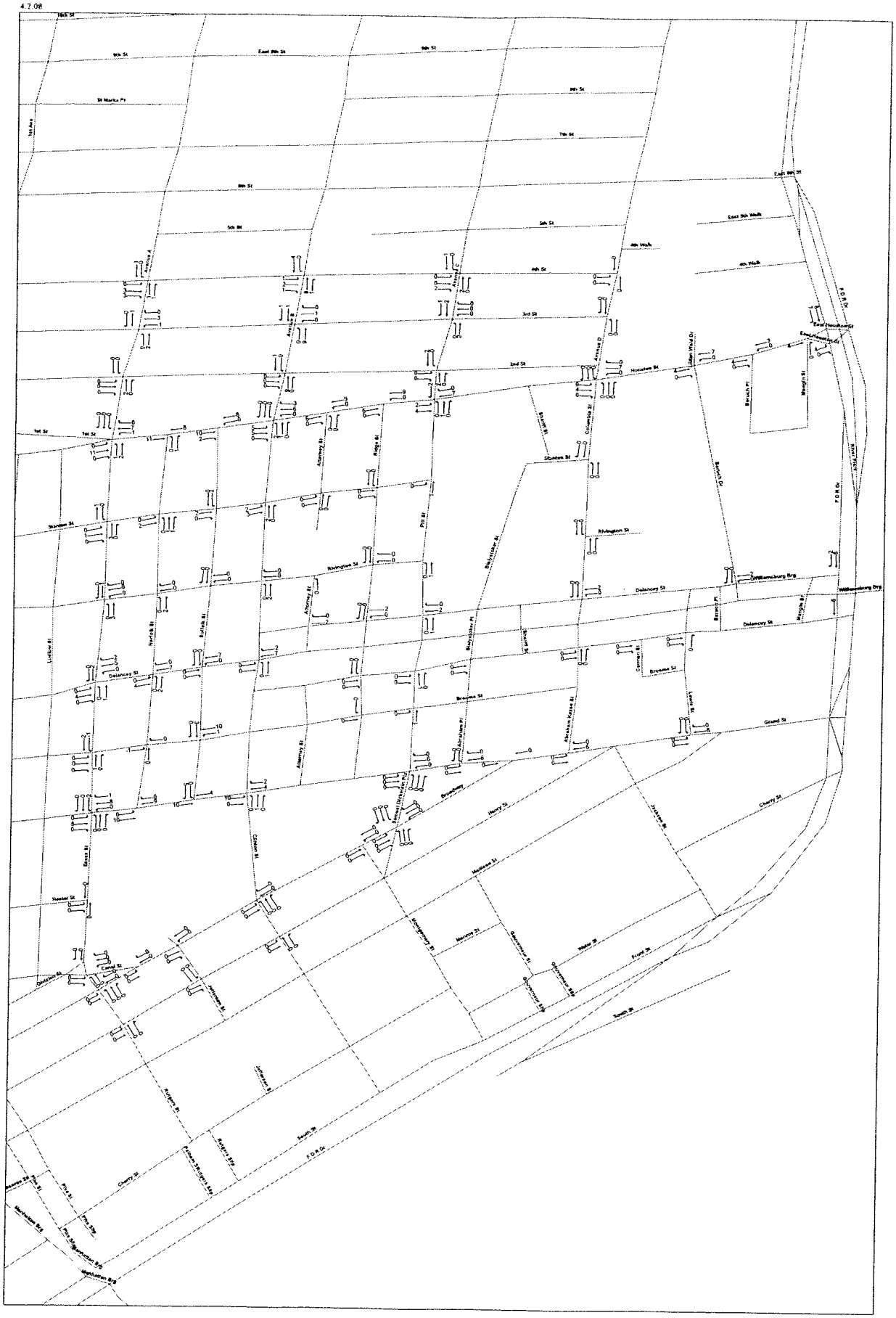
Alternative Increment - Quadrant A
PM Peak Hour
Figure 16-23



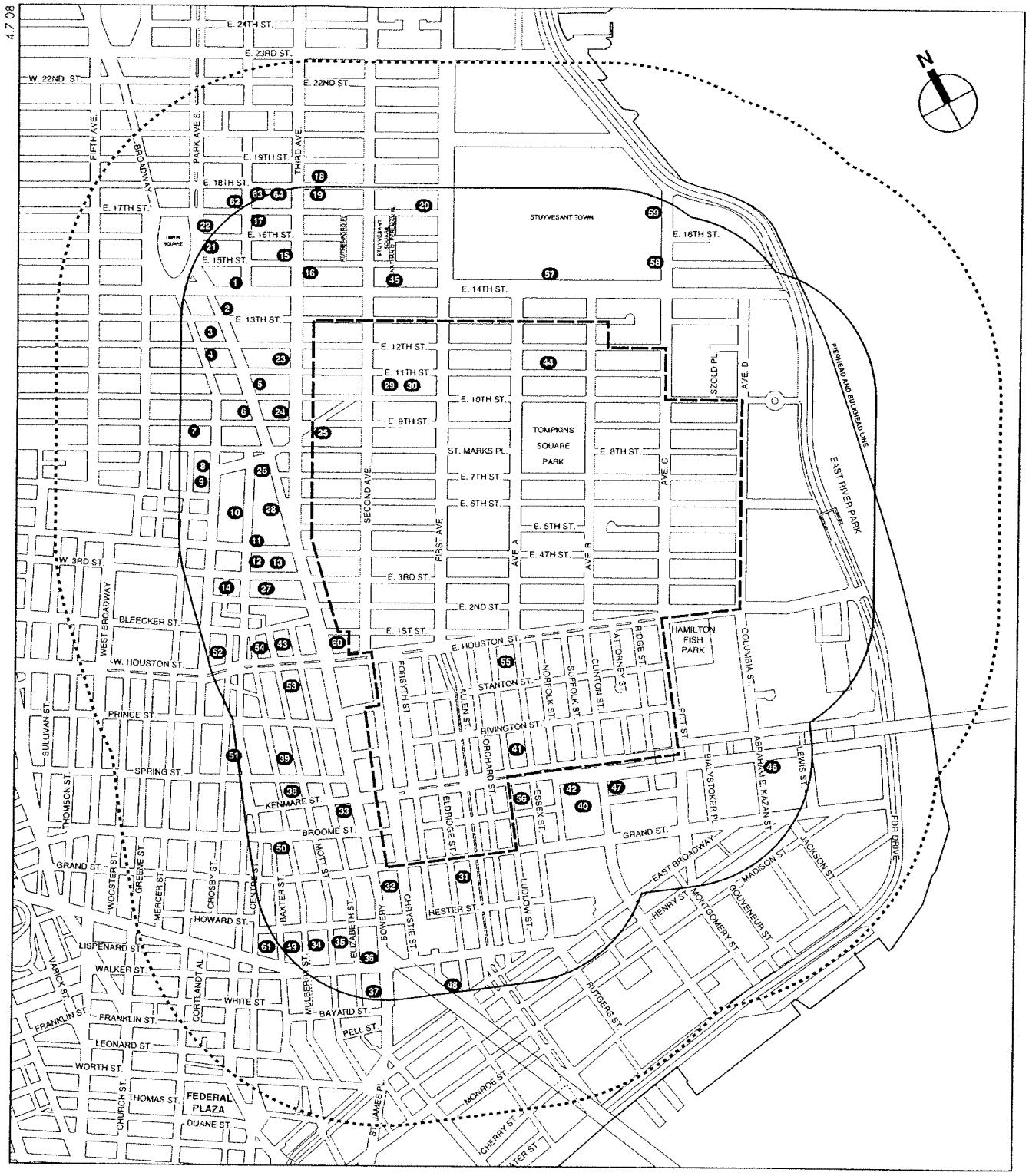
Alternative Increment - Quadrant B
PM Peak Hour
Figure 16-24



Alternative Increment - Quadrant C
PM Peak Hour
Figure 16-25



Alternative Increment - Quadrant D
PM Peak Hour
Figure 16-26



EV/LES East Village/Lower East Side Rezoning

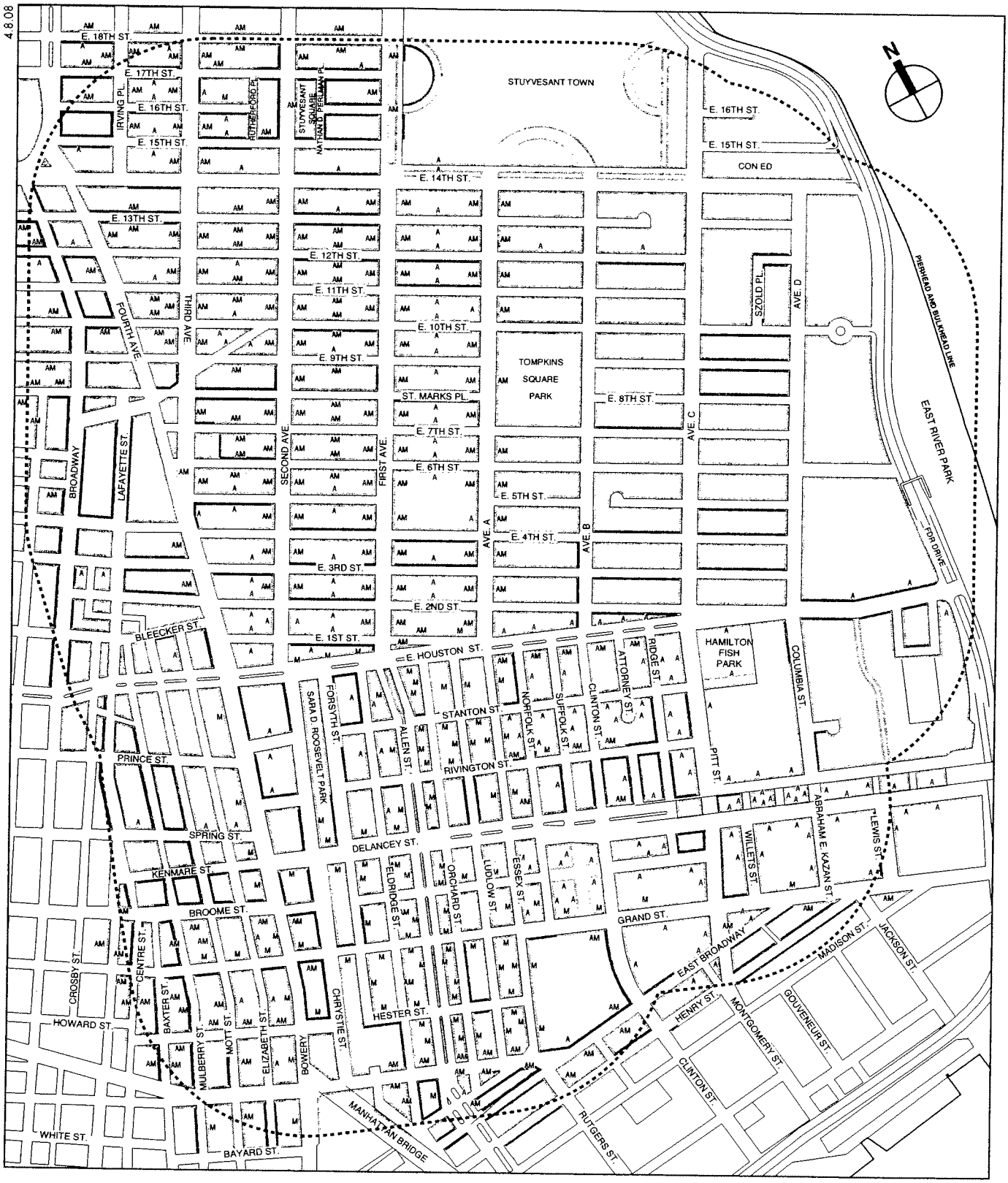
Existing Off-Street Parking Facilities

Figure 16-27

unoccupied spaces available within off-street lots and garages, decreasing to about 1,925 spaces at midday. During the inbound residential peak hour at the end of a typical working day, i.e., 5 to 6 PM, about 2,300 unoccupied spaces exist.

Table 16-6
Existing Off-Street Parking Occupancy

Location No.	Parking Facility Name and Address	Capacity	Percent Occupied		
			AM	MD	PM
1	One Irving Place Garage Corp; 1 Irving Place	198	15%	50%	75%
2	Amber Park LLC; 101 East 13th Street	46	100%	100%	100%
3	Randi Parking Corp; 132 Fourth Avenue	30	60%	75%	71%
4	Impark 12th St LLC; 60 East 12th Street	27	15%	93%	85%
5	SD Baron LLC; 85 Fourth Avenue	48	30%	94%	75%
6	Stewart House Car Park, Inc; 70 East 10th Street	255	60%	71%	76%
7	304060 Parking LLC; 30 East 9th Street	272	70%	83%	70%
8	Champion Broadway Parking Corp; 60-68 East 8th Street	169	50%	50%	40%
9	Hilary Gardens Garage Co.; 300 Mercer Street	225	50%	70%	70%
10	Lafayette Street Parking LLC; 410 Lafayette Street	53	64%	85%	96%
11	403 Lafayette LLC, 403 Lafayette Street	267	24%	36%	39%
12	Edison NY Parking LLC; 375 Lafayette Street	67	28%	66%	75%
13	Edison NY Parking LLC; 32 Great Jones Street	110	64%	76%	78%
14	AJS Vella; 358 Lafayette Street	30	77%	100%	100%
15	Consolidated Parking Corp; 146 Third Avenue	55	100%	100%	70%
16	Jeremy Parking Corp; 200 East 15th Street	43	80%	100%	80%
17	145 East 16th St. Garage Corp; 144 East 17th Street	47	100%	100%	100%
18	211 Garage Corp; 211 East 18th Street	70	93%	100%	75%
19	MHM; 202 East 18th Street	108	65%	60%	60%
20	Propark America; 347 East 17th Street	67	100%	100%	75%
21	Mallah,Darryle & Muss,Stanley; 110 East 16th Street	275	50%	90%	70%
22	Champion Parking 16 LLC; 101 East 16th Street	61	30%	100%	97%
23	Manhattan Parking E. 12th Street Corp; 74-84 Third Avenue	80	85%	95%	56%
24	Key Parking Management LLC; 115 East 9th Street	87	88%	100%	50%
25	Kinney Parking System Inc.; 220 East 9th Street	175	30%	75%	75%
26	Lafayette Place Parking LLC, 445 Lafayette Street	14	71%	93%	86%
27	Bond Street Garage LLC, 25 Bond Street	48	33%	42%	46%
28	Cooper Parking LLC; 2-12 Cooper Square	70	57%	100%	91%
29	Nice Park LLC.; 310 East 11th Street	125	50%	75%	65%
30	Fraclac Realty Corp; 324 East 11th Street	8	63%	63%	63%
31	Imperial Parking Systems; 59 Allen Street	200	50%	75%	70%
32	Mtp Operating Corp; 89-93 Chrystie Street	116	30%	60%	50%
33	Buzz Parking II LLC; 24 Kenmare Street	100	8%	40%	51%
34	Kennee Parking Inc; 114 Mulberry Street	42	0%	55%	55%
35	Oak Parking (Mars Parking Corp); 106 Mott Street	113	5%	55%	60%
36	Rapid Park Industries (Ramp Parking Corp); 44 Elizabeth Street	150	0%	33%	35%
37	Quick Park; 38 Bowery Street	140	75%	90%	60%
38	Park In Auto Services; 75 Kenmare Street	175	21%	90%	90%
39	Kinney Parking System Inc.; 224 Mulberry Street	150	93%	83%	100%
40	Suffolk Street Parking; 54 Suffolk Street	90	75%	75%	75%
41	Essex Street Parking (Delancy & Essex Municipal); 107 Essex Street	357	75%	80%	65%
42	Central Parking Systems (LES District Mgt Assoc); 135 Delancey Street	294	90%	95%	95%
43	Comfort Park LLC; 303 Elizabeth Street	39	90%	100%	100%
44	City Parking LLC; 525 East 11th Street	12	100%	100%	100%
45	Gema Parking Corp; 333 East 14th Street	44	34%	75%	66%
46	Area Garage LLC; 24 Columbia Street	457	50%	60%	40%
47	Raiten, Benjamin & Jacob;178 Broome Street	48	85%	88%	85%



1/4-Mile Study Area Boundary

Alternate Side of the Street

Metered Parking

Parking Allowed

Authorized Vehicle Parking

Truck Loading and Unloading

No Parking, No Standing, No Stopping

On-Street Parking Regulations
AM Peak Hour

Figure 16-28



1/4-Mile Study Area Boundary

A *Alternate Side of the Street*

M *Metered Parking*

Parking Allowed

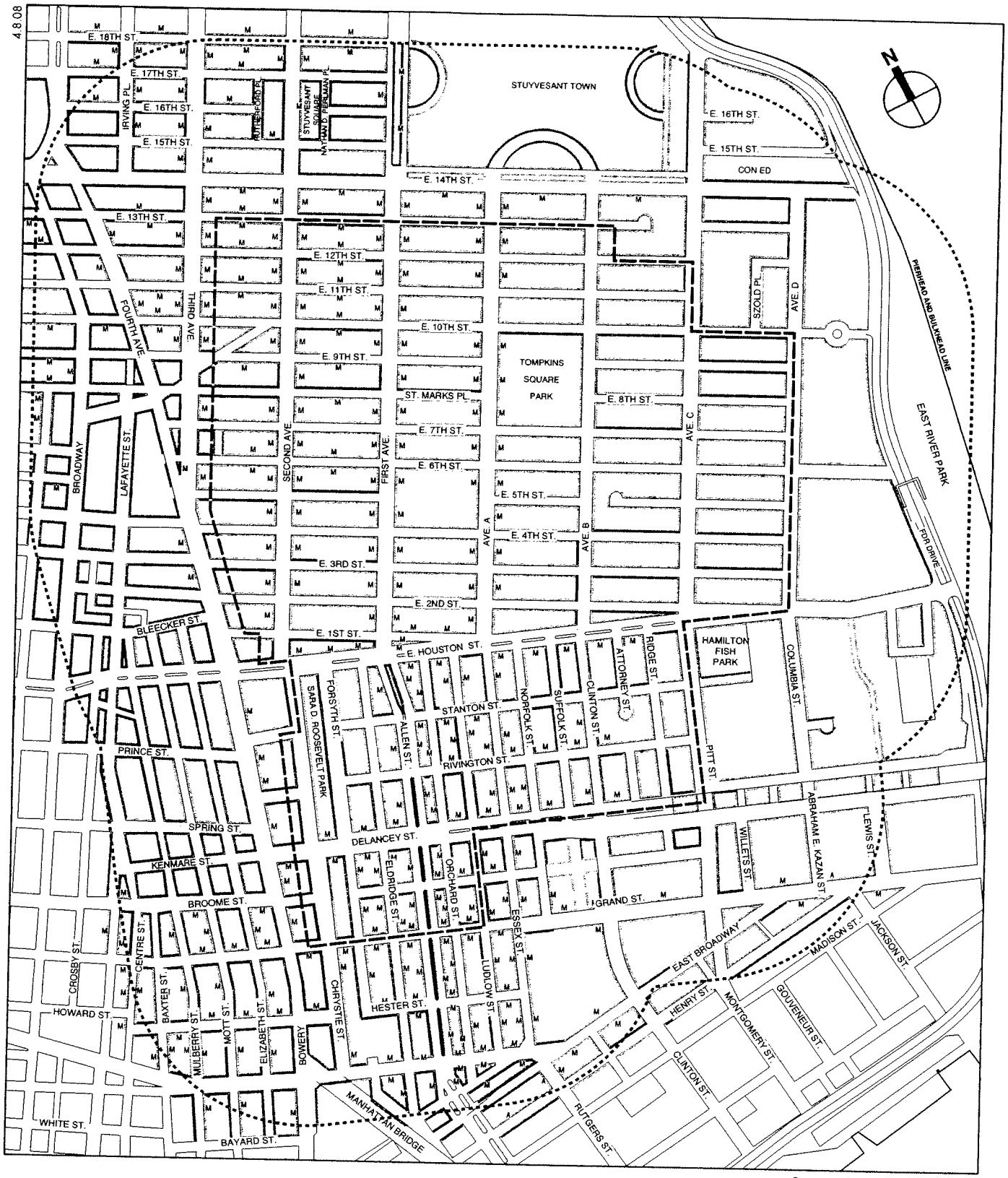
Authorized Vehicle Parking

Truck Loading and Unloading

No Parking, No Standing, No Stopping

On-Street Parking Regulations
Midday Peak Hour

Figure 16-29



1/4-Mile Study Area Boundary

Alternate Side of the Street

Metered Parking

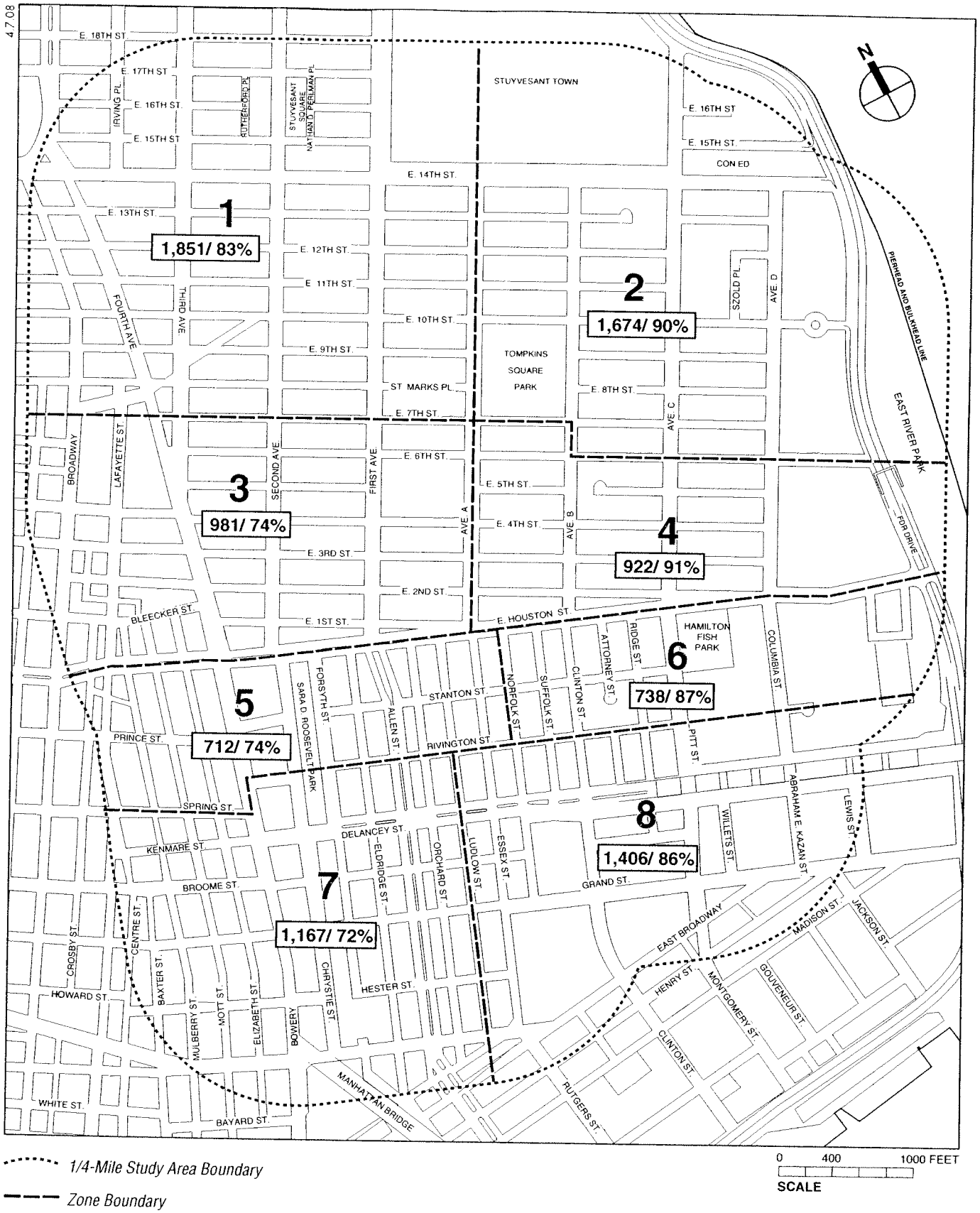
Parking Allowed

Authorized Vehicle Parking

Truck Loading and Unloading

No Parking, No Standing, No Stopping

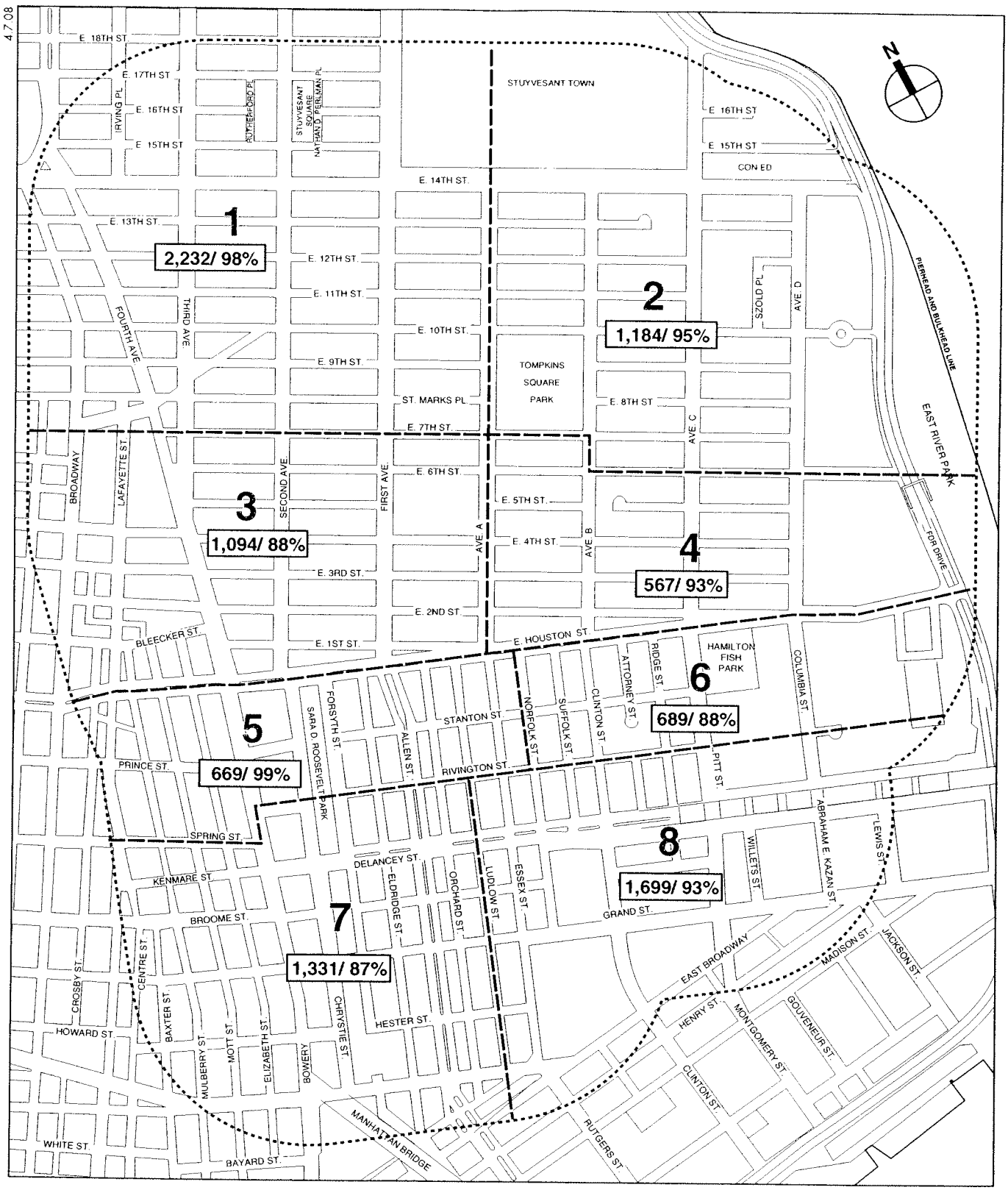
On-Street Parking Regulations
PM Peak Hour
Figure 16-30



On-Street Parking Zonal Capacity and Percent Occupied: AM Peak Hour

Figure 16-31

4.7.08

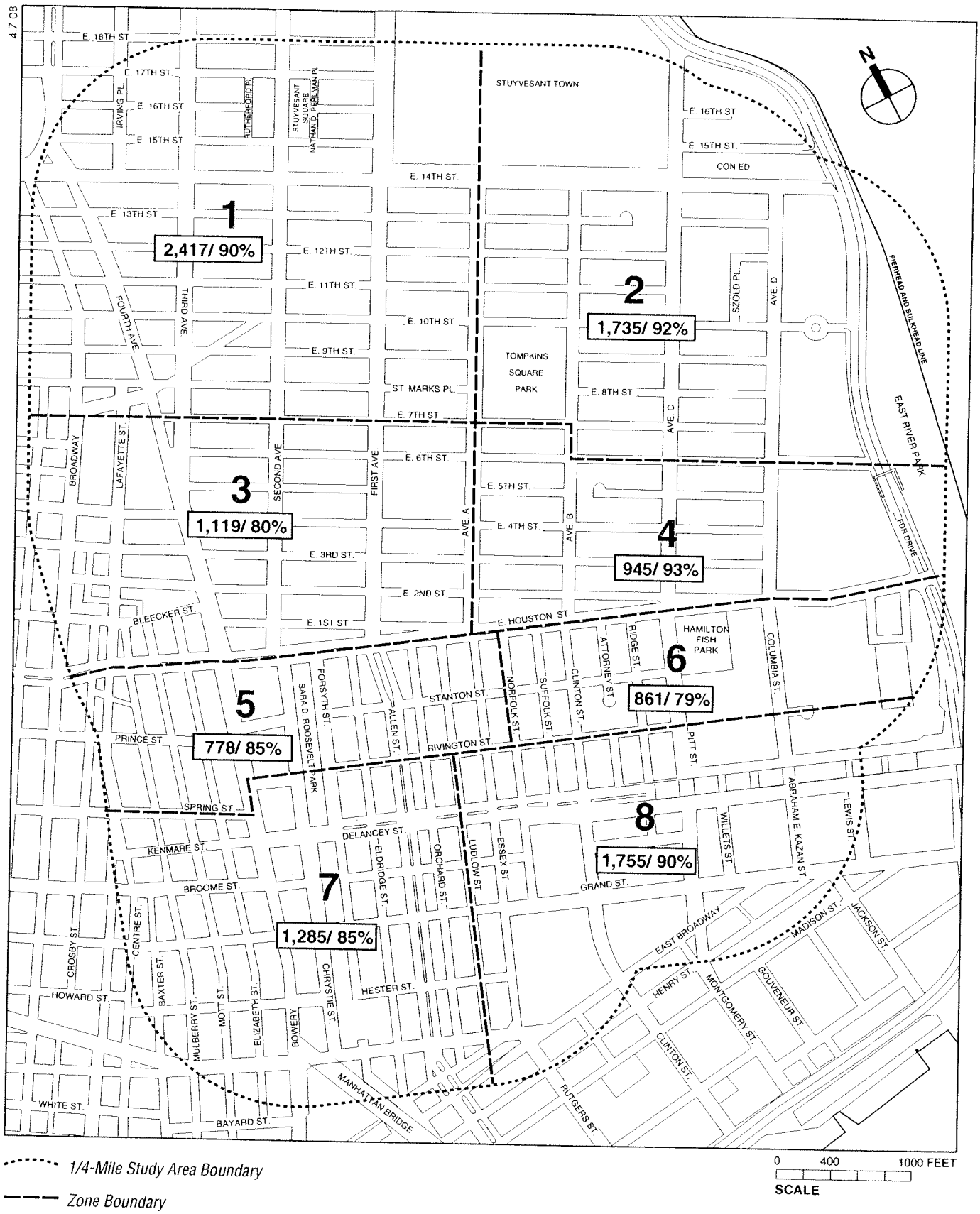


1/4-Mile Study Area Boundary

Zone Boundary

On-Street Parking Zonal Capacity and Percent Occupied: Midday Peak Hour

Figure 16-32



On-Street Parking Zonal Capacity and Percent Occupied: PM Peak Hour

Figure 16-33

Standing areas for bus stops, and 1 Hour Metered Parking from 8 AM to 7 PM Monday to Saturday. Houston Street has legal parking with alternate side parking regulations from 3 to 6 AM or 9 to 10:30 AM, 2 Hour Metered Parking from 9 AM to 7 PM from Monday to Saturday, with some stringent parking such as No Standing Anytime, No Parking Anytime, and No Standing areas for bus stops. Delancey Street has a blend of stringent parking regulations including No Standing Anytime and No Standing 7 to 10 AM or 4 to 7 PM Monday to Saturday, No Standing Anytime Except Trucks and No Standing Except Trucks 7 to 10 AM or 4 to 7 PM Monday to Saturday, No Standing 7 AM to 7 PM Monday to Friday, No Parking Except Trucks midnight to 3 AM or 3 to 6 AM, and 1 Hour or 2 Hour Metered Parking from 9 AM to 7 PM. Grand Street has No Parking from 3 to 6 AM, 7:30 to 8 AM, 8 to 8:30 AM Monday to Saturday, 1 Hour Metered Parking from 8, 8:30 or 9 AM to 7 PM Monday to Saturday, No Standing Except Trucks 8 AM to 6 PM Monday to Saturday, and No Standing for bus stops. Other east-west streets have primarily a blend of stringent No Parking, No Parking during certain overnight hours, No Parking Except Trucks, and No Standing regulations, and metered parking and legal parking with alternate side of the street parking regulations. Figures 16-28 through 16-30 identify the primary parking regulation for each of the blockfaces surveyed for weekday AM, midday, and PM peak hours.

Overall, on the approximately 1,282 blockfaces surveyed, there was an extremely limited number of legal parking spaces available on-street for use by potential new motorists in the area. At 8 to 9 AM, surveys conducted showed that there were approximately 9,451 legal parking spaces, of which 83 percent were occupied. This indicated that there were about 1,622 legal on-street spaces "available" within the area, or an average of about one space per blockface. At 12 to 1 PM, there were approximately 9,465 legal parking spaces, of which 93 percent were occupied. Thus, there were only about 654 legal available parking spaces within the survey area, or approximately one space every two blockfaces. At about 5 to 6 PM, there were approximately 10,895 legal parking spaces on-street, of which about 88 percent were occupied; thus, there were about 1,346 legal available parking spaces, or an average of about one space every blockface. Table 16-7 below summarizes the existing on-street capacity, observed occupancy and percent occupied by time period for each of the eight zones that were identified for the traffic assignments. The individual blockface capacities, occupancies, and parking regulations for the existing conditions are presented in Appendix E.

Table 16-7
Existing On-Street Parking Occupancy By Zone

Zone	Legal Capacity (vehicles)			Legal Observed (vehicles)			Percent Occupied		
	AM	Midday	PM	AM	Midday	PM	AM	Midday	PM
1	1,851	2,232	2,417	1,533	2,187	2,175	83%	98%	90%
2	1,674	1,184	1,735	1,507	1,128	1,598	90%	95%	92%
3	981	1,094	1,119	722	967	890	74%	88%	80%
4	922	567	945	840	525	879	91%	93%	93%
5	712	669	778	530	662	662	74%	99%	85%
6	738	689	861	641	605	676	87%	88%	79%
7	1,167	1,331	1,285	840	1,155	1,089	72%	87%	85%
8	1,406	1,699	1,755	1,216	1,582	1,580	86%	93%	90%
Total	**9,451**	**9,465**	**10,895**	**7,829**	**8,811**	**9,549**	**83%**	**93%**	**88%**
Notes:	See Appendix E for detailed on-street parking survey results.								

The percent utilization in some areas of the parking study area is higher than in others. The traffic assignment zones presented previously in this chapter were used to illustrate the on-street capacity and percent utilization for the parking study area. The number of legal, on-street spaces within each zone (using the same zones as presented in the Travel Demand Projections and Traffic Analysis Screening section), i.e., the capacity, is illustrated along with the percent utilization in Figures 16-31 to 16-33.

Based on weekday daytime parking surveys, the number of dwelling units in the parking study area, and the average number of vehicles per dwelling unit (average of 0.18 vehicles for market rate and affordable dwelling units, according to U.S. Census data), the overnight parking is estimated to be approximately 14,750 vehicles occupying about 18,900 on-street and off-street spaces, or 78 percent occupied.

PARKING CONDITIONS IN THE FUTURE WITHOUT THE PROPOSED ACTIONS

For the analysis year 2017 in the future without the proposed actions (No Build condition), a combination of (1) general background growth, (2) projected development of sites that would not be associated with the proposed rezoning actions (called off-site development), and (3) projected as-of-right development of sites that would be different from what would occur with the proposed rezoning actions (called on-site development) would increase the utilization of off-street parking within the study area. To account for general background growth, the existing parking utilization was increased by 0.5 percent per year as per the *CEQR Technical Manual* guidelines for Manhattan. For the projected development of off-site and on-site parcels, transportation demands and parking demands were estimated for the weekday peak hours, and added to the general background growth. Also, the number of existing parking spaces that would be displaced by future development and the number of parking spaces that would be added by future development were taken into account.

The transportation demand assumptions used to project the number of vehicular weekday peak hour trips in the Transportation Planning Assumptions section were used to project the number of vehicular weekday peak hour trips that would be generated by the development under the future No Build condition. Temporal distributions for each land use were used to calculate the weekday peak hour parking demand within each zone. The average number of vehicles per dwelling unit (0.18 vehicles per dwelling unit, according to U.S. Census data) was used to determine the overnight parking demand.

The results of these analyses show that the capacity of the off-street facilities within the parking study area would increase from 8,021 under existing conditions to 8,382 spaces under the future No Build condition. Overall, there would be an occupancy level of about 71 percent in the AM (compared to 60 percent under existing conditions), 88 percent in the midday (compared to 76 percent under existing conditions), and 79 percent in the PM (compared to 71 percent under existing conditions). This means that at about 8 to 9 AM, i.e., the AM peak inbound commuter hour, there would be about 2,450 unoccupied spaces available within off-street lots and garages (compared to about 3,200 unoccupied spaces under existing conditions). This would decrease to about 1,000 spaces at midday (compared to about 1,925 spaces under existing conditions). During the inbound residential peak hour, i.e., 5 to 6 PM, about 1,800 unoccupied spaces would exist (compared to about 2,300 unoccupied spaces under existing conditions). Within three out of the eight zones analyzed in the future No Build condition, there would be a daytime shortage of off-street parking, which could be accommodated within other off-street parking facilities in

nearby zones. Table 16-8 summarizes the study area off-street occupancies expected under the No Build condition for the weekday AM, midday, and PM peak hours.

Table 16-8
2017 No Build Off-Street Parking Utilization Summary

¼-Mile Radius Off-Street Parking Condition	AM	Midday	PM
Capacity (369 additional No Build spaces minus 8 displaced spaces)	8,382	8,382	8,382
2008 Existing Demand	4,836	6,072	5,722
Background Growth (0.5-percent per year)	222	279	263
No Build Incremental Parking Demand	897	1,056	624
Total 2017 No Build Demand	5,955	7,407	6,609
Remaining Spaces	2,435	983	1,781
Utilization	**71%**	**88%**	**79%**
Notes: An eight-space lot is expected to be displaced under the No Build condition.			

In order to account for background traffic growth in the study area which could potentially reduce on-street parking supplies, the background growth rate of 0.5 percent per year was applied to the overall on-street parking study area utilization, which would increase the on-street parking utilization to about 90 to 100 percent occupied during the weekday peak hours. The on-street parking would be fully utilized under the future No Build condition. Since the on-street parking occupancy is close to 100 percent under existing conditions for the time periods shown in Table 16-7, parking trips generated by projects expected under the No Build condition were assigned to off-street parking facilities within the parking study area for the AM, midday, and PM peak hours.

Based on the number of dwelling units and hotels that would be built under the No Build condition and the average number of vehicles per dwelling unit (average of 0.18 vehicles for market rate and affordable dwelling units, according to U.S. Census data), the overnight parking under the No Build condition is estimated to be approximately 16,200 vehicles (compared to 14,750 vehicles under existing conditions) occupying about 19,275 on-street and off-street spaces (compared to 18,900 spaces under existing conditions), or 84 percent occupied (compared to 78 percent under existing conditions).

PARKING CONDITIONS IN THE FUTURE WITH THE PROPOSED ACTIONS

For the analysis year 2017 in the future with the proposed actions (Build condition), the net change in development that would occur under the proposed actions was assessed for parking conditions and compared to the No Build condition. The projected development under the RWCDS was aggregated to account for the increase in residential development and the decrease in office development, hourly trips were projected using the same assumptions as the Transportation Planning Assumptions section, and the trips were assigned to the study area into corresponding zones (using the same zones as previously described).

The total number of dwelling units that could be built under the Build condition would be higher than the No Build condition by 1,383 dwelling units, and the total amount of commercial area that could be built would be lower by about 75,000 square feet. There would be 77 additional off-street parking spaces built under the Build condition than would be built under the No Build condition. The results of these analyses show that the capacity of the off-street facilities would increase from 8,021 under existing conditions to 8,459 spaces under the RWCDS conditions.

Overall, there would be an occupancy level of about 72 percent in the AM (compared to 71 percent under the future No Build condition), 88 percent in the midday (the same as projected for the future No Build condition), and 81 percent in the PM (compared to 79 percent under the future No Build condition). This means that at about 8 to 9 AM, i.e., the AM peak inbound commuter hour, there would be about 2,370 unoccupied spaces available within off-street lots and garages (compared to about 2,450 unoccupied spaces under the future No Build condition). This would decrease to about 980 spaces at midday (compared to about 1,000 spaces under the future No Build condition). During the inbound residential peak hour, i.e., 5 to 6 PM, about 1,650 unoccupied spaces would exist (compared to about 1,800 unoccupied spaces under the future No Build condition). Similar to the No Build condition, in three of the eight zones analyzed in the RWCDS, there would be a daytime shortage of off-street parking, which could be accommodated within other off-street parking facilities in an adjacent zone. Table 16-9 summarizes the study area off-street occupancies expected under the RWCDS for the weekday AM, midday, and PM peak hours.

Table 16-9
2017 Proposed Actions Off-Street Parking Utilization Summary

¼-Mile Radius Off-Street Parking Condition	AM	Midday	PM
Capacity (No Build capacity plus 77 additional spaces)	8,459	8,459	8,459
2017 No Build Demand	5,955	7,407	6,609
RWCDS Incremental Parking Demand	134	72	200
Total 2017 RWCDS Demand	6,089	7,479	6,809
Remaining Spaces	2,370	980	1,650
Utilization	**72%**	**88%**	**81%**
Notes: An eight-space lot is expected to be displaced under the No Build condition.			

Similar to the No Build condition, on-street parking under the RWCDS would be about 90 to 100 percent occupied during the weekday peak hours. The on-street parking would be fully utilized under future RWCDS. Since the on-street parking occupancy would be close to 100 percent under the No Build condition for the time periods shown in Table 16-7, parking trips generated by projects expected under the RWCDS were assigned to off-street parking facilities within the parking study area for the AM, midday, and PM peak hours.

Based on the number of dwelling units that would be built under the RWCDS and the average number of vehicles per dwelling unit (average of 0.18 vehicles for market rate and affordable dwelling units, according to U.S. Census data), the overnight parking under RWCDS is estimated to be approximately 16,450 vehicles (compared to 16,200 vehicles under the No Build condition) occupying about 19,350 on-street and off-street spaces (compared to 19,275 spaces under the No Build condition), or 85 percent occupied (compared to 84 percent under the No Build condition). Therefore, overnight parking could be accommodated under the RWCDS.

PARKING CONDITIONS WITH INCLUSIONARY HOUSING ALTERNATIVE

The Inclusionary Housing Alternative would result in similar weekday parking demands as would the proposed actions. Off-street parking occupancy levels would be approximately 72 percent in the AM (the same as projected for the proposed actions), 89 percent in the midday (compared to 88 percent with the proposed actions), and 81 percent in the PM (the same as projected for the proposed actions). Similar to the Build condition, in three of the eight zones analyzed in the Inclusionary Housing Alternative, there would be a daytime shortage of off-

street parking, which could be accommodated within other off-street parking facilities in an adjacent zone. The estimated overnight parking would be 85 percent occupied under the Inclusionary Housing Alternative—the same as in the proposed actions. Therefore, overnight parking could be accommodated under the Inclusionary Housing Alternative. ✷