

vision42

an auto-free light rail boulevard for 42nd Street

Phase II Technical Studies— Traffic Analysis and Truck Loading

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vision42

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The **vision42** proposal is a citizens' initiative sponsored by theygurtin@gmail.com Institute for Rational Urban Mobility, Inc. (IRUM), a New York City-based not-for-profit corporation concerned with advancing cost-effective transport investments that improve the livability of dense urban places.

This study, one of a second round of three technical studies that address key concerns about the feasibility of the **vision42** proposal, was made possible by a generous grant from the New York Community Trust/Community Funds, Inc., John Todd McDowell Environmental Fund.

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Executive Summary

Sam Schwartz PLLC (SSC) was retained by the Institute for Rational Urban Mobility, Inc. (IRUM) to perform a traffic study for the vision42 proposal. SSC issued a traffic report for the vision42 proposal in April 2005. This report completes the April 2005 report with the information listed below. This report aims to address community concerns raised at the release of the initial traffic study.

- **Sections 2 and 3 – Delivery cost to 42nd Street businesses**
Further analysis was made into the increased delivery time to 42nd Street businesses, as vehicles would no longer be able to make deliveries on 42nd Street under the vision42 proposal. Specifically, the demand for truck loading and unloading was estimated and compared to the space that would be available after 42nd Street is closed.
- **Section 4 – Intersections added to the traffic analysis**
Several intersections where traffic volume data became available were added to the vision42 traffic simulation model.
- **Section 5 – An alternate method of vehicle delay description**
Level of Service (LOS), expressed as average delay per vehicle, is used in this report. LOS is a more detailed measure of traffic operations than the volume-to-capacity ratio (v/c) used in the April 2005 report.

With regard to truck loading and unloading, SSC considered three scenarios:

- Existing condition – trucks load and unload on 42nd Street and the surrounding area;
- Proposed condition without recommendations – trucks load and unload only on the nearby Avenues where existing parking regulations permit;
- Proposed condition with recommendations – trucks load and unload where existing parking regulations permit on the Avenues, as well as additional locations where SSC proposed that loading areas could be implemented.

SSC proposes to change the parking regulations at the following locations to allow for an additional total of 600 curb feet of loading area for trucks. (However, a loss in Park Avenue available space due to the closure of 42nd Street creates a net increase of 400 feet):

- 5th Avenue – east side – between 41st Street and 43rd Street – a total of 400 additional feet for truck loading activity.
- 6th Avenue – west side – between 42nd Street and 43rd Street – a total of 200 additional feet for truck loading activity.

If a more balanced set of loading areas is required to reduce the distance over which handcart deliveries can be made, the following additional locations are identified as potential loading areas. These locations could also serve to accommodate increased demand in the future:

- 8th Avenue – east side – between 41st and 42nd Street – a total of 200 additional feet for truck loading activity.
- 3rd Avenue – west side – between 41st and 42nd Street – a total of 200 additional feet for truck loading activity.

SSC found that the existing loading areas on the Avenues intersecting 42nd Street would not be sufficient to accommodate the existing loading demand for both 42nd Street and the studied Avenues. However, the demand would be accommodated using the additional loading areas proposed by SSC.

Additional intersections were included in the vision42 traffic simulation model in response to questions raised at community board meetings. Communities on the east side of Manhattan voiced their concern that there were fewer intersections studied in their area. SSC obtained volumes from the Con Edison East Side Development Study, and were able to show that the vision42 proposal would not adversely affect the east side of Manhattan.

This report displays the results of the April 2005 report as well as the results from the newly included intersections in terms of LOS, as opposed to the previous volume/capacity description. In addition to being a more detailed measure of traffic operations, this alternate expression of results is more tangible to the layperson.

The main body of the report pertains to the truck loading and unloading; the additional intersections and the LOS methodology are discussed separately at the end of the report.

The conclusion that the vision42 proposal is entirely feasible from a traffic standpoint put forth by SSC in the April 2005 report remains the same, and is only further supported by this additional data and alternative description.

1.0 Introduction

The Institute for Rational Urban Mobility, Inc. (IRUM) had retained Sam Schwartz PLLC (SSC) to perform a traffic study for the vision42 proposal. A traffic report for the vision42 proposal was issued by SSC in April 2005. This report is a follow-up to the April 2005 report and addresses community concerns raised at the release of the initial traffic study. Specifically, this report furthers studies in truck loading and unloading demand, incorporates additional intersections into the simulation model, and provides an alternate way of reporting the simulation model results.

It was requested that SSC perform a study of existing truck loading demand along 42nd Street, and recommend how to accommodate this loading and unloading within the vision42 proposal to close 42nd Street to vehicular traffic.

SSC analyzed the existing conditions for truck loading locations along 42nd Street and the surrounding area. This report details the findings for existing truck loading conditions, and suggests other locations in the surrounding vicinity of 42nd Street that could be suitable as alternative loading locations.

It was also requested that SSC make refinements to the traffic analysis presented in the vision42 April 2005 traffic analysis. The suggested refinements include the addition of some intersections to the traffic model, and an alternative method of displaying results (Level of Service (LOS) as opposed to volume to capacity ratio (v/c)). These refinements are presented at the end of this report.

2.0 Methodology for Delivery Parking Analysis

42nd Street is an active commercial street consisting primarily of large, high density commercial buildings with ground floor retail. Most of the main commercial segments of these buildings have loading docks located on 41st Street and 43rd Street. However, small ground floor retail locations that front on 42nd Street rely on trucks loading and unloading directly from 42nd Street.

SSC studied 42nd Street between 3rd and 8th Avenues for the existing truck demand conditions. Most truck loading and unloading occurs along this portion of 42nd Street, as well as along the adjacent Avenue blocks. Available curbside space is described in curb feet-minutes. The unit, curb feet-minutes, represents the amount of time and the amount of space that each vehicle occupies along the curb of the street. Curb feet-minutes is determined by taking the occupied curbside space on a street, and multiplying by the time that it is occupied.

In evaluating these conditions, as well as the improvement alternatives, SSC collected data and performed analysis as described below.

2.1 Data Collection

SSC recorded the parking regulations along 42nd Street between 3rd and 8th Avenues, and the adjacent Avenue blocks, to determine existing truck loading and unloading locations, as shown in Figure 1. The parking regulation inventory area was between 41st and 43rd Streets along all intersecting Avenues from 3rd to 8th Avenues.

Six areas along 42nd Street were selected to serve as representative study points to determine the existing curbside usage. SSC recorded curbside activity at these locations from 7 AM to 7 PM. These sites were chosen for the following reasons:

- They were signed for either truck loading or commercial vehicle parking
- They were relatively long (at least 100 feet)
- They were near to ground floor retail
- They were observed to be active

The following sites were studied along 42nd Street:

- 42nd Street – North side – between 5th and 6th Avenues
- 42nd Street – North side – between 7th and 8th Avenues
- 42nd Street – South side – between 7th and 8th Avenues – West
- 42nd Street – South side – between 7th and 8th Avenues - East
- 42nd Street – South side – between 5th Avenue and Madison Avenue
- 42nd Street – South side – between Lexington Avenue and Park Avenue

SSC also conducted curbside usage studies at 5 representative locations along the adjacent Avenue blocks to determine their existing loading demand and available curb capacity. These locations were chosen for the same reasons as the 42nd Street sites. The times these locations were studied correspond to the parking regulations at the

locations. In other words, the locations were studied at times when parking regulations permitted loading and unloading.

The sites studied on the adjacent Avenues to 42nd Street, as well as the times of the studies, were as follows:

- 7th Avenue – West side – between 41st and 42nd Streets (7 AM to 1PM)
- Broadway – East side – between 41st and 42nd Streets (10 AM to 1 PM)
- Lexington Avenue – East side – between 41st and 42nd Streets (1 PM to 4 PM)
- 6th Avenue – West side – between 41st and 42nd Streets (10 AM to 4 PM)
- Madison Avenue – West side – between 41st and 42nd Street (7 AM to 1PM)

2.2 Existing Conditions Analysis

SSC conducted curb usage studies at the representative locations along 42nd Street to determine the necessary space needed to accommodate the trucks that use 42nd Street for loading and unloading.

Truck loading is only permitted in areas specifically designated for truck loading and unloading, and in areas signed for commercial vehicle parking. Commercial vehicle parking is limited to three hours, and vehicles using this space are required to pay for parking at muni-meters. Trucks that load and unload in this area must compete for space with commercial vehicles that are parked and are not loading or unloading.

The curbside demand studies were conducted at the study locations along 42nd Street. These locations were assumed to be representative of the curb usage along all of 42nd Street. This assumption is conservative as the most heavily used locations – those between 3rd and 8th Avenues – were assumed to be representative of 42nd Street as a whole. The gathered data was used to project how much curb space is used along 42nd Street. The curbside usage studies conducted along the Avenues were taken to be representative of the available loading space on the Avenues between 41st and 43rd Streets.

The curb feet-minute usage data collected along 42nd Street and along the Avenues was increased by 25% to account for parking inefficiencies. This increase accounts for the gaps between parked vehicles, particularly between large trucks which require additional space to maneuver and unload when unloading is done from the rear of the vehicle.

2.3 Future Conditions Analysis

The projected demand for loading and unloading space on 42nd Street was then compared to the projected available space along the Avenues. This was done on an hourly basis from 7 am to 7 pm, as both loading demand and available space change throughout the day. The available space is dependent upon time-based parking regulations.

Finally, SSC identified locations on the Avenues that are not used currently as loading locations but could feasibly be converted to loading areas. The projected demand was

compared to the projected available space including both the existing available space and the proposed converted space.

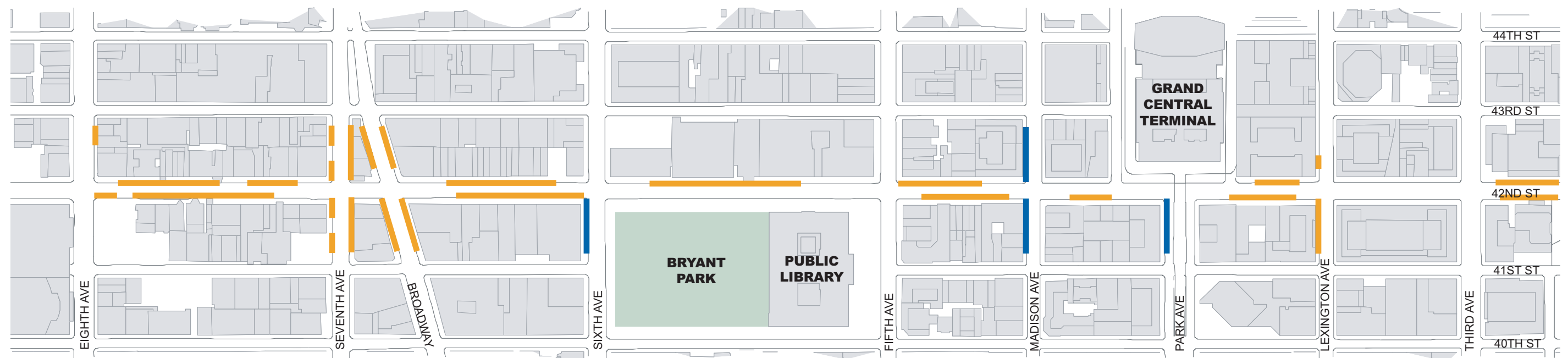



FIGURE 1:
EXISTING TRUCK LOADING LOCATIONS

 **NOT TO SCALE**

-  *EXISTING NO STANDING Except Trucks Loading and Unloading*
-  *EXISTING NO STANDING Except Commercial Vehicles--Metered Parking (3 Hour Limit)*

3.0 Results of Delivery Parking Analysis

The results of the 42nd Street and adjacent Avenue curbside usage studies are presented below.

3.1 Curb Usage Along 42nd Street

The results of the curbside usage studies along 42nd Street are described below and shown in Figures 2 through 6.

42nd Street South Side between 5th Avenue and Madison Avenue

The total amount of curbside space available along the south side of 42nd Street between 5th Avenue and Madison Avenue is 420 feet. The total amount of curb feet-minutes available are 25,200. The maximum amount of curb feet-minutes usage occurs between 1:00 pm and 2:00 pm, with 9,498 curb feet-minutes used by trucks loading and unloading.

42nd Street North Side between Seventh and Eighth Avenues

The total amount of curbside space available along the north side of 42nd Street between 7th and 8th Avenues is 150 feet. The total amount of curb feet-minutes available are 9000. The maximum amount of curb feet-minutes usage occurs between 10:00 am and 11:00 am, with 3,980 curb feet-minutes used by trucks loading and unloading.

42nd Street South Side Between Seventh and Eighth Avenues Area A – West

The total amount of curbside space available along the south side of 42nd Street between 7th and 8th Avenues Area A is 250 feet. The total amount of curb feet-minutes available are 15,000. The maximum amount of curb feet-minutes usage occurs between 1:00 pm and 2:00 pm, with 4,750 curb feet-minutes used by trucks loading and unloading.

42nd Street South Side between Seventh and Eighth Avenues Area B – East

The total amount of curbside space available along the south side of 42nd Street between 7th and 8th Avenues Area A is 250 feet. The total amount of curb feet-minutes available are 15,000. The maximum amount of curb feet-minutes usage occurs between 11:00 pm and 12:00 pm, with 5,601 curb feet-minutes used by trucks loading and unloading.

42nd Street South Side between Park Avenue and Lexington Avenue

The total amount of curbside space available along the south side of 42nd Street between Park Avenue and Lexington Avenue is 330 feet. The total amount of curb feet-minutes available are 19,800. The maximum amount of curb feet-minutes usage occurs between 11:00 am and 12:00 pm, with 11043 curb feet-minutes used by trucks loading and unloading.

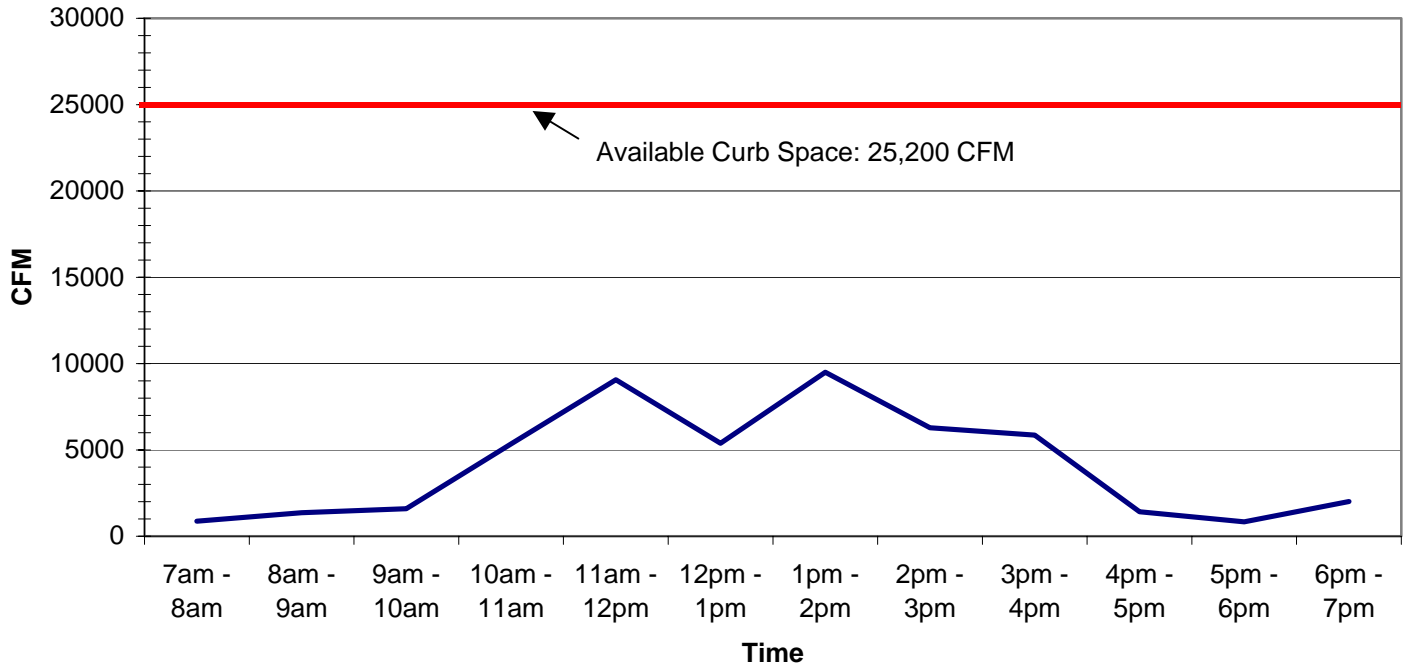


Figure 2: 42nd Street South side between 5th Avenue and Madison Avenue

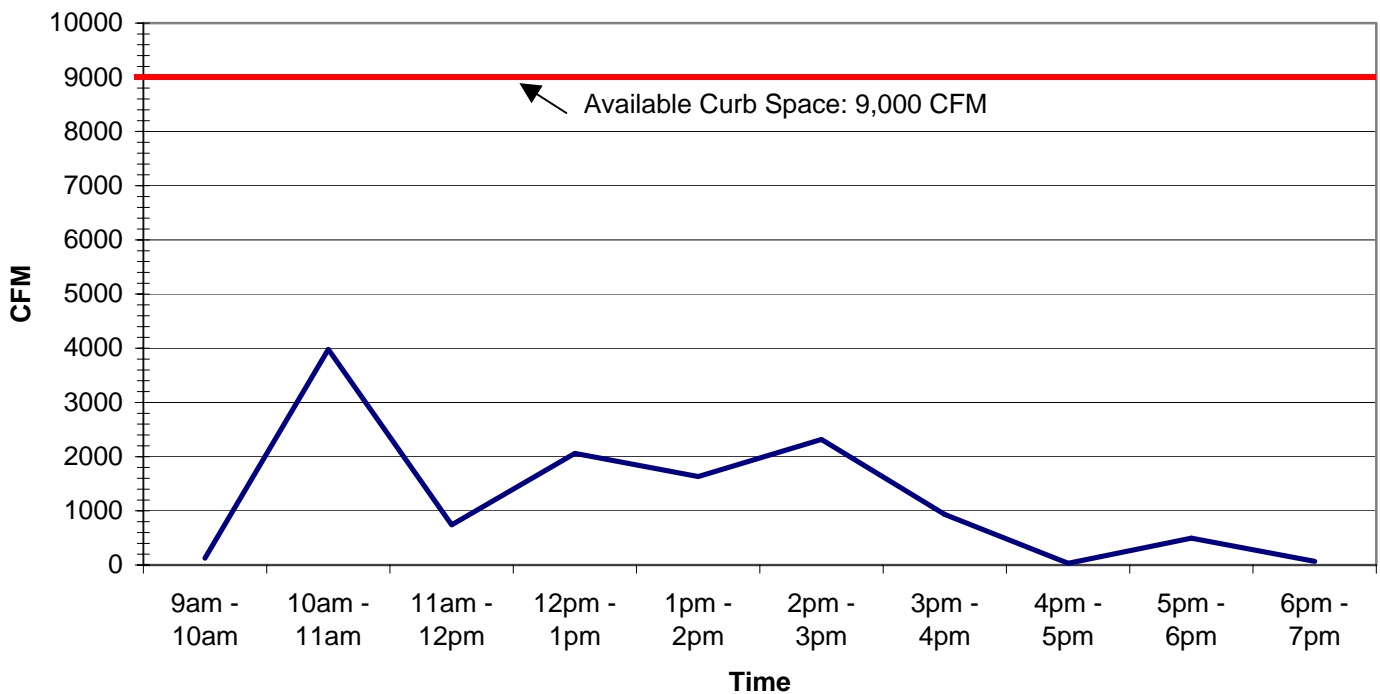


Figure 3: 42nd Street North Side between 7th and 8th Avenues

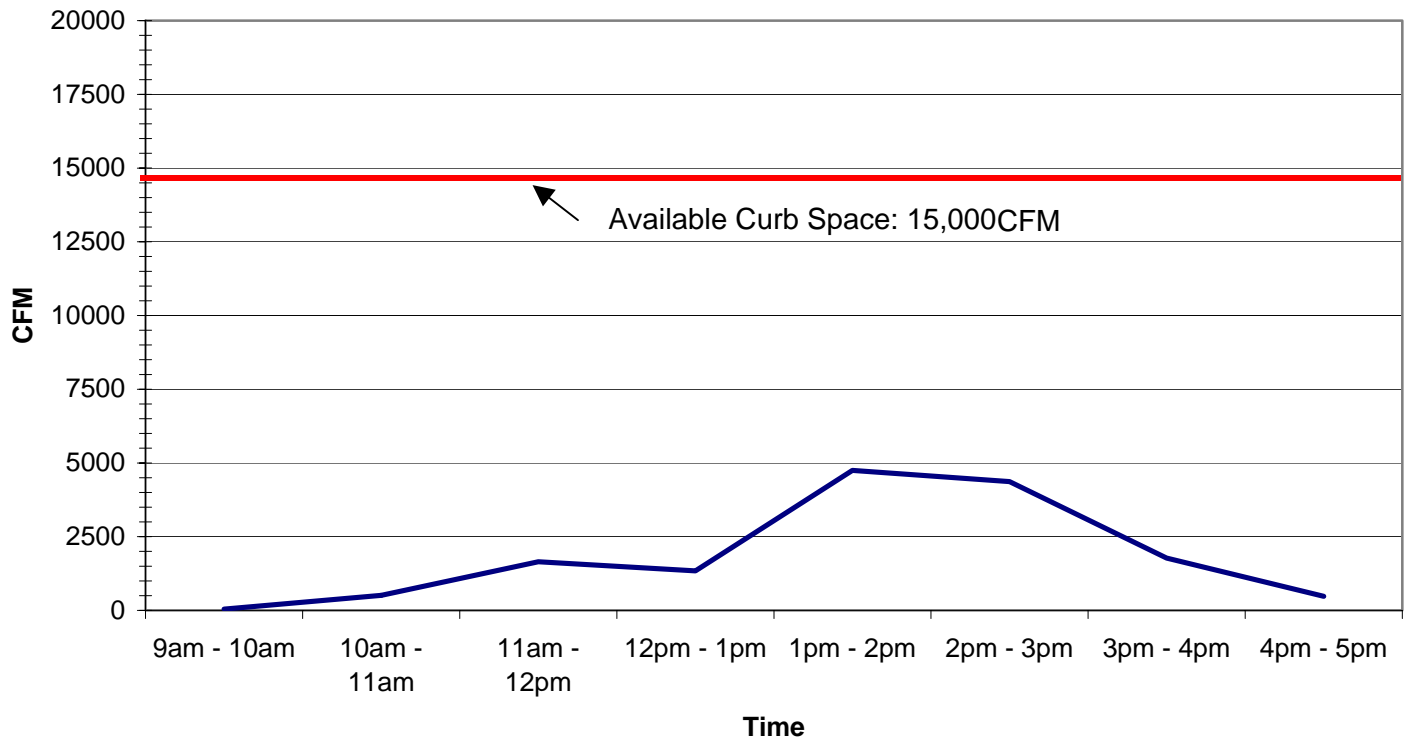


Figure 4: 42nd Street South Side between 7th and 8th Avenue – West

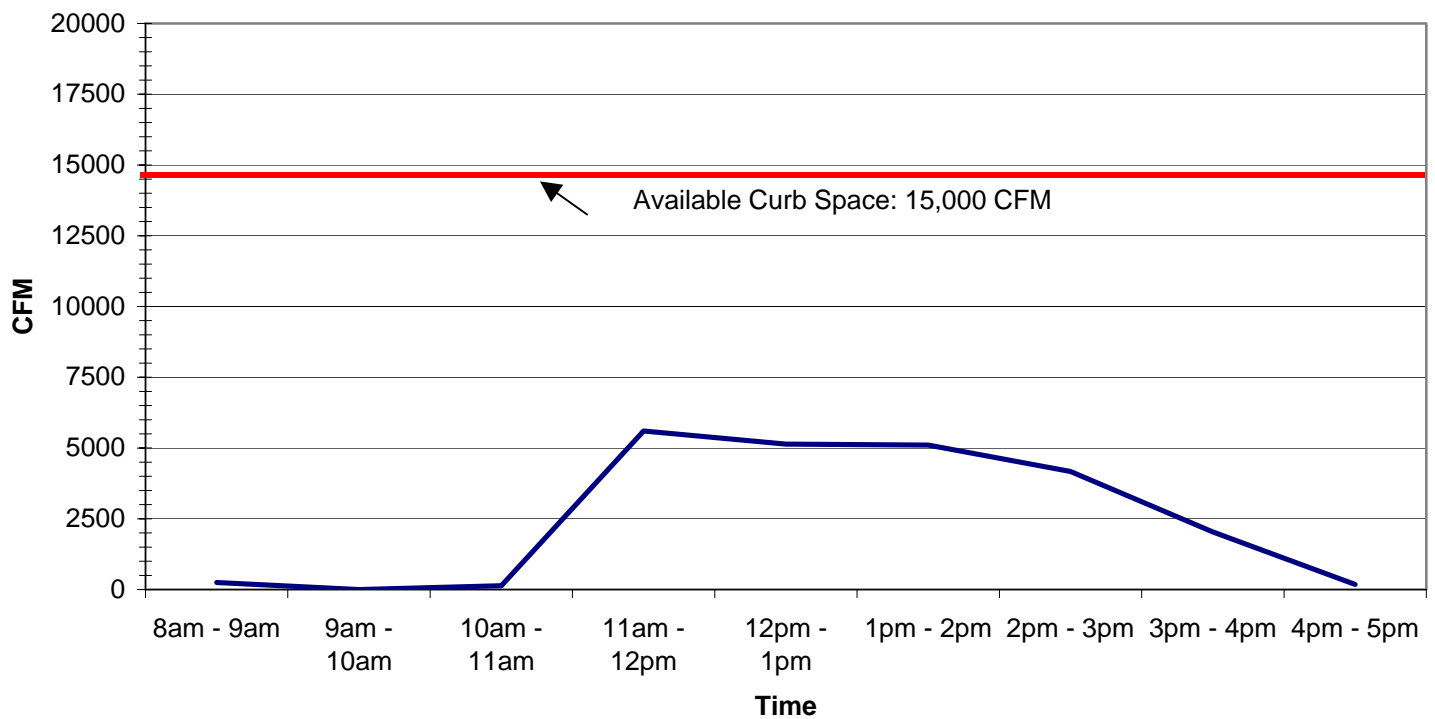


Figure 5: 42nd Street South Side between 7th and 8th Avenues Area B - East

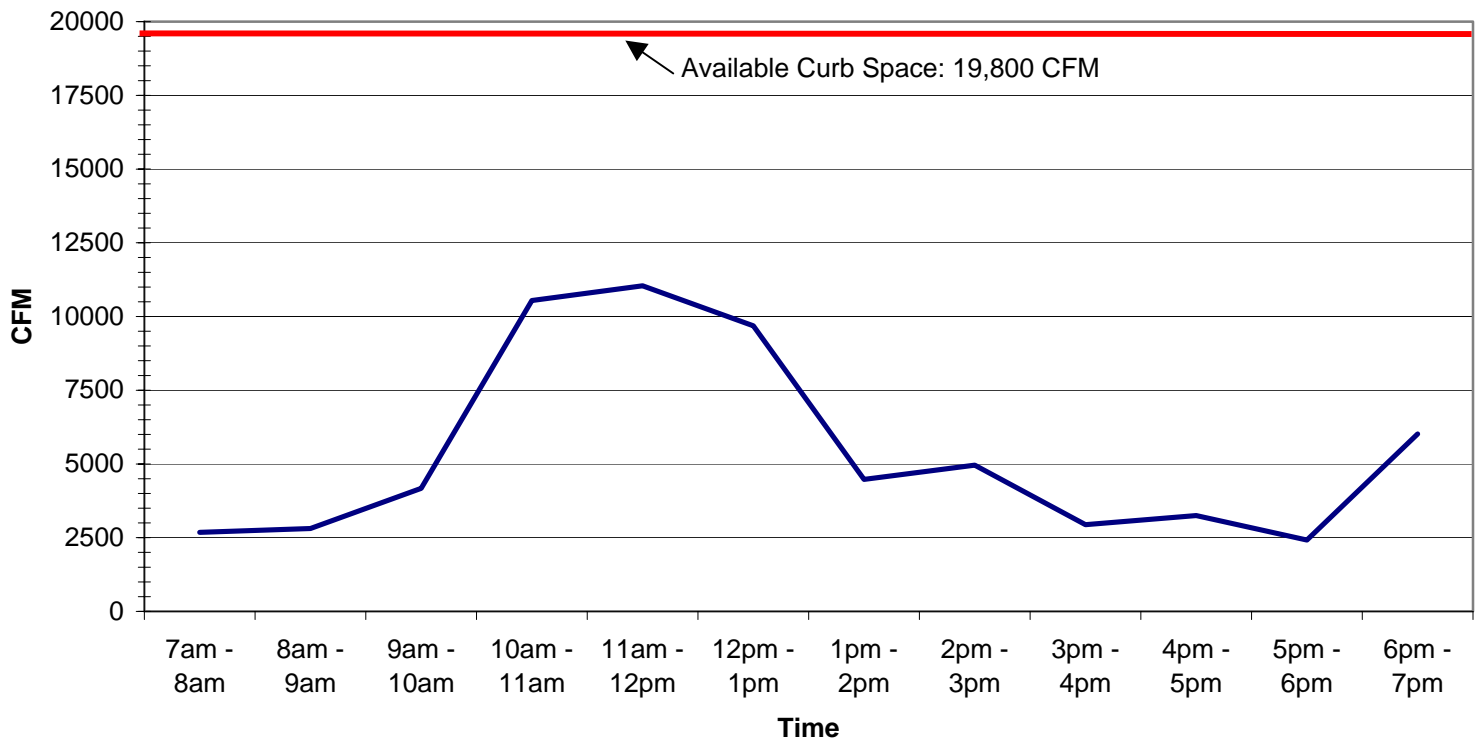


Figure 6: 42nd Street South Side between Park Avenue and Lexington Avenue

3.2 Curb Usage Along Avenues

The results of the curbside usage studies along the Avenue blocks adjacent to 42nd Street are described below. Figures 7 through 11 display the amount of curb feet-minutes available for each of the following Avenues, as well as the percentage of the curb space along each Avenue that is used.

Broadway

There is a total of 12,000 curb feet-minutes available for trucks to occupy for their loading and unloading activities along Broadway. The greatest amount of curb feet-minutes that is utilized by trucks occurs between 12 pm and 1 pm, with 12,992 curb feet-minutes being used. The amount of curb feet-minutes being used exceeds the total curb feet area available along Broadway because of the 25% increase that was applied to all data to account for parking inefficiencies. The excess occurs because this location operates more efficiently out of necessity caused by the high demand.

6th Avenue

There is a total of 12,000 curb feet-minutes available for trucks to occupy for their loading and unloading activities along 6th Avenue. The greatest amount of curb feet-minutes that is utilized by trucks occurs between 11 am and 12 pm, with 10,283 curb feet-minutes being used.

7th Avenue

There is a total of 10,200 curb feet-minutes available for trucks to occupy for their loading and unloading activities along 7th Avenue. The greatest amount of curb feet-minutes that is utilized by trucks occurs between 10 am and 11 am, with 2,998 curb feet-minutes being used.

Lexington Avenue

There is a total of 12,000 curb feet-minutes available for trucks to occupy for their loading and unloading activities along Lexington Avenue. The greatest amount of curb feet-minutes that is utilized by trucks occurs between 2 pm and 3 pm, with 4,442 curb feet-minutes being used.

Madison Avenue

There is a total of 12,000 curb feet-minutes available for trucks to occupy for their loading and unloading activities along Madison Avenue. The greatest amount of curb feet-minutes that is utilized by trucks occurs between 8 am and 9 am, with 10,360 curb feet-minutes being used.

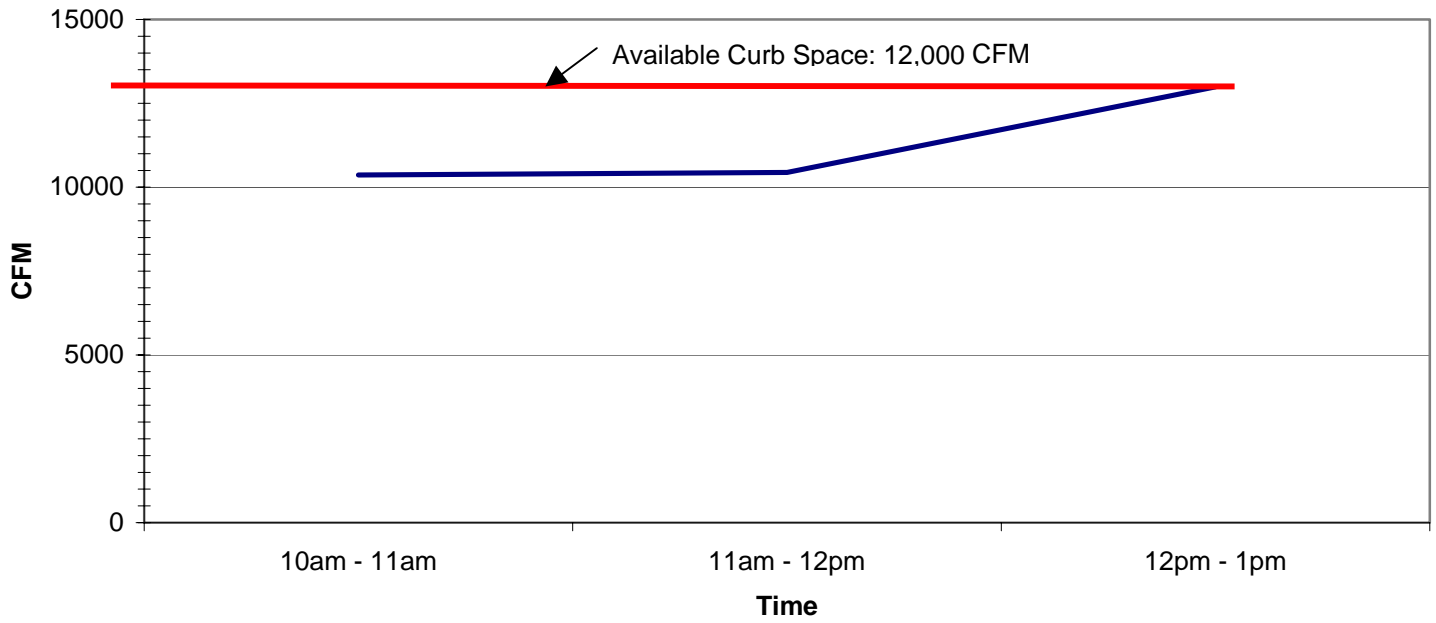
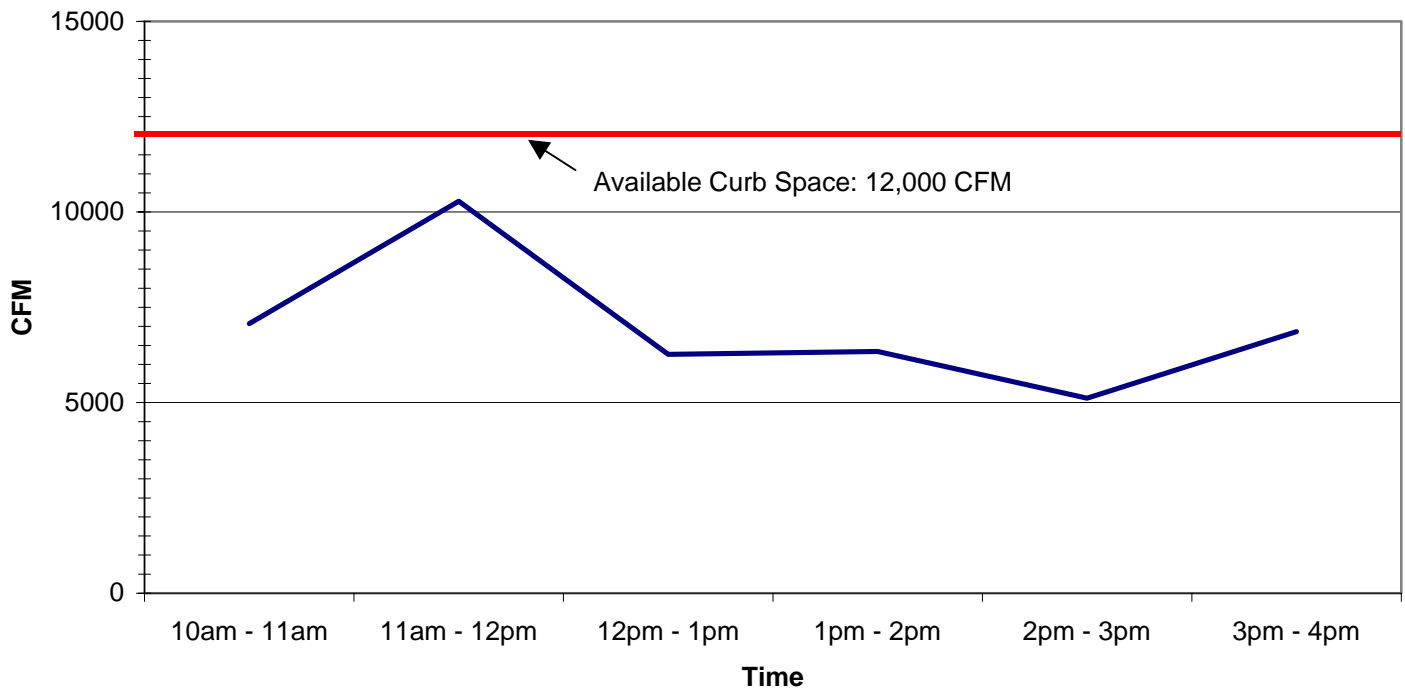


Figure 7: Broadway

Figure 8: 6th Avenue

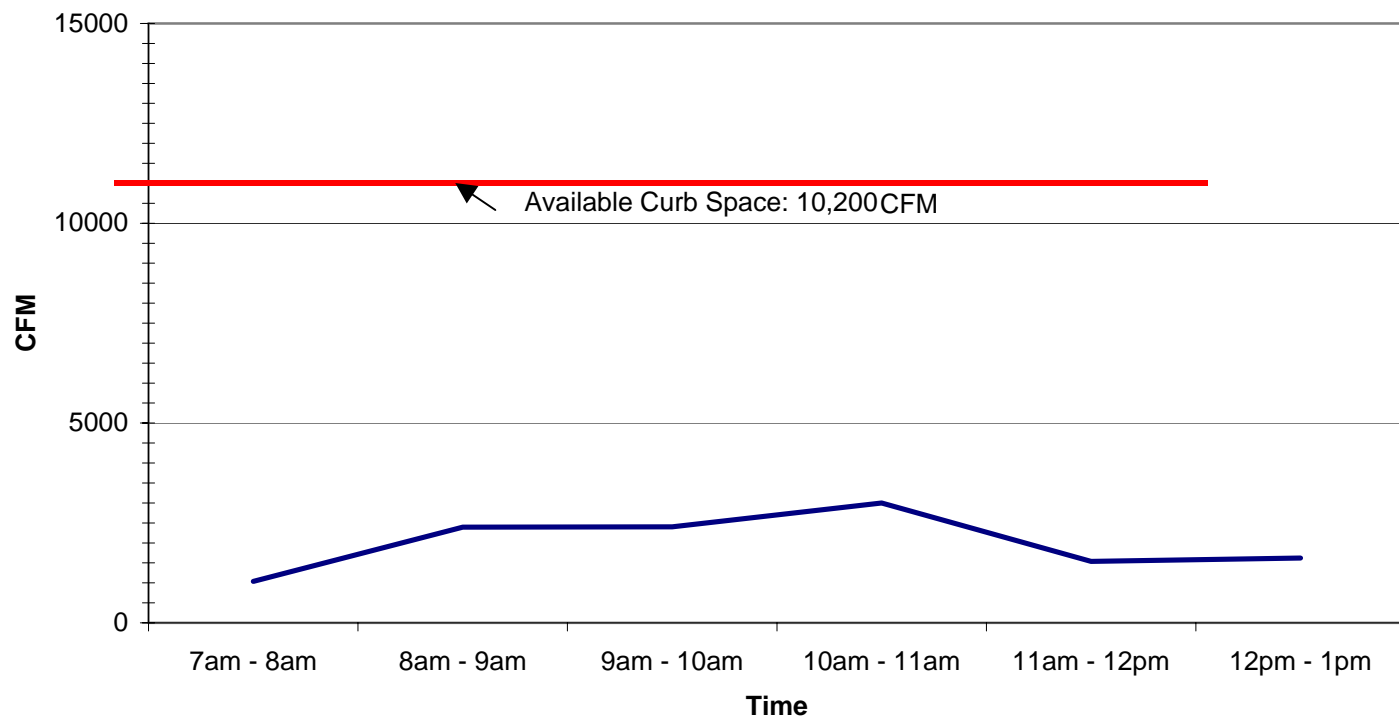
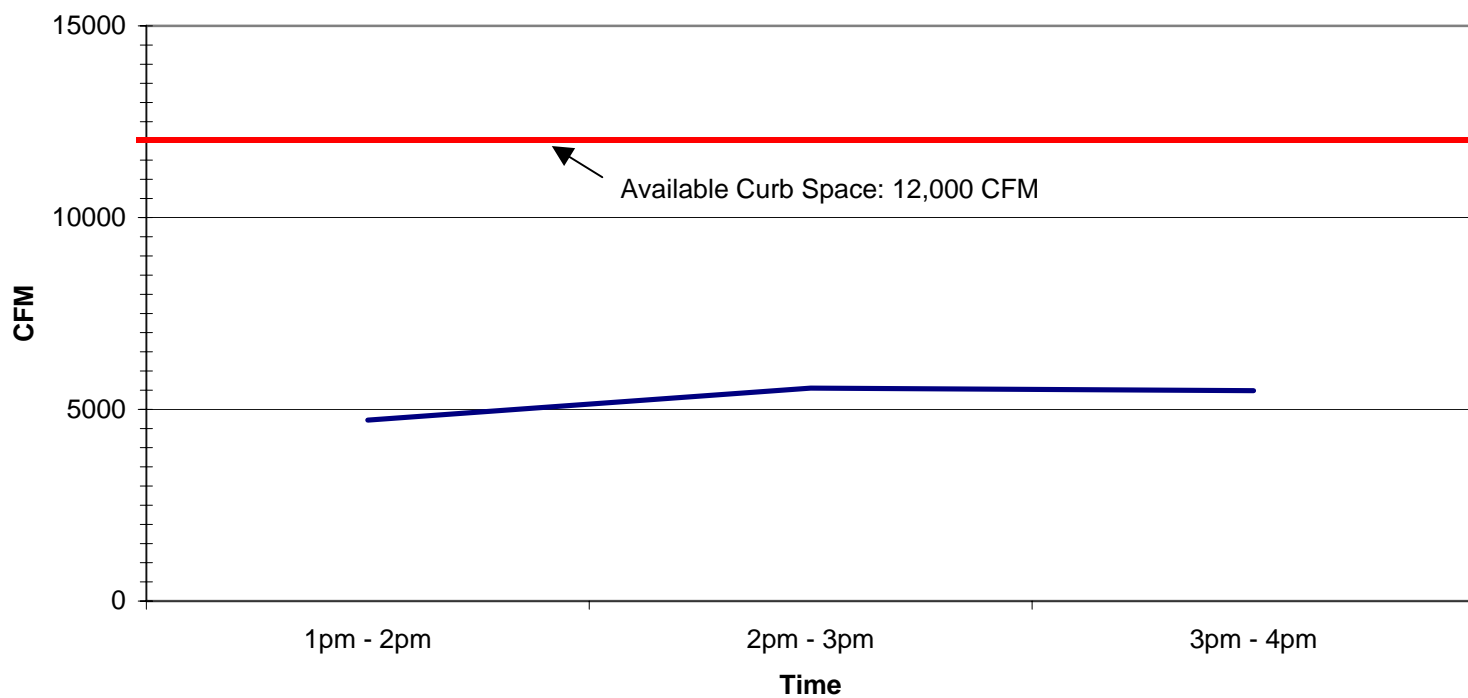
Figure 9: 7th Avenue

Figure 10: Lexington Avenue

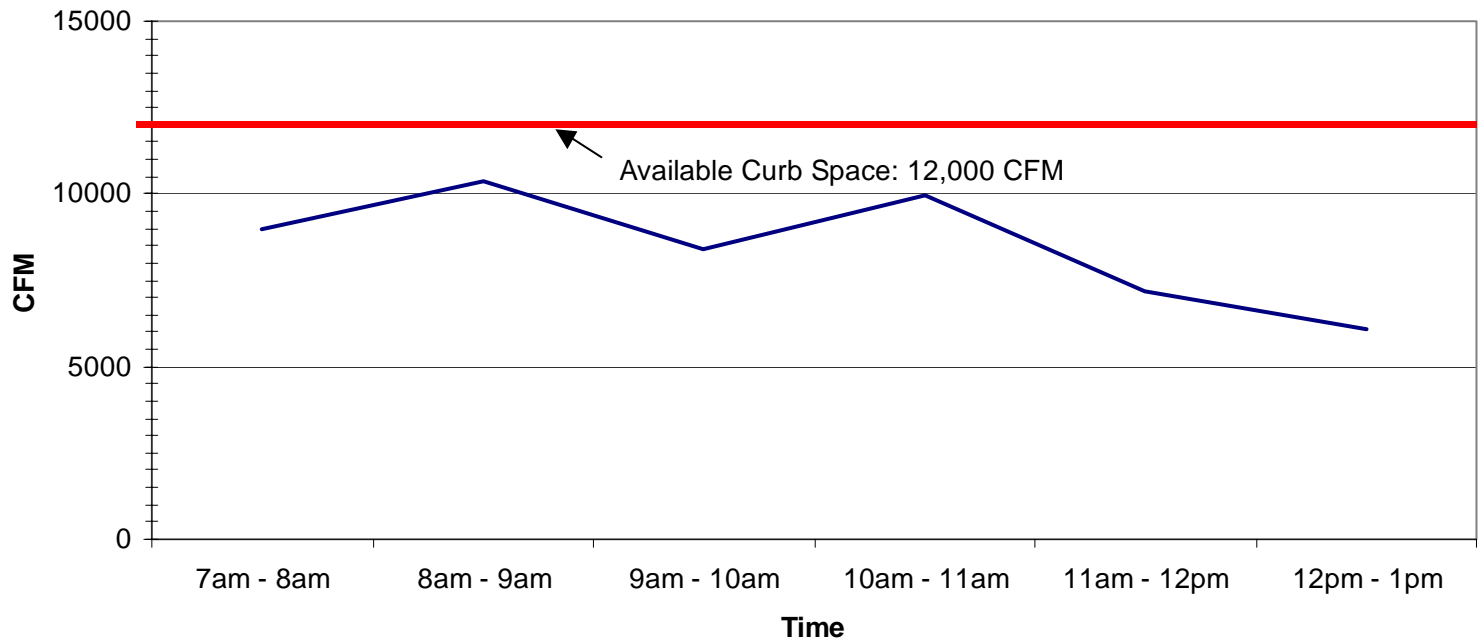


Figure 11: Madison Avenue

3.3 Truck Loading Space Accommodation

SSC analyzed the available curbside space available for truck loading and unloading activity along 42nd Street and the adjacent Avenue blocks. Without changes in parking regulations, the currently available curbside space along these Avenue blocks would not have adequate capacity to accommodate the truck loading that would be diverted from 42nd Street. While some of this unaccommodated demand would divert to loading docks on 41st and 43rd Streets, much of the loading would need to be accommodated on-street. To accommodate the increased volume of trucks that would be using curbside space on the Avenue blocks adjacent to 42nd Street, SSC has recommended parking regulation changes to several Avenue blocks. Figure 12 shows the curb space demand with and without the parking regulation changes. Figure 13 shows the proposed future condition available for truck loading space.

The total available curbside space along the Avenues intersecting 42nd Street varies throughout the day, as certain parking regulations change during different times of the day. The total available curb space is summarized as follows:

- 7 am to 1 pm – 137,700 curb feet-minutes available
- 1 pm to 3 pm – 125,700 curb feet-minutes available
- 3 pm to 4pm – 122,700 curb feet-minutes available

The total amount of vehicles that use the loading space along 42nd Street and the intersecting Avenue blocks exceeds the available curb feet-minutes in this area. The two peak hours of truck loading and unloading demand are as follows:

- 10 am to 11 am – 142,437 curb feet-minutes (3% overflow)
- 11 am to 12 pm – 151,653 curb feet-minutes (10% overflow)

Thus, without changes in parking regulations, the existing available curb space on the Avenues is inadequate to accommodate the existing loading demand for both 42nd Street and the Avenues. More space should be allocated to provide for the displaced loading that currently uses 42nd Street. SSC examined locations that could potentially be used for the displaced 42nd Street loading.

Locations were chosen based upon the potential for the current parking regulations to be changed. Some existing parking regulations would be difficult to change or would not be beneficial to the vision42 proposal if they were changed. Bus stops serve as a good example; they would be difficult to change and if changed could serve to hinder transfers between buses and the proposed light rail. Sensitive security areas such as the Port Authority Bus Terminal, the New York Public Library, and Bryant Park were also avoided.

The locations identified that could be used for displaced 42nd Street loading are outlined below:

5th Avenue East Side between 41st Street and 43rd Street

This location adds a total of 400 additional feet for truck loading activity. The area would serve well as a loading location as the block is lined with ground floor retail which would benefit from this loading space.

6th Avenue West Side between 42nd Street and 43rd Street

This location would add a total of 200 additional feet for truck loading activity. This location is adjacent to a construction site and parking regulations are not posted for the block. As there is no precedent, this area could more easily be converted into a loading area. Furthermore, if the site under construction has ground floor retail lining this segment, it would also benefit from a loading zone on the block.

These changes would increase the available space for truck loading by 600 feet, but due to the closure of 42nd street and the resulting lack of vehicular access to Park Avenue, there will also be a 200-foot loss in available space. Under the proposed condition, with 42nd Street closed, the block of Park Avenue which intersects with 42nd Street would dead end, and would likely be closed to traffic. While this would provide an additional pedestrian amenity, the loading space which exists on Park Avenue would be lost. Thus, the net increase of available space would be 400 feet. This affects the amount of curb feet-minutes that are available as follows:

- 7 am to 1 pm – 161,700 curb feet-minutes
- 1 pm to 3 pm – 149,700 curb feet-minutes
- 3 pm to 4 pm – 146,700 curb feet-minutes

The additional space would provide adequate curbside parking for truck loading and unloading.

Curb Space Demand vs Available Curb Space

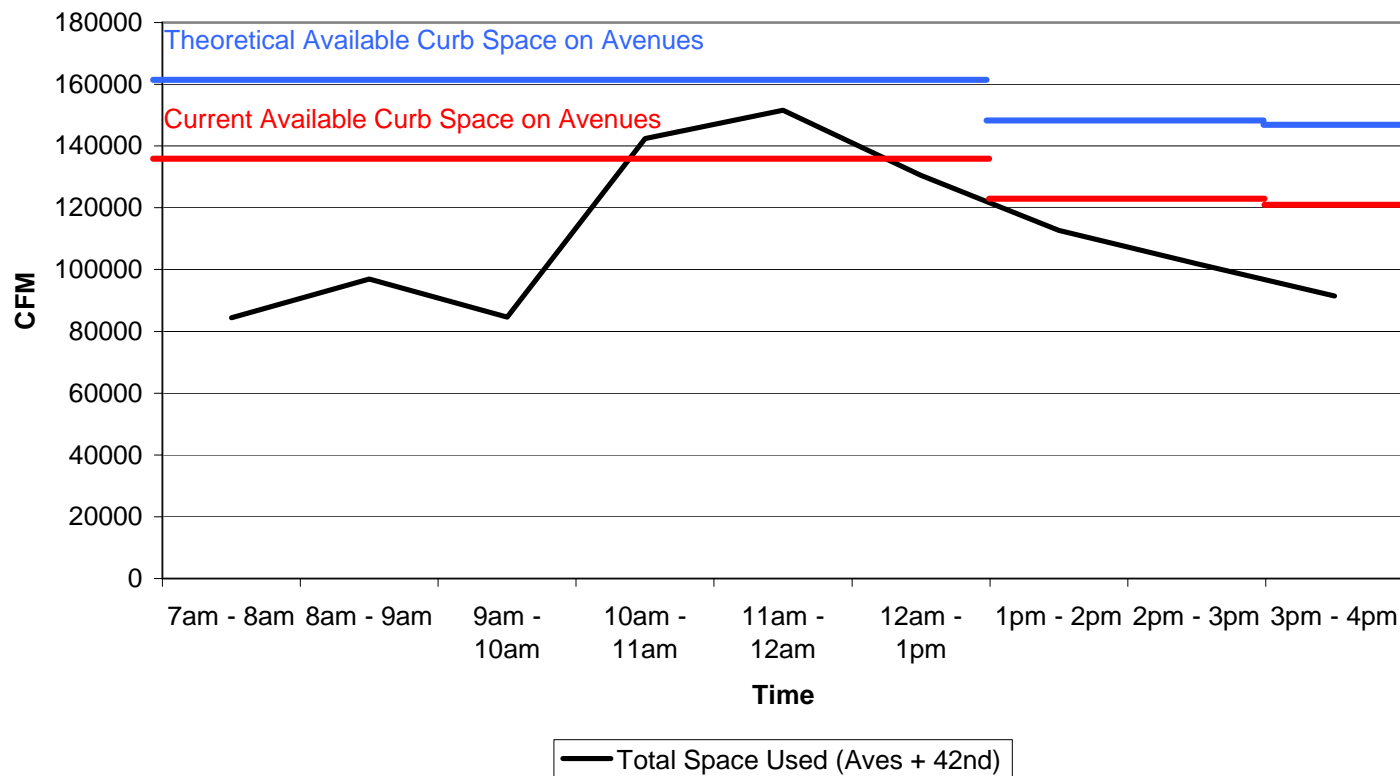


Figure 12: Total truck loading demand versus capacity in the 42nd street vicinity.

If a more balanced set of loading areas is required to reduce the distance over which handcart deliveries can be made, the following additional locations are identified as potential loading areas. These locations could also serve to accommodate increased demand in the future:

8th Avenue – East Side – between 41st and 42nd Street

This location would add a total of 200 additional feet for truck loading activity. This location is adjacent to a construction site. The new development at this location provides an opportunity for reconsideration of parking regulations. If the site under construction has ground floor retail lining this block, it would benefit from a loading zone.

3rd Avenue – West Side – between 41st and 42nd Street

This location would add a total of 200 additional feet for truck loading activity. This block is currently signed for New York Press (NYP) parking. There are no bus stops or other impediments to changing the parking regulations at this location.

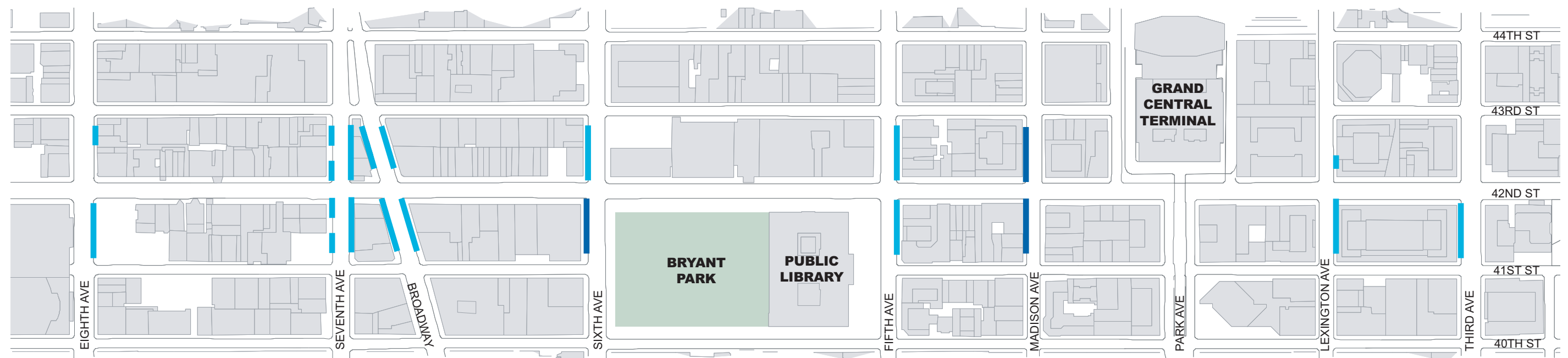




FIGURE 13:
PROPOSED TRUCK LOADING LOCATIONS

 **NOT TO SCALE**

 *EXISTING NO STANDING Except Trucks Loading and Unloading*
 *PROPOSED NO STANDING Except Trucks Loading and Unloading*

3.4 Increased Delivery Time to Businesses

SSC used the truck delivery data discussed above to revise the projected increase in delivery time. Trucks that currently make deliveries to businesses on 42nd Street would be forced to unload further from their businesses under the vision42 proposal. This would result in increased delivery time for each delivery as the person making a delivery must cart his or her goods from their vehicle parked on an Avenue to the intended 42nd Street business. This time was recalculated in this study.

SSC performed field observations to obtain an accurate estimate of the speed at which a person making a delivery travels while using a handcart to transport goods. A delivery person maneuvering a loaded handcart was found to travel at an average of 2.1 feet per second (fps). This is about half of the industry standard for normal walking speed, which is between 3-4 fps.

The additional distance a delivery person would travel under the vision42 proposal was calculated based on the results of the truck loading study on a block-by-block basis. The length of each block as well as the distance on each block to the nearest existing or proposed Avenue loading area was taken into account to develop an average additional travel distance per block. The average travel speed was then applied to these blocks to find the additional travel time per delivery on each block. Avenues which had the highest demand were given greater weight to account for the lack of space closest to their destination. In areas with higher demand, loading space nearest to 42nd Street would fill first requiring trucks to park further from their intended destination. The resulting block values were then averaged together to find an overall 42nd Street additional time of 3.44 minutes per delivery.

4.0 Additional Intersections

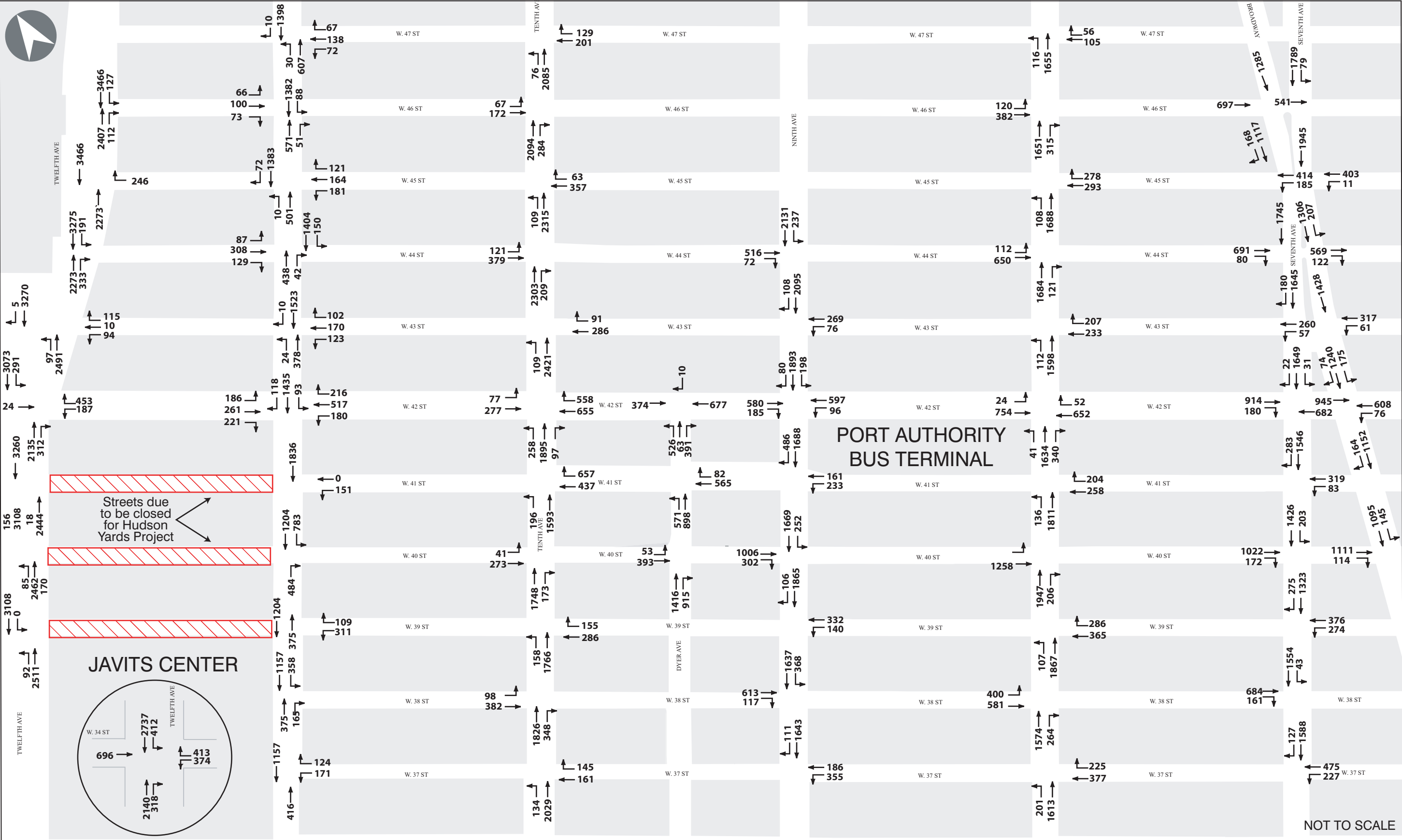
The following intersections were added to the vision42 Synchro traffic model:

- 46th St and 1st Ave
- 45th St and 1st Ave
- 44th St and 1st Ave
- 41st St and 1st Ave
- 44th St and 2nd Ave
- 43rd St and 2nd Ave
- 41st St and 2nd Ave
- 39th St and 2nd Ave
- 41st St and 3rd Ave
- 39th St and 3rd Ave
- 38th St and 3rd Ave

These additional intersections were included in the vision42 traffic simulation model in response to questions raised at community board meetings. Communities on the east side of Manhattan had voiced their concern that there were fewer intersections studied in their area.

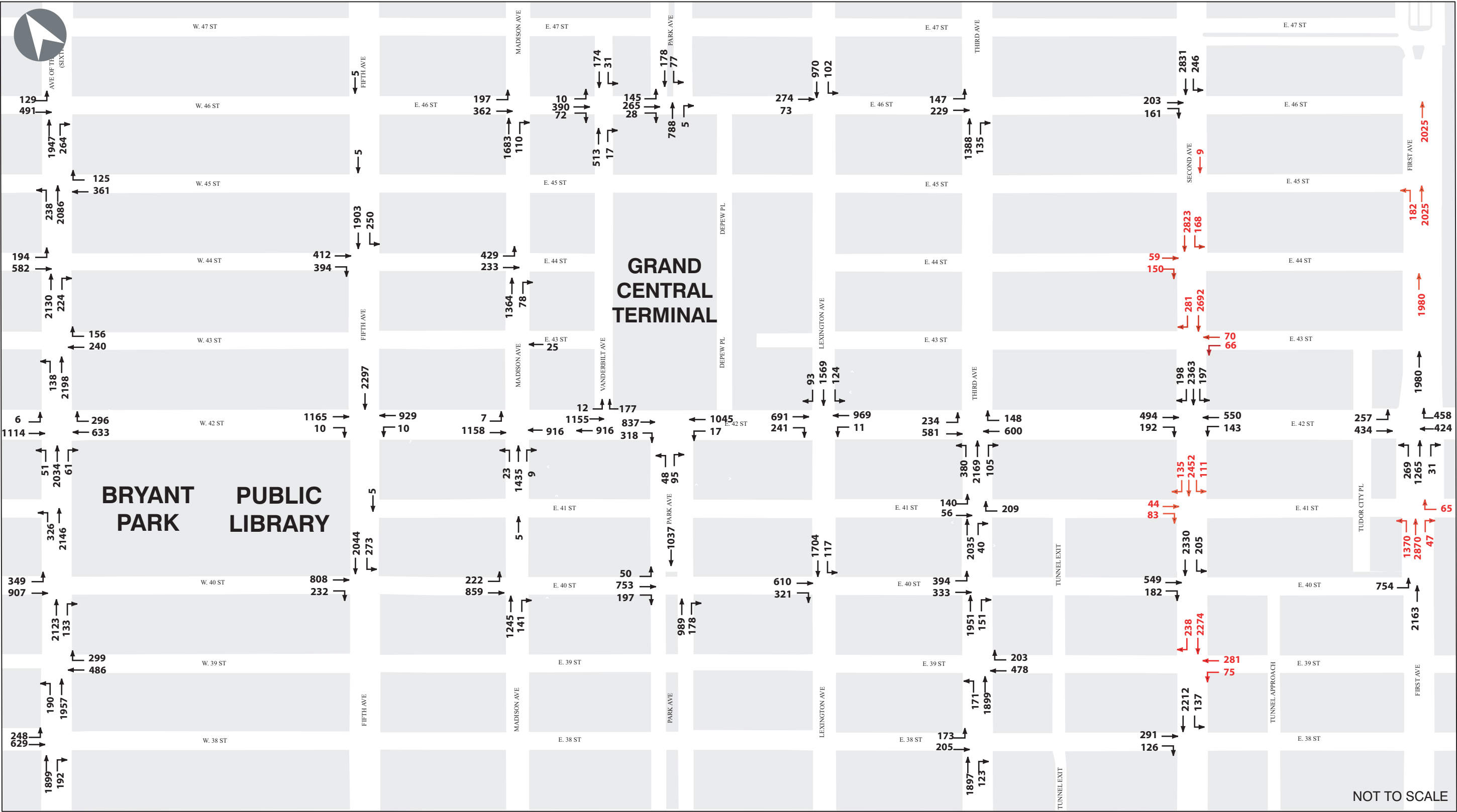
Traffic volumes were incorporated for these intersections from other traffic studies, specifically the Con Edison East Side Development Study. The intersection volumes were also projected to be included in the No Build and Build Scenarios, however, they were unbalanced and not field-verified. The volumes of these intersections, as well as the average delay per vehicle for these intersections are reflected in Figures 14 through 21.

Figure 14



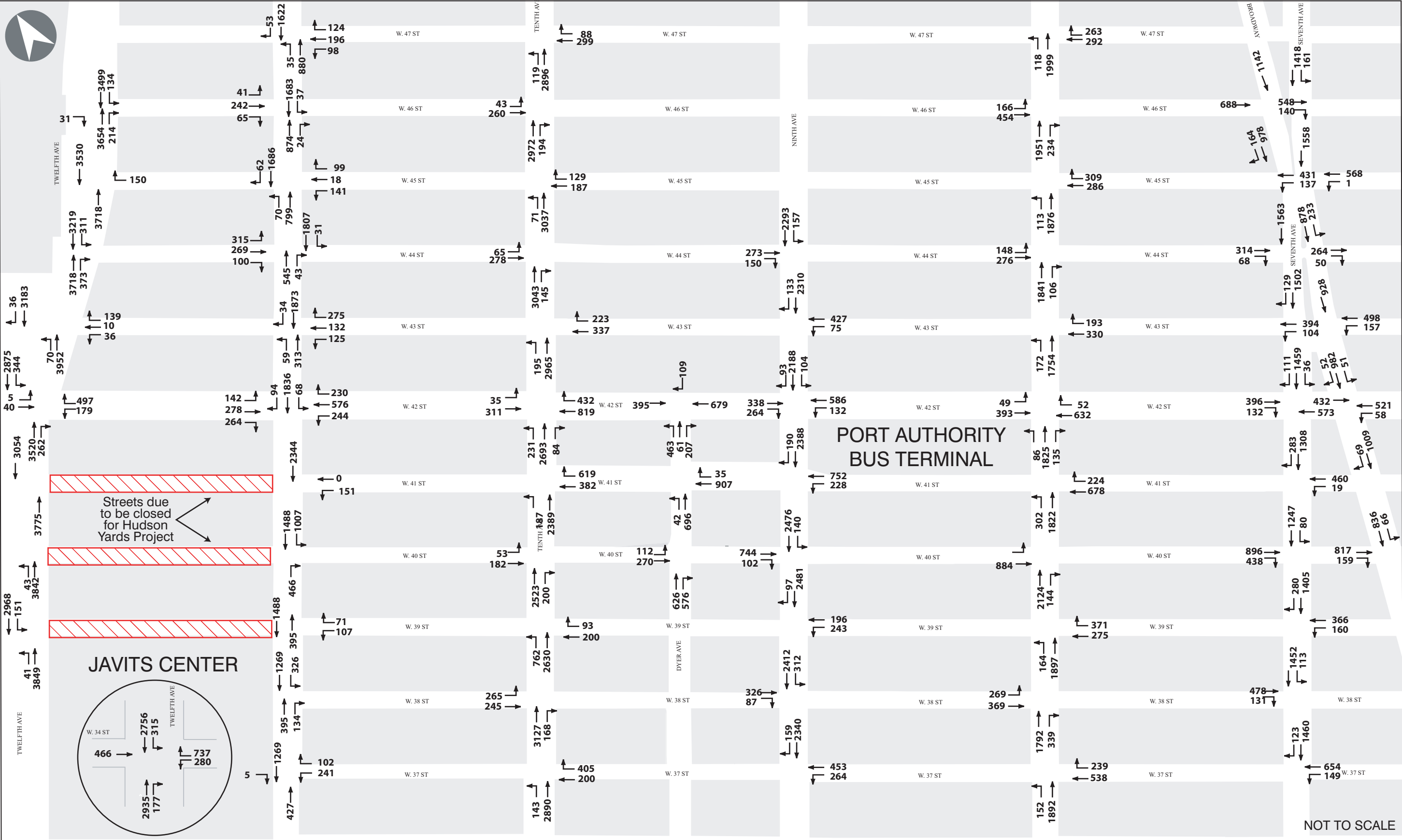
MORNING PEAK HOUR
NO BUILD 2010 TRAFFIC VOLUMES

Figure 15



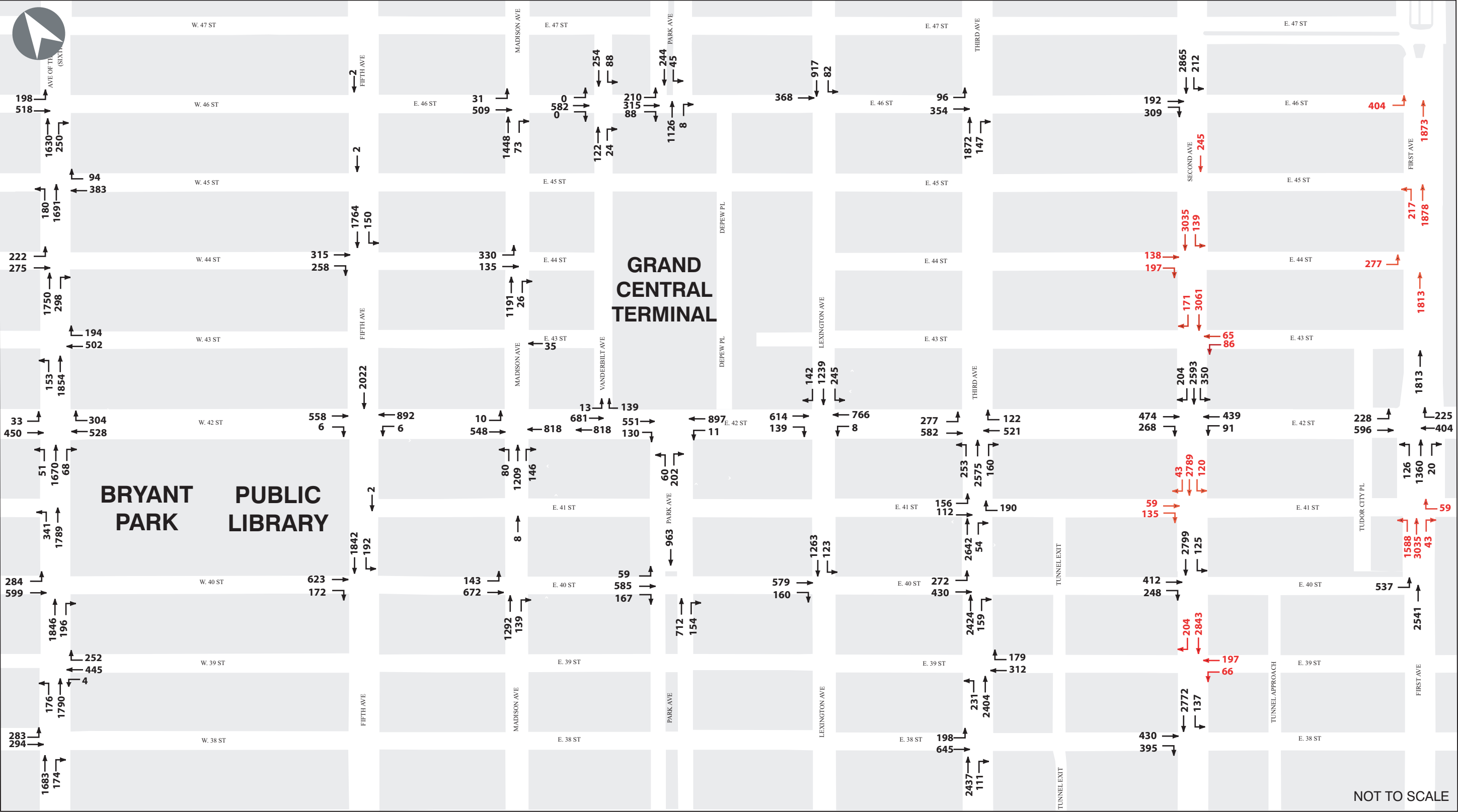
MORNING PEAK HOUR NO BUILD 2010 TRAFFIC VOLUMES

Figure 16



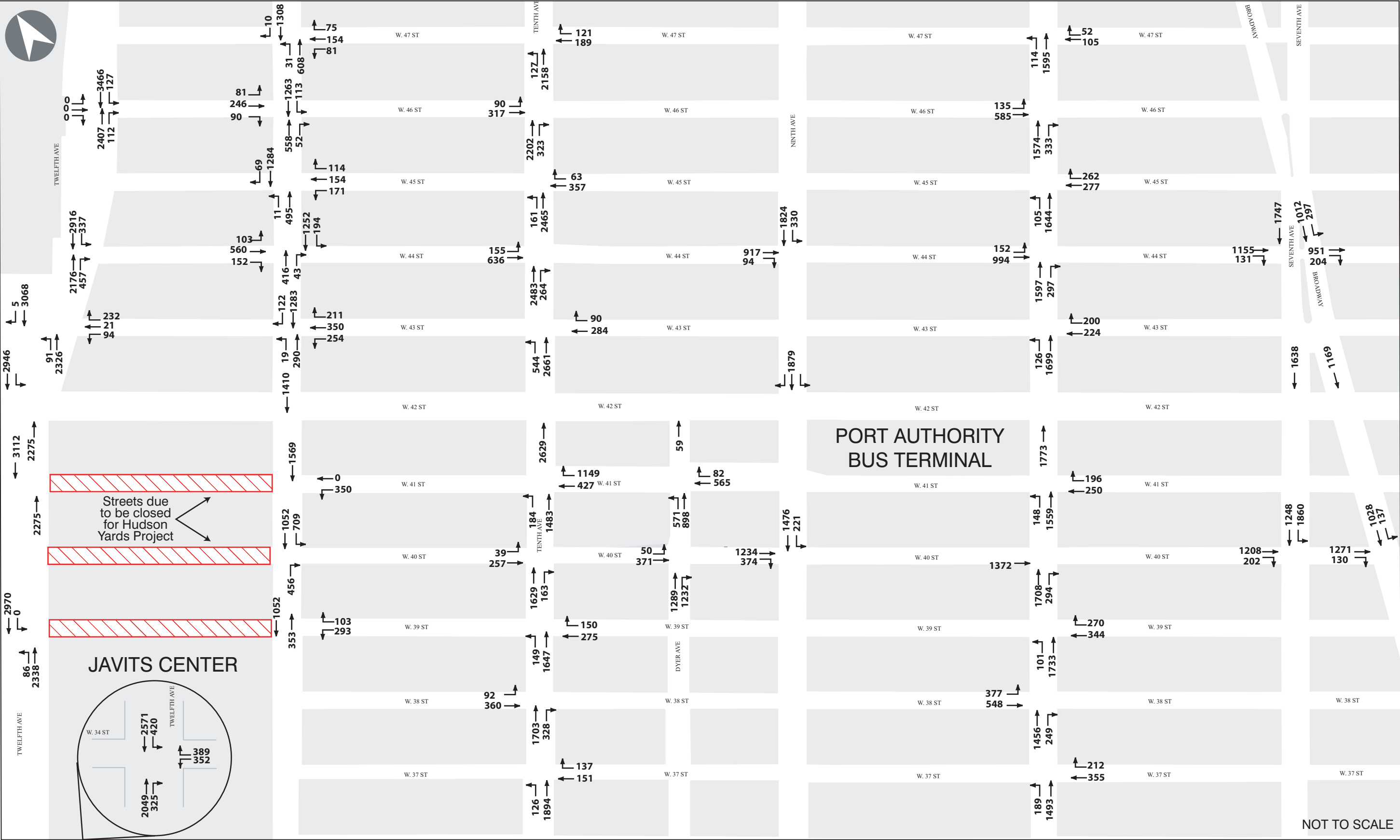
EVENING PEAK HOUR
NO BUILD 2010 TRAFFIC VOLUMES

Figure 17



EVENING PEAK HOUR NO BUILD 2010 TRAFFIC VOLUMES

Figure 18

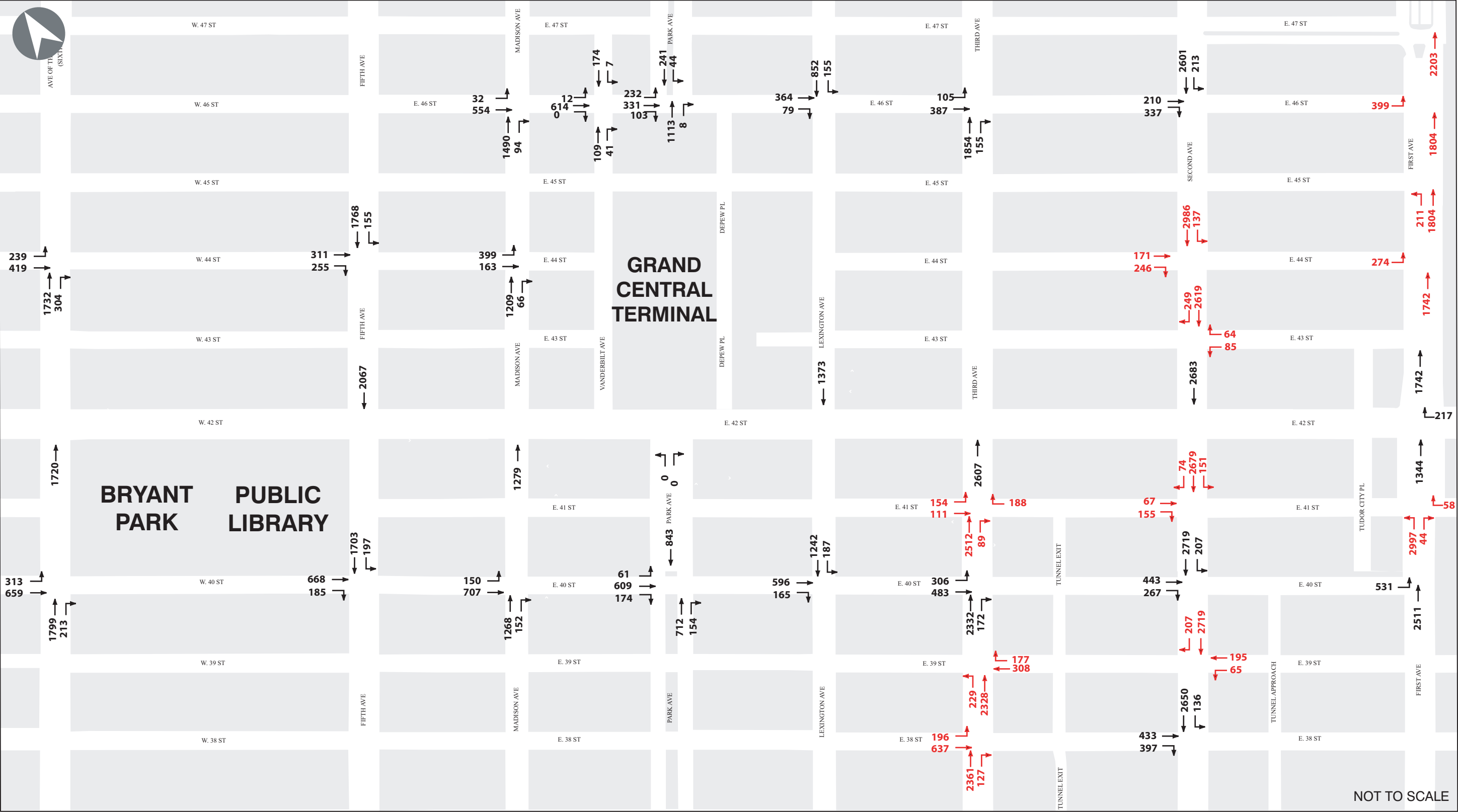


MORNING PEAK HOUR
BUILD MITIGATED 2010 TRAFFIC VOLUMES

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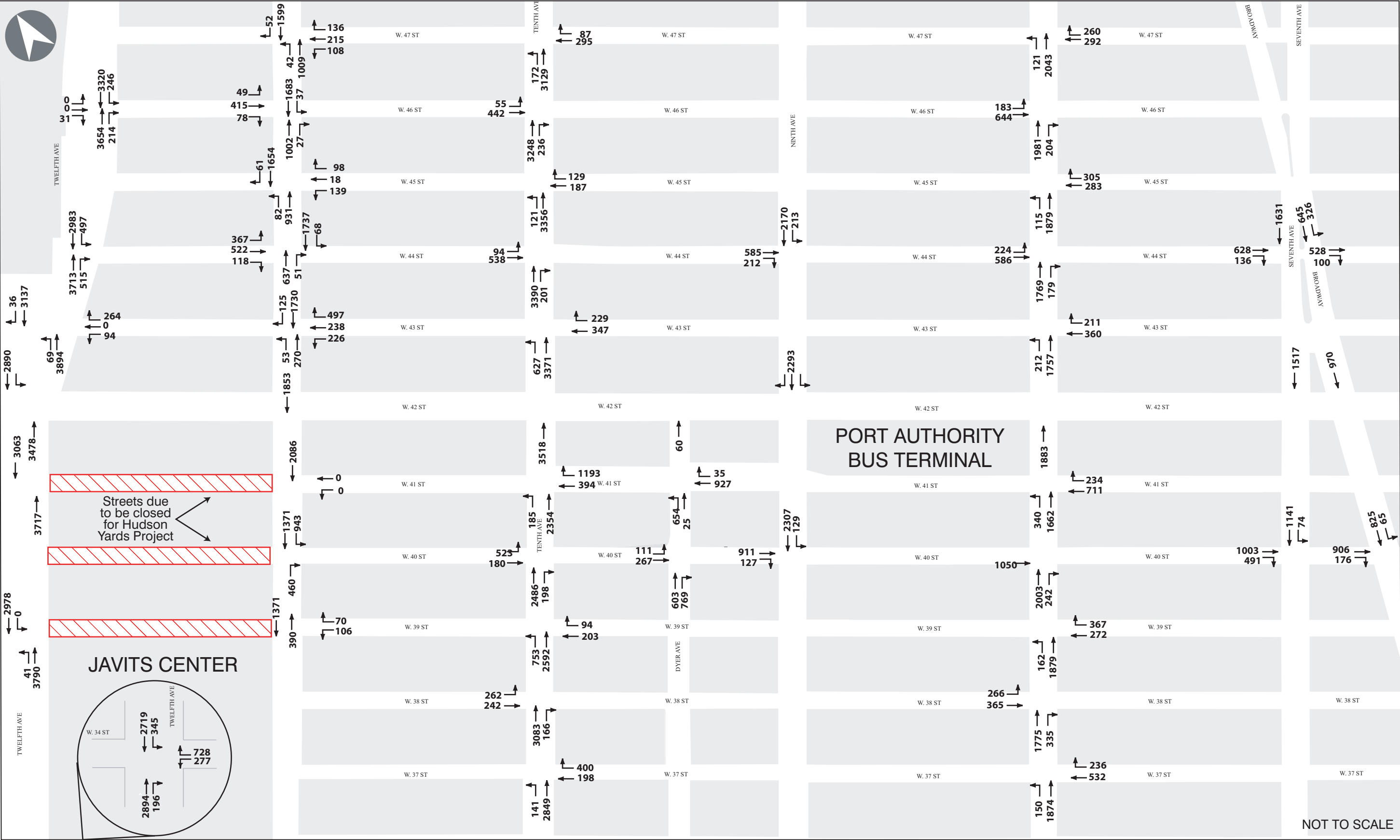
Figure 19



INDICATES NEWLY OBTAINED VOLUMES

EVENING PEAK HOUR
BUILD MITIGATED 2010 TRAFFIC VOLUMES

Figure 20

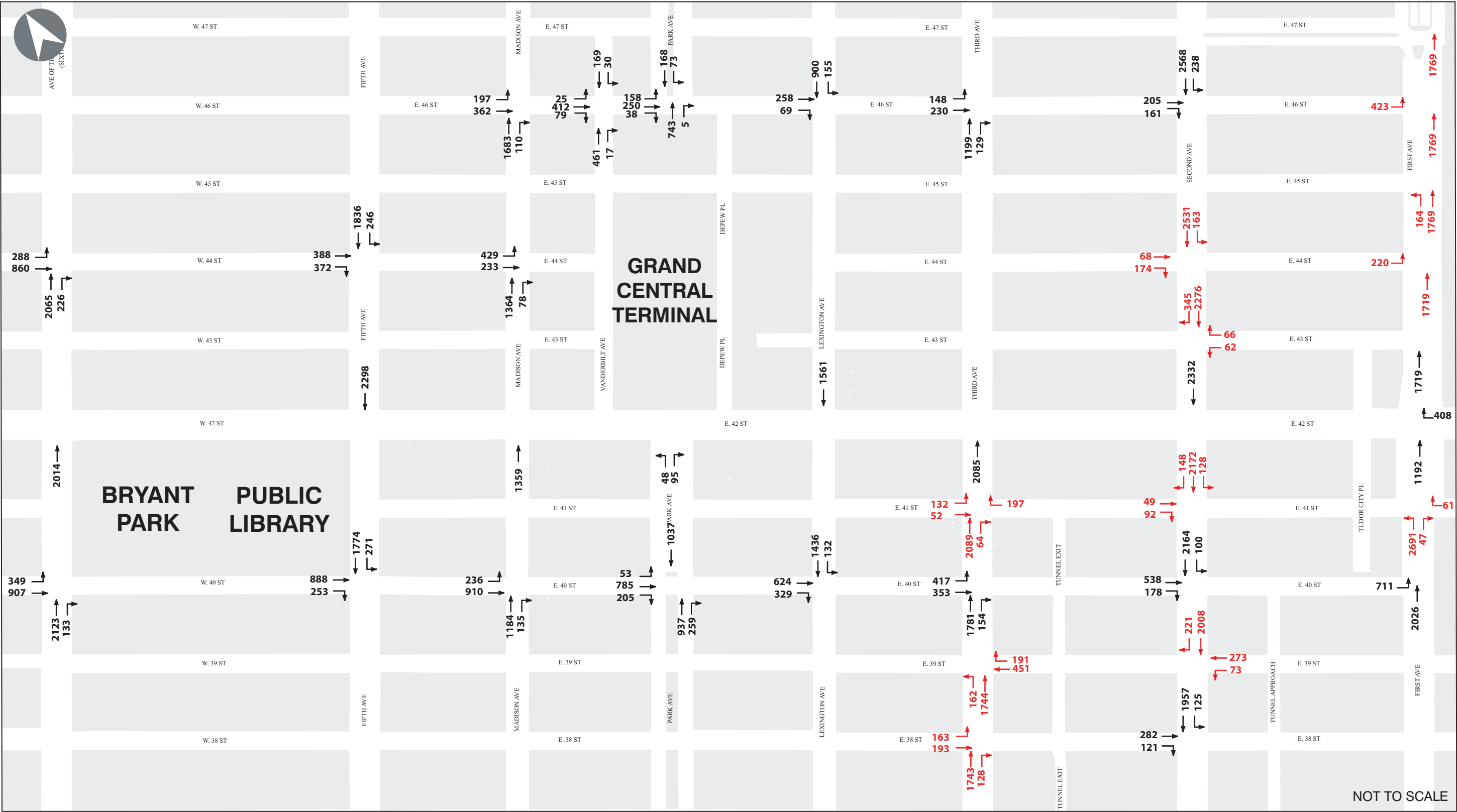


EVENING PEAK HOUR
BUILD MITIGATED 2010 TRAFFIC VOLUMES

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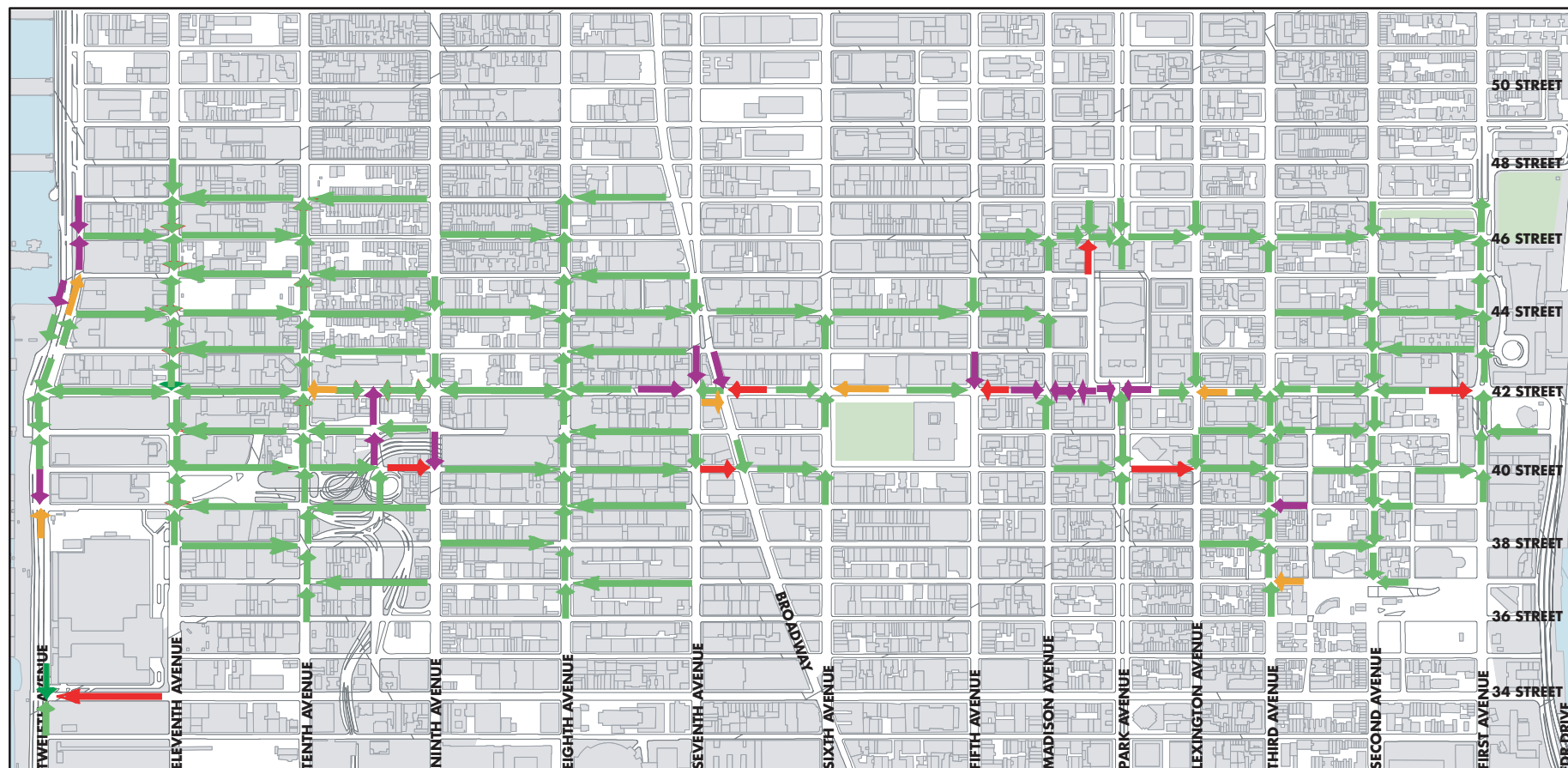


Figure 21

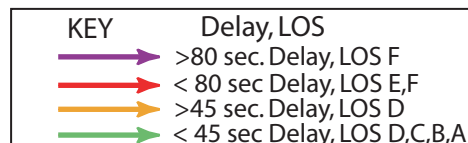


MORNING PEAK HOUR
BUILD MITIGATED 2010 TRAFFIC VOLUMES

Figure 22



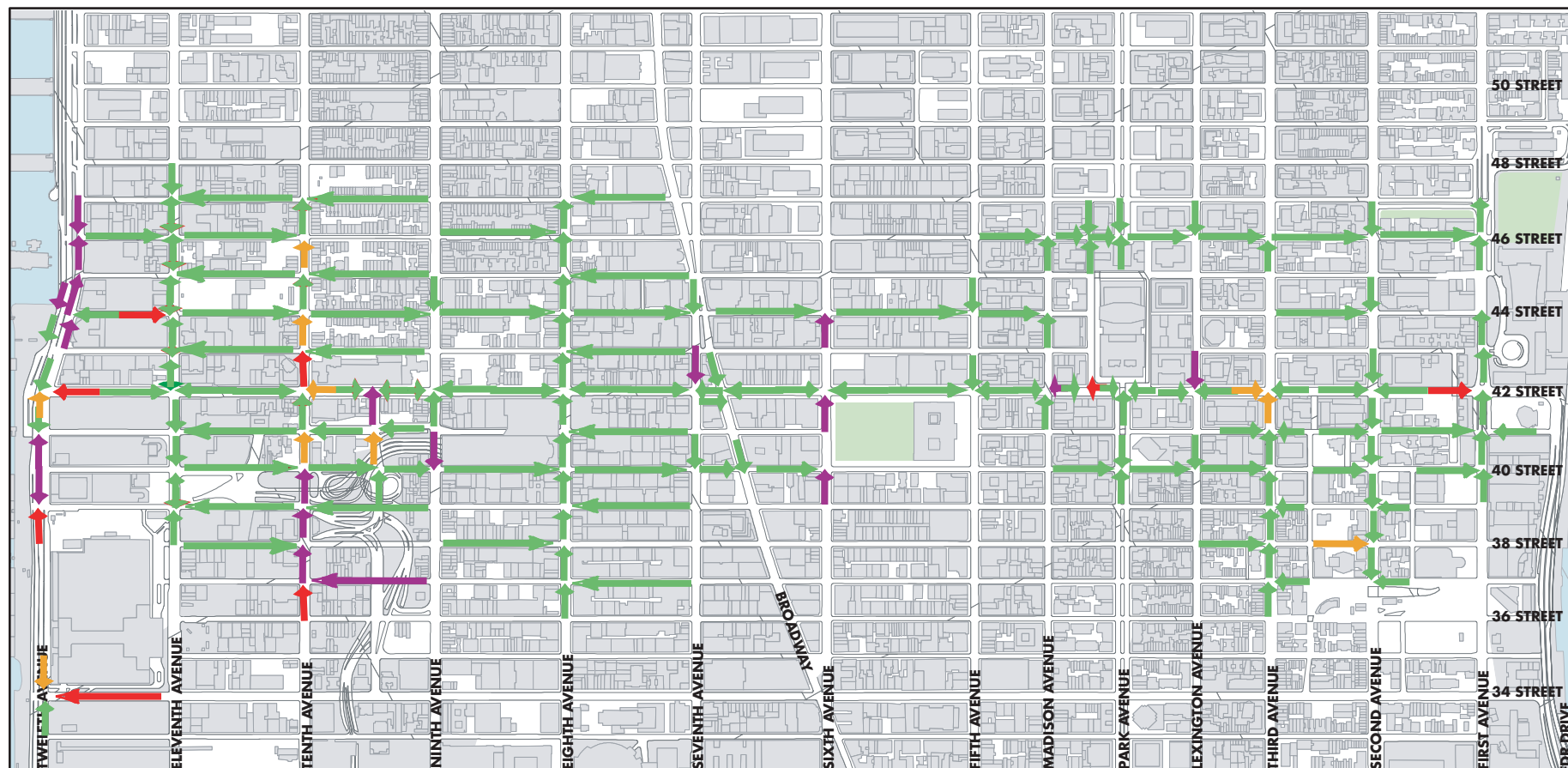
2010 NO BUILD AM
LEVEL OF SERVICE/DELAY



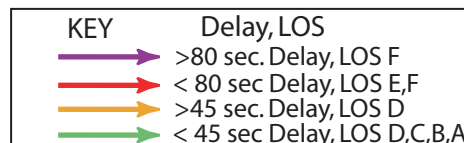
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Figure 23



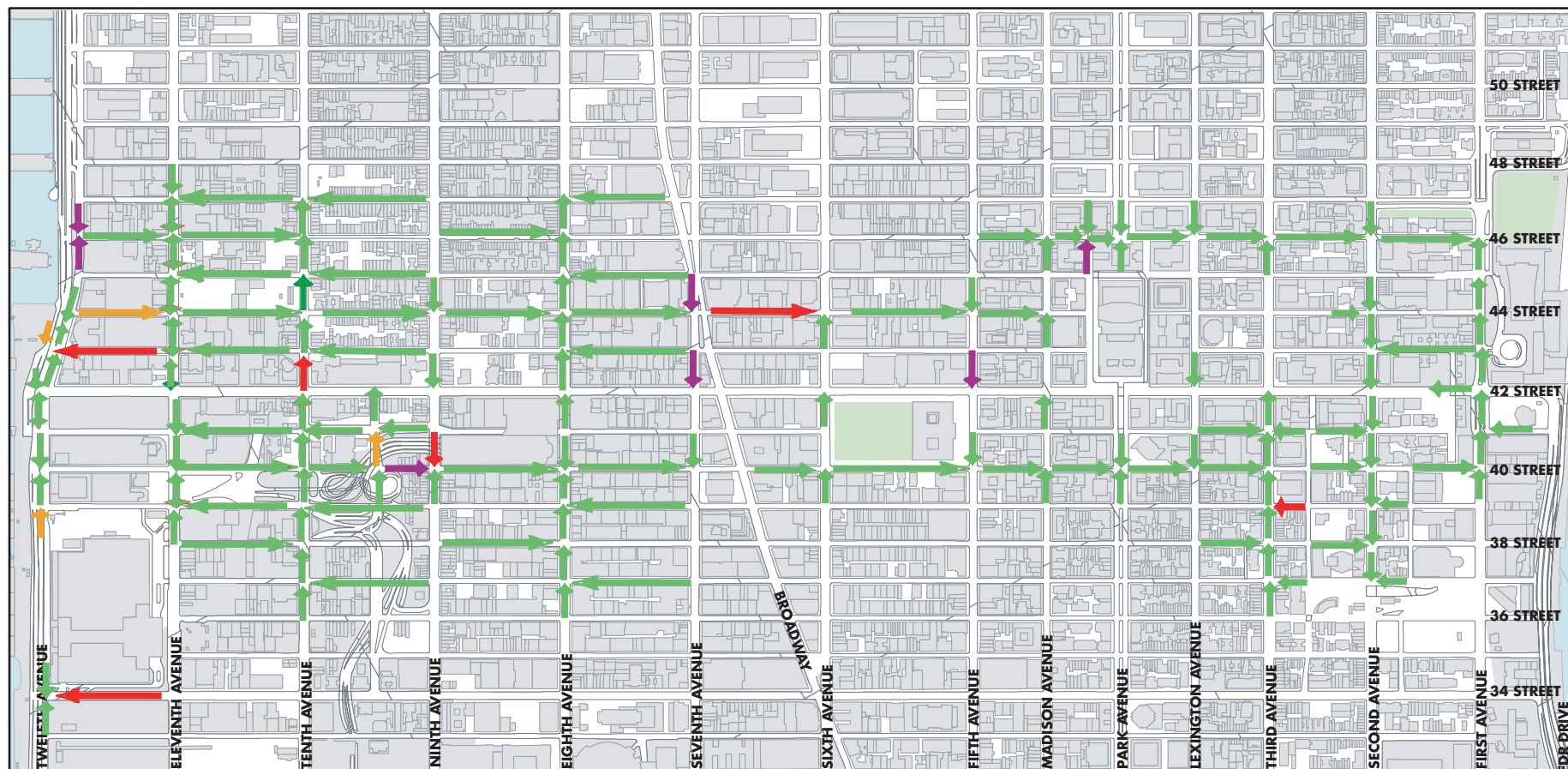
2010 NO BUILD PM
LEVEL OF SERVICE/DELAY



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Figure 24



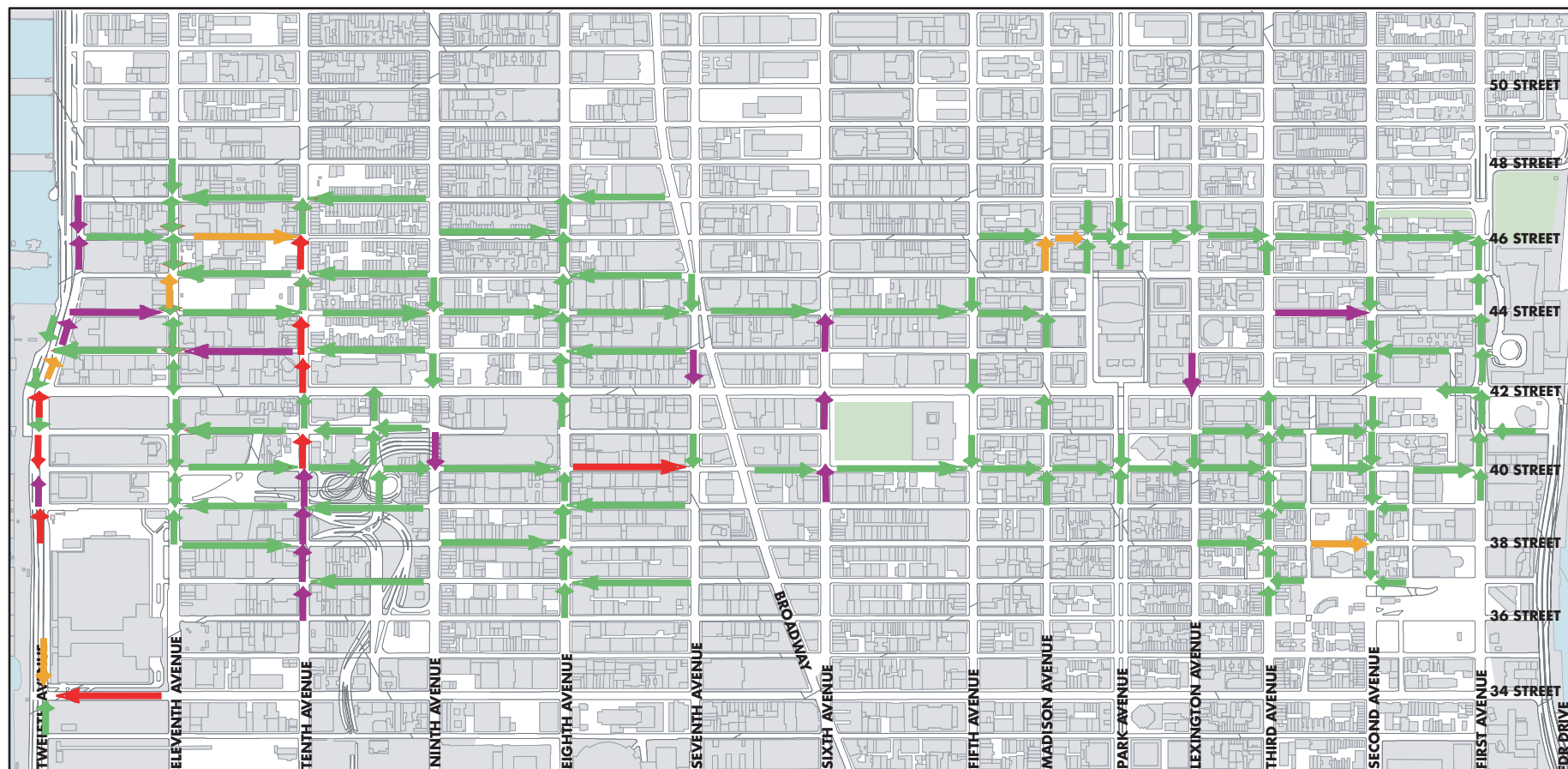
2010 BUILD AM MITIGATED
LEVEL OF SERVICE/DELAY

KEY	DELAY. LOS
	>80 sec. Delay, LOS F
	< 80 sec Delay, LOS E,F
	>45 sec. Delay, LOS D
	< 45 sec Delay, LOS D,C,B,A

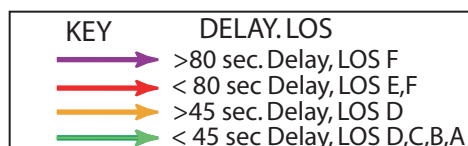
vision42



Figure 25



2010 BUILD PM MITIGATED
LEVEL OF SERVICE/DELAY



vision42



5.0 Level of Service (LOS)

The April 2005 report quantified intersection operations in terms of v/c ratios. The v/c ratio is a numeric comparison of the vehicular volume at the intersection to the capacity of the approaches. This ratio generally ranges from 0.00 to 1.00. Ratios from 0.85-0.99 reflect increasing levels of congestion, and when the v/c ratio exceeds 1.00 the vehicle flow at the intersection becomes saturated and unstable. In the report figures, intersection approaches were labeled with colored arrows; these colors represent the varying degrees of the v/c ratio.

This report supplies replacement graphics which use LOS, expressed as average delay (in seconds) per vehicle. This measure is a more specific measure of traffic delay and is more tangible to the layperson than v/c ratios. Delay per vehicle is measured according to the procedures set forth in the Highway Capacity Manual (HCM). For this project, SSC used Synchro traffic modeling software to determine LOS.

Delay per vehicle can be translated to LOS at signalized intersections as shown in Table 1. LOS is letter grade assigned to intersection movements according to the delay experienced per vehicle.

Table 1: Delay and LOS at Signalized Intersections

Signalized Intersections	
Level of Service	Delay Range (seconds)
A	≤10.0
B	>10.0 and ≤20.0
C	>20.0 and ≤35.0
D	>35.0 and ≤55.0
E	>55.0 and ≤80.0
F	>80.0

LOS is the standard used in the City Environmental Quality Review Manual (CEQR) to measure effects that a project would have on surrounding traffic. LOS D with less than 45 seconds of delay per vehicle is considered acceptable, while LOS D or worse with 45 seconds or more of delay per vehicle is deemed unacceptable by the New York City Department of Transportation (NYCDOT).

The LOS and average delay per vehicle at each of the approaches in the vision42 study area is shown in the attached figures.

As shown in the above-mentioned figures, in the morning mitigated build scenario, 151 approaches are operating at acceptable conditions, 10 approaches are unacceptable, and 7 are failing. In the evening mitigated build scenario, 134 approaches are operating at acceptable conditions, 16 approaches are unacceptable, and 18 are failing.

6.0 Conclusions

SSC evaluated how truck loading and unloading could be accommodated within the vision42 proposal. As the proposal would close 42nd Street, the truck loading and unloading that currently uses 42nd Street would be displaced. SSC studied representative loading locations along 42nd Street and its surrounding Avenues to project existing curb demand. This demand was then applied to the Avenues in order to determine whether the Avenues could accommodate the 42nd Street demand with the existing demand already using Avenue space.

SSC found that, without changes to parking regulations, the Avenue blocks adjacent to 42nd Street could not accommodate the truck loading demand with the existing demand already using these blocks. However, with changes to parking regulations providing some additional loading space, the 42nd Street demand could be accommodated during normal conditions. SSC identified several alternate loading locations and found that with this extra space the demand from both 42nd Street and the Avenues could be accommodated.

SSC also evaluated the additional intersections added to the vision42 Synchro model. The additional intersections, though their volumes were unbalanced and not field-verified, simply added to the conclusion that vision42 is feasible. Closing 42nd Street to traffic would not severely impact the intersections added. Furthermore, LOS serves as a more accurate depiction of these results than the v/c ratios examined in the previous April 2005 report.